Pacific Northwest Region

Land and Resource Management Plan

Mt. Baker-Snoqualmie National Forest

LAND AND RESOURCE MANAGEMENT PLAN JUNE 1990

	2. FERC License and Permits	a. Hydropower development projects upstream, or within the use area, which may adversely affect the nature of the religious or ceremonial activity, even temporarily will require consultation to determine appropriate avoidance of mitigation measures.
	3. Land Ownership Planning	a. Place all these lands in Group II - retain as National Forest.
L.	Facilities	
	1. Road Construction	a. Construction of new roads within the zone of influence of sites shall be avoided unless such roads are determined, through consultation, not to adversely impact the value of the site for religious use.
P.	Protection	a. Meet Forest-wide Standards and Guidelines.

8A Mather Memorial Parkway

Goal: Manage the area to maintain and enhance its outstanding scenic and recreation qualities.

Description: The Parkway is classified by executive order. It encompasses a zone 1/2 mile either side of U.S. Highway 410 and is managed primarily for scenic and recreational purposes.

Desired Future Condition: The Mather Memorial Parkway will provide a Roaded Natural Recreation opportunity. The forest will be managed for its intrinsic values, emphasizing the old growth conifer stands. Developed recreation sites will be improved for customer satisfaction. Interpretive overlooks, and trails will enhance visitors understanding of natural and cultural resources, forest management and local recreation opportunities. Timber management practices may take place to enhance the overall objectives for the Parkway. These entries will be necessary to preserve species composition, primarily the Douglas-fir component. The objectives will to maintain a range of tree sizes with a continuum of large size trees.

Program Element		Standards and Guidelines
A.	Recreation	
	1. Recreation Planning	a. Developed facilities will be improved to provide customer satisfaction where opportunities and interest warrant. The applicable standards and guidelines for developed recreation are in Management Area 3, program element A.
		b. Interpretive overlooks and trails will be added to enhance the visitors understanding of the forest and its opportunities.

		c. Trailheads will be constructed to support the trail system for improved convenience and safety of users. Additional trails will be constructed where opportunities and interest warrant.
		d. Facilities will be planned for the roaded natural and rural Recreation Opportunity Spectrum.
	2. Visual Quality	a. Projects shall meet a Visual Quality Objective of Retention.
	3. American Indian Religious and Cultural Use	a. Meet Forest-wide Standards and Guidelines.
	4. Facility and Site Management	a. Signs and facilities are designed to complement the natural forest setting.
	5. Use Administration	a. ORV use allowed in designated areas only.
	6. Trails Construction, Reconstruction, Operation	a. Trails are located and maintained to blend with topography and surrounding landscape.
		b. Trails are located to take advantage of viewing opportunities.
B. Wilderness		a. Not applicable.
C. Wildlife and Fish		
	1. Planning	a. Improvement of wildlife and fisheries habitat may be permitted.
	2. Habitat Improvement	a. Improvements are appropriate as long as visitor conflict is minimized.
		b. Structures should blend in with the naturally established landscape.
		c. Seasonal visitor use and wildlife use should be coordinated to minimize conflicts.
D. Range		a. Not applicable.
E. Timber		
	1. Timber Management Planning	a. Timber shall be managed on a non-scheduled basis, to meet recreation and visual objectives, and to reduce the risk of public injury from hazardous trees.
		b. All timber management intensities may be utilized to meet vegetation management prescription for the site.
		c. Logging practices shall be selected that provide the least impact to the site.

	2. Silvicultural Examination and Prescription	a. Objectives of the prescription should be to: (i) Create and/or maintain a regenerating natural environment that is, in visual aspects, pleasing and which resembles a natural setting. (ii) Maintain the characteristic old growth forest with its natural diversity of tree size, age, and species. (iii) Provide shade, wind protection, sunshine and views to complement the recreation environment.
	3. Reforestation - Site Preparation for Planting and Seeding	a. Unwanted vegetation, slash, stumps or roots should be removed, as well as having the ground surface shaped before planting or seeding to retain the determined vegetation conditions for the site as outlined in the vegetation management prescription.
F.	Water, Soil, and Air	a. Meet Forest-wide Standards and Guidelines.
G.	Minerals and Geology	a. Inventory and/or validate existing mining claims and initiate title clearance on sites planned for development. b. Removal of common variety minerals should not be permitted. c. Recommend denial for application for leasable minerals. d. Sites not previously withdrawn shall be recommended for withdrawal from mineral entry. e. Developed sites shall be protected by standard and special stipulations in any leasing actions. f. No on-site occupancy. g. Applications will include stipulations to protect existing and/or future uses.
H.	Rural Community and Human Resources	a. Meet Forest-wide Standards and Guidelines.
J.	Lands	
	1. Special Use Management	a. Transmission towers should be designed to blend with the surrounding landscape.
	2. Right-of-Way Grants	a. Right-of-Way corridors should be designed and located to blend with the surrounding landscape.
	3. Land Ownership Planning	a. Group III - Retain, acquire, or dispose.

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L.	Facilities		
	1. Transportation System Planning	a.	Roads in the seen or potentially seen area should blend with natural form, line, color, and texture.
	2. Road Construction and Reconstruction	a.	Cut and fill slopes should be revegetated within one year of construction.
		b.	Rockpits and stockpile sites should be located outside seen areas whenever possible and rehabilitated when located within seen areas.
	3. FA&O Construction/ Reconstruction and Facility Maintenance	a.	Buildings and other facilities should be designed and located to blend with the surrounding landscape.
		b.	A Cascadian architectural theme will be used to complement the CCC era architecture of the area.
P.	Protection		
	1. Fire Management Planning	a.	Forest-wide Fire Protection Group A applies.
	2. Forest Pest Management	a.	Meet Forest-wide Standards and Guidelines.

8B HEATHER MEADOWS

Goal: Manage the area to maintain outstanding scenic quality and enhanced day-use recreation opportunities.

Description of Lands Where Prescription Applicable: Heather Meadows is located within the original Mt. Baker Recreation Area designated in 1926 by the Secretary of Agriculture. Boundaries have since been modified by creation of the Mt. Baker Wilderness. The remaining area is a developed day-use area in the summer and part of the Mt. Baker Ski Area in the winter (winter sports use is addressed in management area 3C). Recreation facilities are designed to enhance the viewing and interpretation of natural and cultural resources for the general public at the "easiest" access level feasible.

Desired Future Condition: The outstanding scenery which draws people to this location is maintained in a natural condition. Physical facilities may be evident; design and construction will repeat color, shapes and lines compatible with the natural environment. Structures will have a "Cascadian" architectural theme inspired by the CCC architectural style. Access is by paved road with the system essentially in place. Trails provide hiking opportunities outside the wilderness and an "easiest" level is encouraged. Historic recreation and structures are restored and/or interpreted for the public. Encounters with other users are frequent. Vegetative management is for accomplishing recreational objectives; there is no scheduled harvest, and revegetation uses locally native species.

Program Element		Standards and Guidelines
A. Recreation		
	1. Recreation Planning	a. Developed sites are designed for day use recreation such as hiking, picnicking, viewing scenery, visitor information and interpretive naturalist programs.
		b. The trail system is expanded to provide hiking opportunities outside of wilderness for the general public. An "easiest" standard will be used where terrain permits.
		c. Interpretive facilities and programs will provide information on cultural and natural history and management.
	2. Visual Quality	a. A Visual Quality Objective of Retention is maintained with deviations for developed facilities which are designed to blend into the natural environment.
	3. American Indian Religious and Cultural Use	a. Meet Forest-wide Standards and Guidelines.
	4. Facility and Site Management	a. Developed recreation facilities are designed for rural and urban recreation opportunity spectrum. Refer to 3A, PUBLIC SECTOR DEVELOPED SITES for facility development standards and guidelines.
		b. A "Cascadian" architectural theme will be used to complement existing CCC era buildings.
	5. Recreation Facilities and Site Management	a. Standards and Guidelines are the same as 3A Public Sector Developed Sites.
	6. Use Administration	a. Maintenance of trails within developed sites should be at a priority level 3, providing resource protection, and visitor convenience.
B. Wilderness		a. Not applicable.
C. Wildlife and Fish		
	1. Planning	a. Improvement of wildlife and fisheries habitats may be permitted.
	2. Habitat Improvement	a. Improvements are appropriate as long as visitor conflict is minimized and VQO's are met.
		b. Seasonal visitor use and wildlife use should be coordinated to minimize conflicts.

	3. Structural Habitat Improvement	a.	Habitat improvement projects are generally acceptable, but they shall be unnoticed and/or blend into the natural landscape.
D.	Range	a.	Not applicable.
E.	Timber		
	1. Timber Management Planning	a.	Timber shall be managed on a non-scheduled basis, to meet recreation objectives, and to reduce the risk of public injury from hazardous trees.
		b.	Replant in native species.
F.	Water, Soil, and Air	a.	Improvements are appropriate as long as visitor conflict is minimized.
		b.	Improvements or rehabilitation should blend with the natural landscape. Use endemic or native species for erosion control.
G.	Minerals and Geology	a.	High value recreation sites not previously withdrawn shall be recommended for withdrawal from mineral entry.
H.	Rural Community and Human Resources	a.	Meet Forest-wide Standards and Guidelines.
J.	Lands		
	1. Special Use Management	a.	Do not issue permits which are not compatible with the goals of this prescription.
	2. Land Ownership Planning	a.	Group III - Retain, acquire, or dispose.
L.	Facilities		
	1. Transportation System Planning	a.	Roads in the seen or potentially seen area should blend with natural form, line, color, and texture.
	2. Road Construction and Reconstruction	a.	Cut and fill slopes should be revegetated within one year of construction.
		b.	Rockpits and stockpile sites should be located outside seen areas whenever possible and rehabilitated when located within seen areas.
	3. FR&D Construction/ Reconstruction and Facility Maintenance	a.	Buildings and other facilities should be designed and located to blend with the surrounding landscape.
		b.	A Cascadian architectural theme will be used to complement the CCC era architecture of the area.
P.	Protection		
	1. Fire Management Planning	a.	Forest-wide Fire Protection Group A applies.
	2. Forest Pest Management	a.	Meet Forest-wide Standards and Guidelines.

8C SULPHUR CREEK BOTANICAL AREA

Goal: Protect unique low elevation silver fir stand for special botanical interest, research and education.

Description of Lands Where Applicable: An approximately 570 acre parcel of land located in Sulphur Creek on the south side of Mt. Baker. The area is a unique vegetative community for the elevation. The principal features include low elevation silver fir and associated species. The vegetation species are found on a lava flow which is influenced by cold air draining from the glaciers on Mt. Baker. Several species of vegetation are usually found only at more northern latitudes.

Desired Future Condition: Protection of natural plant communities/associations for educational and scientific values.

Program Element		Standards and Guidelines
A. Recreation		
	1. Recreation Planning	a. Developed facilities are for the purpose of education, and would be limited to trails and roadside turnouts.
		b. Dispersed recreation use should not be encouraged.
	2. Visual Quality	a. Projects shall meet a Visual Quality Objective of Retention in the foreground and Partial Retention in the middleground.
	3. American Indian Religious and Cultural Use	a. Meet Forest-wide Standards and Guidelines.
	4. Facility and Site Management	a. All signs and facilities blend with surrounding landscape. On-site interpretation may be present.
B. Wilderness		a. Not applicable.
C. Wildlife and Fish		
	1. Planning	a. Control of excessive animal populations may take place where such populations threaten desired plants.
D. Range		a. Not applicable.
E. Timber		
	1. Timber Management Planning	a. Timber harvest, including salvage, shall not be scheduled.
		b. Hazard tree removal may only be permitted along roads or trails when required for safety.
F. Water, Soil, and Air		a. Meet Forest-wide Standards and Guidelines.

G. Minerals and Geology	a.	Removal of common variety minerals shall not be permitted when the removal of vegetation is required. However, existing borrow sites may be utilized if the use does not require the removal of native vegetation.
	b.	Recommend denial of application for leasable minerals.
	c.	Sites not previously withdrawn shall be recommended for withdrawal from mineral entry.
H. Rural Community and Human Resources	a.	Meet Forest-wide Standards and Guidelines.
J. Lands		
1. Special Uses Management	a.	Do not issue permits which are not compatible with the goals of this prescription.
2. Land Ownership Planning	a.	Place all these lands in Group II - retain or acquire when possible.
3. FERC License and Permits	a.	Recommend only compatible uses (existing licenses and permits will be allowed).
L. Facilities		
1. Transportation System Planning	a.	Transportation system and utility corridors generally should not be allowed. If allowed, developments must be consistent with the goals of this prescription. (Existing facilities will be allowed and maintained.)
2. FA&O Construction/ Reconstruction and Facility Maintenance	a.	Structures should not be permitted unless botanical area characteristics can be maintained.
P. Protection		
1. Fire Management Planning	a.	Natural-occurring and human-caused fires shall be controlled at the minimum acreage.
2. Forest Pest Management	a.	No action should be taken against insects and diseases unless an outbreak threatens the plants being protected or is inconsistent with management goals for adjacent areas.
3. Vegetation	a.	Competing vegetation may be removed in order to preserve the continued existence of plant species of special interest.
4. Collection Permits	a.	Collection permits shall be required for the collection of any botanical specimens.

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10 WILDERNESS

Goal: Preserve and protect the wilderness character. Allow for naturalness and provide opportunities for solitude, challenge, and inspiration. Within these constraints, and following a policy of non-degradation management, provide for recreational, scenic, educational, scientific, and historical uses.

Description of Lands Where Prescription Applicable: This prescription is applied to those acres classified as Wilderness, including: Glacier Peak, Mt. Baker, Noisy-Diobsud, Boulder River, Henry M. Jackson, Clearwater, and Norse Peak. Refer to the Alpine Lakes Management Plan for management direction for the Alpine Lakes Wilderness. (See Management Prescription 27).

Desired Future Condition: Common to all 10A, 10B, 10C, 10D, 10E.

The ROS concept emphasizes that quality in outdoor recreation can best be achieved by providing a diversity of opportunities consistent with resource limitations to satisfy varying preferences of users. This concept is combined with factors for efficient management and adapted to wilderness in this plan. Wilderness ROS and their standards apply to all designated wilderness on the Forest (for specific direction regarding Alpine Lakes, consult the Alpine Lakes Area Land Management Plan).

Within each WROS Class there are Limits of Acceptable Change (LAC) which presuppose that certain areas (transition for example) of the wilderness will be allowed to receive relatively higher levels of use than other areas (trailless), and thus will receive higher levels of resource change or impact. Decisions about management of WROS Classes are aimed at making a conscious choice about the changes that will be allowed to occur. LAC should not be confused with a management objective that one is attempting to achieve. LAC is a maximum limit of change allowed. Managers try to achieve the best conditions possible rather than allowing conditions to deteriorate until this threshold is reached.

Wilderness must be managed to prevent degradation. The nondegradation principle directs that each Wilderness must essentially be as wild as it was at the time of classification, or if conditions are not known and cannot be reconstructed for the time of classification, the first Wilderness condition inventory should be used as the benchmark for maintaining Wilderness conditions. Nondegradation applies to all values of Wilderness: social, physical, and biological factor. Additionally, conditions shall be improved in situations where natural processes are not operating freely, and where the values for which a Wilderness was created are impaired.

The standards listed below and summarized at the end of this Management Prescription were derived from field study and professional judgement.

Carrying Capacity - Carrying capacities have been developed to estimate the amount of recreation visitor use that a wilderness or portion of wilderness, could support without degradation of resource values. Carrying capacity is commonly expressed in Recreation Visitor Days (RVD's) per year or people-at-one-time (PAOT).

In the Recreation Opportunity Spectrum system, coefficients have been developed that help in the estimation of carrying capacity. These coefficients are the estimated RVD's per average acre per year, that a WROS class can support. Different coefficients are identified for each class and are theoretical estimation of capacity based on average conditions.

For the Land and Resource Management Plan for the Mt. Baker-Snoqualmie National Forest, the following carrying capacity coefficients were developed in coordination with adjacent Forests sharing management of the Washington State Cascade Range Wilderness:

Zone	RVD/Acre/Year	RVD/Sq. Mile/Year
Transition	15.000	9600
Trailed	3.750	2400
General Trailless	.25	160
Dedicated Trailless	.078	50
Special Area	To be established after study.	

Limits of Acceptable Change - Recreation visitor use of wilderness cannot occur without some degree of impact on wilderness resources. Impact occurs on the physical and biological features of wilderness as the quality of the recreation experience of other visitors. There is a point at which increasing impact of visitor use will result in unacceptable degradation outside the intent and direction of the Wilderness Act. The Regional Nondegradation Policy is described in FSM 2322.03.

The limits of acceptable change concept is a system to establish limits on the change that can be permitted within the nondegradation policy, before management actions must be taken to reverse trends of change. These actions can be either directed to improve the knowledge and abilities of the users or to reduce the numbers of visitors in impacted areas during critical time periods, or both.

The system has incorporated limits or maximum levels for which key indicator resource values can change before management actions are implemented. The system assumes that the condition of key indicators which are easily quantifiable and measurable reflect the general condition of resource values which are not easily measured. the impact of human-caused noise and human disturbance of wildlife are examples of impacts not easily measured.

The limits of acceptable change levels or standards are different for each Wilderness Recreation Opportunity Spectrum Class. The standards for the Dedicated Trailless tolerate the least impact in order to achieve the most pristine wilderness conditions and the least evidence of man's activity. The Transition Class standards are more tolerant reflecting management of the area for a semi-primitive recreation experience and physical evidence of man's activity.

The table following the standards and guidelines summarizes the key indicators that will be measured in monitoring the physical, biological, and social conditions and the standards for each Wilderness Recreation Opportunity Spectrum Class.

When monitoring results indicate that the condition of one or more of the key indicators is approaching the standard, or limit of acceptable change, a trend analysis will be done. this analysis will assess the changing conditions and identify all factors of visitor use contributing to the change. Cost effectiveness of possible management actions and recreation opportunity tradeoffs will be considered in the analysis. The analysis will identify alternative courses of action and a most suitable alternative will be chosen and implemented. Actions appropriate to resolve impact problems are shown in the wilderness Forest-wide Standards and Guidelines.

There is a high probability that initial monitoring results in some areas will indicate impact conditions in excess of standards established for particular WROS Classes. In this event, monitoring efforts will need to be intensified to establish the current trends. The objectives in these situations will be to institute management actions to achieve an improving trend. Downgrading the Wilderness Recreation Opportunity Class to a class more tolerant of impact will not be an option.

Over the long term, wilderness management activities should lead to an improving trend in the effects of man's activity on wilderness resources in all WROS classes.

Intensities in this Management Prescription:

10A. Transition
10B. Trailed
10C. General Trailless
10D. Dedicated Trailless
10E. Special Areas

INTENSITY 10A: TRANSITION

This trailed class includes system trails and may include user-made trails that have a travelway worn to mineral soil over long distances, and is characterized by having a large proportion of day-users who are often mixed in with overnight and long distance travelers. This area is usually adjacent to trailheads and extends into the wilderness a distance that is typically traveled in one day by a hiker. This class includes areas accessed by trail, around lakes or other attractions used by people, or pack stock within the day-use influence area. The class extends at least 500 feet on either side of a trail, but this may be wider around lakes or heavily used areas. The length of this trail class will be established for each trail depending on ease of travel, distance from trailhead outside wilderness, and destination attractions inside wilderness. This generally will be 3 to 5 miles inside the wilderness boundary. If the day-use activity occurs entirely outside wilderness, the trail will have no Transition Class.

Opportunities for exploring and experiencing isolation contrast with adjacent, more developed areas outside the Wilderness, though the visitor can expect the greatest number of people compared to other wilderness classes. This class introduces users to the Wilderness setting. This area normally provides relatively low challenge or risk in using outdoor skills compared to other classes. The managed trail system may include trails classified as "easiest," "more difficult," or "most difficult," and they shall receive maintenance activities as appropriate for the primary objective and difficulty level. Users may encounter improvements where the frequency and magnitude of use dictates the need for such improvement to protect the wilderness resource.

Program Element		Standards and Guidelines
A. Recreation		
	1. American Indian Religious and Cultural Use	a. Meet Forest-wide Standards and Guidelines.
B. Wilderness		
	1. Wilderness Use Administration	a. Capacity coefficient is 15 RVD's per acre per year.
		b. Vegetative loss at campsites shall not exceed 1,000 square feet, or cumulatively, 3% from any acre.
		c. Mineral soil exposed shall not exceed 200 square feet at campsites.

10A
10B

		d. Trees felled or with scarring shall not exceed 10 trees, or 50 percent of trees on site, whichever is smaller.
		e. Average number of parties encountered per day when traveling during snow-free season shall not exceed 8.
		f. Maximum encounters with other groups on any one day shall not exceed 30.
		g. Unit size (people and stock) shall not exceed 12 unless otherwise authorized under Special Use Permit.
		h. The number of "campsites" per 160 acre area shall not exceed 20.
		i. Occupied campsites visible shall not exceed 4.
C.	Wildlife and Fish	a. Displacement of wildlife due to visitor use can be significant and should be an overriding concern in wilderness where the primary objective is to maintain a natural ecosystem. Since only a small amount is managed in this class, evaluation of visitor use effects on habitat effectiveness should include adjacent areas. Visitor use must not decrease habitat effectiveness in each wilderness (average of all WROS classes) for any species by more than 20%.
D.	Range	a. Meet Forest-wide Standards and Guidelines.
E.	Timber	a. Not applicable.
F.	Water, Soil, and Air	a. Meet Forest-wide Standards and Guidelines.
G.	Minerals & Geology	a. Meet Forest-wide Standards and Guidelines.
H.	Rural Community & Human Resources	a. Meet Forest-wide Standards and Guidelines.
J.	Lands	a. Meet Forest-wide Standards and Guidelines.
L.	Facilities	a. Meet Forest-wide Standards and Guidelines.
P.	Protection	
	1. Fire Management Planning	a. Forest-wide Fire Protection Group B applies.

INTENSITY 10B: TRAILED

This class includes all managed system trails extending beyond the Transition Class. This class extends at least 500 feet on either side of the trail but may be wider around lakes or heavily used areas.

A moderate to high degree of opportunity exists for exploring and experiencing isolation (from the sights and sounds of civilization), independence, closeness to nature, tranquility and self-reliance through the application of no trace skills in a natural environment that offers a moderate to high degree of challenge and risk as one travels further from trailheads. The managed trail system may include trails classified as "more difficult," or "most difficult" and they shall receive maintenance activities as appropriate for the primary objective and difficulty levels. Visitors must be prepared for overnight camping, outdoor living, and changes in weather. A variety of user restrictions may be implemented to control use impacts as the need arises.

Program Element	Standards and Guidelines
A. D-P	a. Same as 10A.
B. Wilderness 1. Wilderness Use Administration	a. Capacity coefficient is 3.75 RVD's per acre per year. b. Vegetative loss at campsites shall not exceed 1,000 square feet, or 3 percent from any acre. c. Mineral soil exposed shall not exceed 200 square feet. d. Trees felled or with scarring shall not exceed 6 trees, or 25 percent of the trees on site whichever is smaller. e. Average number of parties encountered when traveling per day per snow-free season shall not exceed 5. f. Maximum encounters with other groups on any one day shall not exceed 10. g. Unit size (people and stock) shall not exceed 12 unless otherwise authorized under Special Use Permit. h. The number of "campsites" per 160 acre area shall not exceed 10. i. Occupied campsites visible shall not exceed 3.
C. Wildlife and Fish	a. Displacement of wildlife due to visitor use can be significant and should be an overriding concern in wilderness where the primary objective is to maintain a natural ecosystem. Since only a small amount is managed in this class, evaluation of visitor use effects on habitat effectiveness should include adjacent areas. Visitor use must not decrease habitat effectiveness in each wilderness (average of all WROS classes) for any species by more than 20%.

10C

INTENSITY 10C: GENERAL TRAILLESS

This class is characterized by area not falling into the other classes. It generally attracts lower use because of the lack of constructed trails and a relative lack of attractions. The area is unmodified and user-made trails are not encouraged, but they may exist. If obvious user-made trails become well established, or are causing resource damage, consideration will be given to restricting use or reconstructing these trails in order to protect the wilderness resource from further damage. Reclassification from general trailless to trailed requires a supplement of the Forest Plan, which shall include full public involvement. This class is available for new trail construction only to protect resources or meet management objectives by dispersing use. If this should occur, the trail will be constructed to no higher than "more difficult" or "most difficult" standards.

This class provides an outstanding opportunity for isolation and solitude, mostly free from evidence of human activities and with very infrequent encounters with others. The user has outstanding opportunities to travel cross-country utilizing a maximum degree of outdoor skills, often in an environment that offers a very high degree of challenge and risk. No-trace camping skills are strongly encouraged and any user built "improvement" is undesirable and shall be removed.

Program Element	Standards and Guidelines
A, D-P	a. Same as 10A.
B. Wilderness	
1. Wilderness Use Administration	a. Capacity coefficient is 0.25 RVD's per acre per year.
	b. Vegetative loss at campsites shall not exceed 500 square feet.
	c. Mineral soil exposed shall not exceed 100 square feet.
	d. Trees felled or with scarring shall not exceed 4 trees, or 25 percent of trees on site, whichever is smaller.
	e. Average number of parties encountered when traveling during snow-free season shall not exceed 2 per day.
	f. Maximum encounters with other groups on any one day shall not exceed 4.
	g. Unit size (people and stock) shall not exceed 12 unless otherwise authorized under Special Use Permit.
	h. The number of "campsites" per 160 acre area shall not exceed 5.
	h. Occupied campsites visible shall not exceed 2.

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10D

C. Wildlife and Fish	a. Displacement of wildlife due to visitor use can be significant and should be an overriding concern in wilderness where the primary objective is to maintain a natural ecosystem. Since only a small amount is managed in this class, evaluation of visitor use effects on habitat effectiveness should include adjacent areas. Visitor use must not decrease habitat effectiveness in each wilderness (average of all WROS classes) for any species by more than 10%.

INTENSITY 10D: DEDICATED TRAILLESS

This class is managed forever trailless; obvious user-made travel ways are not permitted. Class may include way trails and routes not discernible as human related, the condition to be avoided is vegetation and soil loss along a continuous tread. The class may include popular attractions accessed only by cross-country travel. Human impact and influence is, by design, minimal therefore user restrictions may be necessary to insure that trailless experiences remain. Areas chosen for Dedicated Trailless should be of a size that will allow for a meaningful experience and can be reasonably protected for the experiences and remoteness identified. Generally the class is at least 2,000 - 3,000 acres in size and contain whole drainages or basins out of sight and sound of trails, or areas outside the wilderness.

This class provides an outstanding opportunity for isolation and solitude, free from evidence of human activities and with very infrequent encounters with users. The user has outstanding opportunities to travel cross-country utilizing a maximum degree of outdoor skills, often in an environment that offers a very high degree of challenge and risk.

Program Element	Standards and Guidelines
A, D-P	a. Same as 10A.
B. Wilderness	
1. Wilderness Use Administration	a. Capacity coefficient is .078 RVD's per acre per year.
	b. Vegetative loss at campsites shall not exceed 0 square feet.
	c. Mineral soil exposed shall not exceed 0 square feet.
	d. There shall be no trees felled or scarred at the sight.
	e. Average number of parties encountered when traveling during snow-free season shall not exceed 1 per day.
	f. Maximum encounters with other groups on any one day shall not exceed 1.

10D
10E

g. Unit size (people and stock) shall not exceed 12, but strongly encourage 6 people and 0 stock, unless otherwise authorized under Special Use Authorization.

h. The number of "campsites" per 160 acre area shall not exceed 2.

i. Occupied campsites visible shall be 0.

C. Wildlife and Fish

a. Displacement of wildlife due to visitor use can be significant and should be an overriding concern in wilderness where the primary objective is to maintain a natural ecosystem. Since only a small amount is managed in this class, evaluation of visitor use effects on habitat effectiveness should include adjacent areas. Visitor use must not decrease habitat effectiveness in each wilderness (average of all WROS classes) for any species by more than 10%.

INTENSITY 10E: SPECIAL AREAS

The intent of this class is to provide for changes in standards or other management guidelines for unique areas. Situations that qualify for Special Area designation include congressionally acknowledged areas, areas of significant cultural or historic value, areas with special wildlife considerations and areas that have limited management options to deal with unique situations. Areas do not qualify for this class for administrative convenience in dealing with overuse. This class is rare and will not exist in many wildernesses.

Experience opportunities vary widely depending upon the special feature and its location. A high number of other visitors may or may not be encountered. Rules and regulations to protect resources or preserve visitor experience can be expected. The following have been identified as Special Areas:

Special Area Name		Significance	Standards and Guidelines
A. D-P	a.	Same as 10A.	
B. Wilderness			
Coleman Glacier Climbing Route- Mt. Baker Wilderness		Second most popular climbing route in State	a. Capacity coefficient will be in RVD's per acre per year. Coefficient to be developed thru ID Team analysis. b. Same as 10A.

		c. Same as 10A. d. Same as 10A. e. Average Number of parties encountered per day when traveling shall not exceed 16. f. Campsites visible shall not exceed 10. g. Same as 10A. h. Same as 10A.
Winchester Mountain Lookout-Mt.Baker Wilderness	Lookout addressed in Committee Reports of enabling legislation for 1984 Wilderness bill.	a. Accept non-conforming use, Standards and Guidelines same as 10A.
Three Fingers Lookout Boulder River Wilderness	Lookout addressed in Committee Reports of enabling legislation for 1984 Wilderness bill.	a. Accept non-conforming use, Standards and Guidelines same as 10B.
Miners Ridge Lookout Glacier Peak Wilderness	Lookout addressed in Committee Reports of enabling legislation for 1984 Wilderness bill.	a. Accept non-conforming use, Standards and Guidelines same as 10B.
Green Mountain Lookout Glacier Peak Wilderness	Lookout addressed in Committee Reports of enabling legislation for 1984 Wilderness bill.	a. Accept non-conforming use, Standards and Guidelines same as 10B.
Park Butte Lookout Mt. Baker Wilderness	Lookout addressed in Committee Reports of enabling legislation for 1984 Wilderness bill.	a. Accept non-conforming use, Standards and Guidelines same as 10A.
Cascade Glacier U.S.G.S. Facility Glacier Peak Wilderness	Glacial Research Station Maintained by Geological Survey	a. Accept non-conforming use, periodically review Special Use Permit, and manage same as 10C.
Green Mtn. Research Natural Area (Proposed) Glacier Peak Wilderness	Dual designation with Wilderness	a. Follow Wilderness or RNA Standards and Guidelines, whichever is more restrictive.
Lily Lake Research Natural Area (Proposed) Clearwater Wilderness	Dual designation with Wilderness	a. Follow Wilderness or RNA Standards and Guidelines, whichever is more restrictive.
North Fork Nooksack Research Natural Area Mt. Baker Wilderness	Dual designation with Wilderness	a. Follow Wilderness or RNA Standards and Guidelines, whichever is more restrictive.

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North Fork Nooksack Research Natural Area (Proposed expansion) Mt. Baker Wilderness	Dual designation with Wilderness	a. Follow Wilderness or RNA Standards and Guidelines, whichever is more restrictive.
Chowder Ridge Research Natural Area (Proposed) Mt. Baker Wilderness	Dual designation with Wilderness	a. Follow Wilderness or RNA Standards and Guidelines, whichever is more restrictive.
Long Creek Research Natural Area Boulder River Wilderness	Dual designation with Wilderness	a. Follow Wilderness or RNA Standards and Guidelines, whichever is more restrictive.
C. Wildlife and Fish		a. Displacement of wildlife due to visitor use can be significant and should be an overriding concern in wilderness where the primary objective is to maintain a natural ecosystem. Since only a small amount is managed in this class, evaluation of visitor use effects on habitat effectiveness should include adjacent areas. Visitor use must not decrease habitat effectiveness in each wilderness (average of all WROS classes) for any species by more than 20%.

Summary of Management Intensities Standards and Guidelines for Wilderness 1/

Standard	Intensities				Coleman Glacier
	Transition	Trailed	General Trailless	Dedicated Trailless	Special Area
Capacity coefficient RVD's/acre/year	15.000	3.750	0.25	0.078	To be Determined
Veg. Loss at Campsite (square feet) 2/	1,000 (or 3% from any acre)	1,000	500	0	1,000
Mineral Soil Exposed (square feet)	200	200	100	0	200
Trees Scarred or Felled or Percent of Trees on a Site Scarred or Felled 3/	15 (50)	15 (50)	7 (25)	0 (0)	15 (50)
Average number parties encountered when traveling day/snow-free season 4/	8	5	2	1	16
Maximum Encounters on Any Day 5/	30	10	4	1	To be Determined
Unit size limit (people and stock together) unless otherwise authorized under Special Use Permit 6/	12	12	12	12 (strongly encourage 6 people, 0 stock)	12
Number of Campsites per 160 Acre Area 7/	20	10	5	2	To be Determined
Occupied campsites visible from other campsites 8/	4	3	2	0	10

1/ A standard may be made more restrictive on site-specific areas at the discretion of the District Ranger, if resource damage is occurring. These areas will be identified by name and the lower LAC documented.

2/ Vegetation Loss at Campsites

This indicator, measured in square feet using a transect method, was determined in U.S.F.S. Research Paper INT-284 (1982) as being an excellent indicator of soil changes and as a good measure of areal extent of site impacts.

Both visual impacts and physical/ecological impacts of campsite use are reflected in this indicator, which can be measured fairly accurately using methodology developed in the mid-1970's by Schreiner, Moorehead, Koch and others.

3/ Trees Scarred or Felled

This indicator is one of the easiest to measure and is the only LAC proposed which deals with the effects of firewood gathering, and general site vandalism. Although some tree damage is inevitable, the cumulative effects over time can become critical, and therefore monitoring the trends of this indicator is essential, given the near impossibility of restoration.

4/ Average Encounters

Although maximum encounters is one way of monitoring social impacts, it is also desirable to monitor average number of parties encountered when travelling per day during the snow-free season as well. Due to the limits of personnel and funds, constant patrol is not possible in many areas and a maximum level of encounters could be difficult to monitor in these places. Also, average encounters is more a measure of the day-to-day situation which the majority of visitors will be subject to. Again, this indicator may be measured by patrols, encounters, or permits.

5/ Maximum Encounters

This indicator is an upper threshold LAC for social impact, indicating a level of use where the WROS class no longer retains its character. Although this may not be easily monitored in all areas, it is a necessary limit tied to definition of the WROS opportunity for solitude. Maximum encounters per day can be variously monitored by counters, observation, or permits.

6/ Special Use Permit may be denied if other standards are being exceeded or resource damage is expected. Permit must specify route of travel, camp locations, dates, and other conditions necessary to meet management objectives. Llamas are considered stock and are counted the same as horses and people.

7/ Number of Sites Per Any 160 Acre Area

This indicator, as suggested by Stankey et al, is an indicator of campsite density and an indirect measure of aggregate site impacts. In many areas individual campsites might have acceptable levels of impact, yet the total number of sites far exceeds need. In such instances, unnecessary physical and social impacts occur due to the haphazard location and selection of sites. This LAC indicator is easily measured from a Code-A-Site or similar site inventories and is based on 160 acres (1/4 section) since most destination spots will fall within this area.

8/ Campsites Visible From Each Site

Campsites visible is largely an indicator of social impacts, and is our only measure of in-camp social impact. Campsites visible is a measure which can be attained from a Code-A-Site or similar inventories, and is fairly easily and accurately measured.

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11 OLD-GROWTH HABITAT (SPOTTED OWL)

Goal: Provide and maintain the mature and old growth forest ecosystem as habitat for species that depend upon or utilize old growth for a significant portion of their habitat.

Description of Lands Where Prescription Applicable: Old growth habitat is distributed throughout the forest and exhibits the following characteristics: stand overstory dominated by live mature and old growth trees; canopy structure is multi-layered with trees of varying age classes; large numbers of standing dead trees or snags in a variety of decomposition stages; downed logs and woody material on the forest floor; located generally below 4,000 feet in elevation. The management indicator species for this habitat is the northern spotted owl. Management Area 11 consists of a network of Spotted Owl Habitat Areas (SOHA's). Generally, each SOHA has a 300 acre core and a total of 2,200 acres of suitable habitat within a 2.1 mile radius circle. Some exceptions occur due to availability of habitat, and differing levels of information about specific areas.

Desired Future Condition: Evidence of human activity may be present but it does not dominate the environmental setting or significantly alter the old growth characteristics. Timber harvest is not permitted in these old growth areas with some exceptions. Construction of new access routes - roads or trails - is limited and may be affected by season and species involved. Old growth areas are protected from fire. Isolated disease and insect outbreaks are natural occurrences in an old growth ecosystem. Controls will be implemented if significant damage or alteration to the ecosystem and surrounding forest land is anticipated.

Intensities in this Management Prescription: None

Program Element	Standards and Guidelines
A. Recreation	
1. Recreation Planning	a. Developed sites will be allowed in SOHA's outside of core areas, the applicable Standards and Guidelines are found in Management Prescription 3A, program element A.
	b. Expansion of existing developed sites should be carefully evaluated to insure that habitat values are not detrimentally impacted. Construction of new facilities will not be allowed in SOHA core areas.
	c. Existing nonmotorized trails and trail use will be permitted in SOHA, including core area.
	d. New non-motorized trail construction may be permitted in these areas including SOHA core areas, provided: 1) core area has been determined using Regional standards, and 2) biologist has been consulted to determine trail will not impact these areas.

		e. On and off-trail motorized vehicle use is prohibited in core areas, however, may be permitted in other portions of SOHA on designated trails. Management and recreation activities will be scheduled to minimize disturbance between February 15 and August 15.
		f. Trail construction and reconstruction activity should be restricted in SOHA's during the breeding period from February 15 - August 15 within the core area. Management activities will be scheduled to minimize disturbances between February 15 and August 15 throughout the SOHA, unless it can be determined that owls are not actively using the area while construction/reconstruction is scheduled.
	2. Visual Quality	a. A Visual Quality Objective of retention should be met from primary viewsheds (see figure 4-1a & 4-1b) and trails within the designation.
	3. American Indian Religious and Cultural Use	a. Meet Forest-wide Standards and Guidelines.
B.	Wilderness	a. Not applicable.
C.	Wildlife and Fish	
	1. Planning	a. Core areas that are immediately adjacent to a SOHA boundary shall be verified prior to timber harvest to ensure protection of the nest.
		b. Cooperate and coordinate on any research studies of old growth management.
		c. Conduct monitoring necessary to determine effectiveness and condition of existing inventory of habitat improvements.
		d. Management activities shall be scheduled to minimize disturbances between February 15 and August 15.
		e. Conduct inventory and monitoring of suitable habitat and owl occurrences within SOHA's.
	2. Habitat Improvement	a. Habitat improvement may be done to correct resource damage, if compatible with SOHA objectives.
D.	Range	a. Not applicable.

E. Timber		
1. Timber Management Planning	a.	Timber management activities, including salvage of blowdown, and dead, or down material shall not normally be conducted. Exceptions are permitted where a portion of one of these areas is lost to blowdown or other catastrophic event that significantly changes the old growth stand structure to the point it is no longer suitable habitat, and salvage operations will not further adversely impact habitat requirements. When this situation occurs, and prior to beginning salvage operations, the oldest adjacent stands will be identified and managed so as to replace portion lost.
2. Timber Sale Preparation	a.	Trees within these areas may be used as tailholds and/or rigging provided the tree shall not be felled.
	b.	Management activities will be scheduled to minimize disturbances throughout the SOHA between February 15 and August 15.
F. Water, Soil, and Air		
1. Planning	a.	Meet Forest-wide Standards and Guidelines.
2. Improvement	a.	Watershed restoration projects may be done to correct resource damage, if the project does not conflict with spotted owl habitat values.
	b.	Management activities will be scheduled to minimize disturbances throughout the SOHA between February 15 and August 15.
G. Minerals and Geology	a.	These areas may be withdrawn from mineral entry following NEPA analysis and Bureau of Land Management concurrence. Appropriate protection clauses will be inserted in mineral leases.
	b.	If activities that do not involve removal of timber are approved, no activities shall be permitted between February 15 - August 15.
	c.	Activities that reduce habitat in areas outside of the core shall require replacement of that habitat to maintain at least 2,200 acres.
H. Rural Community and Human Resources	a.	Meet Forest-wide Standards and Guidelines.

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J.	Lands		
	1. Land Ownership Planning	a.	Old growth habitat lands considered critical to old growth species viability or necessary to insure distribution criteria will be placed in Group III, available for land exchange, as long as proponent's lands contain equal habitat and meet distribution requirements. Otherwise such lands shall remain in Group II.
L.	Facilities		
	1. Transportation System Planning	a.	Avoid locating roads in SOHA's outside of core areas. Those proposed road locations that involve these areas will be analyzed to assure the objectives of managing these habitats is maintained and acreage of habitat lost is replaced.
	2. Road Construction and Reconstruction	a.	Prior to construction or reconstruction, SOHA core area must be verified.
		b.	No new road construction shall be permitted in SOHA core area.
	3. Road Operation	a.	In SOHA core areas, existing roads shall be permitted provided that local roads that the Forest Service has existing, valid rights be closed at the end of each activity period.
		b.	When feasible, restrict permitted activity in a SOHA core during the period of February 15 - August 15.
P.	Protection		
	1. Fire Management Planning	a.	Forest-wide Fire Protection Group A applies.
	2. Forest Pest Management	a.	Integrated pest management concepts are permitted only when spotted owl habitat values can be maintained.

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12 MATURE AND OLD GROWTH WILDLIFE HABITAT (PINE MARTEN, PILEATED WOODPECKER)

Goal: Provide and maintain mature and/or old growth forest as habitat for those species that can utilize either for their primary habitat needs.

Description of Lands Where Prescription Applicable: Mature and/or old growth habitat is distributed throughout the Forest and exhibits the following characteristics. Mature stands generally have large diameter (21" dbh) standing trees; a multi-layer canopy component; moderate numbers of standing dead trees or snags in a variety of decomposition stages, including down logs and woody material on the forest floor. Old growth overstory is dominated by large diameter trees generally 21" plus, a multi-layered (usually 4) stand, and large numbers of standing dead trees or snags in a variety of decomposition stages, including down logs and woody material on the forest floor. The management indicator species that are dependent on mature plant communities and also use old growth are the pine marten and pileated woodpecker.

Desired Future Condition: Evidence of human activity may be present but it does not dominate the environmental setting or significantly alter the mature or old growth characteristics. Dedicated habitat will be maintained as either old growth or mature stands of timber with the characteristics of each described above. There will be opportunities for visitors to interact with a natural environment to view and/or hunt wildlife.

Intensities in this Management Prescription: None

Program Element	Standards and Guidelines
A. Recreation	
1. Recreation Planning	a. The applicable Standards and Guidelines for Developed Recreation are found in Management Prescription 3A, program element A.
	b. Expansion of existing developed sites or construction of new sites will not be allowed.
	c. Existing nonmotorized trails and trail use will be permitted in these areas.
	d. New non-motorized trail construction may be permitted in these areas provided: 1) the area has been determined using Regional standards, 2) biologist has been consulted to determine trail will not impact these areas.
	e. Existing motorized vehicle use may be permitted on designated trails. Management and recreation activities may be scheduled to minimize disturbance between April 1 - June 15.
2. Visual Quality	a. A Visual Quality Objective of retention should be met from primary viewsheds (See Figure 4-1A & 4-1B) and trails within the designation.
3. American Indian Religious and Cultural Use	a. Meet Forest-wide Standards and Guidelines.
B. Wilderness	a. Not applicable.
C. Wildlife and Fish	
1. Planning	a. Cooperate and coordinate on any research studies on pileated woodpecker or pine marten.
	b. Snag habitat will be maintained or created to at least meet minimum requirements for cavity-nesters as stated in Forest-wide Standards and Guidelines.

		c. Down log component for all species represented by this habitat management prescription will follow density, decay class, size class, and distribution characteristic to the pine marten.
		d. Conduct monitoring necessary to determine effectiveness and condition of existing inventory of habitat improvements.
		e. Conduct inventory and monitoring of Management Area to determine habitat suitability and occupancy.
	2. Habitat Improvement	a. Habitat improvement may be done to maintain or enhance the areas.
D.	Range	a. Not applicable.
E.	Timber	
	1. Timber Management Planning	a. Timber management activities, including salvage of blowdown, dead, or down material shall not normally be conducted. Exceptions are permitted where a portion of one of these areas is lost to blowdown or other catastrophic event that significantly changes the old-growth stand structure to the point it is no longer suitable habitat, and salvage operations will not further adversely impact habitat requirements. When this situation occurs, and prior to beginning salvage operations, the oldest adjacent stands will be identified to replace portion lost.
	2. Timber Sale Preparation	a. Trees within these areas may be used as tailholds and/or rigging provided the tree shall not be felled.
F.	Water, Soil, and Air	
	1. Planning	a. Meet Forest-wide Standards and Guidelines.
	2. Improvement	a. Meet Forest-wide Standards and Guidelines.
G.	Minerals and Geology	a. These areas may be withdrawn from mineral entry and appropriate protection clauses will be inserted in mineral leases.
		b. Activities that reduce habitat shall require replacement of that habitat to maintain at least that amount recommended in the Regional Guide.
H.	Rural Community and Human Resources	a. Meet Forest-wide Standards and Guidelines.

J. Lands		
1. Land Ownership Planning	a.	Old growth and mature forest habitat lands considered critical to old growth and mature forest species viability or necessary to insure distribution criteria will be placed in Group III, available for land exchange as long as proponent's lands contain equal habitat and meet distribution requirements, otherwise, such lands shall remain in Group II.
L. Facilities		
1. Transportation System Planning	a.	Avoid locating roads in these areas. If a proposed road location involves crossing through these areas, an analysis will be made to assure the objectives for managing these areas is maintained.
2. Road Operation	a.	In these areas, existing roads shall be permitted provided that local roads that the Forest Service has existing valid rights shall be closed at the end of each activity period.
P. Protection		
1. Fire Management Planning	a.	Forest-wide Fire Protection Group A is applicable except.
2. Forest Pest Management	a.	Integrated pest management concepts are permitted, except where use of pesticides conflicts with old growth habitat management.

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13 WATERSHED, WILDLIFE, and FISHERIES EMPHASIS IN RIPARIAN AREAS

Goal: To maintain or improve water quality and to produce various levels of potential habitat capability for various species of fish within designated riparian areas. Also maintain or enhance habitat for riparian associated wildlife species.

Descriptions of Lands Where Prescription Applicable: This prescription is applicable to those lands adjacent to perennial and intermittent streams - Class I, II, and deeply incised Class III streams - lakes, wetlands, ponds, seeps, floodplains, and it includes the aquatic and the riparian ecosystems. These lands also support a diversity of plant species, being dominated by species preferring or tolerating wet or moist site conditions.

Riparian areas contain a variety of resource values (water quality, fish and wildlife habitat, and soil productivity). This strategy is designed to maintain and/or improve these resource values, with special emphasis on water quality and fish and wildlife habitat. Actual area and boundaries of these riparian areas will be determined at the project level of planning.

Desired Future Condition: Meet or exceed State/Federal water quality standards. Maintain current (existing) levels of habitat capability of all fish species. Fish habitat capability is measured by the following four in-channel features: channel stability, streambank stability, condition of pools, and the presence or absence of large woody debris. In some areas, increase habitat capability for targeted fish species (habitat restoration or enhancement). Maintain, and in some cases, improve riparian vegetation diversity. Maintain, and in some areas improve, existing levels of habitat capability of all riparian dependent wildlife species through restoration and/or enhancement. A variety of plant and animal species are present, hardwood tree species are more common here than elsewhere. A variety of dead trees, standing and downed, are common. Created openings are small and widely distributed. The riparian area will include mature trees that may be managed on a normal rotation, as well as larger older trees to be managed on an extended rotation (160 + years). Some trees are not planned to be harvested, as they are needed for slope stability or future large woody debris in the stream systems.

INTENSITY 13D: LEVEL III ANADROMOUS, POTENTIAL RESIDENT FISH HABITAT CAPABILITY

Program Element	Standards and Guidelines
A. Recreation	
1. Recreation Planning	a. When planning any new development and a conflict exists, that conflict will be resolved in favor of the dependent riparian resources and values (soil, water, fish, and wildlife.)
	b. ROS settings can range from primitive to roaded natural.
2. Recreation Use	a. No ground or water channel disturbance from any ORV use.
3. Visual Quality	a. Visual Quality Objectives of retention to modification consistent with adjacent management areas.
4. American Indian Religious and Cultural Use	a. Meet Forest-wide Standards and Guidelines.

5. Trail Planning	a.	Nonmotorized trail facilities are permitted. Existing ORV use will be permitted on roads or trails designated for that use.
	b.	New ORV trail construction/reconstruction activities will be permitted in designated riparian areas only when stated riparian objectives can be accomplished. If ORV activities are allowed, they should be restricted to timing and/or access due to fish migration and/or spawning.
B. Wilderness	a.	Not applicable.
C. Wildlife and Fish		
1. Planning	a.	Emphasize maintenance and protection of fish habitat capability and water quality. Maintain or protect existing stream channel and bank stability, pool condition, and the presence of large woody debris in all stream channels. Where necessary, restore or rehabilitate channels to improve channel and bank stability, pool conditions, and large woody debris.
	b.	Retain instream woody material plus standing (live and dead) adjacent to the stream, needed for future debris recruitment, bank and channel stability, and wildlife habitat.
	c.	Emphasize planning at a watershed level for habitat and watershed restoration and improvement activities.
	d.	Maintain streamside vegetation so that at least 80% of the fish habitat stream surface has shade during the summer low flows. Maintain or restore 75% of other small woody and herbaceous vegetation.
	e.	Primary excavator habitat will be managed to 80% of potential population levels. All large dead and down logs will be left except for logs to be used as instream structures for fish habitat or channel stability.
	f.	For T & E species, follow Forest-wide Standards and Guidelines and Management Prescription 16 Standards and Guidelines. Manage wetlands to protect all bogs, swamps, and beaver ponds.
	g.	Manage wetlands to protect all bogs, swamps, and beaver ponds.
	h.	Consult with local state biologists to assure fish management objectives are compatible with state management objectives.

	2. Habitat Improvement	a. Emphasize restoring, rehabilitating and improving degraded or lost spawning and/or rearing habitat for native anadromous and resident trout species. Habitat work in upper channel includes: installation of log-check dams and/or rock dams as energy dissipaters and sediment collectors. Streambank areas will be planted and seeded to help stabilize eroded sections. The objective is to maintain and increase sufficient amounts of structure components to provide channel and bank stability.
		b. Habitat work in lower channel areas includes:installation of large structures (wood, native rock, or concrete) in the channels to restore or improve spawning and/or rearing habitat quality and quantity. The objective is to re-create pools, or to improve on pool quality, and to increase stream channel and bank stability. Other habitat work in the lower channel areas can include improving or enhancing off-channel juvenile salmon and trout habitat by constructing either rearing channels or rearing ponds.
		c. Emphasize measures to improve wildlife habitat diversity and integrity.
		d. Stocking of anadromous fish (adults or juveniles) permitted to help meet production level III requirements. Must be part of the overall restoration plan. Stocking of resident fish is permitted to meet potential capability level for resident fish. Stocking activities must be part of overall project work plans.
D.	Range	a. Not applicable.
E.	Timber	
	1. Timber Management Planning	a. A range of silvicultural treatments will be permitted only when riparian objectives can be accomplished. Timber management intensity H (extended rotation) best meets the riparian values; other timber management intensities A-G which also meet the riparian values may also be considered.
	2. Timber Sale Preparation	a. Yarding and skidding that maintains soil disturbance and vegetation standards are acceptable (see F2 on following page).
		b. Less than 10% of the area should be damaged. A damaged area exists when there is an increase in soil bulk density of 15% or more over the undisturbed level, a macropore space reduction of 50% or more, and/or a reduction below the 15% level as measured by an air permeameter.

F.	Water, Soil, and Air		
	1. Planning	a.	Meet Forestwide Standards and Guidelines.
	2. Improvements	a.	Watershed improvements and maintenance are permitted. Use vegetative restoration methods to restore live root mat and reduce risk of slope failure along stream channels as well as upper slope areas outside the riparian area.
	3. Soil Resource Monitoring	a.	Ground disturbing activities will result in no more than 10% mineral soil exposed within a project area. Disturbance should be widely distributed over the area.
		b.	Small woody and herbaceous vegetation disturbance limited to 25% and widely distributed over the project area.
G.	Minerals and Geology	a.	Extraction of common variety minerals may be conducted provided riparian values can be protected.
H.	Rural Community and Human Resources	a.	Encourage use of various human resource programs to be used in accomplishing pre-selected water quality or fish habitat restoration/rehabilitation projects.
J.	Lands		
	1. Special Use Management	a.	Activity to be analyzed through NEPA process to determine its effect on riparian habitat. Only permitted if riparian habitat diversity and integrity is maintained.
	2. Rights-of-Way Grants	a.	Meet Forest-wide Standards and Guidelines.
	3. FERC License and Permits	a.	Assure consideration and establishment of minimum flows.
	4. Land Ownership Planning	a.	Lands critical to riparian management should be placed in a Group III. Federal and non-federal lands involved in land exchanges shall contain equal amounts of mature riparian habitat.
L.	Facilities		
	1. Transportation System Planning	a.	Roads should avoid riparian areas when possible. Locating roads in a riparian area can only be done if riparian values are protected.
		b.	Necessary crossings should use methods that minimize adverse impacts to water and fisheries resources.
	2. Road Construction, Reconstruction and Operation	a.	Road construction/reconstruction activities will be permitted in designated riparian areas only when stated riparian area objectives can be accomplished. Such activities may be restricted to timing and/or access due to fish migration and/or spawning.

b. Slopes adjacent to or within riparian areas will be protected with erosion and/or sediment control. Before the first wet season, vegetation or slope protection will be completed. Prior to the end of the normal operating season, final stabilization practices should include vegetation as well as structural.

c. Water quality and/or fisheries habitat problems caused by road construction/reconstruction shall be fully mitigated in kind, on site.

d. All roads not receiving annual maintenance shall have measures to control road surface and ditch water.

P. Protection

1. Fire Management Planning — a. Forest-wide Fire Protection Group D applies.

2. Forest Pest Management — a. Integrated pest management is permitted except where use of pesticides conflicts with riparian values.

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14 DEER AND ELK WINTER RANGE

Goal: Manage winter range to specifically benefit deer and elk in terms of vegetational habitat.

Description of Lands Where Prescription Applicable: This prescription is applied to acres throughout the Forest that are inventoried as deer and elk winter range. Winter range is generally located below 2,200 feet in elevation and contains a mix of successional stages to meet the forage and cover requirements for deer and elk. Optimum habitat is mature and old growth forest. The canopy cover and litter and understory vegetation of an old growth forest provides both the optimal thermal cover plus forage needs for wintering deer and elk. Second growth stands may also provide habitat. These acres include timber stands with a 70 percent or greater canopy closure and provide adequate thermal cover. Forage, however, is limited. Clearcut acres may also provide some food for the needs of deer and elk winter range; forage is available but cover is limited.

Desired Future Condition:

To achieve proper forage/cover ratios, timber harvest patterns and unit size will be designed for optimum proportion and arrangement of different successional forest stages, including old growth, second growth stands, and clearcuts and plantations. Management activities will be scheduled to minimize disturbances between December 1 and April 1. Road closures may be implemented to reduce wildlife harassment from recreation or management activities.

Intensities in this Management Prescription: None.

Program Element	Standards and Guidelines
A. Recreation	
1. Recreation Planning	a. Concentrated recreational activities are permitted except where direct conflicts with winter range occurs.
	b. Specialized habitats include, but are not limited to, calving and fawning areas, elk wallows, mineral licks, concentration areas, and travel corridors. Existing concentrated recreational activities within these areas should be moved to other areas when they conflict with winter range objectives.
	c. Conflicts between ORV and big game use between the dates of December 1 - April 15 shall be resolved in favor of the latter.
2. Visual Quality	a. Meet a Visual Quality Objective of foreground retention and middleground partial retention in primary viewsheds (See Figure 4-1A & 4-1B). Meet a Visual Quality Objective of partial retention in secondary viewshed foregrounds, and modification in secondary viewshed middleground.
3. American Indian Religious and Cultural Use	a. Meet Forest-wide Standards and Guidelines.
B. Wilderness	a. Not applicable.
C. Wildlife and Fish	
1. Planning	a. Average open-road density per square mile for a contiguous piece of winter range shall be no more than 2 miles/square mile.
	b. Diversity and juxtaposition of habitat shall consist of forage, hiding/thermal cover, and optimal cover (OC). See glossary for definition of habitat types.
	c. Range of habitat types is as follows:

Seral Stage	% of Range
1-20 years	10-15% forage
21-80/90 years	40-45% Thermal/hiding cover
90+ years	37-45% Optimal cover

d. As a general rule, maintain above range of habitat types for every 2,000 acres (approx.) of contiguous winter range, but not to exclude areas smaller than 2000 acres.

2. Habitat Improvement	a.	Improvement will be emphasized such as desirable forage species planting, fertilization, thinning, and slash disposal.
D. Range	a.	Not applicable.
E. Timber		
1. Timber Management Planning	a.	Timber harvest will be scheduled and units designed to provide habitat diversity and integrity for deer and elk.
	b.	The following priorities for scheduling shall be applied: (1) In scheduling timber management activities, first consideration shall be to meet optimal thermal cover acreage requirements. (2) If optimal cover acreage requirements are met, then schedule to meet forage requirements. (3) If optimal cover acreage requirements cannot be met, hold the oldest available stands to meet future optimal thermal cover requirements, then schedule to meet forage requirements.
	c.	Any timber management intensity may be applied to meet the optimal cover acreage and forage requirement.
2. Timber Sale Preparation	a.	Forage units shall be designed to meet future optimal cover requirements. To achieve this unit design should assure no point is further than 600 feet from cover.
F. Water, Soil, and Air	a.	Meet Forest-wide Standards and Guidelines.
G. Minerals and Geology	a.	Mineral exploration and extraction will include requirements and mitigation measures needed to protect habitat and winter range objectives.
	b.	Activities that adversely affect wildlife shall be identified and mitigated.
H. Rural Community and Human Resources	a.	Meet Forest-wide Standards and Guidelines.
J. Lands		
1. Special Use Management	a.	Construction, maintenance, and operation are permitted, provided it does not adversely affect special habitat and/or winter range.
2. FERC License and Permits	a.	Same as J-1a above.

3. Land Ownership Planning	a.	Winter habitat will be placed in Group III classification for acquisition or disposal as needed.
L. Facilities		
1. Transportation System Planning	a.	Location of new roads shall not adversely impact special habitat areas, including winter range. Road design should be coordinated with a biologist to determine and reduce impacts.
	b.	See C-1a on prior page for open road densities.
2. Road Construction and Reconstruction	a.	Road construction and reconstruction shall not be permitted between December 1 - April 15 in identified winter range.
	b.	Road construction and reconstruction shall be timed to reduce harassment in special habitat areas, including winter range. Some exceptions for emergency flood repair.
3. Road Operation	a.	See above for timing restrictions for maintenance operations. Some exceptions for emergency flood repair.
	b.	Local and collector roads may be closed seasonally or indefinitely, in order to allow an open road density that maintains habitat effectiveness. Unneeded roads will be obliterated or inactivated.
P. Protection		
1. Fire Management Planning	a.	Forest-wide Fire Protection Group E3 applies.
2. Forest Pest Management	a.	Utilize integrated pest management techniques except when use of chemical pesticides conflicts with objectives of managing winter range and specialized habitats.

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15 MOUNTAIN GOAT HABITAT

Goal: Protect and manage habitat to maintain or increase mountain goat populations.

Description of Lands Where Prescription Applicable: This prescription is applied to selected acres of current and historical mountain goat habitat. These areas characteristically contain diverse vegetation including mature and old growth stands, steep rocky cliffs, projecting pinnacles, ledges, and talus slides. Winter range is generally at lower elevations (tree-line and below) than summer habitat.

Desired Future Condition:

Current and historically used mountain goat range is in the process of being identified and verified. The winter range is maintained as a natural environment with little evidence of human activity.

No new roads will be constructed to access winter range; existing roads and trails that would permit human encroachment and subsequent harassment to mountain goats on the winter or summer range will have use restricted. No scheduled timber harvest. If timber management activities are conducted, practices shall be for purpose of maintaining mountain goat habitat.

Intensities in this Management Prescription

15A Management Requirement

INTENSITY 15A: MANAGEMENT REQUIREMENT

Program Element	Standards and Guidelines
A. Recreation	
1. Facilities Construction and Reconstruction	a. Facilities that maintain the integrity of mountain goat habitat may be allowed.
	b. Use of existing trails and campsites should be discouraged within 1,500 feet of known key habitat features. Key habitat features are defined in the "Description of Lands" for this prescription.
2. Visual Quality	a. Visual Quality Objectives consistent with adjacent management areas. The site itself will be managed to show little to no evidence of human impact.
3. American Indian Religious and Cultural Use	a. Meet Forest-wide Standards and Guidelines.
4. Use Administration	a. Existing roads that directly access winter range shall be restricted where harassment to mountain goats has been identified.
	b. Motorized use shall not be allowed on winter range from October 31 - June 15.
B. Wilderness	a. Not applicable.
C. Wildlife & Fish	
1. Planning	a. Cooperate with the Washington Department of Wildlife in mountain goat census and refinement of winter range boundaries.
	b. Continue surveys and inventory of known and suspected mountain goat winter range to document critical habitat for protection.
	c. Monitoring shall examine habitat components and use to insure Forest Planning objectives are being met.
D. Range	a. Not applicable.

E.	Timber		
	1. Timber Management Planning	a.	No harvest scheduled. If timber management activities are conducted, practices applied shall be for the primary purpose of maintaining mountain goat winter habitat.
	2. Reforestation and Timber Stand Improvement	a.	Reforestation and TSI plans should be designed for improving forage to meet management objectives for mountain goats.
	3. Timber Sale Preparation and Harvest Administration	a.	Any limited harvest activity should have restrictions, similar to A-4b on previous page.
		b.	Timber management activities adjacent to avalanche chutes shall be maintained to meet optimal cover needs in those areas.
F.	Water, Soil, and Air	a.	Meet Forest-wide Standards and Guidelines.
G.	Minerals and Geology	a.	Mineral exploration and extraction, including common variety minerals will include requirements and mitigation measures needed to protect habitat and winter range objectives.
		b.	Activities that adversely effect goats on the winter range shall be identified and mitigated.
H.	Rural Community and Human Resources	a.	Meet Forest-wide Standards and Guidelines.
J.	Land		
	1. FERC Licenses and Permits	a.	Construction, maintenance, and operation is permitted; provided it does not alter or adversely impact mountain goat habitat or it's effectiveness.
	2. Land Ownership Planning	a.	Identified critical habitat within forest boundary will be placed in Group II.
L.	Facilities		
	1. Transportation System Planning	a.	No new roads permitted which access mountain goat winter habitat.
		b.	Existing open-road density should average no more than approximately 2 miles per square mile of contiguous winter range habitat.
	2. Road Construction and Reconstruction	a.	Reconstruction activities shall be timed to avoid conflict with mountain goat winter habitat use. Activities shall be restricted between December 1 - May 15 (south) and December 1 - June 15 (north).

3. Road Operation	a.	Manage traffic to minimize impact on mountain goat winter range. Consider road closures when conflict or goat harassment has been identified. Use of existing facilities should be discouraged within 1500' of key habitat features.

P. Protection

1. Fire Management Planning	a.	Forest-wide Fire Protection Group E1 applies.
2. Forest Pest Management	a.	Utilize integrated pest management techniques except where use of chemical pesticides conflicts with objectives of managing winter range.

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16 THREATENED AND ENDANGERED SPECIES

Goal: Manage existing habitat to provide for the long-term needs of Threatened and Endangered species. In addition, identify potential habitat and management to enhance long-term viability of these species. Management is consistent with recovery plan objectives.

Description of Lands Where Prescription Applicable: This prescription is applied to identified and designated sites and areas to meet recovery needs, and those that may be identified in future through more intensive surveys.

Desired Future Condition: Common to all Intensities.

Existing habitat is managed to provide for the for the long-term needs of the species concerned. Management may include vegetative alterations to enhance habitat, depending on species. Potential habitat is identified and managed to enhance the long-term viability of the species consistent with species recovery objectives and eventual delisting.

Intensities in this Management Prescription:

16A Northern Bald Eagle
16B Grizzly Bear
16C American Peregrine Falcon
16D Gray Wolf

The standards and guidelines in this prescription identify typical management practices in T & E habitat areas. However, the Forest will consult with USDI Fish and Wildlife Service regarding management activities which may affect a federally listed species' habitat and will develop protection, mitigation and enhancement measures specific to that habitat area. Recovery plans will be implemented and used to guide management activities within Threatened and Endangered species habitat.

INTENSITY 16A: NORTHERN BALD EAGLE

Included as dedicated habitat are one existing and two potential nest sites, as identified in the Bald Eagle Working Team Implementation Plan (1989), and six communal roost sites. These sites are not shown on the maps distributed to the public. There are additional acres of existing and potential feeding habitat that are managed for the eagle, but assigned to the Management Areas addressing the Skagit Wild and Scenic River, Riparian and Fisheries Habitat and other MA's with compatible management direction. There is no scheduled timber harvest in the dedicated areas. Some activities are prohibited, others are restricted, either by season or by distance from the nesting or roosting areas.

Program Element		Standards and Guidelines
A. Recreation		
	1. Trail Planning	a. New trails will not be located within 1/4 mile of known nest trees or roost areas.
	2. Visual Quality	a. Meet a VQO of retention foreground and partial retention middleground from primary viewsheds. Meets a VQO of foreground partial retention and middleground modification from secondary viewsheds.
	3. American Indian Religious and Cultural Use	a. Meet Forest-wide Standards and Guidelines.
	4. Facility and Site Construction and Reconstruction	a. New facilities shall be located at least 1/4 mile from known nests and roosts, except that development of new recreation sites is permitted if recreational use does not occur during the season of bald eagle use.
		b. Existing developed sites will not be expanded and increased human use will be discouraged when monitoring identifies a potential conflict with bald eagle use.
		c. Restrict any recreation reconstruction activity within 1/4 mile of a known nest from January 1 - August 31, or roost areas from November 15 - April 1.
		d. Construction or development projects or reconstruction near the winter use areas should not be conducted between November 15 - April 1.
	5. Use Administration	a. Dispersed use, such as an occasional solitary hiker, is not a significant conflict. However, more use than the occasional intrusion within 1/4 mile of a nest should be restricted between January 1 - August 31, The same restriction applies to known communal night roosts , and feeding areas, but for the period November 15 - April 1.

	6. Trail Construction	a Locate new trails and recreation facilities further than 1/4 mile from known nest trees and night roosts.
	7. Trail Reconstruction	a. Relocate existing trails within 660 feet of known nests to 1/4 mile or more from the nest. If relocation is not possible, restrict trail reconstruction activity from January 1 to August 31.
B.	Wilderness	a. Not applicable.
C.	Wildlife and Fish	
	1. Threatened, Endangered and Sensitive Species Recovery Effort	a. There will be no public disclosure of locations of known nest and roost sites
	2. Habitat Improvement	a. Habitat improvement within 1/4 mile of nest sites will be restricted between January 1 - August 31, and between November 15 - April 1 for roost sites, if it conflicts with eagle use of the area.
D.	Range	a. Not applicable.
E.	Timber	
	1. Timber Management Planning	a. There will be no scheduled harvest within 1/4 mile radius, as a minimum, of any known or potential nest site, roosting or staging area. Timber harvest and related activities will be restricted to occurring outside of the habitat use period.
		b. To maintain nesting and winter roost and perch habitat, and to lessen susceptibility to disease, competing vegetation may be controlled or eliminated from immediately around these habitats using biological or silvicultural methods.
F.	Water, Soil, and Air	a. Meet Forest-wide Standards and Guidelines.
		b. If conflict occurs, require air space restrictions for low level aircraft from January 1 to August 31 in the vicinity of nest sites and feeding areas when in use.
G.	Minerals and Geology	a. No surface mining within a minimum of 1/4 mile of known nests, and no mining activity within 1/4 mile of a nest during season of use. No mining activity within 1/4 mile of shorelines used for feeding areas, or within 1/4 mile of known roosting sites, during seasons of bald eagle use.

			b. Mineral activity within 1/4 mile radius from known roosting or nest sites will require protection measures, such as timing restrictions.
H.	Rural Community and Human Resources		a. Meet Forest-wide Standards and Guidelines.
J.	Lands		
	1.	Special Use Management	a. No development of commercial sites or private homesites, hydroelectric facilities, and powerlines within 1/4 mile of known nests or roosting areas.
	2.	FERC License and Permits	a. Activities within 1/4 mile of a nest site or roost area may occur only outside the season of habitat use (January 1-August 31 for nest sites, and November 15-April 1 for roost areas).
	3.	Land Ownership Planning	a. Group II - parcels of Forest land containing existing or potential bald eagle habitat will be retained.
L.	Facilities		
	1.	Road Construction and Reconstruction	a. Reconstruction and maintenance of existing roads within 1/4 mile of a nest tree or roost area will be restricted between January 1 - August 31 for nest areas, and November 15 - April 1 for roost areas, or when these areas are in use. Where possible, relocate existing roads 1/4 mile from nest and roost areas.
			b. No road construction within 1/4 mile of known nests, feeding areas, and core roosting areas.
	3.	Road Operation	a. Roads within 1/4 mile of nests, in feeding and/or roost areas will have time-of-year restriction on maintenance and use.
P.	Protection		
	1.	Fire Management Planning	a. Protection of bald eagle nesting and roosting habitat from wildfire will be a high priority in determination of appropriate suppression response.
			b. Forest-wide Fire Protection Group A applies.
	2.	Treatment of Activity Fuels	a. No fuels treatment within 1/4 mile of known nests between January 1 - August 31 or within 1/4 mile of roost sites between November 15 - April 1.
	3.	Forest Pest Management	a. Integrated pest management concepts are permitted only when bald eagle habitat values can be maintained.

INTENSITY 16B: GRIZZLY BEAR

Although sightings of grizzly bears have been reported, no occurrences have been documented by the Washington Department of Wildlife in the on-going Grizzly Bear Population and Occurrence Study. Any grizzly bears found on the Forest will receive full protection under the Endangered Species Act. If the North Cascades Ecosystem is selected as a grizzly recovery area, a recovery plan will be developed which will guide grizzly bear management on the Forest. At the present time, the following standards and guidelines apply:

Program Element		Standards and Guidelines
A. Recreation		
	1. Recreation Planning	a. Planning will assure that potential developed or dispersed use will not degrade or compromise important potential grizzly use areas (forage sites, denning areas, or travel routes).
		b. The applicable Standards and Guidelines for Developed Recreation are found in Management Prescription 3A, program element A.
	2. Visual Quality	a. Meet Forest-wide Standards and Guidelines.
	3. American Indian Religious and Cultural Use	a. Meet Forest-wide Standards and Guidelines.
B. Wilderness		
	1. Wilderness Use Administration	a. Assure administration of wilderness use will not degrade or compromise important potential grizzly use areas.
C. Wildlife and Fish		
	1. Threatened and Endangered Sensitive Species Recovery Effort	a. Conduct an inventory of the condition of grizzly bear habitat.
		b. Send reports of sightings to coordinator.
D. Range		a. Not applicable.
E. Timber		
	1. Timber Management Planning	a. Assure any proposed activity in or near potential grizzly habitat is evaluated for its effect through NEPA analysis.
F. Water, Soil, and Air		a. Same as timber E-1a above.
G. Minerals and Geology		a. Same as timber E-1a above.
H. Rural Community and Human Resources		a. Meet Forest-wide Standards and Guidelines.
J. Lands		
	1. Special Use Management	a. Same as timber E-1a above.

2. Land Ownership Planning	a.	Group II- retain or acquire.
L. Facilities		
1. Transportation System Planning	a.	Same as timber E-1a above.
P. Protection		
1. Fire Management Planning	a.	If habitat quality is substantiated, managed burning may be appropriate.
	b.	Forest-wide Fire Protection Group D applies.
2. Forest Pest Management	a.	Not applicable.

INTENSITY 16C: AMERICAN PEREGRINE FALCON

There are no specific standards or guidelines for this species because no use or recovery plan sites have been identified. Habitat for peregrine falcon will be inventoried. Suitable standards and guidelines will be developed and implemented if use areas are identified.

Meet Forest-wide Standards and Guidelines, Section VI. Threatened, Endangered, and Sensitive Species for general direction if American peregrine falcon nesting and use is discovered.

INTENSITY 16D: GRAY WOLF

There are no specific standards or guidelines for this species because no use or recovery plan sites have been identified.

Meet Forest-wide Standards and Guidelines, Threatened, Endangered, and Sensitive Species direction if gray wolf use is discovered.

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17 TIMBER MANAGEMENT EMPHASIS Goal: Provide for the production of timber.

Description of Lands Where Prescription Applicable: This prescription may be applied to any suitable forest acres. Approximate acres suitable for timber production in each timber productivity type are: Principal Douglas-fir North 271,575 acres; Principal Douglas-fir South 128,900 acres; Upper True fir North 92,515; and Upper True fir South 111,810 acres. Timber productivity for these types as expressed by the average King site index at age 50 years (King 1966) are: 95, 79, 73 and 70 respectively. The intensity selected for any suitable acre will be determined at the project-level environmental (NEPA) analysis.

Desired Future Condition: Common to all Intensities.

Areas allocated to this strategy will take on the appearance of intensively managed timber lands, typified by even ages of stands, relatively even spacing of trees, well developed crown ratios, and low levels of mortality. Clearcuts are common; they may borrow form, line, and texture from the characteristics of the surrounding landscape, but management activities will generally be dominant. Access will generally be by road.

Intensities in this Management Prescription:

17A. **Natural Regeneration - Final Harvest:** Natural reforestation is supplemented by planting to meet Forest minimum stocking standards. This is a minimum investment intensity.

17B. **Natural Regeneration - Precommercial Thinning - Final Harvest:** Reforestation is natural, supplemented by planting to meet Forest minimum stocking standards. Precommercial thinning is planned. Release, growing stock protection measures, and fertilization may be prescribed. This intensity may be applied to existing reforestation condition classes. There are no location or species constraints.

17C. **Plant - Final Harvest:** Reforestation is by planting. Release and growing stock protective practices may be prescribed.

17D. **Plant - Final Harvest - Genetic Stock:** Reforestation is by planting, using genetically improved stock when available. Release and growing stock protective practices may be prescribed.

17E. **Plant - Commercial Thin (1) - Final Harvest - Genetic Stock:** Reforestation is by planting, using genetically improved stock when available. Release, growing stock protection measures, and fertilization may be prescribed. Commercial thinning harvest is planned 10 to 20 years before regeneration (final) harvest. MA 17E may be applied to stands that have not been precommercially thinned. Commercial thinning permitted in timber stands accessible by road, in which 50% of the trees are Douglas-fir.

17F. **Plant - Precommercial Thin - Final Harvest - Genetic Stock:** Reforestation is by planting, using genetically improved stock when available. Precommercial thinning planned. Release, growing stock protection measures, and fertilization may be prescribed. This intensity may be applied to existing reforestation condition classes. There are no location or species constraints.

17G. **Plant -Precommercial Thin - Commercial Thin (1) - Final Harvest - Genetic Stock:** This intensity is designed to obtain the maximum timber production possible while meeting the Forest-wide and Management Area Standards and Guidelines. Every applicable approved practice should be used to increase production. Reforestation is by planting, using genetically improved stock when available. Precommercial thinning is planned; commercial thinning is permitted, as in 17E. This intensity may be applied to existing reforestation condition classes. Maximum rotation length is at the age volume production is equivalent to 100% culmination of mean annual increment (see Glossary).

17H. **Plant - Precommercial Thin - Commercial Thin (3) - Final Harvest - Genetic Stock - Extended Rotation:** This intensity is designed to produce and maintain a portion of managed stands with a good range of large to very large trees, to meet visual quality requirements or other resource objectives. The basic rotation length is 200 years, with three intermediate thinning harvests; however, different rotation lengths may be prescribed. Reforestation is by planting. Precommercial and commercial thinning at 30 year intervals are planned. Release, growing stock protection practices, fertilization, or planting genetic stock may be prescribed. This intensity may be applied to existing reforestation condition classes.

The first two intensities (A, B) are applicable only to the upper slope type of true fir-western hemlock while intensities C through H are available to the principal forest type where Douglas-fir is the preferred tree species. Intensity C is applicable to the mixed conifer hardwood types where hardwood species will be planted.

Timber management intensities A through H have the same Standards and Guidelines for each program element except where noted.

Program Element	Intensity		Standards and Guidelines
A. Recreation			
1. Visual Quality	All	a.	Unit design will meet at least the Visual Quality Objective of Maximum Modification while still meeting the objective of this Management Prescription.
	All	b.	Within a trail foreground, manage to meet a Visual Quality Objective of at least modification.
2. American Indian Religious and Cultural Use	All	a.	Meet Forest-wide Standards and Guidelines.
3. Facility Site Planning	All	a.	Developed recreation sites will be allocated to, and managed under direction contained in Management Area 3A.
4. Use Administration	All	a.	Recreation opportunities will generally be in Roaded Natural and Roaded Modified ROS classes.
	All	b.	ORV use as provided in Forest-Wide Standards and Guidelines.

		All	c.	Roaded and non-roaded dispersed recreation are permitted.
	5. Trails	All	a.	Trails interrupted by logging or road construction shall be restored, or substitute trails provided so that the mileage of trails in the same general location is not diminished. Trails will be kept open, and clear directions for users provided during interrupting activities.
		All	b.	New trail location shall be permitted provided that it does not conflict with the long-term timber objectives.
B.	Wilderness	All	a.	Not applicable.
C.	Wildlife and Fish			
	1. Planning	All	a.	Meet Forest-wide Standards and Guidelines for maintenance of wildlife habitat.
	2. Habitat Improvement	All	a.	Enhancement of habitat may be permitted provided that full timber management objectives are met.
	3. Threatened, Endangered, and Sensitive Species	All	a.	Meet Forest-wide Standards and Guidelines.
D.	Range	All	a.	Range use may be permitted to accomplish specific silvicultural objectives.
		All	b.	Other range use may be permitted provided that timber production is not impaired.
E.	Timber			
	1. Timber Management Planning and Inventories	All	a.	The full range of activities are included which are necessary to develop and prepare the timber resource portion of the forest land and resource management plan, (including inventory, data analysis, rotation determination, harvest schedule development, EIS preparation, etc.) plus maintenance of the completed plan and control records.
	2. Regeneration Harvest	All	a.	Final harvest method determined as stipulated in E. 6a below.
	3. Intermediate Harvest	A-D,F	a.	Sanitation (salvage) cuts are permitted.
		E,G,H	a.	Thinning and sanitation (salvage) cuts are permitted.

4. Commercial Thinning Harvest	E,G,H	a.	Candidate stand should not be past Culmination of Mean Annual Increment (CMAI).
	E,G,H	b.	Individual trees will have crown ratios meeting or exceeding those prescribed in FSH 2409.26d (Silvicultural Examination and Prescription Handbook) for a commercial thin before management activity may occur.
	E,G,H	c.	Stand is expected to show a growth response to treatment.
	E,G,H	d.	Management activity should lessen susceptibility to infectious disease, e.g. stem and/or root rots.
	E,G,H		1. Harvest activities will be such as to limit damage to residual stands.
	E,G,H		2. Treat freshly cut whitewood stumps, above ten inches in diameter, with disease retarding agents. e.g. Borax.
	E,G,H	e.	In whitewood (True firs and hemlock) stands give priority to wetter plant associations for commercial thinnings.
	E,G,H	f.	Economic efficiency analysis shall be completed before the decision is made to use Commercial Thinning.
5. Salvage Harvest	All	a.	Permitted.
6. Silvicultural Examination and Prescription	All	a.	Prior to any silvicultural activity, a silvicultural examination and prescription will be made.
7. Post Treatment Examination and Validation	All	a.	A post-treatment examination and validation of the prescribed treatment will be made to insure that minimum prescribed standards are met.
8. Activity Review and Evaluation	All	a.	Reviews of silvicultural activities that are "in progress" or "recently completed" will be conducted to provide feedback to silviculturalists for the purpose of improving the quality of prescriptions.
9. Reforestation	A,B	a.	Residual seedlings and natural seeding will be utilized. Planting may be used to insure adequate reforestation. Genetically improved stock will not normally be planted.

	C-F,H	a.	Residual seedlings and natural seeding will be utilized. Planting may be used to insure adequate reforestation. Genetically improved stock will be planted when available.
	G	a.	Residual seedlings may be utilized and natural seedling may also occur. Planting may be used to insure adequate reforestation. Genetically improved stock will be planted when available.
10. Site Preparation for Planting and for Natural Regeneration	All	a.	Removal and utilization will be the preferred method for treating residual material for site preparation and hazard reduction. The NEPA analysis for a planned regeneration harvest should address both utilization standards and length/diameter specifications for "Piling of Unutilized Material" to provide for maximum removal under the sale contract.
	All	b.	Utilize as many viable residual seedlings as practical in the Pacific silver fir zone. Viable naturals retained should be undamaged, be of the prescribed species and size, and have a crown ratio of at least 0.3.
	All	c.	All site preparation methods that do not cause degradation of water and soil productivity are permitted. The selected method shall be based on a site-specific analysis.
11. Planting and Replanting	All	a.	A "pre-planting" survey will be conducted to determine site preparation needs as well as recording stockability relative to the prescription. Planting will follow prescriptions and Sale Area Improvement (SAI) Plans.
	All	b.	A minimum stocking of 190 well-spaced seedlings per acre should be alive and growing during the first growing season following reforestation. A post-treatment examination will be made at the end of the first growing season.
12. Certification of Planted, Seeded Natural Regeneration	All	a.	Before an area of deforested land may be certified as satisfactorily stocked, the reestablished tree seedlings must have survived and be thriving after three or more full growing seasons.

13. Animal Control for Reforestation and Timber Stand Improvement	All	a.	Conduct activities necessary to maintain the stocking level prescribed for the site. Coordinate method selection and activity with appropriate State and Federal agencies, and adjacent land owners.
14. Timber Stand Improvement	All	a.	Permitted activities should provide for salvage rights of wood residue in service contracts.
15. Release and weeding	B,F-H	a.	Use of mechanical, chemical, or manual methods to maintain the stocking level of desirable trees are permitted.
16. Precommercial Thinning	B,F-H	a.	Either killing or felling of excess trees are permitted. Salvage of this excess growing stock is encouraged whenever a market exists and damage to the remaining trees would not be significant.
17. Fertilization	B,F-H	a.	Fertilization may be prescribed for stands composed of 70% or more Douglas-fir growing on previously identified soil types, (Snoqualmie SRI 10, 12, & 13 and Mt. Baker SRI 12, 13, 24, 25, & 26) or other soil types which show positive response to fertilization. Potential fertilization gains are based on Nitrogen Fertilization Trials on Mt. Baker-Snoqualmie National Forest. (PNW Cooperative Research Project.)
	B,F-H	b.	May be prescribed for stands of different species composition in different soils if found responsive through research studies.
18. Certification of Timber Stand Improvement	All	a.	Examine completed treatment and prepare written certification that the treatment meets prescription objectives.
	All	b.	Take appropriate follow-up action if treatment does not meet the prescription.
19. Timber Sale Preparation	All	a.	Activities necessary for the preparation of sawtimber, roundwood, and miscellaneous forest product sales (except firewood) are included.
		b.	Begin NEPA analysis, start scoping.

20. Position Statement Development	All	a.	Staff specialists conduct an extensive review to obtain information for decision on whether to prepare a sale. A positive decision adds a sale project to the Forest Timber Sale Program. The statement documents the scoping process and includes a work plan scheduling specific activities.
	All	b.	Development of Position Statements is a continuing activity as sales must be planned several years ahead of projected sale date.
21. Sale Area Design	All	a.	Conduct an intensive interdisciplinary field investigation within and adjacent to the sale project area.
	All	b.	Complete NEPA analysis.
22. Sale Plan Implementation	All	a.	Implement all phases of the sale plan and prepare the timber sale report, incorporating the direction of the NEPA decision document.
23. Final Sale Package Preparation Appraisal and Offering, Bid Opening, and Sale Award	All	a.	Follow current Forest Service Manual directions to prepare the final sale package, offer, accept bids, and award sale.
24. Timber Harvest Administration	All	a.	Administer timber harvest for compliance with the provisions of timber sale contracts or permits.
25. Post Sale Measurements	All	a.	Conduct all activities necessary including check scaling, log/load accountability, and utilization scales to insure accuracy of timber volume/quantity and value for payment purposes.
26. Financial Management	All	a.	Perform all project work involved with timber sale financial requirements.
27. Sale Area Administration	All	a.	Day-to-day, on-the-ground inspections will preferably be conducted by Certified Sale Administrators. Specific Standards and Guidelines are found in FSH 2409.23 - Timber Sale Administration Handbook.
28. Non-recurring Contractual Work	All	a.	Take timely appropriate action to complete unscheduled project work associated with timber sale contract administration such as contract modifications, contract term extensions, breach, unauthorized cutting, etc.

29. Administration, Execution and Supervision of Cooperative Work	All	a.	Require the purchaser to perform all possible work which is involved with his timber sale contract. Entering a cooperative agreement to perform the purchaser's work should be avoided for most projects. Cooperative road maintenance is often an exception.
	All	b.	Conduct all project work involved with purchaser cooperative agreements. Knudsen-Vandenberg (KV) and BD accounts are excluded.
30. Export and Substitution Control	All	a.	Administer export and substitution control regulations. Make timely and appropriate reports on violations.
31. Cost Collection	All	a.	Participate in data collection, mill studies, to update Appraisal Handbook. Specific needs are coordinated by the Regional Director of Timber Management.
32. Commercial Fuelwood Sale Preparation/Administration and Personal Use Fuelwood Sale/ Administration	All	a.	Wherever feasible prepare, offer, sell, and administer the sale of unutilized wood created from regeneration and thinning harvest units. Refer to Standards and Guidelines 20 and 25 for general guidance in this process.
	All	b.	Encourage relogging of regeneration harvest units if adequate volume of unutilized wood is present and reforestation requirements and other resource protection can be maintained.
	All	c.	Consider hauling PUM (Piling of Unutilized Material) to locations that will facilitate better utilization. Also seek prospective purchasers who could chip PUM at the sale site.
	All	d.	Maintain roads, weather conditions permitting, to allow access to unutilized wood residue concentrations for fuelwood or fiber sales.
33. Free Convertible Products Preparation and Administration	All	a.	Consult current budget appropriation direction and Forest Service Manual for specific Standards and Guidelines in issuing free use permits. Generally, convertible wood products, except fuelwood in some cases, are sold by commercial sale because of the value and demand.

34. Nonconvertible Products Free & For Sale Preparation and Administration	All	a.	Follow current FS Manual on free use and sale of non-convertible products.
35. Nursery Management	All	a.	Not applicable.
36. Cone Collection	All	a.	Follow the Forest's Ten Year Seed Collection Plan for cone quantities by elevation, seed zone, and species for family selection.
37. Seed Extraction	All	a.	Not applicable.
38. Seed Certification & Storage	All	a.	All seed collected will be certified to minimum standards of SIA.
39. Genetic Forest Tree Improvement Program			
(1) Tree Selection and Maintenance	All	a.	Tree Selection based on superior growth, form and disease resistance.
(2) Seed Collection from Selected Trees	All	a.	Collect seed from selected trees to use in reforestation and seed orchard establishment.
(3) Genetic Evaluation Plantations	All	a.	Establish test plantations with seedlings from selected trees in order to evaluate parents by comparing the performance of their offspring. For Douglas-fir and noble fir only.
(4) Seed Orchards	All	a.	Establish seed orchards using scion or seed collected from selected trees to produce seed for reforestation.
F. Water, Soil, and Air			
1. Planning	All	a.	Meet Forest-wide Standards and Guidelines.
2. Soil Resource Inventory Updating	All	a.	Continue to update, monitor and record status of unsuitable forest lands classified S-8 soils.
G. Minerals & Geology	All	a.	Meet Forest-wide Standards and Guidelines.
H. Rural Community and Human Resources	All	a.	Meet Forest-wide Standards and Guidelines.
J. Lands			
1. Special Use Management	All	a.	Discourage permits which would reduce timber production.
2. Rights-of-way Grants	All	a.	Meet Forest-wide Standards and Guidelines.
3. Land Ownership Planning	A-F	a.	Group III, available for land exchange.

	G,H	a.	Group III, available for land exchange provided approximately equal acreage of like lands are acquired.
L. Facilities			
1. Transportation System Planning and Road Preconstruction, Construction Reconstruction and Operations	All	a.	Meet Forest-wide Standards and Guidelines.
	H	b.	Location of roads should minimize impacts on dedicated or sensitive lands where practicable; i.e., wilderness, NRA's, RNA's, semi-primitive dispersed recreation.
P. Protection			
1. Fire Management Planning	All	a.	Fire Management Direction Old Growth Stands - Group E (1); Second Growth Stands - Group E (2); Harvest Areas, Pre-reforestation Certification - Group E (3)
2. Treatment of Activity Fuels Also termed: Slash disposal Fire hazard reduction Wood residue treatment	All	a.	Permitted methods are burning, rearrangement, and removal. Removal by utilization is the preferred treatment, and should be used wherever feasible. Utilization must be considered as a post-activity treatment option.
3. Disposal of Activity Fuels by Burning	All	a.	Broadcast burning, piling and burning, or burning landing concentrations may be prescribed.
4. Rearrangement of Activity Fuels	All	a.	Any rearrangement to meet prescribed standards of fire hazard reduction may be used. Two such methods of treatment are chipping and PUM (Piling of unutilized material).
5. Removal of Activity Fuels	All	a.	Hauling activity fuels to good locations for subsequent utilization is permitted. PUM and hauled activity fuels should be utilized by commercial wood fiber, commercial fuelwood, or personal use fuelwood sales whenever feasible.
	All	b.	Maintain roads to allow access to wood residue concentrations for fuelwood or fiber sales, weather conditions permitting.
	All	c.	Encourage relogging of regeneration harvest units if adequate volume of fiber is present and reforestation requirements and other resource protection can be maintained.

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	B,F G,H	d.	Include a provision for wood residue salvage rights for all trees cut in pre-commercial thinning contracts.
6. Forest Pest Management	All	a.	Meet Forest-wide Standards and Guidelines.

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18 RESEARCH NATURAL AREAS

Goal: Preservation of naturally occurring physical and biological units where natural conditions are maintained insofar as possible for the purpose of: 1) comparison with those lands altered by management; 2) education and research on plant and animal communities; and 3) preservation of gene pools for typical as well as threatened and endangered plants and animals.

Description of Lands Where Prescription Applicable: Existing RNA - North Fork Nooksack River - 1,407 acres established in 1934. Principal features include Douglas-fir and western hemlock forests. Lake Twenty-two - 790 acres established in 1947. Principal features include north slope western redcedar and western hemlock forests and a subalpine lake. Long Creek - 640 acres established in 1947. Principal feature includes a south-slope western hemlock forest and climax red alder forest. Potential RNA - Perry Creek - Approximately 2,000 acres. Principal features include a unique assemblage of rare fern species and Alaska cedar in a stand with mountain hemlock and subalpine fir, and a heather-huckleberry community. Green Mountain - Approximately 2,000 acres. Principal features include a subalpine parklike mosaic, heather-huckleberry communities, and subalpine lush herbaceous communities. Chowder Ridge - Approximately 1,900 acres. Principal features include an alpine community mosaic with Krummholz tree groups. North Fork Nooksack Addition - Approximately 2,500 acres. Principal features include a 75 year old burn in Douglas-fir along with a wide array of subalpine meadow communities. Lily Lake - Approximately 800 acres. Principal features include high elevation mountain hemlock - Pacific silver fir forest. Lake is typical of mid to high elevation subalpine lakes.

Desired Future Condition: Preservation of naturally occurring physical and biological processes without undue human intervention, as a source for gene pools and for education and research on plant and animal communities.

Intensities in this Management Prescription: None

Program Element		Standards and Guidelines
A. Recreation		
1. Use and Administration	a.	Recreation activities and use within RNA's shall not be encouraged. If necessary to prevent damage, permits or closures may be instituted.
	b.	Overnight camping and the use of fires shall be discouraged. Such use may be prohibited where it interferes with the preservation of naturally occurring biological or physical conditions.

		c. Discourage all recreation use within 200 feet of streams, lakes and ponds except for use on system trails.
		d. Prohibit all recreation pack and saddle stock.
		e. All recreation summer and winter ORV use is prohibited.
		f. Hunting and trapping shall not be encouraged.
2.	Visual Quality	a. Visual Quality Objective of preservation shall be maintained.
3.	Archaeological and Historical Properties	a. Meet Forest-wide Standards and Guidelines.
4.	American Indian Religious and Cultural Use	a. Manage identified and potential cultural resource sites to protect sites and preserve values.
		b. Prohibit interpretation rehabilitation or restoration of historical or archaeological sites within RNA. Relocate if possible to rehabilitate or interpret. Relocation shall include a restoration plan for the RNA.
		c. Stabilize and preserve Green Mountain Lookout. Accept non-conforming structures.
5.	Interpretive and Public Use Administration	a. Education will generally be directed toward the graduate level, but may be approved for advanced undergraduate or interested groups.
		b. Prohibit on-site interpretation or demonstrative facilities.
		c. Criteria for education use shall be: 1) minimum influence on natural character of RNA, 2) minimum influence on existing research activities, 3) size, frequency, and intensity of group use, and 4) provisions for supervising and controlling group activities.
		d. Publicity that would attract the general public to the area shall be avoided.
		e. Information on location and resources of the RNA shall be made available to responsible scientific and educational parties.
		f. Signs or references on maps should be discouraged except to protect the RNA.
		g. Discourage publicity of special features within RNA's.

	5. Trail System Maintenance and Operation	a. Existing trails will be allowed to remain. Minor rerouting or upgrading shall be allowed provided it does not compromise the purpose of the RNA.
		b. New trails will not normally be constructed unless it is needed for research purposes or can be shown to conform to the purpose of the RNA and compliment its management objectives.
B.	Wilderness	
	1. Wilderness Use Administration	a. For those RNA's, or portions thereof, that fall within designated Wilderness areas, no mechanized equipment will be allowed.
C.	Wildlife and Fish	
	1. Planning	a. Prohibit introduction of exotic plant and animal species.
		b. Reintroduction of former native species may be permitted with Regional Forester approval and with concurrence of PNW Station Director.
		c. Species of special interest may be managed within RNA according to standards and guidelines for those species except that management shall not violate the integrity of the RNA.
		d. Control of excessive animal populations may be considered where such populations threaten the RNA integrity. Control measures are subject to Regional Forester and PNW Station Director approval.
		e. Habitat improvement is prohibited.
		f. Fish stocking shall be prohibited, except as provided under C1b above.
D.	Range	a. Grazing of domestic livestock is prohibited.
E.	Timber	
	1. Timber Management Planning	a. Scheduled timber harvest is prohibited.
		b. Logging may be permitted following fire, windthrow, insect attack, or disease which may threaten the RNA or threaten values adjacent to the RNA. This is subject to approval of the Regional Forester and PNW Station Director.
	2. Reforestation	a. Natural regeneration following fire, windthrow, insect attack, or disease is the preferred reforestation method.
		b. Prohibit firewood cutting.

	3. Timber Management Research	a.	All research proposals shall be subject to approval by the PNW Station Director and any applicable permits obtained from the appropriate National Forest System line officer.
		b.	Research should be limited to non-consumptive, non-destructive, and essentially observational activities. Some collecting of soil, plants, or animal specimens may be permitted on a case-by-case basis.
		c.	Research will be conducted only by qualified individuals or groups.
F.	Water, Soil, and Air	a.	Meet Forest-wide Standards and Guidelines.
G.	Minerals and Geology	a.	RNA's shall be recommended for withdrawal from mineral entry.
H.	Rural Community and Human Resources	a.	Meet Forest-wide Standards and Guidelines.
J.	Lands		
	1. Special Use Management	a.	Minimal, temporary or semi-permanent research facilities and installations may be approved under permit. Approval is required through the PNW Station Director and coordinated with the Forest Supervisor.
	2. Rights-of-way Grants	a.	Rights-of-way easements including utility corridors existing before RNA establishment shall be honored, but upgrading of existing ones shall be discouraged.
		b.	No longer needed rights-of-way shall be restored to their natural surrounding conditions.
		c.	Proposals for new rights-of-way shall require Regional Forester recommendation and Chief of Forest Service approval.
		d.	Roads shall be discouraged as RNA boundaries.
	3. FERC License and Permits	a.	Recommend against FERC licenses or permits.
	4. Land Ownership Planning	a.	All lands will be placed in Group II - retain or acquire.
L.	Facilities		
	1. Transportation System Planning	a.	New trail or road construction or reconstruction should not normally take place unless it is aimed at preserving or enhancing RNA values.

		b. Hazard tree felling is permitted along boundary trails or roads for safety. Felled trees shall remain in place unless lying across trail or road. Trees should not normally be hauled out or used for trail improvements.
	2. FA&O Facility Maintenance and Reconstruction	a. Prohibit buildings or other facilities. Allow existing facilities to deteriorate without replacement.
P. Protection		
	1. Fire Management Planning	a. Managed fire may be considered to perpetuate the sere and thus the cell that the RNA is meant to represent.
		b. If fire is used to manage a sere, it should mimic a natural fire, but with prudent measures to avoid catastrophe.
		c. Prescribed burn plans shall be subject to approval by the PNW Station Director and Regional Forester.
		d. Naturally occurring or accidental human-caused fire shall be extinguished at the smallest practical acreages unless it meets strict guidelines of a management prescription to maintain the RNA objectives.
		e. Ground disturbing activity to suppress fire such as fire breaks with bulldozers shall be avoided if possible.
		f. Fire retardants shall be avoided if possible.
	2. Fuel Management Inventory	a. Fuels normally should be allowed to accumulate at natural rates unless they threaten adjacent values or the existence of the RNA.
	3. Forest Pest Management	a. No action will be taken against insects or diseases unless the outbreak threatens adjacent resources or would drastically alter the natural ecological processes within the RNA. If action is proposed, it shall be subject to approval of the PNW Station Director and Regional Forester.

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19 MOUNTAIN HEMLOCK ZONE

Goal: Determine what portion of the mountain hemlock plant associations are tentatively suitable forest land.

Description of Lands Where Prescription Applicable: These lands are located on the Skykomish, Darrington, and Mt. Baker Ranger Districts and are identified as Mtn. Hemlock plant associations, described in "Preliminary Plant Associations and Habitat Types for the Mt. Baker-Snoqualmie National Forest" by Henderson and Peter (1983, 1984, 1985). The delineation of these habitat types on maps were drawn for modeling purposes. Actual on-the-ground verification will be made by a certified silviculturist as part of project environmental analysis in adjacent management areas.

These lands are normally characterized by heavy snowfall accumulations and a very short growing season. These forest lands have been classified as "not suited" for timber production because existing knowledge, research, and experience does not provide reasonable assurance of reforestation success within 5 years after final harvest (36 CFR 219.14(c) (3)).

Desired Future Condition: This prescription is included so that a study plan may be implemented to test various silvicultural practices which will address the reforestation question. The study plan is "A Study Plan for the Determination of Suitability for the Mountain Hemlock Zone on the Mt. Baker-Snoqualmie National Forest." The implementation of the Study Plan will require various types of timber removal. These activities will give the appearance of intensively managed lands, typified by even ages of stands. They may or may not reflect relatively even spacing of trees and well developed crown ratios. Silvicultural treatments may borrow form, line, and texture from the characteristics of the surrounding landscape, but Study activities may be dominant. For this study, up to approximately 250 acres may be harvested, in 25 plots of approximately equal size. These cut areas will represent a structured "study" design and will be distributed on the three districts mentioned.

Intensities In Management Area 19: None

Program Element		Standards and Guidelines
A. Recreation		
	1. Visual Quality	a. Visual Quality Objective ranges from retention to modification.
	2. American Indian Religious and Cultural Use	a. Meet Forest-wide Standards and Guidelines.
	3. Facility and Site Management	a. No developed recreation sites permitted in Study plots.
	4. Use Administration	a. No ORV use is permitted in the Study plots. Study plots will be located to avoid known ORV travelways.
		b. A full range of recreation activities is permitted if use does not interfere with the prescription goal.
	5. Trail System Maintenance and Operation Reconstruction	a. Maintain existing trails. Replace or relocate trails disrupted by roads or study plan activities.

		b. New trail location may be permitted, provided it does not conflict with long-term study objectives.
B. Wilderness		a. Not applicable.
C. Wildlife and Fish		
	1. Habitat Improvement	a. Improvement of habitat may be permitted if consistent with the Study Plan.
	2. Threatened, Endangered, and Sensitive Plants	a. Meet Forest-wide Standards and Guidelines.
D. Range		a. No domestic livestock grazing in Study Plots.
E. Timber		
	1. Timber Management Planning	a. Limit timber management activities to those needed to carry out the Study Plan. Volume harvested in this Study will not contribute to ASQ.
		b. Varying combinations of silvicultural regeneration systems may be used, such as: - Harvest, clearcut even-aged regeneration method; - Strip clearcut/strip shelterwood even-aged regeneration method; - Shelterwood even-aged regeneration method.
	2. Silvicultural Examinations and Prescriptions	a. Guided by the Study Plan, specialists will select probable Study unit locations. As part of the Study unit selection process, and prior to any silvicultural activity, an intensive silvicultural stand examination will be made in probable Study unit locations. Analysis of stand examinations will aid in selecting planned Study units.
		b. A silvicultural prescription for each Study unit will be approved by a certified silviculturist.
		c. Other management practices **NOT** to be applied under this Study are: - Broadcast burning; - Genetic tree improvement; - Precommercial thinning; - Salvage harvest; - Fertilization.
	3. Post Treatment Examination and Validation	a. A minimum of three post-treatment examinations will be made at first, third, and fifth year intervals.

4. Timber Sale Preparation and Timber Harvest Administration	a.	Each of the 25 units will have regeneration cut.
	b.	Unit design, location, etc. will follow the Study Plan.
	c.	Additional standards and guidelines for timber sale preparation and administration are located under Management Prescription 17.
5. Reforestation	a.	Each unit will be reforested by either natural or artificial means as indicated in the Study Plan.
F. Water, Soil, and Air		
1. Planning	a.	Meet Forest-wide Standards and Guidelines.
2. Soil Resource Inventory Updating	a.	Continue to update, monitor, and record S-8 soils.
G. Minerals & Geology	a.	Meet Forest-wide Standards and Guidelines.
H. Rural Community and Human Resources	a.	Meet Forest-wide Standards and Guidelines.
J. Lands		
1. Special Uses Management	a.	Discourage permits which would interfere with Study plots.
2. Rights-of-Way Grants	a.	Meet Forest-wide Standards and Guidelines.
3. Land Ownership Planning	a.	Group III, available for land exchange, except Study plots, which are Group II.
L. Facilities		
1. Transportation Planning	a.	Meet Forest-wide Standards and Guidelines.
2. Road Preconstruction, Arterial, Collector, Local Bridge & Culvert, Timber Purchaser	a.	Meet Forest-wide Standards and Guidelines.
3. Construction Engineering, Arterial, Collector, Local Bridge & Culvert, Timber Purchaser	a.	Meet Forest-wide Standards and Guidelines.
4. Road Reconstruction, Arterial, Collector, Local, Bridge & Culvert, Timber Purchaser	a.	Meet Forest-wide Standards and Guidelines.
5. Road Construction, Arterial, Collector, Local, Bridge & Culvert, Timber Purchaser	a.	No system roads will be constructed. Temporary roads are permissible to meet Study Plan objectives or to access adjacent management areas.
6. Road Operation	a.	Meet Forest-wide Standards and Objectives.

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P. Protection

1. Fire Management Planning	a.	Forest-wide Fire Protection Group E (1) will apply with the exception of the use of prescribed fire.
2. Treatment of Activity Fuels	a.	Emphasize residue utilization for hazard reduction.
	b.	Treatment of fuels by prescribed burning is not permitted.
3. Forest Pest Management	a.	Meet Forest-wide Standards and Guidelines.

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20 CEDAR RIVER MUNICIPAL WATERSHED (CITY OF SEATTLE)

Goal: Provide raw water at a level of quality and quantity, with treatment by the purveyor, which will result in a satisfactory and safe water supply. Production of timber products is allowed to the extent that the water quality goal is met. There is varying emphasis on other uses.

Description of Lands Where Prescription Applicable: The Watershed is comprised of private, municipal and National Forest lands totaling 90,495 acres in King County. This strategy applies to National Forest lands within the watershed not allocated to other Management Areas. National Forest lands are intermingled with City of Seattle and private lands in a checkerboard ownership pattern in the eastern portion of the watershed.

City of Seattle and private lands within the watershed are closed to the public. All National Forest lands in the watershed are open to public use. However, because the Forest Service does not own public rights on the roads, the public has no road access to interior National Forest parcels.

A spotted owl habitat area has been provided for in the eastern portion of the watershed. Management Area 11 standards and guidelines will apply to these lands.

Intensities in this Management Prescription:

20D. Negotiate a new Cooperative Agreement.

Desired Future Condition:

The desired future condition for the watershed has been based on the 1962 Cooperative Agreement between the City of Seattle and the Forest Service. The management goals of that agreement for City owned lands have recently been modified by the City of Seattle's Secondary Use Policies. As new findings on wildlife protection needs become known, changes in the management direction for National Forest lands in the watershed are likely to occur as well.

The Forest Service will initiate negotiations on a new Cooperative Agreement between the City of Seattle and the Forest to reestablish goals and objectives for management of the watershed. Until a new agreement is negotiated, the Forest Service will not enter into new land exchanges affecting National Forest lands within the watershed. Pending a new agreement, the 1962 Cooperative Agreement will remain in effect. When a new agreement is reached, the Forest Plan will be amended to incorporate its goals and direction.

Program Element		Standards and Guidelines
A. Recreation		
	1. Visual Quality	a. Visual Quality Objective is maximum modification except for areas seen from the Pacific Crest National Scenic Trail where the standard will be retention foreground.
	2. American Indian Religious and Cultural Use	a. Meet Forest-wide Standards and Guidelines.
	3. Facility Construction, Reconstruction, and Management	a. No existing or planned developed recreation sites.
	4. Use Administration	a. Dispersed use is permitted unless otherwise restricted, but is not encouraged.
	5. Trails Planning	a. Use of the Pacific Crest National Scenic Trail (PCNST) in the far eastern part of the watershed will be allowed to continue. No relocation is planned.
		b. No new trails are planned.
B. Wilderness		a. Not applicable.
C. Wildlife and Fish		
	1. Planning	a. A spotted owl habitat area is designated in the watershed to fit into the Forest-wide network. MA 11 standards and guidelines will be applied in these areas.
	2. Threatened and Endangered Species	a. Meet Forest-wide Standards and Guidelines.
D. Range		a. Not applicable.
E. Timber		
	1. Timber Management Planning	a. Timber Management Prescription 17, program element E is applicable, Intensities A, C, D are applicable.
F. Water, Soil, and Air		
	1. Soil Resource Inventory	a. Continue to update, monitor and record S-8 classified soils. Maintain inventory of areas in the TRI/GIS system.
	2. Planning	a. Use soil information when locating roads and harvest units.
	3. Improvement	a. Emphasize maintenance and improvement of water quality over other resources.

	4. Administration/Management	a. Operations are conducted in compliance with the 1962 Coop Agreement (subject to amendment) with the City of Seattle which includes prohibition of manufacturing, use of uniform road construction standards, and compliance with sanitary regulations. No overnight camping is allowed (applies only to Industrial Operations). Industrial operations must provide chemical toilets.
		b. Prescribed slash burning is discouraged to protect residual seedlings, soil, water, and air quality.
		c. Roads will not be constructed across S-8 classified soils, and timber harvest will not be done on S-8 or J-8 lands.
	5. Soil Resource Monitoring	a. Timber harvest activities will result in no more than 10 percent of the project area having mineral soils exposed within the riparian zone, or 15 percent outside the riparian zone.
G.	Minerals and Geology	a. National Forest lands were withdrawn from locatable mineral and mineral leasing activities (which includes minerals, oil and gas, and geothermal) by Public Law 97-350, 96 Stat. 1661 dated October 18, 1982. Extraction of common variety rock for road development needs is acceptable where water quality is not degraded.
H.	Rural Community and Human Resources	a. Meet Forest-wide Standards and Guidelines.
J.	Lands	
	1. Special Use Management	a. Approval will be recommended for only those special use authorizations compatible with over all management goals and direction for this area.
	2. Rights-of-Way Grants	a. Rights-of-Way and easements will be given or obtained as outlined in the 1962 Cooperative Agreement.
	3. Land Ownership Planning	a. Maintain the options of maintaining National Forest land ownership in the watershed and the option of disposal of lands and/or timber to the City of Seattle. National Forest lands within the watershed fall into land classification Group V, more intensive study and planning necessary before landownership decisions are made.
		b. Retain right-of-way on Pacific Crest National Scenic Trail.

L. Facilities		
1. Transportation System Planning	a.	Road locations are jointly planned and reviewed in accordance with the 1962 Coop Agreement in order to minimize the miles of road constructed.
2. Road Construction and Reconstruction	a.	Road construction standards are used as jointly agreed, in accordance with the 1962 Coop Agreement.
3. Road Operation	a.	Road maintenance operations, schedules, and standards are agreed to annually through cooperative meetings between Forest Service, municipal owner, and private owners.
	b.	Road maintenance is financed through cooperative maintenance agreements under Forest Service timber sale contracts, cost-share agreements, and haul permit charges.
	c.	Locked gates and gate watchmen services at main entries are provided to control access by road.
P. Protection		
1. Fire Management Planning	a.	All operations are subjected to fire regulations mutually developed by the City of Seattle and the Forest Service as provided by the 1962 Coop Agreement.
	b.	Suppress all fires utilizing suppression strategies and resources compatible with fire intensity conditions and values.
	c.	Prescribed fire has limited application. Maintenance of vegetative cover is important to meeting resource objectives. Some burning of piled debris may be done.
	d.	Avoid the use of ground disturbing equipment within 100 feet of water courses. Avoid the use of retardant within 200 feet of water courses. Firelines should be located away from streams, maintaining at least 50 feet between the stream course and fire lines if possible.
	e.	Natural fuels shall normally be left in place for soil stability. Activity fuels shall normally be treated by utilization.
2. Forest Pest Management	a.	Integrated pest management permitted except where use of pesticides conflicts with water quality objectives.

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21	GREEN RIVER MUNICIPAL WATERSHED (CITY OF TACOMA)	Goal: Provide for the production of water at a level of quality which, with adequate treatment by the purveyor, will result in a satisfactory and safe water supply. Timber production is emphasized to the extent that the water quality goal is met. There is varying emphasis on other uses.

Description of Lands Where Prescription Applicable: This prescription is applied to the approximately 36,000 acres of National Forest land within the Green River Watershed. Such lands are located in an intermingled pattern in the eastern part of the Green River drainage. About 9,000 acres of National Forest Land are currently being considered under the existing Memorandum of Understanding for land exchange.

Intensities in this Management Prescription:

21A Current Direction, Timber Harvest and Dispersed Recreation Permitted.

Desired Future Condition:

Complete land exchanges as described in the 1984 joint Memorandum of Understanding with the City of Tacoma. As exchanges are completed, relinquish public use rights on those roads no longer needed to access National Forest land. All other use rights may be retained as needed.

Timber production with dispersed recreation in a primarily roaded modified setting will be emphasized. Special constraints will help protect water quality. Emphasis on public firewood cutting will be continued. Forest Service roads with public use rights, which provide access to National Forest lands, will remain open for dispersed recreation including deer and elk hunting.

Program Element		Standards and Guidelines
A.	Recreation	
	1. Visual Quality	a. Manage to a maximum modification visual quality standard except in areas seen from the Pacific Crest National Scenic Trail where the standard will be foreground retention.
	2. American Indian Religious and Cultural Use	a. Meet Forest-wide Standards and Guidelines.
	3. Facility Construction, Reconstruction	a. No developed recreation sites exist. Construct no new sites unless it is concluded after consultation with the City of Tacoma and the Washington State Department of Social and Health Services that such facilities can be installed and utilized while safeguarding water quality.
	4. Use Administration	a. Emphasize dispersed recreation. Overnight camping will be allowed.

		b. Discourage camping within 200 feet of perennial streams. Physically block access spurs to campsites within 200 feet of streams where necessary to discourage use.
		c. Discourage issuance of Recreation Special Use Permits such as concerts, religious gatherings, group parties or recreation vehicle clubs.
B. Wilderness		a. Not applicable.
C. Wildlife and Fish		
	1. Planning	a. Meet Forest-wide Standards and Guidelines.
		b. Cooperate with the Washington State Department of Fisheries and Department of Wildlife in restoration and enhancement of fisheries habitat and the stocking of resident and anadromous fish within the area.
		c. Habitat improvements are encouraged.
D. Range		a. Not applicable.
E. Timber		
	1. Timber Management Planning	a. Program Element E from Timber Management Prescription 17, Investment Levels A through G are available. Silvicultural prescription and economic analysis at the time an activity is planned shall determine the appropriate investment level.
F. Water, Soil, and Air		
	1. Soil Resource Inventory	a. Continue to update, monitor, and record S-8 classified soils. Maintain inventory of areas in TRI/GIS system.
	2. Planning	a. Use soil information when locating roads and harvest units.
	3. Improvement	a. Emphasize maintenance and improvement of water quality over other resources. Bank stabilization and erosion control is encouraged to reduce turbidity, bedload and sedimentation.
	4. Administration/Management	a. Industrial operations must provide a means of disposing of human wastes and litter and restoration of the site upon removal of overnight facilities.
		b. Cooperate with the Washington State Department of Social and Health Services and the City of Tacoma in providing data that would be helpful in the study of the watershed and water quality.

		c. Prescribed slash burning is discouraged to protect residual seedlings, soil, water and air quality.
		d. Roads will not be constructed across S-8 classified soils and timber harvest will not be done on S-8 or J-8 lands.
		e. Timber harvest activities will result in no more than 10 percent of the project area having mineral soils exposed within the riparian zone, or 15 percent outside the riparian zone.
		f. Meet at least annually with the City of Tacoma to review work plans, anticipated contractor or permittee work within the drainage, informational or educational materials referencing activities within the drainage, and other issues of mutual interest.
G.	Minerals and Geology	a. National Forest lands were withdrawn from locatable mineral and mineral leasing activities (which includes minerals, oil and gas, and geothermal) by Public Law 97-350, 96 Stat. 1661 dated October 18, 1982. Extraction of common variety rock for road development needs is acceptable where water quality is not degraded.
H.	Rural Community and Human Resources	a. Meet Forest-wide Standards and Guidelines.
J.	Lands	
	1. Special Use Management	a. Approval will be recommended only for those special uses compatible with overall management goals and direction for this area.
	2. Land Ownership Planning	a. Applicable details are found in the Memorandum of Understanding between the Forest Service and the City of Tacoma, dated August 29, 1984, F.S. Control #84-06-58-5.
		b. National Forest lands are in Group III and IV. (Group III - available for land exchange and Group IV - available for disposal through land exchange).
L.	Facilities	
	1. Transportation System Planning	a. Meet Forest-wide Standards and Guidelines.
	2. Road Construction and Reconstruction	a. Perform and administer road construction/reconstruction activities to stay within the water quality goal for this area.

3. Road Operation	a.	Road maintenance is financed through cooperative maintenance agreements under Forest Service timber sale contracts, cost share agreements, haul permit charges and appropriated funding.
	b.	Refer to Forest Service-Corps of Engineers joint Memorandum of Understanding No. DA(S) 45-108-CIVENG-60-10 which describes administration and maintenance agreements on Road 54 from the west watershed entry to the end of the Corps of Engineers' ownership.
P. Protection		
1. Fire Management Planning	a.	Forest-wide Fire Protection Group E applies.
2. Forest Pest Management	a.	Integrated pest management is permitted except where the use of pesticides conflicts with water quality objectives.

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22 SULTAN RIVER MUNICIPAL WATERSHED (CITY OF EVERETT)

Goal: Provide water at a level of quality and quantity which, with treatment by the purveyor, will result in satisfactory and safe water supply. There is emphasis on providing for other uses.

Description of Lands Where Prescription Applicable: This prescription is applied to approximately 16,800 acres of National Forest land within the Sultan River watershed. It excludes the private and municipal ownership in the watershed.

Intensities in this Management Prescription:

22B. Current Situation. Restricted watershed; recreation use only in developed sites. Provide for timber production, protect watershed values beyond legal requirements, maintain fish and wildlife. The watershed will be managed under the 1963 Memorandum of Understanding between the Forest Service, the City of Everett, and the Snohomish County Public Utility District.

Desired Future Condition:

The National Forest land will be owned and managed by another party either private, State or municipal. The Forest Service will relinquish all rights except those necessary for the Federal Power Withdrawal (FERC Project No. 2157). While still in the National Forest system, lands will be managed for developed recreation use, timber production, protection of watershed values, and maintenance of fish and wildlife habitat. Emphasis is on maintaining current high quality water production, and for producing moderate levels of fish/wildlife habitat, recreation, and timber outputs.

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Program Element		Standards and Guidelines
A. Recreation		
	1. Recreation Planning	a. Developed sites permitted. Planning limited to developed sites for picnicking, camping, boating and lake fishing. Water contact sport (swimming) prohibited. Dispersed use (ORV, hunting, driving for pleasure, hiking, etc.) is discouraged, but not prohibited.
	2. Visual Quality	a. Meet Forest-wide Standards and Guidelines.
	3. American Indian Religious and Cultural Use	a. Meet Forest-wide Standards and Guidelines.
	4. Facility and Site Reconstruction, Construction and Management	a. Site development (boat access, picnic, camping and interpretative sites) along Spada Lake is emphasized. Access to the lake should be distributed to allow access to the entire lake.
		b. Interpretation of the hydroelectric projects are permitted.
		c. Gas-powered boats are not permitted on the lake.
		d. The applicable Standards and Guidelines for Developed Recreation are found in Management Prescription 3A, program element A.
	5. Trail Planning	a. Trails to access the lake and around the lake permitted to manage user developed travelways. Sanitation facilities provided at the lake and the trailhead when on National Forest land.
B. Wilderness		a. Not applicable.
C. Wildlife and Fish		
	1. Planning	a. Emphasis is on maintaining 20% of the National Forest commercial timber land in "old growth".
		b. Maintain resident fisheries. Maintenance could involve some habitat improvement in the riparian area.
D. Range		a. Not applicable.
E. Timber		
	1. Timber Management Planning	a. The Standards and Guidelines for the Timber Management, MA 17, intensities C and D, program element E, shall apply to this management prescription.

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F. Water, Soil, and Air		
1. Improvement	a.	Meet Forest-wide Standards and Guidelines. Emphasize maintenance and improvement of water quality. Bank stabilization and erosion control is encouraged to reduce turbidity, bed load and sedimentation.
G. Minerals and Geology	a.	Meet Forest-wide Standards and Guidelines.
H. Rural Community and Human Resources	a.	Meet Forest-wide Standards and Guidelines.
J. Lands		
1. Special Use Management	a.	Administer special use permit for FERC license.
2. Right-of-Way Grants	a.	Meet Forest-wide Standards and Guidelines.
3. Land Ownership Planning	a.	Group IV - available for disposal through land exchange.
L. Facilities	a.	Meet Forest-wide Standards and Guidelines. Roads accessing developed sites maintained for public use. All other roads maintained as per the Forest Service-Department of Natural Resources Agreement for the Sultan Basin.
P. Protection		
1. Fire Management Planning	a.	Forest-wide Fire Protection Group E (2) applies.
2. Forest Pest Management	a.	Integrated pest management permitted except where the use of pesticides conflict with water quality objectives.

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23 OTHER MUNICIPAL WATERSHEDS

Goal: Provide water at a level of quality and quantity which, with treatment by the purveyor, will result in satisfactory and safe water supply with varying emphasis on timber production, recreation, and other uses.

Description of Lands Where Prescription Applicable: This prescription is applied to the small municipal watersheds of the Forest not covered in Management Prescriptions 20, 21, and 22. Watersheds are found throughout the Forest and at varying elevations. Most are forested old growth, second growth, and plantations - and access is generally by road.

Desired Future Condition: Common to all Intensities.

A varying mix of timber, recreation, wildlife, and other resource use will occur but the primary emphasis will be to meet the above stated goal for a municipal watershed.

Intensities in this Management Prescription:

23A Timber Harvest, Moderate Recreation Opportunities.

Program Element		Standards and Guidelines
A. Recreation		
	1. Recreation Planning	a. Recreation opportunities in SPNM, SPM, RN, and RM may occur.
		b. Day use shall be permitted. Overnight use may occur at designated sites.
		c. The applicable Standards and Guidelines for Developed Recreation are found in management prescription 3A, program element A.
	2. Visual Quality	a. Meet a Visual Quality Objective of foreground retention and middleground partial retention in primary viewsheds. Meet a VQO of Partial Retention in secondary viewsheds foreground and modification in secondary viewsheds middleground.
	3. American Indian Religious and Cultural Use	a. Meet Forest-wide Standards and Guidelines.
	4. Recreation Use Administration	a. ORV use may be controlled by closures on certain travelways.
	5. Trail Construction, Reconstruction, and Maintenance	a. Trail development may occur and will be located and constructed to minimize adverse effects on water quality.
B. Wilderness		a. Not applicable.
C. Wildlife and Fish		a. Meet Forest-wide Standards and Guidelines.
D. Range		a. Not applicable.
E. Timber		
	1. Timber Management Planning	a. The Standards and Guidelines for the Timber Management Prescription Intensity 17B, program element E, shall apply to this management prescription.
F. Water, Soil, and Air		
	1. Planning	a. Meet Forest-wide Standards and Guidelines.
	2. Improvement	a. Watershed improvement and maintenance activities are permitted. Use vegetative restoration methods to restore live root mat and reduce risk of slope failure.
	3. Soil Resource Monitoring	a. Meet Forest-wide Standards and Guidelines.
		b. Ground-disturbing activities will result in no more than 15 percent mineral soil exposed within the project area after the first year, excluding roads.

G. Minerals and Geology	a.	Additional mitigation and rehabilitation measures may be required to protect water quality. These measures will be determined through NEPA analysis.
H. Rural Community and Human Resources	a.	Meet Forest-wide Standards and Guidelines.
J. Lands		
1. Special Use Management	a.	Permit special use compatible with this intensity.
2. Rights-of-way Grants	a.	Meet Forest-wide Standards and Guidelines.
3. FERC License and Permits	a.	Activity to be reviewed through NEPA analysis to determine its effect on water quality. Only permitted if water quality and minimum flows are maintained.
4. Land Ownership Planning	a.	Acquire and/or dispose of land as needed. Lands are in Group III.
L. Facilities		
1. Transportation System Planning	a.	Roads must be located to meet water quality objectives.
2. Road Construction and Reconstruction	a.	Only those construction/reconstruction practices that meet water quality objectives will be allowed. Water quality and/or fish habitat problems caused by construction should be given a high priority for corrective action.
	b.	Road cut-and-fill slopes that may adversely effect water quality will be protected with erosion and/or sediment control. Final stabilization practices should include vegetation as well as structures.
3. Road Operation	a.	See Item L-2a above. Apply for maintenance.
	b.	See Item L-2b above. Apply for maintenance.
	c.	All roads not receiving annual maintenance should have measures to control road surface and ditch water.
	d.	Temporary structures installed to impound water for road maintenance will be removed upon completion of use.
P. Protection		
1. Fire Management Planning	a.	Forest-wide Fire Protection Group A applies.
	b.	Temporary structures installed to impound pumper chance water sources will be removed immediately upon completion of use.

23A
25A

		c. Rehabilitation needs should be evaluated for all sizes of fires.
2.	Treatment of Activity Fuels	a. No more than 20% of the activity area may be exposed to mineral soil and at least 80% of the streams surface within the area should be shaded.
3.	Forest Pest Management	a. Integrated pest management is permitted except where use of pesticides conflicts with water quality objectives.

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25 SPECIAL USES

Goal: Provide and manage for effective and economical transmission facilities with least impact on the natural resources involved.

Description of Lands Where Prescription Applicable: The prescription applies to existing and potential sites and corridors for such purposes as communication, signal relay, other electronic sites, canals, penstocks, pipelines, and power transmission lines. It includes the land directly under and adjacent to the corridor (clearing limits). Compatible facilities are combined within the same corridor when possible.

Desired Future Condition: Common to all Intensities.

Signs of human activities are dominant. Buildings, antennas, pipelines, high voltage powerlines, and similar structures will be visible. There are few, if any, large trees at sites or in the corridors; ground cover is in small conifers, shrubs and forbs. Vegetation partially screens smaller sites from distant view and provides edge habitat for wildlife. Recreational opportunities may be available for operating off-road vehicles, viewing distant scenery, gathering miscellaneous Forest products, and hunting.

Intensities in this Management Prescription:

25A. Utility Corridors
25B. Electronic Sites

INTENSITY 25A: Utility Corridors

Program Element		Standards and Guidelines
A.	Recreation	a. Meet Forest-wide Standards and Guidelines.
1.	Visual Quality	a. Meet a Visual Quality Objective of foreground retention and middleground partial retention in primary viewsheds. Meet a VQO of Partial Retention in secondary viewsheds foreground and modification in secondary viewsheds middleground.
2.	American Indian Religious and Cultural Use	a. Meet Forest-wide Standards and Guidelines.
B.	Wilderness	a. Not applicable.
C.	Wildlife and Fish	a. Meet Forest-wide Standards and Guidelines.

D. Range	a.	Not applicable.
E. Timber		
1. Timber Management Planning	a.	No scheduled timber harvest activities. Commercial products, eg. Christmas trees, may be grown within a utility corridor as long as the prescriptions contained in the corridor management plan are met.
	b.	Vegetation maintenance salvage activities will be encouraged for safety purposes.
	c.	Brush control within corridors shall be accomplished by manual or mechanical methods unless specific approval is obtained for the use of herbicides.
F. Water, Soil, and Air	a.	Meet Forest-wide Standards and Guidelines.
G. Minerals and Geology	a.	Operating plans must include appropriate measures for protecting the existing facilities.
H. Rural Community and Human Resources	a.	Meet Forest-wide Standards and Guidelines.
J. Lands		
1. Special Use Management	a.	Other linear rights-of-way within the corridors will be encouraged. Special use permits for uses other than the preceding will be discouraged.
2. Rights-of-Way Grants	a.	Meet Forest-wide Standards and Guidelines.
3. FERC License and Permits	a.	New development will be encouraged within existing utility corridors when activities are compatible.
4. Land Ownership Planning	a.	Group III - Retain, Acquire, or Dispose.
L. Facilities	a.	Meet Forest-wide Standards and Guidelines.
P. Protection		
1. Fire Management Planning	a.	Forest-wide Fire Protection Group A applies.
2. Forest Pest Management	a.	Meet Forest-wide Standards and Guidelines.

INTENSITY 25B: Electronic Sites

Program Element		Standards and Guidelines
A. Recreation		
1. Recreation Planning	a.	Recreation use is not encouraged.
2. Visual Quality	a.	Meet Forest-wide Standards and Guidelines.

3. American Indian Religious and Cultural Use	a.	Meet Forest-wide Standards and Guidelines.
4. Trail Planning	a.	Discourage new public access trail development.
	b.	No active maintenance of public access trails that may exist in the area.
B. Wilderness	a.	Not applicable.
C. Wildlife and Fish		
1. Planning	a.	Meet Forest-wide Standards and Guidelines for threatened and endangered species. Habitat improvement projects may be implemented if compatible with electronic site uses.
D. Range	a.	Not applicable.
E. Timber		
1. Timber Management Planning	a.	No scheduled timber harvest activities.
	b.	Vegetation maintenance salvage activities compatible with site-specific plans will be encouraged for safety purposes.
F. Water, Soil, and Air	a.	Meet Forest-wide Standards and Guidelines.
G. Minerals and Geology	a.	Operating plans must include appropriate measures for protecting the existing facilities.
H. Rural Community and Human Resources	a.	Meet Forest-wide Standards and Guidelines.
J. Lands		
1. Special Use Management	a.	Administration shall meet FS Policy direction. Other types of special uses will be discouraged.
2. Rights-of-Way Grants	a.	Meet Forest-wide Standards and Guidelines.
3. Land Ownership Planning	a.	Group III - Retain, Acquire, or Dispose.
L. Facilities	a.	Meet Forest-wide Standards and Guidelines.
P. Protection		
1. Fire Management Planning	a.	Forest-wide Fire Protection Group A applies.
2. Forest Pest Management	a.	Meet Forest-wide Standards and Guidelines.

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26 ADMINISTRATIVE SITES

Goal: Provide appropriate sites and facilities to administer the Mt. Baker-Snoqualmie National Forest.

Description of Lands Where Prescription Application: This strategy is applied to ranger stations, public service centers, engineering zone compounds, road maintenance compounds, seed orchard sites, seed production sites, scale stations, guard stations, and lookouts where permanent facilities and utility systems are constructed in order to administer National Forest.

Desired Future Condition: Appropriately located and adequately sized administrative sites with well maintained, legal and functional offices, warehouses, residences, quarters, and utility systems. Older buildings will be renovated or replaced to maintain their functionality as they age. Improvements will be thoughtfully integrated into the already existing facilities to form a consistent whole. Administrative sites no longer needed may be declared excess or placed under permit if that represents the best use of those real property improvements.

Intensities in this Management Prescription: None

Program Element	Standards and Guidelines
A. Recreation	a. Provide recreation information, displays, brochures, and services at appropriate major administrative sites.
1. Visual Quality	a. No active visual management. Visual Quality Level of site-specific plans will be met.
2. American Indian Religious and Cultural Use	a. Meet Forest-wide Standards and Guidelines.
3. Archaeological and Historic Properties	a. Meet Forest-wide Standards and Guidelines. b. Follow provisions of current Programmatic MOA for Management of Depression-Era Structures.
B. Wilderness	a. Not applicable.
C. Wildlife and Fish	a. Improvement projects may be implemented when they are compatible with other administrative site uses.
D. Range	a. Not applicable.
E. Timber	
1. Timber Management Planning	a. Hazard tree removal and salvage sales are permitted to properly maintain facilities and meet safety requirements. Timber stand improvement is the primary goal at seed tree orchards and seed production areas.

	2. Genetic Forest Tree Improvement	a.	Some forest lands are allocated to the culture of genetically improved seed. The "Tree Improvement Plan - Mt. Baker-Snoqualmie National Forest, 1982-1992" is the primary source of information and guidelines on the genetic tree improvement program.
	3. Seed Production Areas	a.	At present, there are only 2 seed production areas located on the Forest. These are the Sun Top and Mule Creek noble fir seed production areas on the White River Ranger District. These sites will be managed as interim sources of seed until such time as seed is available from the McCullough Seed Orchard. Additional information is contained in the "Tree Improvement Plan," previously referenced.
		b.	Any additional seed production areas must be recommended by the Forest Geneticist.
	4. Seed Orchards	a.	The Darrington and McCullough Seed Orchards are established to ultimately produce genetically improved seed for the production of seedlings to be used in reforesting deforested National Forest lands. The "Tree Improvement Plan," previously referenced, is the primary guide for the management of these sites. Additional guidance will be provided by the Forest Geneticist.
F.	Water, Soil, and Air	a.	Meet Forest-wide Standards and Guidelines.
G.	Minerals and Geology	a.	Not applicable.
H.	Rural Community and Human Resources	a.	Meet Forest-wide Standards and Guidelines.
J.	Land Ownership Planning	a.	Group III, Retain, Acquire, or Dispose.
L.	Facilities	a.	Meet Forest-wide Standards and Guidelines.
P.	Protection	a.	Forest-wide Fire Protection Group A applies.

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27 ALPINE LAKES MANAGEMENT AREA

Goal: Manage Alpine Lakes Wilderness and management area in accordance with the Record of Decision, Selected Alternative, Alpine Lakes Area Land Management Plan Final Environmental Impact Statement, November 2, 1981.

Description of Lands Where Prescription Applicable: This prescription is applied to the Alpine Lakes Wilderness and Management Area.

Desired Future Condition: Refer to Alpine Lakes Area Land Management Plan and FEIS.

Intensities in this Management Prescription:

D	Developed Site (as per Alpine Lakes Area Management Plan)
DR	Dispersed Recreation (as per Alpine Lakes Area Management Plan)
GF	General Forest (as per Alpine Lakes Area Management Plan)
SA	Special Area (as per Alpine Lakes Area Management Plan)
SF	Scenic Forest (as per Alpine Lakes Area Management Plan

Management Direction as included in the Alpine Lakes Area Management Plan, Final Environmental Impact Statement and Record of Decision November 2, 1981.

As provided for in the Alpine Lakes Area Management Plan, Management in the following areas will be as stipulated in the following Management Prescriptions:

5 - Potential Wild and Scenic River
11 - Old Growth Habitat
12 - Mature and Old Growth Wildlife Habitat
14 - Deer and Elk and Winter Range
15 - Mountain Goat Habitat
16 - Threatened and Endangered Species

Brief descriptions:

D Developed Site: Areas are substantially modified for campgrounds, boating, ski areas, summer home tracts, administrative sites, etc. Sights and sounds of people are evident; concentration of users is often high. Roads, trails, and parking are managed to provide access to the site, with emphasis on nonmotorized activity on the site. No scheduled timber harvest. Vegetative manipulation only for the enhancement or protection of the area.

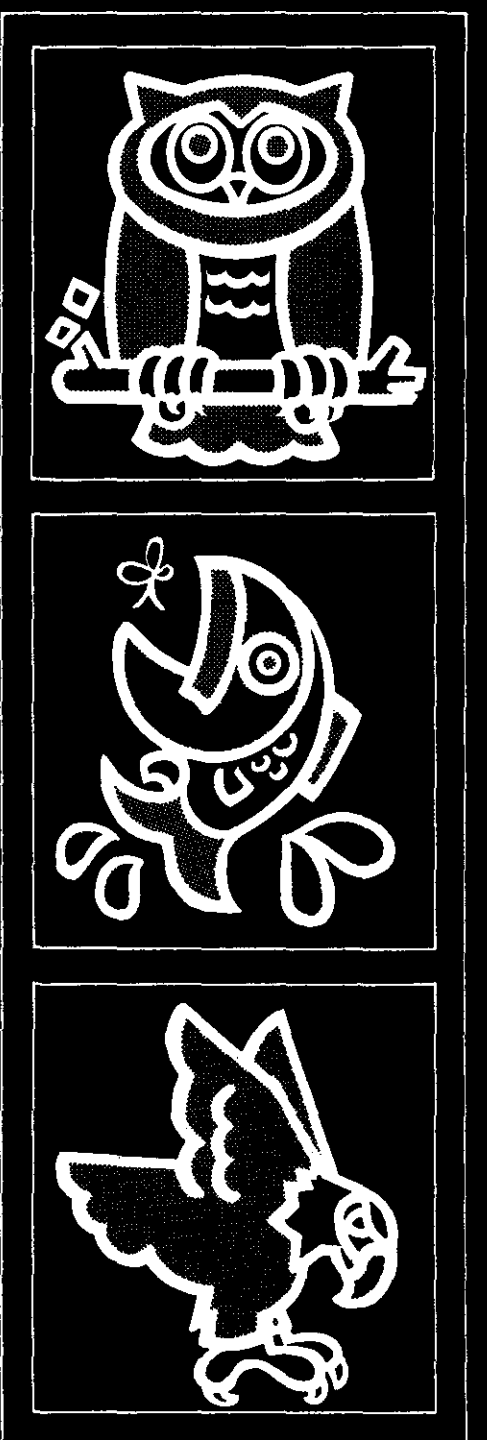
DR Dispersed Recreation: Managed primarily in an unroaded condition with emphasis on dispersed recreation, scenic, wildlife or other amenity values. No new roads construction. ORV used permitted, depending on the ROS class. No scheduled timber harvest. The only exception is salvage harvest of catastrophic forest loss for the purpose of limiting damage on adjacent lands. Visual Quality Objective is Retention and Partial Retention. Concentration of recreation users is low; relatively minimal contact with other users. If no alternative road access available for intermingled lands, access may be granted for a non-public minimum standard road.

GF General Forest: Timber harvest occurs, with a full range of silvicultural prescriptions used on suitable lands. The visual quality objective ranges from Retention to Modification. Dispersed recreation sites are common; encounters between recreationists may be numerous. Motorized activities are common. Rustic facilities may be provided. Land in this allocation is generally accessible by road. Road and trail standards range from optimum, for high-volume mixed traffic, to closed after project completion.

SA Special Area: Areas protected for their uniqueness and natural conditions, and, where appropriate, to foster public use, enjoyment, or study. Each Special Area has a specific management direction. Refer to FEIS, Alpine Lakes, 1981. No scheduled timber harvest. Roads, facilities (such as parking, picnic areas, and interpretive sites, etc.) will enhance and protect the area. Other resource manipulation, including removal of trees, will occur only for the enhancement or protection of the area.

SF Scenic Forest: The objective is to retain or enhance viewing and recreation experiences. Developments and use in the seen area from recreation sites, roads, and trails within Scenic Forest will meet visual quality objectives. Use will be integrated with the natural landscape. Timber harvest permitted; a full range of silvicultural prescriptions will be used to meet the visual and recreational objectives.

Chapter 5



CHAPTER 5 - IMPLEMENTATION OF THE FOREST PLAN

INTRODUCTION

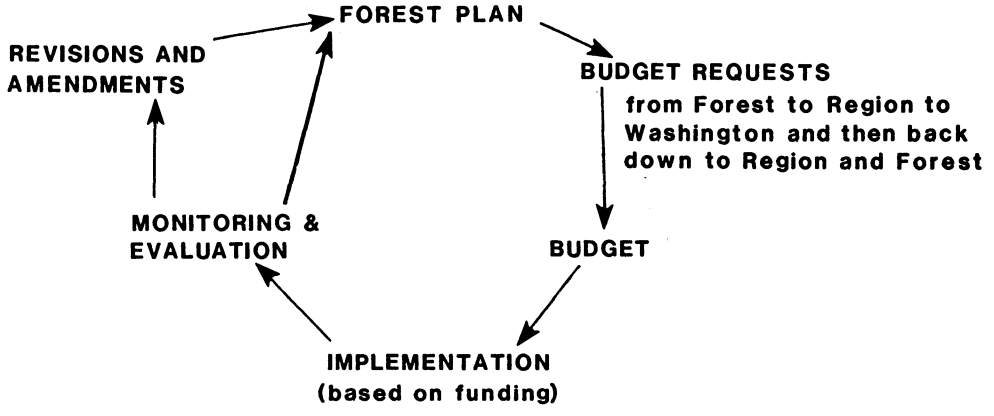
This chapter explains how management of the Mt. Baker-Snoqualmie National Forest Plan will be guided by the implementation of this integrated resource plan, instead of by functional plans. Implementation requires moving from an existing management program, with a budget and "targets" for accomplishment, to a new management program - one with a budget, goals, objectives, and standards and guidelines, that were developed with extensive public involvement and are responsive to issues and concerns.

This Forest Plan, used in conjunction with Forest Service Manuals and the Pacific Northwest Regional Guide, establishes the direction for the Mt. Baker-Snoqualmie National Forest for the next 10 to 15 years.

The remainder of this chapter explains how management of the Mt. Baker-Snoqualmie National Forest moves from the existing management situation (described in the DEIS) to this integrated plan. Chapter sections describe: aspects of the implementation that are influenced by previous management activities and objectives; the relationship between project planning and this Forest Plan; monitoring and evaluation; and the circumstances which could require amendments and revisions to the Plan.

Figure 5-1 displays the Forest Plan implementation process:

Figure 5-1
Implementation Process



B. IMPLEMENTATION DIRECTION

Implementation of the Forest Plan occurs through identification, selection scheduling of projects, and execution of management practices to meet the management direction provided in the Plan. Implementation may also involve responding to proposals by others for use and/or occupancy of National Forest system lands.

Chapter 5
Project Planning

The Forest Plan serves as the single land management plan for the Mt. Baker-Snoqualmie National Forest; all other management plans are replaced or incorporated into this direction. A number of other plans have been (or will be) developed to give additional, more specific guidance to management activities. These are developed within the direction that is established in this Plan. They are needed for site-specific information or to carry out direction in this Plan. Some examples of these plans include:

- Wild and Scenic River Management Plans
- Wilderness Action Plans
- Land Adjustment Plans
- Viewshed Corridor Plans
- Scenic Byway Plans
- Area Transportation Plans
- Cultural Resource Management Plans
- Species Management Guides
- T & E Recovery Plans

The management direction provided by this Forest Plan comprises the framework within which project planning and activities take place. It defines management area goals and management standards that guide project activities toward achieving a desired future condition for the Management Area and, collectively, for the Forest. It specifies a schedule for project activities. It provides guidance concerning potential land and resource management.

Within this guidance, projects are developed o most efficiently and effectively accomplish management goals and objectives. Project environmental analysis provides an essential source of information for Forest Plan monitoring. First, as project analyses are completed, new or emerging public issues or management concerns may be identified. Second, the management direction designed to facilitate achievement of the Management Area goals are validated by the project analyses. Third, the site-specific data collected for project environmental analyses serve as a check on the appropriateness of the land allocation. The information included in the project environmental analyses is used as part of the monitoring process to determine when changes should be made in the Forest Plan.

Project Scheduling

The schedule of proposed and possible projects for the first decade is contained in Appendices A through K of this document. These activity schedules represent a pool of possible projects from which implementation schedules (specific, funded projects) are developed in conjunction with funding approvals. Lists of possible projects to meet or accelerate the 10-year management practice schedule are maintained by the unit managers. These lists will routinely change as projects are implemented or are removed from the lists (for various reasons) and replaced with new projects. Projects are scheduled in response to the management direction in the Plan, planned outputs of goods and services, near-term management needs and opportunities, and the annual budgeting process. If there is a conflict between standards and guidelines and program outputs, projects will be in full compliance with standards and guidelines set forth in this Forest Plan. (WO 1920 February 23, 1990)

Consistency With Other Instruments

This Forest Plan serves as the single land management plan for the Mt. Baker-Snoqualmie National Forest. All other land management plans are replaced by the direction in this Plan, with the exception of the Alpine Lakes Area Land Management Plan and the Skagit Wild and Scenic River Management Plan. These two plans are incorporated into this Forest Plan. The existing management plans that are superseded are:

Ranger District Multiple Use Plans
Land Adjustment Plan, Snoqualmie National Forest
Land Adjustment Plan, Mt. Baker National Forest

Also superseded are the **portions of the Timber Management Plans** for the Mt. Baker N.F. and Snoqualmie N.F. administered by the Mt. Baker-Snoqualmie National Forest.

All outstanding and future permits, contracts, cooperative agreements, and other instruments for occupancy and use of lands included in this Forest Plan will be brought into agreement with this Plan, subject to the valid existing rights of the parties involved. This will be done as soon as practicable, and generally within three years of the date of this Plan.

Budget Proposals

The scheduled projects and monitoring activities in the Plan 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. The Forest's current year tentative annual program of work will be derived from this process. 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. Depending on final budgets, outputs and activities in individual years may be significantly different from those shown in Chapter 4 and 5, 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. Analysis will follow the requirements of 40 CFR 1502.20, FSM 1950, and FSH 1909.15 in determining subsequent environmental analysis and documentation. Appropriate public involvement will be a part of the analysis process. Regardless of the form of NEPA documentation (environmental impact statement, environmental assessment, or categorically excluded/decision memo), an analysis file will be maintained and available for public review.

C. MONITORING AND EVALUATION PROGRAM

The Monitoring and Evaluation Program is the management control system governing implementation of the Forest Plan. At established intervals (once per year), the Interdisciplinary Planning Team shall evaluate implementation to

verify compliance with the Standards and Guidelines established in Chapter 4 of this Plan, and to determine the effectiveness of those Standards and Guidelines in meeting Land and Resource Management Plan objectives. Based upon this evaluation, the Interdisciplinary Team shall recommend to the Forest Supervisor such changes in management direction, revisions, or amendments to the Forest Plan as deemed necessary.

Monitoring involves a periodic comparison between the end results that are realized and those projected in the Forest Plan. Costs, outputs, and environmental effects, both experienced and projected, will be compared to gauge the overall progress in implementing the Forest Plan, as well as to determine whether the overall relationships on which the Forest Plan is based continue to be accurate. When differences occur, they will be evaluated as to their significance, and appropriate amendments or revisions will be considered and installed in compliance with NEPA and Forest Service processes.

The Monitoring Plan, Table 5-1, identifies the key activities and outputs to be monitored during implementation of this plan. This table is based on detailed information found in Forest Plan Monitoring Worksheets; these are located in the planning records at the Mt. Baker-Snoqualmie's Supervisors Office.

Table 5-1 is not intended to spell out all monitoring that is occurring or may occur on the Forest in the future. Currently, many activities are being monitored to comply with administrative and legal responsibilities. However, this monitoring is not essential for the purposes mentioned above. Only those items that are essential and sensitive enough for the purposes of this plan will be addressed in the monitoring plan.

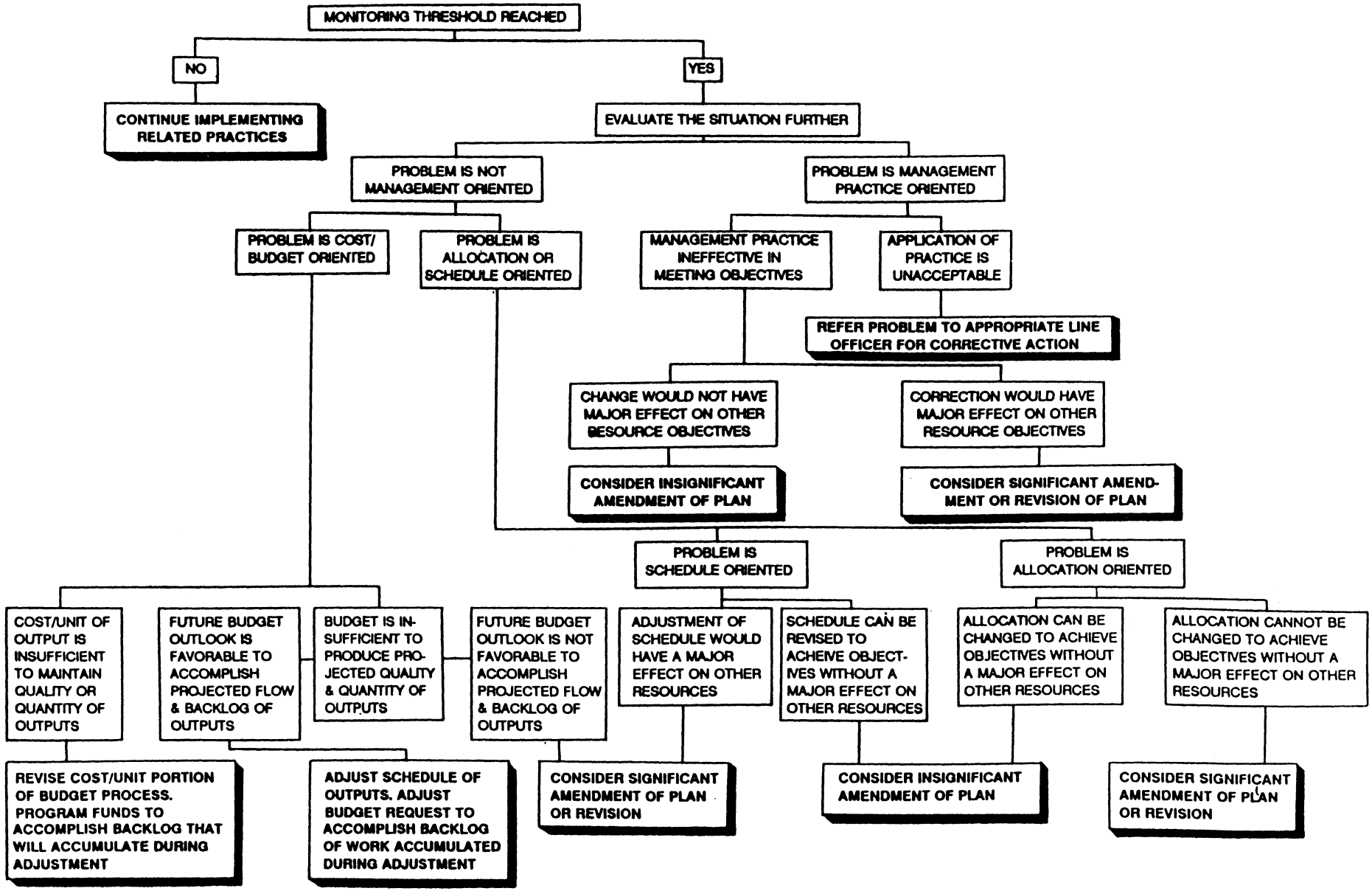
The objectives of monitoring are to determine:

- if management area direction is being applied as directed;
- if standards are being followed;
- if the forest is achieving the objectives of the Plan;
- if application of management area direction is achieving desired conditions;
- if the effects of implementing the Plan are occurring as predicted;
- if the costs of implementing the Plan are as predicted;
- if management practices on adjacent or intermingled non-National Forest lands are affecting the Forest Plan goals and objectives;
- if implementation of the Forest Plan is keeping other agencies from reaching their stated objectives.

Monitoring and evaluation each have a distinctly different purpose and scope. In general, monitoring is designed to gather the data necessary for evaluation. During evaluation, data provided through monitoring are analyzed and interpreted. Evaluation of the results of the site-specific monitoring program will be documented in the **annual monitoring and evaluation report**- The significance of the results of the monitoring program will be analyzed and evaluated by the Forest Interdisciplinary Team.

The data collected during monitoring will be evaluated using the Decision Flow Diagram shown in Figure 5-2. Based on this evaluation, any need for further action will be recommended to the Forest Supervisor. The action prescribed by

DECISION FLOW DIAGRAM FOR EVALUATION



the Forest Supervisor will depend on the significance of the results of monitoring. The magnitude of the change from predicted conditions is an important factor, as is the risk associated with the change. For example, in terms of risk, a finding of somewhat more or less recreation visits than predicted has considerably less significance than a finding of reduced water quality. Procedures prescribed by the National Environmental Policy Act will be followed as the Forest Supervisor determines the appropriate action.

Actions directed by the Forest Supervisor could include one or several of the following:

1. A determination that no action is needed, that monitoring indicates goals, objectives, and standards are being achieved.

2. District Ranger(s) may be directed to improve application of management area direction as projects are implemented. Normally, this would involve a change in proposed project design or a site-specific interpretation of management area direction. In some instances, additional information or study may be required due to an inconclusive evaluation.

3. Management area direction may be modified as a Plan amendment. This would normally involve a question of the applicability of the direction to a specific geographic area, rather than to the entire Forest.

4. The assignment of acres to a particular management prescription may be modified as a Plan amendment.

5. The projected schedule of outputs may be amended.

6. The needed action may singly or cumulatively be so significant as to cause the Forest Supervisor to initiate revision of the Plan.

A file will be maintained in the office of the Forest Supervisor which documents all decisions resulting from monitoring and evaluation.

The document resulting from the use of the Decision Flow Diagram constitutes the evaluation report. As applicable, the following will be included in each evaluation report:

1. A quantitative estimate of performance comparing outputs and services with those projected by the Forest Plan;

2. Documentation of measured effects, including any changes in productivity of the land;

3. Unit costs associated with carrying out the planned activities as compared with unit costs estimated during Forest Plan development;

4. Recommendations for changes;

5. A list of needs for evaluation of management systems and for alternative methods of management;

6. A list of additional research needed to support the management of the Forest;

7. Identification of additional monitoring needs to facilitate achievement of the monitoring goals.

The Monitoring Plan

The monitoring plan follows, in Table 5-1. Several of the variables across the top of this table merit special discussion.

Precision is a subjective descriptor to measure the expected accuracy with which data is collected. Precision, in Table 5-1, is qualitatively rated as high, moderate, or low.

Reliability is a measure of how accurately the method used to monitor reflects the situation. A qualitative rating system of high, moderate or low is utilized.

Table 5-1
Monitoring Plan

RESOURCE AREA	ACTION/EFFORT MONITORED	OBJECTIVE OF MONITORING	METHOD OF MONITORING	UNIT OF MEASURE	FREQUENCY
SOIL PRODUCTIVITY	Maintain soil productivity by insuring that the effects of displacement, compaction and erosion within harvest units when added to the lands dedicated to systems roads and landings do not ex- 20% of the area.	Maintain soil resource so that land productivity is not impaired	1) Follow Regional Guide: "Guidelines for Sampling Some Physical Conditions at Surface Soils" by Howes, Hazard and Geist - other State of Art Technology 2) End product review	% area affected Visual observation of condition	One project in a watershed annually 25% to 40% of major issue projects
MASS WASTING	Determine if management activities are affecting the frequency and amount of mass wasting	To maintain productivity of land and provide water quality meets the needs of the beneficial user.	Visual observations & photo points to determine rate & kind of accelerated movement	Area disturbance, landslide numbers, tons/acre	2 projects per year in area selected to monitor
WATERSHED REHABILITATION	Determine if rehabilitation prescriptions and methodology being used for watershed rehabilitation are achieving expected results	To maintain or improve conditions of Forest watershed to assure land productivity and acceptable water quality	Visual observations and transects in project area	% vegetative cover and project improvement effectiveness	Annually for each project for first three years. Every five years after.
WATERSHED S&G'S AND PRESCRIPTION	Determine if the S & G's are effective in protecting the watershed resource	To protect and maintain conditions of Forest watersheds to assure land productivity and acceptable water quality	Visual observations , sampling of one or more key water parameters, and photos	Temperature, area of disturbance, etc.	One area or watershed per year
TIMBER	Reforestation	Determine if NFMA requirement and Forest Plan assumptions are met	Plantation survival examinations TRI/GIS data base. Attainment reports (Annual)	Acre	1,3 and 5 years
	Timberland Suitability	Determine Change in acres of timber base	Formal and informal management reviews. Project planning (on going; Vegetation resource inventory (as scheduled) and at least every 10 years)	Acre	5 years

RESOURCE AREA	REPORT PERIOD	PRECISION	RELIABILITY	DATA STORAGE	RESPONSIBILITIES	THRESHOLD OF VARIABILITY
SOIL PRODUCTIVITY	Annually	H	H	-Project DR file -TRI/GIS	Forest Staff and District Ranger	10% deviation from regional guidelines (FSM 2500 R-6 supp 45)
MASS WASTING	Annually	M	M	-Project DR file -TRI/GIS	District Ranger	10% increase in rates of mass wasting established for previously managed areas
WATERSHED REHABILITATION	Annually	H	H	-Project DR file -TRI/GIS	District Ranger	20% less cover than stated in project objectives. No more 20% failure rate of structures.
WATERSHED S&G's	Annually	H	H	-Project DR file -TRI/GIS	District Ranger & Forest Staff	Within 10% of that defined for each S & G
TIMBER	3 years	H	H	TRI, GIS TRACS	District Ranger	10% of harvested lands not adequately stocked after 5 years.
	5 years	H	H	TRI, GIS	District Ranger Timber Staff Officer	± 5% change in unsuitable acres, ±-10% amend Forest Plan, ± 20% consider revision of Forest Plan.

RESOURCE AREA	ACTION/EFFORT MONITORED	OBJECTIVE OF MONITORING	METHOD OF MONITORING	UNIT OF MEASURE	FREQUENCY
TIMBER (cont)	Size of harvest area	Standards for size and dispersion are met and size limitation are appropriate	Ea's and TRI data base Field Reviews	Acre	Annual
	Impacts to growing stock levels: -insect & disease hazards -animal damage -air pollution	Determine whether IPM measures were taken and effective	Aerial surveys, field observation & past detection reports. Stand exams.	Acres and/or infestation centers.	Every other year
	Allowable Sale Quantity	Chargeable volume offered is consistent with Plan	TSSA, Stars	MMCF	Annual
	Timber Sale Program Quantity	Total chargeable and non-chargeable volume offered is consistent with Plan	TSSA, Stars	MMCF	Annual
	Acres per Management Area of various silivicultural practices.	Silvicultural practices are accomplished as planned for each Management Area.	Number of acres harvested by silvicultural system or activity by management area.	Acres	Annual
	Distribution of timber harvest acres and volume	Harvest activities by mgt. area, working group, condition class occur as planned.	10-year Action Plan; 6 month announcement; SILVA, TRACS, attainment reports (annual), and Stars	Acres and MMCF by condition class working group, management acre	Annual
	Mt. Hemlock suitability	Tentatively suitable lands in the Mt. Hemlock association.	Mt. Hemlock study plan	Acres	Annual

RESOURCE AREA	REPORT PERIOD	PRECISION	RELIABILITY	DATA STORAGE	RESPONSIBILITIES	THRESHOLD OF VARIABILITY
TIMBER (cont)	Annually	H	H	TRI, GIS STARS, TRACS	District Ranger Timber Staff & Wildlife Staff Officer	+5% over exceptions in Forest Standards and Guidelines.
	Every other year	M	M	TRI, GIS	Timber Staff Officer, District Ranger	When unacceptable losses develop (2,000 acres per decade) on the ground.
	Annually	H	H	TSSA, Cut and Sold report, Stars	District Ranger, Timber Staff Officer	± 15% annually, or the cumulative volume exceeds ± 10% from that predicted for the decade.
	Annually	H	H	TSSA, Cut and Sold report, STARS	District Ranger, Timber Staff Officer	± 25 % annually or the cummulative volume exceeds ± 10% predicted for the decade.
	Annually	H	H	TRI, GIS, Accomplishment reports, TRACS, STARS, TSPIRS	District Ranger, Timber Staff Officer	Total acres treated by each practice is plus or minus 10% of planned objective. When threshold is exceeded, ASQ should be adjusted based on new FORPLAN runs.
	Annually	H	H	TRI, GIS, STARS, Accomplishment Reports, TSPIRS	District Ranger, Timber Staff Officer	Total chargable volume (MMCF) and/or harvest type (Acres) are more than ± 10% of the planned objective for the decade.
	Annually	H	H	Mt. Hemlock Study Plan TRI, GIS	District Ranger, Timber Staff Officer	N/A

RESOURCE AREA	ACTION/EFFORT MONITORED	OBJECTIVE OF MONITORING	METHOD OF MONITORING	UNIT OF MEASURE	FREQUENCY
OLD GROWTH	Old Growth Ecosystem	Identify acres and distribution of Old Growth through time.	Field reviews, GIS, Region Six's old growth inventory mapping project, and TRI	Acres	Annual
WILDLIFE	Population trends and habitat capability for T & E species (bald eagle, grizzly bear, American peregrine falcon, gray wolf and plants.)	Determine how populations are responding to the available habitat.	Utilize bald eagle census in known nest and roost sites. Review WDW, USFWS, and other T & E census sources and habitat data. Survey biannually all assigned T & E habitat for its continuing suitability. Gather data on habitat in and adjacent to project areas during post project analysis.	Numbers of animals; acres of suitable habitat	Biennial
	Same as above but for old growth and snag dependent species.	Same as above	Conduct (or coordinate) monitoring of population levels in SOHAs. Survey all MR old growth acres for continued suitability. Use post-project analysis or any project adjacent to assigned old growth to establish actual wildlife tree levels. Review WDW and other agency data.	Number of animals; acres of suitable habitat.	Biennial
	Same as above but for deer, elk and mountain goat	Same as above	Survey all assigned big game habitat in and adjacent to project areas for continuing suitability. Use post-project analysis and data from WDW, Univ. of Washington, other sources.	Number of animals; acres of suitable habitat; cover/ forage ratios.	Every 3 years for goats and 5 years for deer and elk.
	Habitat improvement	Determine effectiveness of habitat improvement	Field observation of habitat utilization during project analysis.	Number of targeted animals	The 1st and 5th year after project completion.

RESOURCE AREA	REPORT PERIOD	PRECISION	RELIABILITY	DATA STORAGE	RESPONSIBILITIES	THRESHOLD OF VARIABILITY
OLD GROWTH	5 years	H	H	STARS, GIS, TRI, Region 6 Old Growth mapping project, Integrated Resource Inventory	District Ranger, Timber Staff & Wildlife Staff Officers	± 10% variance from assumed in the Forest Plan
WILDLIFE	5 years or upon habitat loss	L	L	TRI/GIS	District Ranger	Decrease in populations and/or suitable habitat below recovery plan objectives.
	5 years	L	L	TRI/GIS	District Ranger	Number of animals, pairs or habitat areas is 10% less than projected outputs from Forest Plan; decrease in number of wildlife trees needed to meet 40% potential population level.
	3 and 5 years	L	L	TRI/GIS	District Ranger	+ or - 10% deviation from projected populations; amounts and condition of habitat are less than prescribed in management direction.
	5 years	M	M	TRI/GIS	District Ranger	+ or - 20% from expected improvement as predicted in acre equivalent outputs from Forest Plan.

RESOURCE AREA	ACTION/EFFORT MONITORED	OBJECTIVE OF MONITORING	METHOD OF MONITORING	UNIT OF MEASURE	FREQUENCY
FISH S&G AND PRESCRIPTIONS (FISH)	Effectiveness of the S&G and area prescriptions (including BMP's) in protecting desired fish habitat capability objectives and riparian area values.	To provide for desired levels of anadromous & resident fish populations through habitat protection, restoration, and improvement.	I.D. Team using FSH 2609.23 and the Hankin-Reeves stream survey methodology along with the Stream Channel Stability Evaluation.	Desired Habitat Capability Levels for Anadromous & Resident Fish	Annual
RIPARIAN	Terrestrial (Diversity, abundance, and habitat capability of wildlife species)	To determine population responses of various riparian dependent wildlife species in the available Forest riparian habitat	Conduct population transects and measure ground conditions in selected riparian areas.	Number of animals by species; % ground cover; stand age; number of vegetation species, other habitat components.	Once immediately on project completion and again 5 years after completion for all projects in 10% of established watershed that have incurred activity.
WATER QUALITY/ FISH HABITAT CAPABILITY	Effectiveness of BMP's in maintaining, improving or reducing the capability of the aquatic & riparian areas on the Forest to meet objectives for on-off Forest fishery values.	To maintain or improve water quality that will meet the requirements of the Clean Water Act, state water quality stds., and the desired levels of beneficial uses of the water (fish).	Measure temperature, sediment, sediment, bedload, turbidity, & pH using methodology defined in FSH 2609.23. Measure stream channel stability evaluation and streambank vegetation measurements.	Change in degrees Centigrade, tons of sediment incl. bedload, pH, and jackson turbidity units.	At low-flow time of year (July-Sept) on a specific project site or on sensitive aquatic system. Number of samples is dictated by the method employed.
FISH HABITAT RESTORATION/ IMPROVEMENT	Effectiveness of fish habitat restoration and enhancement projects in producing the fish outputs as predicted in the FP.	To determine if the habitat treatment results in an increase in habitat quantity and/or quality.	Stream channel response to structural or nonstructural treatment (refer to the Fisheries Handbook).	Change in the habitat capability index.	Measure habitat change on 10% of the project sites per district.
		To determine if the projected increase in fish (pounds) of anadromous fish & sportfish use (WFUD) are being achieved (FP outputs).	Calculate smolt production and convert to harvested adults for estimating pounds on fish harvested. Estimate WFUD's derived from anadromous and resident fish sportfishing use from State recreational sportfishing data.	Number of smolts produced per site or location. Number of increase WFUD from sportfishing use as a result of project.	Measure change in fish production on 10% of the project sites per district.

RESOURCE AREA	REPORT PERIOD	PRECISION	RELIABILITY	DATA STORAGE	RESPONSIBILITIES	THRESHOLD OF VARIABILITY
FISH S&G AND PRESCRIPTIONS (FISH)	1 Report per year	M	M	TRI/GIS	Forest Fish and Wildlife Staff Officer & District Ranger	No more than 5 % decrease from the desired habitat capability levels for the project area.
RIPARIAN	Every 5 years	M	L	TRI/GIS	Forest Fish and Wildlife Staff	Cumulative sample at end of 5 years indicates a 15% loss of previously established riparian habitat. Population transects when compared over time indicate a 10% loss of diversity.
WATER QUALITY/ FISH HABITAT CAPABILITY	1 Report per year	M	M	TRI/GIS	Forest Fish & Wildlife Staff & District Ranger	Do not exceed water quality standards established in the State Water Quality Plan.
FISH HABITAT RESTORATION/ IMPROVEMENT	Annually sample 30% of the improvement sites.	M	M	TRI/GIS	Forest Fish & Wildlife Staff & District Ranger	90% of the improvement sites meet habitat quality and quantity objectives.
	Annual (same as above)	M	M	TRI/GIS	Forest Fish & Wildlife Staff & District Ranger	Habitat treatment sites are within 15 % of meeting projected benefits.

RESOURCE AREA	ACTION/EFFORT MONITORED	OBJECTIVE OF MONITORING	METHOD OF MONITORING	UNIT OF MEASURE	FREQUENCY
CUMULATIVE EFFECTS- FISH HABITAT CAPABILITY	Determining the cumulative cause/ effect relationships between land disturbing activities such as timber mgt. & associated road construction and fish habitat capability.	To maintain or improve the desired fish habitat capability levels for anadromous and resident fish.	Collect & evaluate fish habitat trend data to determine changes in the existing fish habitat capability using the Hankin-Reeves stream survey methodology & the stream channel stability evaluation.	Percent or degree of change in the Fish Habitat Capability Index for the target species	Annually
CUMULATIVE EFFECTS - WATERSHED CONDITION	Assessment of the In-channel Condition of the Forest's watersheds (acceptibility/unacceptability)	To determine the acceptability or unacceptability of the following 4 conditions: channel stability, pool condition, status of large woody debris,and stream bank stability.	Validate the watershed condition by: narrative update of the management history (acres harvested, road density), amount and type of unstable soils, updated stability rating of the channels, updated evaluation of the fish habitat capability trends, a current assessment on the prevailing climatic conditions, and a current assessment as to potential for off-site downstream impacts.	Acceptable / Unacceptable Watershed Condition	Will be determined as projects are proposed within the respective watersheds.
WATER	Stream Discharge (flow)	To augment information needed for sediment & bedload movement and for the use in the watershed cumulative effects process.	Streamflow gages,staff gages or other suitable techniques	Cubic foot per sec	Over range of discharge events
SOCIAL AND ECONOMIC	Receipts returned to counties	Determine change in county receipts	Revenue and 25% fund records	Dollars/year	Annual

RESOURCE AREA	REPORT PERIOD	PRECISION	RELIABILITY	DATA STORAGE	RESPONSIBILITIES	THRESHOLD OF VARIABILITY
CUMULATIVE EFFECTS - FISH HABITAT CAPABILITY	Annually	L	L	TRI/GIS	Forest Staff, Wildlife Staff Officer and District Ranger	No more than 5 % decrease in the desired fish habitat capability level for each Forest watershed for the target fish species.
CUMULATIVE EFFECTS - WATERSHED CONDITION	Annually	L	L	GIS	Forest Fish and Wildlife Staff & District Ranger	No more than 15% of the Forest's watersheds in an unacceptable condition at any one time.
WATER	Annually	L	L	GIS	District Ranger	A change in base line flow conditions.
SOCIAL AND ECONOMIC	Annually	H	H	6500 file	Planning Staff Officer	Receipts to counties exceeds + or - 25% annually or + or - 15% of 5 years average from those predicted in the Forest Plan.

RESOURCE AREA	ACTION/EFFORT MONITORED	OBJECTIVE OF MONITORING	METHOD OF MONITORING	UNIT OF MEASURE	FREQUENCY
SOCIAL AND ECONOMIC (cont)	Validation of costs & values identified in the Forest Plan	Determine accuracy of assumptions used in model	Timber sale appraisals, PAMARS and contracts.	Dollars	Annually
	Changes in local income		U.S. Census, State publications, Co. & local agency reports, etc.	Dollars	Annually
	Changes in local population		U.S. Census, State publications, Co. & local agency reports, etc.	Thous. of persons	Annually
	Changes in local employment patterns		U.S. Census, State publications, Co. & local agency reports, etc.	Thous. of persons by industry of occupation	Annually
	Changes in life-styles, attitudes, beliefs or values		Interviews with key publics and opinion leaders in communities, observation, etc. (See FSH 1909.17)	Various	Biennial
	Changes in Forest contribution to area forest products industries		Tracking of raw material flow to mills; industry mix	MMCP/yr % industry distribution	Annually
AMERICAN INDIAN INTERACTION	Coordination with Tribes	Determine if Forest programs & activities are in compliance with treaties, AIRFA & FLPMA.	Meetings, interviews and telephone contacts with American Indian Tribal representatives.	Documentation of Contacts	On-going
CULTURAL	Documentation	Assess level of accomplishment of inventoried acres, site surveys, recordation and evaluations, project assessment, mitigation projects, management plans, and the associated costs.	Review data components in Cultural Resource Reconnaissance Reports, site inventory records, evaluation reports, Cultural Resource Management Plans, and cost figures from Field Units.	Variable: acres, properties, plans, dollars.	On-going

RESOURCE AREA	REPORT PERIOD	PRECISION	RELIABILITY	DATA STORAGE	RESPONSIBILITIES	THRESHOLD OF VARIABILITY
SOCIAL AND ECONOMIC (cont)	5 years	H	H	1920 file	Planning Staff Officer	Predicted costs vary + or - 10% from actual costs over a 5-year average.
	Annually	H	H	Files	Planning Staff Officer	+/- 15% in 3 years (corrected for inflation)
	Annually	H	H	Files	Planning Staff Officer	+/- 15% in 3 years
	Annually	M	H	Files	Planning Staff Officer	+/- 15% in 3 years
	Quarterly	L	M	Files, newspapers anecdotal data	Planning Staff Officer	Established trend toward Forest-Community conflict or identification of problems
	Annually	M	M	TSA reports, Files	Planning Staff Officer	Fails to meet plan Objectives
AMERICAN INDIAN INTERACTION	Annually	L	M	Files 1920,2360,	District Ranger	When Administrative appeals and others have been filed.
CULTURAL	Annually	H	M	District and S.O. Cultural Resource Management files Accomplishment Report.	Recreation Staff Officer	Failure to meet 20% or more of assigned cultural resource targets.

RESOURCE AREA	ACTION/EFFORT MONITORED	OBJECTIVE OF MONITORING	METHOD OF MONITORING	UNIT OF MEASURE	FREQUENCY
CULTURAL (cont)	Protection of historical resources	To determine the protection for historically significant structures & sites from vandalism and natural degradation.	Inspection visits to structures and documentation of observations (may include photogrammetric recordation in selected cases).	Properties	Variable: Depends on site condition and nature and intensity of threatening agents. As a minimum should be done annually on a sampling of properties.
SCENERY	Visual Quality Level	Determine whether the condition of the visual resource is meeting the standards set by management standards and guidelines.	Monitor visual conditions during programs and activity reviews through use of visual resource photopoints.	Acres by VQO.	Annually on 10% of viewsheds, vegetative manipulation roads, or major developments.
RECREATION	Recreation outputs by ROS Class	Determine whether recreation opportunities are being provided and quality of experience conforms to management standards and guidelines.	Monitor recreation use by type of activity & location of activity. Measure in terms of M/RVDs or visits. Correlate with ROS class.	Measure: -M RVOS -visits -activities -standards by ROS class. -Acres Not Meeting desired attributes	Annually
	Miles of trail in trail inventory	Determine the extent trail mileage is being retained in the system	RIM Trails data base.	Miles	Annually
WILDERNESS	Condition of Wilderness resource	Assess the impacts of overuse	Measure visitor registration or permits, Wilderness Ranger surveys and photoelectric counts to measure trail and campsite encounters in transition and trailled zones. Sample once a month during high use season.	Number of encounters	Annually
			Measure changes in LAC's in Wilderness.	Sq. feet denuded area	Initially sites recorded on campsite inventory form. 5 years or 20% of sites annually.

RESOURCE AREA	REPORT PERIOD	PRECISION	RELIABILITY	DATA STORAGE	RESPONSIBILITIES	THRESHOLD OF VARIABILITY
CULTURAL (cont)	Annually	H	H	District and S.O. Cultural Resource Management Files, RIM facility condition report.	Recreation Staff Officer	When individual site condition class drops one level.
SCENERY	Annually	H	H	TRI/GIS	Recreation Staff Officer	10% of acres not meeting VQO.
RECREATION	Every 2 years	M	M	RIM	Recreation Staff Officer	When use varies + or - 25% from projections or quality of experience is below standard on 15% of sites.
	5 years	H	H	RIM Trails	Recreation Staff Officer	Mileage loss exceeds 10% of the base inventory.
WILDERNESS	Annually	M	M	Files (2320), Wilderness Ranger close out reports.	District Ranger	When encounters reach 90% of established LAC for each WROS>
	5th year	H	H	Files, Wilderness Ranger close out reports	District Ranger	When vegetative loss reaches 90% of LAC for each WROS class.

RESOURCE AREA	ACTION/EFFORT MONITORED	OBJECTIVE OF MONITORING	METHOD OF MONITORING	UNIT OF MEASURE	FREQUENCY
WILDERNESS (cont)			Measure changes in water quality bacteriological levels focusing on Fecal Coliform.	Most probable number method.	Once every 5 years at all extra-heavy use lakes.
		To measure change from established base-line for visual range within Class I areas.	Point samples using photopoints.	Miles	Continuous sampling but reviewed annually after year 3.
		To determine the extent that natural ignitions are used to accomplish pre-scribed fire objectives in wilderness areas	Fire reports	Acres burned by FIL	Annually
WILD AND SCENIC RIVERS	Retention of characteristicts of eligible rivers.	Determine effects of act-ivities on attributes for potential class-ification of river segments eligible for wild & scenic river designation.	Assure that attributes are maintained at current levels through project reviews on all actions involving vege-tative, soil, or scenic alteration manipulation, road or trail construction or reconstruction along eligible rivers.	N/A	Continuing as projects are proposed.
	Skagit River Plan	Assume that plan is being follow-ed or need for revision.	Regional and Forest level activity reviews.	N/A	Once every 3 years
RESEARCH NATURAL AREAS	Effectiveness at meeting RNA manage-ment objectives.	Assure the RNA attributes and unmodified con-ditions are maintained.	Visual site inspection, evaluation of impacts from a)adjacent activities (recreation, timber harvest, etc.) and b)on-site activities that are detrimental to RNA qualities (recreation); evaluate Forest compliance with Standards and	RNA sites	Annually

RESOURCE AREA	REPORT PERIOD	PRECISION	RELIABILITY	DATA STORAGE	RESPONSIBILITIES	THRESHOLD OF VARIABILITY
WILDERNESS (cont)	5th year	H	H	Files, Wilderness Ranger close out reports	District Ranger	When 10% of established sites fail to meet established drinking standards.
	Annually	H	H	Written reports prepared by contractor.	Fire Staff Officer	When measured values taken after year three of plan implementation indicate a decline in visual range when compared against the information gained during years 1-3 of the decade.
WILD AND SCENIC	Annually	H	H	Fort Collins Fire Occurrence data file.	District Ranger	When the burned acreage in any one year exceeds by 40% the annual expected burned acreage expressed in the Forest Plan or the accumulated acres burned for the decade exceeds the Plan's expected acreage by 20%.
	N/A	M	H	District files (2310, 2360)	District Ranger	When resource condition or level of activities would lower potential classification.
RESEARCH NATURAL AREAS	3rd year	M	H	District files (2310, 2360)	Recreation Staff Officer	On 3 year schedule or if conditions on river change dramatically.
	Annually	M	H	District, S.O., and PNW Research Station.	District Ranger	When standards are not being met or downward trend is indicated.

RESOURCE AREA	ACTION/EFFORT MONITORED	OBJECTIVE OF MONITORING	METHOD OF MONITORING	UNIT OF MEASURE	FREQUENCY
RESEARCH NATURAL AREAS (cont)			Guidelines/coordination with Station Director; evaluate implementation and effectiness of individual RNA management prescriptions.		
FIRE	Fire Management program efficiency	Determine if fire program implementation is achieving intended results	Comparison of the expected Fire Management Efficiency from the Plan with the experienced efficiency following plan implementation.	Dollars of budget (include FFF) plus resource losses over M Ac protected.	Annually after year 3
LANDS	Effects of N.F. management on lands, resources and communities adjacent to National Forest land	Determine if LMP implementation results in positive and/or adverse effects to occur on/in adjacent lands, resources and communities.	Periodic meetings with cost share co-operators, city, county officials, and staff management review.	N/A	Annually
			Special Uses Program review with site inspections (interdisciplinary).	5 sites	Annually
	Adjacent land Management by Other Government Agencies (Federal, State and local)	Determine effects on N.F. lands resulting from management activities on adjacent lands managed by other governmental organizations (Federal, State and local).	Periodic meetings with Government agencies and staff management reviews.	N/A	Annually
	Effects of N.F. management of utility corridors on transmission needs and other resource values.	Determine whether utility corridor mgmt. strategy is compatable with land mgmt. objectives and energy needs. Assure that capacity of existing corridors is utilized prior to initiating new corridor.	Review existing capacity and plans for upgrade with utility officials prior to new corridor construction.	N/A	As needed
			Management review of effects of implementation on resources, land management and energy needs.	N/A	Every 5 years

RESOURCE AREA	REPORT PERIOD	PRECISION	RELIABILITY	DATA STORAGE	RESPONSIBILITIES	THRESHOLD OF VARIABILITY
FIRE	Annually	H	L	PAMARS and Fire Occurrence Data Base at FCCC.	Fire Staff Officer	When the efficiency for an individual year exceeds that predicted by 40% or the accumulated efficiency for the decade exceeds the predicted by 20%.
LANDS	5 years	L	L	5400 open files	L & M Staff Officer	Problem areas which will restrict Plan outputs from being accomplished.
	5 years	M	M	2700 open files	L & M Staff Officer	When Forest-wide Standards are not being met or downward trend is indicated.
	5 years	L	L	5400 open files	Forest Supervisor Deputy F.S. and Staff Officers	Problem areas which will restrict Plan outputs from being accomplished.
	5 years	L	L	2700 open files	L & M Staff Officer	Full utilization of existing corridors.
	5 years	L	L	2700 open files	L & M Staff Officer	Full utilization of existing corridors.

RESOURCE AREA	ACTION/EFFORT MONITORED	OBJECTIVE OF MONITORING	METHOD OF MONITORING	UNIT OF MEASURE	FREQUENCY
MINERALS	Effectiveness of meeting Forest goals and outputs	Assess effectiveness of withdrawals in managing resource values.	Program Management Review	N/A	Review 20% annually
		Determine if activities are adequately documented and administered.	Program Management Review	N/A	Review 20% annually
		Assure that operating stipulations are achieving resource protection objectives.	Visual site inspections with interdisciplinary team. Evaluate activities for compliance with Standards and Guidelines.	2 sites	Annually
THE BUILT ENVIRONMENT - ROADS	Miles of new road construction	Validate roading coefficients in planning model.	Engineering reports, data base TIS.	Mi/yr	Annually
ALL	Application of Standards and Guidelines	Determine if Standards and Guidelines are being implemented as planned.	Sample review of NEPA documents for proposals on each unit and various management areas.	Documents sampled	Annually
	Results of Standards and Guidelines	Determine if Standards and Guidelines are effective in meeting desired objective.	Sample review of completed practices, covering all units and various management areas. Review by IDT appointed by Forest Supervisor.	Projects reviewed	Annually, beginning with 2nd year
	Acquisition of new information as specified in Information Needs Chapter 2, Forest Plan.	Determine progress being made to be responsive to information needs.	Review data generated in response to Information Needs section.	Documentation of new data	Every other year beginning 1992.

RESOURCE AREA	REPORT PERIOD	PRECISION	RELIABILITY	DATA STORAGE	RESPONSIBILITIES	THRESHOLD OF VARIABILITY
MINERALS	5 years	L	L	2800 open files	L & M Staff Officer	Action will be taken on all unauthorized ground disturbing mineral activities. Additional administrative efforts may be required to control "recreational" Mining in Wilderness or other special interest areas.
	5 years	L	L	2800 open files	L & M Staff Officer	Same as above.
	Annually	M	M	2800 open files	District Ranger	Same as above.
THE BUILT ENVIRONMENT	5 years	H	H	TIS	Forest Engineer	Miles constructed exceeds + or - 25% annually or + or - 15% of 5 years average predicted in the Forest Plan
ALL	2,3,5 and 8th years	H	M	1920 files	Planning Staff Officer	Failure to implement any Standards and Guidelines.
	Annually	M	M	1920 files	Planning Staff Officer	Determination by IDT that Standards and Guidelines are not producing desired results.
	2 years	H	M	1920 files, Summary of new data	Planning Staff Officer	Determination by Line & Staff that opportunities to gather needed info. are being overlooked.

D. AMENDMENT AND REVISION

The Forest Plan incorporates legal mandate, professional judgement and the public's stated concerns into a future vision of the Forest. It charts a path for this future by developing management goals and objectives and translating them into management direction in the form of standards and guidelines for management areas on the Forest.

National Forest planning is a dynamic process, and the products - Forest Plans - are similarly dynamic. Forest Plans can and should be modified if conditions warrant. As management goals are applied on the ground, or as new information is learned about resources, the Plan's goals and objectives, or activities that the goals generate, may no longer be appropriate. In such instances, activities may be tailored to fit the resources, or planning objectives as stated in the Plan may be amended. Plans do not apply direction in site-specific management activities. It would be unrealistic and beyond the scope of this plan to try to identify, analyze, and schedule the myriad projects or activities that occur on a National Forest. Instead, this type of site-specific planning occurs at the project-level planning stage.

The Forest Supervisor may amend the Forest Plan. Based on an analysis of the objectives, standards, and other contents of the Forest Plan, the Forest Supervisor shall determine whether a proposed amendment would result in a significant change in the Plan. If the change resulting from the proposed amendment is determined to be significant, the Forest Supervisor shall follow the same procedure as that required for development and approval of a Forest Plan. If the change resulting from the amendment is determined not to be significant for the purposes of the planning process, the Forest Supervisor may implement the amendment following appropriate public notification and satisfactory completion of NEPA procedures.

Two types of Management Areas (MA's) are identified in this Forest Plan. The first type are Management Areas that are legally established and described, such as wilderness, Mt. Baker National Recreation Area, Skagit Wild and Scenic River, and the Alpine Lakes Area. The boundaries of these MA's are firm.

The second type of Management Areas are aggregations of analysis areas that have been assigned to the same management emphasis. The boundaries of this type of MA are not firm and do not always follow easily identified topographic features, such as ridges or streams. The boundaries represent a transition from one set of opportunities and constraints to another, with management direction established for each. During project design, field verification may indicate that the mapped Management Area boundary should be changed to reflect the environmental conditions the MA was intended to include. Such changes will be evaluated and documented in the environmental assessment, including a determination of significance, as discussed above.

The Forest Plan shall ordinarily be revised on a ten-year cycle or at least every 15 years. It also may be revised whenever the Forest Supervisor determines that conditions or demands in the area covered by the Plan have changed significantly, or when changes in RPA policies, goals, or objectives would have a significant effect on Forest level programs. In the monitoring and evaluation process, the interdisciplinary team may recommend a revision of the Forest Plan at any time. Revisions are not effective until considered and approved in accordance with the requirements for the development and approval of the Forest Plan.

The Forest Supervisor shall review the conditions on the land covered by the Plan at least every five years to determine whether conditions or demands of the public have changed significantly.

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Abbreviations Used In The Documents

AASQ - Average Allowable Sale Quantity

AMS - Analysis of the Management Situation

AQRV - Air Quality Related Value

ASQ - Annual Allowable Sale Quantity

BD - Brush Disposal

BLM - Bureau of Land Management

BMP - Best Management Practices

BSS - Base Sale Schedule

CEQ - Council on Environmental Quality

CF - Cubic Foot

CFL - Commercial Forest Land

CFR - Code of Federal Regulations

CMAI - Culmination of Mean Annual Increment

DBH - Diameter at Breast Height

DEIS - Draft Environmental Impact Statement

DNR - Department of Natural Resources, Washington State

DOE - Department of Ecology, Washington State

EIS - Environmental Impact Statement

EPA - Environmental Protection Agency

EVC - Existing Visual Condition

FEIS - Final Environmental Impact Statement

FERC - Federal Energy Regulatory Commission

FS - Forest Service

FSH - Forest Service Handbook

FSM - Forest Service Manual

FVC - Future Visual Condition

FWS - Fish and Wildlife Service, U.S. Department of the Interior

ICO - Issues, Concerns, Opportunities

ICOR - Interagency Committee for Outdoor Recreation, Washington State

IDT - Interdisciplinary Planning Team

KV - Knutsen-Vandenberg Fund

LAC - Limits of Acceptable Change

LTSYC - Long-Term Sustained Yield Capacity

MAI - Mean Annual Increment

MBNRA - Mt. Baker National Recreation Area

MBS - Mt. Baker-Snoqualmie National Forest

MIS - Management Indicator Species

MBF - Thousand Board Feet

MMBF - Million Board Feet

MCF - Thousand Cubic Feet

MMCF - Million Cubic Feet

MR - Management Requirement

MSF - Mt. Baker-Snoqualmie National Forest

NDY - Non Declining Yield

NEPA - National Environmental Policy Act

NF - National Forest

NFMA - National Forest Management Act

NFS - National Forest System

NPB - Net Public Benefit

PAOT - Persons-At-One-Time

PSD - Prevention of Significant Deterioration

OFM - Office of Financial Management, Washington State

ORV - Off-Road Vehicle

PCT - Precommercial Thin

PNV - Present Net Value

PNW - Pacific Northwest Region, USDA Forest Service

PNW - Present Net Worth

RARE II - Roadless Area Review and Evaluation

RIM - Recreation Information Management

RM - Roaded Modified

RN - Roaded Natural

RNA - Research Natural Area

ROS - Recreation Opportunity Spectrum

RPA - Forest and Rangeland Renewable Resources Planning Act

RVD - Recreation Visitor Day

SCORP - State Comprehensive Outdoor Recreation Plan

SEIS - Draft Supplemental to the Environmental Impact Statement for an Amendment to the Pacific Northwest Regional Guide - Spotted Owl Guidelines, 1986

SMU - Streamside Management Unit

SOHA - Spotted Owl Habitat Area

SPM - Semi-Primitive Motorized

SPNM - Semi-Primitive Nonmotorized

TSPQ - Timber Sale Program Quantity

TRI - Total Resource Inventory

TSE - Timber Stand Examination

TSI - Timber Stand Improvement

USDA - United States Department of Agriculture

USDI - United States Department of Interior

USFWS - United States Fish and Wildlife Service

VAC - Visual Absorbtion Capacity

VQL - Visual Quality Level

VQO - Visual Quality Objective

WFUD - Wildlife Fish User Day

WMU - Wetland Management Unit

WROS - Wilderness Recreation Opportunity Spectrum

Acquired Lands - Lands added to the National Forest system by purchase, transfer, or donation under authority of the Weeks Law or related acts. Also, lands obtained by the Forest Service by exchange for other acquired lands.

Acre Equivalent - Used to adjust actual acres of habitat improvement or improvement structures to reflect overall habitat benefits derived. It reflects the zone of influence of the habitat improvement for the target species. For example, a single water development for upland game birds has an acre equivalent of 160, whereas a single water structure for big game has a value of 640 because it has a larger zone of influence for the more mobile big game animals.

Acre-foot - A measure of water or sediment volume, equal to the amount which would cover an area of one acre to a depth of one foot (i.e., 43,560 cubic feet or 325,851 gallons).

Activity - Actions, measures, or treatments that are undertaken that directly or indirectly produce, enhance, or maintain forest and rangeland outputs or achieve administrative or environmental quality objectives. An activity can generate multiple outputs. Forest Service activity definitions, codes, and units of measure are contained in the Management Information Handbook (FSM 1309.11).

Administrative Unit - An area under the administration of one line officer, such as a District Ranger, Forest Supervisor, or Regional Forester.

Air Quality Related Value (AQRV) - Any physical, chemical, or biological component of an ecosystem that can be affected by changes in air pollutant levels. As an example: visual range as measured from a vista may be shortened by the presence of fine particulates in the air. Similarly a threatened or endangered plant species may be sensitive to sulphur dioxide levels.

Airshed - A geographical area that, because of topography, meteorology, and/or climate, shares the same air.

Age Class - An interval, usually 10 to 20 years, into which the age ranges of vegetation are divided for classification or use.

Allocation Zone - Geographic subdivisions of the Forest delineated for the purpose of controlling land allocations, so the FORPLAN Model could select only from a set of spacially feasible land allocations and harvest schedules. In addition, outputs and costs portrayed by zones would be more meaningful than portrayed by Forest-wide analysis areas.

Allowable Sale Quantity (ASQ) - The quantity of timber that may be sold from the area of suitable land covered by the Forest Plan for a time period specified by the plan. This quantity is usually expressed on an annual basis as the "Average Annual Allowable Sale Quantity." For timber resource planning purposes, the allowable sale quantity applies to each decade over the planning horizon and includes only chargeable volume. Consistent with the definition of timber production, fuelwood and other non-industrial wood shall not be included in the allowable sale quantity.

Alternative - One of several policies, plans, or projects proposed for decision making.

Amenity - An object, feature, quality, or experience that gives pleasure or is pleasing to the mind or senses. Amenity value is typically used in land use planning to describe those resource properties for which market values (or proxy values) are not or cannot be established (such as clean air and water, scenic quality, etc.).

Anadromous Fish - Those species of fish that mature in the sea and migrate into streams to spawn. Salmon, steelhead, and shad are examples.

Analysis Area - A grouping of homogeneous land areas, formed from the land and resource inventory data comprising the data base. Similarities are in terms of common capabilities to produce resources and susceptibility to impacts. Analysis areas need not be contiguous areas of land.

Analysis of the Management Situation (AMS) - A determination of the ability of the planning area to supply goods and services in response to society's demand for those goods and services.

Animal Unit Month (AUM) - The amount of forage required by one mature (1,000 lb.) cow or the equivalent for 1 month, based on an average of 26 lbs. of dry forage per day.

Aquatic Ecosystems - Stream channels, lakes, marshes or ponds, and the plant and animal communities they support.

Aquifer - An underground geological formation or structure that contains water in sufficient quantity to supply needs for water development.

Arterial Roads - See "Road, Arterial."

Average Annual Allowable Sale Quantity (AAASQ) - See "Allowable Sale Quantity."

Background - The viable terrain beyond the foreground and middleground where individual trees are not visible, but are blended into the total fabric of the stand. Includes the view beyond 3-5 miles from the observer and as far as the eye can see. (See "Foreground" and "Middleground.")

Basal Area - The area of the cross-section of a tree stem near the base, generally at breast height and inclusive of bark.

Base Sale Schedule (BSS) - A timber sale schedule formulated on the basis that the quantity of timber planned for sale and harvest for any future decade is equal to or greater than the planned sale and harvest for the preceding decade, and this planned sale and harvest for any decade is not greater than the long-term sustained yield capacity. This definition expresses the principle of non-declining flow.

Bedload - The sediment that moves by sliding, rolling, or bounding on or very near the streambed; sediment moved mainly by tractive or gravitational forces or both but at velocities less than the surrounding flow.

Benchmark - 1) The analytical basis from which the alternatives were developed. The use of assessed land capability as a basis from which to estimate the effects of alternative patterns of management on the land. 2) Reference points that define the bounds within which feasible management alternatives can be developed. Benchmarks may be defined by resource output or economic measures.

Benefit/Cost Ratio - The ratio obtained by dividing the anticipated benefits of a project by its anticipated costs (or realized benefits by realized costs) to obtain a measure of expected (or realized) benefits per unit of cost--a common exercise in cost-benefit analysis which gives a measure of economic efficiency.

Best Management Practices (BMP's) - A practice or combination of practices that is determined by a State (or designated area-wide planning agency) after problem assessment, examination of alternative practices, and appropriate public participation, to be the most effective, practicable (including technological, economic, and institutional considerations) means of preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with water quality goals (Federal Register, Volume 40, No. 230 dated 11/28/75).

Big Game - Those species of large mammals normally managed for sport hunting. Big Game Summer Range - A range, usually at higher elevation, used by deer and elk during the summer. Summer ranges are usually much more extensive than winter ranges.

Big Game Winter Range - A range, usually at lower elevation, used by migratory deer and elk during the winter months; usually more clearly defined and smaller than summer ranges.

Biological Growth Potential - The average net growth attainable in a fully stocked natural forest stand.

Biological Potential - The maximum production of a selected organism that can be attained under optimum management.

Biomass - The total quantity at a given time of living organisms of one or more species per unit of space (species biomass), or of all the species in a biotic community.

Board Foot - The amount of timber equivalent to a piece of wood one foot square and one inch thick, being the unit in board foot measure.

Board Foot/Cubic Foot Ratio - A ratio expressing the number of board feet in a cubic foot of timber. Varies with tree species, diameter, height, and form factors.

Broadcast Burn - Allowing a prescribed fire to burn over a designated area within well-defined boundaries for reduction of fuel hazard or as a silvicultural treatment, or both.

Browse - Twigs, leaves, and young shoots of trees and shrubs on which animals feed; in particular, those shrubs which are used by big game animals for food.

Brush - A growth of shrubs or small trees, usually of a type undesirable to livestock or timber management.

Brush Disposal (BD) - A term commonly used to refer to disposal of slash. See "Slash," "Broadcast Burn," and "Residue Utilization."

Bureau of Land Management (BLM) - An agency within the Department of the Interior, with land management responsibility for the Public Domain lands.

Canopy - The more-or-less continuous cover of branches and foliage formed collectively by the crown of adjacent trees and other woody growth.

Capability - The potential of an area of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at given levels of management intensity. Capability depends upon current conditions and site conditions such as climate, slope, landform, soils, and geology, as well as on the application of management practices, such as silviculture or protection from fire, insects, and disease.

Capital Investment - An input that increases the value of natural or manmade resources (assets) needed to maintain or increase the flow of outputs in the future. Benefits resulting from capital investments are normally recouped in excess of 1 year.

Carrying Capacity - 1) The number of organisms of a given species and quality that can survive in, without causing deterioration of, a given ecosystem through the least favorable environmental conditions that occur within a stated interval of time. 2) In recreation management, the level of recreational use that a site can provide without deterioration of the quality of the recreation experience of the resource.

Cavity Excavators - The hollow excavated in trees by birds or other natural phenomena; used for roosting and reproduction by many birds and mammals.

Cedar - Areas that have been sources of various cedar products, or are at least identified as significant stands of cedar. Cedar is used in everything from smokehouse construction to spirit dancer costumes to basketry and other utilitarian items. Of all forest products it may be the most significant to the Indians of today, although it cannot survive without a total appropriate environment, most of which was used by the Indians in the past.

Cemetaries & Archaeological Sites - Villages, camps, and burial areas (not in most instances known to be cemetaries). Other sites are ethnographically and/or historically known cemetaries. Some are maintained and still used, others are not.

Ceremonial Flora - Locations known to contain certain plants that have ritual or healing properties. Some areas so designated are large and may contain several such plant species, others are small and may possess only a few. Often areas containing specific flora are considered as ceremonially, ritually, and/or religiously powerful.

Channel or Stream Scour - Erosion of the channel bottom caused by high flows of water, loss of channel stability, or debris torrents.

Chargeable Volume - All volume that is included in the growth and yield projections for the selected management prescriptions used to arrive at the allowable sale quantity, based on Regional utilization standards.

CHUNK Study - An economic-efficiency study of the developed campgrounds on the Forest, completed in 1984. Refer to Chapter III, DEIS, Recreation.

Class I Stream - Perennial or intermittent streams (or segments thereof) that have one or more of the following characteristics: provide a direct source of water for domestic use; are used by large numbers of fish for spawning, rearing, and/or migration; and/or are major contributors to the quantity of water in a Class I stream. See "SMU."

Class II Stream - Perennial or intermittent streams (or segments thereof) that have one or more of the following characteristics: are used by moderate though significant numbers of fish for spawning, rearing and/or migration, and/or flow enough water to be moderate or not clearly identifiable contributors to the quantity of water in a Class I stream, or are major contributors to a Class II stream. See "SMU."

Class III Stream - All other perennial streams or segments thereof not meeting higher class criteria. See "SMU."

Deeply Incised - A stream channel with perennial stream flow, steep deep streambanks, and unstable sideslopes that can generate slumps and slides resulting in debris torrents. Class III channels incised more than 10 feet and having one or more unstable soil types qualifies as a deeply incised Class III stream. On this Forest, 70% of the Class III streams are deeply incised; they represent 66% of the total Forest stream miles.

Lightly Incised - Class III channels incised less than 10 feet, and in some cases, possessing unstable soil types, qualifies as a lightly incised Class III stream. For this Forest, 30% of the Class III streams are lightly incised; this represents 27% of the total Forest stream miles.

Class IV Stream - All other intermittent streams not meeting higher class criteria. See "SMU."

Clearcutting - A silvicultural system in which all trees on an area are harvested in one cut for the purpose of regenerating a new, even-aged stand. The area harvested may be a patch, strip, or stand large enough to be mapped or recorded as a separate class in planning for sustained yield.

Climax - The culminating stage in plant succession for a given site where the vegetation has reached a highly stable condition.

Climax Species - Those species that dominate a climax stand in either numbers per unit area or biomass.

Code of Federal Regulations (CFR) - A codification of the general and permanent rules published in the Federal Register by the Executive departments and agencies of the Federal Government.

Collector Roads - See "Road, Collector."

Commercial Forest Land (CFL) - See "Timber Resource Land Suitability Classification."

Commercial Thinning - Any type of tree thinning that produces merchantable material at least equal in value to the direct costs of harvesting.

Commodity - A transportable resource product with commercial value; all resource products that are articles of commerce.

Compaction - The packing together of soil particles by forces exerted at the soil surface, resulting in increased soil density.

Concern - A point, matter, or question raised by management and/or the public that must be addressed in the planning process.

Concession - A commercial public service enterprise which operates on National Forest land under a "Special Use Permit" for the purpose of providing goods and services to the public.

Condition Class - A descriptive grouping into 10 classes of the existing forest vegetation based on age, tree size, maturity, species mix, and accessibility by road. Condition class is an important component of the Forest Model structure. See "Forest Model" and Appendix B.

Congressionally Classified and Designated Areas - Areas that require congressional enactment for their establishment, such as National Wilderness Areas, National Wild and Scenic Rivers, and National Recreation Areas.

Connecting Habitat - Areas which serve as travel corridors or habitat connections, provide for the dispersal and interaction of indicator species, and avoid the isolation of habitat into geographic islands. These areas provide species access across and/or along drainages and elevation gradients (ridgeline to valley floor). Connecting habitat can be provided in several ways:

1. Utilize natural land forms, such as riparian areas along creek drainages, or the areas adjacent to avalanche chutes, where possible.

2. Maintain areas in blocks of land that generally are one or more logical harvest units in size. This will provide the option of rotating the designation of connecting habitat to adjacent areas, as the adjacent harvested areas mature or develop the desired habitat structure.

Constraint - A confinement or restriction on the range of permissible choices.

Consumptive Use - A use of resources that permanently reduces the supply, such as mining. (See also Non-consumptive Use.)

Core Area - (As related to a Spotted Owl Habitat Area.) An area encompassing at least 300 contiguous acres of old growth suitable for nesting and reproduction. Centering on a reproductive site or a site of concentrated pair use where such information is available. See "Spotted Owl Habitat Area."

Corridor - A linear strip of land identified for the present or future location of transportation or utility rights-of-way within its boundaries.

Costs:

1. **Direct cost** - a cost that directly contributes to the production of the primary outputs of an activity, project, or program.

2. **Economic cost** - total fixed and variable costs for inputs, including costs incurred by other public parties and, if appropriate, opportunity costs and cost savings.

3. **Fixed cost** - a cost that is committed for the time horizon of planning or the decision being considered. Fixed costs include fixed ownership requirements, fixed protection, short-term maintenance, and long-term planning and inventory costs.

4. **Investment cost** - a cost of creating or enhancing capital assets, including costs of administrative or common-use transport facilities and resource management investments.

5. **Joint cost** - a cost contributing to the production of more than one type of output.

6. **Non-Forest Service cost** - a cost of investment and operating activities paid by cooperators or other non-Forest Service agencies which are part of Forest Service management programs, or which contribute to the outputs included in the analysis.

7. **Opportunity cost** - the value of a resource's foregone net benefits in its most economically efficient alternative use.

8. **Unit cost or cost per unit** - total cost of production divided by the number of units produced.

Cost Efficiency - The usefulness of specified inputs (costs) to produce specified outputs (benefits). In measuring cost efficiency, some outputs, including environmental, economic, or social impacts, are not assigned monetary values, but are achieved at specified levels in the least costly manner. Cost efficiency is usually measured using present net value, although use of benefit-cost ratios and rates-of-return may be appropriate.

Cost Share - A term referring to investment sharing provided under Public Law 88-657 (16 U.S.C 535) whereby forest development roads may be financed cooperatively with public or private agencies or persons. Investment sharing may be accomplished in several ways. Road right-of-way construction and use agreements (referred to as cost share agreements) are a common method used in this Forest where there are large areas of intermingled landownership.

Council on Environmental Quality (CEQ) - An advisory council to the President established by the National Environmental Policy Act of 1969. Reviews federal programs for their effect on the environment, conducts environmental studies, and advises the President on environmental matters. (Abstracted from NEPA.)

Cover/forage Ratio - The mixture of cover and forage areas on a unit of land, expressed as a ratio.

Created Openings - Openings in the forest created by the silvicultural practices of: shelterwood regeneration cutting at the final harvest; clearcutting; seed tree cutting; or group selection cutting.

Crop Tree - Any tree forming or selected to form, a component of the final crop. Generally a tree selected in a young stand or plantation for carrying through to maturity.

Crown Height - In a standing tree, the vertical distance from ground level to the base of the crown, measured either to the lowest live branch whorl, or to the lowest live branch (excluding shoots arising spontaneously from buds on the stem of a woody plant), or to a point halfway in-between.

Cubic Foot - A unit of quantity for lumber or timber equal to a cube 1x1x1 foot.

Cull Material - Timber which does not meet the specified utilization standards (usually in a timber sale contract) for size and percent of sound wood. See "Utilization Standards."

Culmination of Mean Annual Increment (CMAI) - The age at which the average annual growth is greatest for a stand of trees. Mean annual increment is expressed in cubic feet measure and is based on expected growth according to the management intensities and utilization standards assumed in accordance with 36 CFR 219.16(a)(2)(i) and (ii). Culmination of mean annual increment includes regeneration harvest (cutting) yields and any additional yields from planned intermediate harvests (cuttings).

Cultural Resource - The physical evidence of our Nation's heritage. Included are: archaeological sites; historic buildings, structures, and districts; and localities with social significance to the human community. In the plan, they are classified as archaeological and historical properties, and American Indian religious and cultural use areas.

Cumulative Effects or Impacts - The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. (40 CFR 1508.7 - these regulations use effects and impacts synonymously.)

DBH (d.b.h.) - Diameter at breast height, measured at 4 feet 6 inches from the ground.

Debris Slide - A shallow landslide of soil, rock, and organic material that occurs on steep slopes.

Debris Torrent - A large debris slide that is charged with water and confined to a steep stream channel. Debris torrents may travel several thousand feet.

Decision Space - Decision space defines the outer limits past which it is not physically, biologically, or economically possible to produce a feasible combination of Forest goals and services, and land allocations.

Demand - The amount of an output that users are willing to take at a specified price, time period, and condition of sale.

Departure - A sale schedule that deviates from the principle of non-declining flow by exhibiting a planned decrease in the sale schedule at any time during the planning horizon. A departure can be characterized as a temporary increase, usually in the beginning decade(s) of the planning horizon, over the base sale schedule that would otherwise be established, without impairing the future attainment of the long-term sustained yield capacity.

Developed Recreation - Recreation that requires facilities that, in turn, result in concentrated use of an area. Examples of recreation areas are campgrounds and ski areas; facilities in these areas might include roads, parking lots, picnic tables, toilets, drinking water, ski lifts, and buildings. See "Recreation Development Scale (Level)."

Dispersed Recreation - A general term referring to recreation use outside a developed recreation site, such as scenic driving, hiking, fishing, cross-country skiing, horseback riding, snow mobiling, hunting, backpacking, and recreation in primitive environments.

Diversity - The distribution and abundance of different plant and animal communities and species within the area covered by a land and resource management plan. See also "Edge," "Horizontal Diversity," and "Vertical Diversity."

Douglas-fir Type - An association of tree species in which Douglas-fir is recognized as one of the principal seral species.

Draft Environmental Impact Statement (DEIS) - The draft statement of environmental effects which is required for major federal actions under Section 102 of the National Environmental Policy Act, and released to the public and other agencies for comment and review.

Duff - Organic matter in various stages of decomposition on the floor of the forest.

Early Forest Succession - The early stage or condition of a plant community that occurs during its development from bare ground to climax.

Economic Efficiency - The usefulness of inputs (costs) to produce outputs (benefits) and effects when all costs and benefits that can be identified and valued are included in the computations. Economic efficiency is usually measured using present net value, though use of benefit-cost ratios and rates-of-return may sometimes be appropriate.

Economic Impacts:

1. **Direct economic impact** - effects caused directly by forest product harvest or processing or by forest uses.

2. **Indirect economic impact** - effects that occur when supporting industries sell goods or services to directly affected industries.

3. **Induced economic impact** - effects that occur when employees or owners of directly or indirectly affected industries spend their income within the economy.

Ecosystem - An interacting system of organisms considered together with their environment; for example, marsh, watershed, and lake ecosystems.

Edge - An interfacial area where plant communities meet or where successional stages or vegetative conditions within plant communities come together. See also "Diversity," "Edge Contrast" and "Horizontal Diversity."

Edge Contrast - A qualitative measure of the difference in structure of two adjacent vegetated areas; for example, "low," "medium," or "high" edge contrast.

Effects - Environmental consequences as a result of a proposed action. Included are direct effects, which are caused by the action and occur at the same time and place, and indirect effects, which are caused by the action and occur later in time and/or further removed in distance, but which are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air, water, and/or other natural systems, including ecosystems.

> Effects and impacts as used in this statement/plan are synonymous. Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic quality, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions that may have both beneficial and detrimental effects, even if on balance the agency believes that the effects will be beneficial (40 CFR 1508.8).

Electronic Sites - Areas designated for the operation of equipment which transmits and receives radio signals (excluding television aerials and antennas) for individual pickup of programming, and passive reflectors.

Endangered Species - Any species of animal or plant that is in danger of extinction throughout all or a significant portion of its range. Plant or animal species identified by the Secretary of the Interior as endangered in accordance with the Endangered Species Act of 1973, as amended.

Ending Inventory Constraint - The standing volume left in the inventory at the end of the planning horizon. The constraint insures that there is enough standing inventory at the end of the planning horizon to perpetuate long-term sustained yield capacity harvest levels on a nondeclining flow basis.

Environmental Analysis - A process associated with the preparation of an environmental assessment or environmental impact statement. An analysis of alternative actions and their predictable short- and long-term environmental effects, including physical, biological, social, and economic.

Environmental Assessment - A concise public document, providing sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact.

Environmental Impact Statement (EIS) - A statement of the environmental effects of a proposed action and alternatives to it. Required for major federal actions under Section 102 of the National Environmental Policy Act (NEPA), and released to the public and other agencies for comment and review. A formal document that must follow the requirements of NEPA, the Council on Environmental Quality (CEQ) guidelines, and directives of the agency responsible for the project proposal. See DEIS and FEIS.

Environmental Protection Agency (EPA) - An agency of the Executive Branch of the Federal Government which has the responsibility for environmental matters of national concern.

Erosion - 1) The wearing away of the land surface by running water, wind, ice, or other geologic agents, including such processes as gravitation creep; or 2) detachment and movement of soil or rock fragments by water, wind, ice, or gravity.

Even-Aged Management - The application of a combination of actions that results in the creation of stands in which trees of essentially the same age grow together. Managed even-aged forests are characterized by a distribution of stands of varying ages (tree sizes) throughout the forest area. Clearcut, shelterwood, or seed tree cutting methods produce even-aged stands. (36 CFR 219.3)

Even-aged Stands - Stands in which all trees are of about the same age. (A spread of 10 t0 20 years is generally considered one age class.) Cutting methods producing even-aged stands are clearcut, shelterwood, or seed tree systems.

Existing Visual Condition (EVC) - The "Existing Visual Condition" of the Forest was prepared in 1979. See "Visual Condition."

Final Environmental Impact Statement (FEIS) - The final version of the statement of environmental effects required for major federal actions under section 102 of the National Environmental Policy Act. A revision of the draft environmental impact statement to include public and agency responses to the draft.

Final Harvest - Synonomous with "regeneration cutting" (harvest) in the clearcutting silvicultural system.

Fisheries Habitats - Streams, lakes, and reservoirs that support fish populations.

Floodplain - The lowland and relatively flat areas adjoining inland and coastal waters including, at a minimum, those areas subject to a 1-percent or greater chance of flooding in any given year (100-year recurrence).

Flood Proof - Using special measures during road construction to insure that flood occurrences will not cause road damage.

Forage - All browse and nonwoody plants that are available to livestock or game animals and used for grazing or harvested for feeding.

Forb - Any herb other than grass.

Foreground - A term used in visual management to describe the portions of a view between the observer and up to 1/4 to 1/2 mile distant. The stand of trees immediately adjacent to a high-value scenic area, recreation facility, or forest highway. See "Background," "Middleground."

Forest or Forest Land - 1) Forest is used in the text as a proper noun to substitute for Mt. Baker-Snoqualmie National Forest. 2) See "Timber Resource Land Suitability Classification."

Forest Model - An idealized (simplified) representation of the real life Forest system, developed from a set of simplifying assumptions. The "Forest Model" serves as a format to structure Forest management resource data, i.e. yields (activities and outputs) over time, acres, and management constraints. The "Forest Model" developed by the interdisciplinary team was incorporated into the computer program model FORPLAN for use in this planning effort. See "FORPLAN." See Appendix B for more detail.

Forest Service Handbook (FSH) - For Forest Service use, directives that provide detailed instructions on how to proceed with a specialized phase of a program or activity.

Forest Service Manual (FSM) - A system of manuals which provides direction for Forest Service activities.

Forest Types - A classification of forest land based upon the tree species presently forming a plurality of basal area stocking in live trees.

FORPLAN - Acronym for Forest Planning Model. A linear programming system used for developing and analyzing forest planning activities. Can be used to simulate management practices while at the same time optimizing for any given desired objective. As a manageable representation of reality, it can be used to manipulate information and look at alternative approaches to management, calculating tradeoffs and opportunity costs. See "Forest Model." See Appendix B for more detail.

Fuel Management - The practice of planning and executing the treatment or control of living or dead vegetative material in accordance with fire management direction.

Fuel Treatment - The rearrangement or disposal of natural or activity fuels (generated by management activity, such as slash left from logging) to reduce fire hazard. Fuels are defined as both living and dead vegetative materials consumable by fire.

Fuels - Combustible wildland vegetative materials. While usually applied to above ground living and dead surface vegetation, this definition also includes roots and organic soils such as peat.

Game Species - Any species of wildlife or fish for which seasons and bag limits have been prescribed and which are normally harvested by hunters, trappers, and fishermen under state or federal laws, codes, and regulations.

Genetic Integrity - Refers to a normal, healthy genetic pool within a biological population to provide for long-term maintenance and survival of the species. Of specific concern in management direction is the prevention of loss of genetic variance and the avoidance of inbreeding. See the Draft SEIS, Spotted Owl Guidelines for more detail.

Genetic Seedlings - Tree seedlings from a genetically superior seed source. The seeds are collected from trees displaying exceptional form and raised in nurseries before outplanting. The seedlings usually have faster growth rates than naturally regenerated seedlings.

Geothermal - Of or pertaining to the internal heat of the earth.

Glaciolacustrine - Soil materials transported by glaciers and deposited by glacial meltwater in glacier lakes.

Goal - A concise statement that describes a desired condition to be achieved sometime in the future. It is normally expressed in broad, general terms with no specific completion date. Goal statements form the principal basis from which objectives are developed.

Goods:

1. **Nonmarket good** - an output that is not normally exchanged for money in a market. Usually no market has evolved because ownership of the good is not clear, exclusive use is not possible under current laws, or it is not possible to consistently define good.

2. **Public good** - an output for which it is impractical to impose a charge, either because it must be supplied to all if it is supplied to one or because the costs of collection and control exceed likely revenue.

Goods and Services - The various outputs, including on-site uses, produced from forest and rangeland resources.

Grass/forb - An early forest successional stage where grasses and forbs are the dominate vegetation.

Group Selection Cutting - Removal of tree groups ranging in size from a fraction of an acre up to about 2 acres. Area cut is smaller than the minimum feasible under even-aged management for a single stand.

Growing Season - That part of the year when temperature and moisture are favorable for vegetation growth.

Growing Stock Trees - Live trees, meeting specified standards of quality or vigor, that are included in growth and yield projections to arrive at the allowable sale quantity.

Guideline - An indication or outline of policy or conduct that is not a mandatory requirement (as opposed to a standard, which is mandatory).

Habitat - The place where a plant or animal naturally or normally lives and grows.

Habitat Capability - The estimated ability of an area, given existing or predicted habitat conditions, to support a wildlife, fish or plant population. Measured in tems of potential population numbers.

Habitat Diversity - The distribution and abundance of different plant and animal communities and species with a specific area.

Hardwood - A broad-leaved flowering tree.

Harvest Cutting Method - A combination of interrelated actions whereby forests are tended, harvested, and replaced. The combination of management practices used to manipulate the vegetation results in forests of distinctive form and character. Harvest cutting methods are classified as even-aged and uneven-aged. See "Silvicultural System."

Harvest Dispersion (factor) - The dispersion of cutting units over the land base in order to meet clearcut size limitations, or other resource constraints. An example of a harvest dispersion constraint is: no more than 25 percent of an analysis area may be harvested in one decade.

Headwaters - The upper tributaries of a river.

Herbaceous - An adjective describing seed-producing plants that do not develop persistent woody tissue, but die down to ground level at the end of the growing season.

Hiding Cover - Any vegetation used by wildlife for security or to escape from danger. For example, hiding cover is capable of hiding 90 percent of an adult deer or elk from the view of a human at a distance of 200 feet or less.

Historic Site - Site associated with the history, tradition, or cultural heritage of national, state, or local interest, and of enough significance to merit preservation or restoration.

Horizontal Diversity - The distribution and abundance of plant and animal communities or successional stages across an area of land; the greater the number of communities, the higher the degree of horizontal diversity (or richness). This concept is similar but not identical to "even-aged management." Application of even-aged management, for example, can be designed to accomplish horizontal diversity objectives. See also "Vertical Diversity."

Hydrology - The scientific study of the properties, distribution, and effects of water in the atmosphere, on the earth's surface, and in soil and rocks.

ID Team - See Interdisciplinary Team.

Impacts - See Effects.

IMPLAN - A computer-based system used by the Forest Service for constructing nonsurvey input/output models to measure economic input. The system includes a data base for all countries in the U.S. and a set of computer programs to retrieve data and perform the computational tasks for input/output analysis.

Indicator Species - Species identified in a planning process that are used to monitor the effects of planned management activities on viable populations of wildlife and fish including those that are socially or economically important. See Management Indicator Species.

Instream Flows - A prescribed level (or levels) of streamflow, usually expressed as a stipulation in a permit authorizing a dam or water diversion, for the purpose of meeting National Forest System management objectives.

Integrated Pest Management - A process for selecting strategies to regulate forest pests, in which all aspects of a pest-host system are studied and weighed. A basic principle in the choice of strategy is that it be ecologically compatible or acceptable. (36 CFR 219.3)

Intensive Forest Management - A high investment level of timber management that envisions initial harvest, regeneration with genetically improved stock, control of competing vegetation, fill-in planting, precommercial thinning as needed for stocking control, one or more commercial thinnings, and final harvest.

Interdisciplinary Approach - Using individuals representing two or more areas of knowledge and skills focusing on the same tasks, problem, or subject.

Interdisciplinary Team (ID Team) - A group of individuals with different training assembled to solve a problem or perform a task. The team is assembled out of recognition that no one scientific discipline is sufficiently broad to adequately assess the situation.

Intermediate Cutting - Any removal of trees from a regular crop or stand between the time of its formation and the harvest cutting (final harvest). Generally includes cleaning, thinning, liberation, and improvement cuttings, increment fellings, and sometimes even salvage and sanitation cutting.

Intermingled Ownerships - Lands within the National Forest boundaries or surrounded by National Forest lands owned by private interests or other government agencies. Because of early land grants, these lands frequently are in a checkerboard ownership pattern.

Intermittent Stream - A stream that runs water in most months, but does not run water during the dry season during most years.

Irretrievable - Applies to losses of production, harvest, or use of renewable natural resources. For example, some or all of the timber production from an area is irretrievably lost during the time an area is used as a winter sports site. If the use is changed, timber production can be resumed. The production lost is irretrievable, but the action is not irreversible.

Irreversible - Applies primarily to the use of non-renewable resources, such as minerals or cultural resources, or to those factors, such as soil productivity, that are renewable only over long time periods. Irreversible also includes loss of future options.

Issue - A point, matter, or question of public discussion or interest to be addressed or decided through the planning process.

J-8 - A map code used on this Forest to designate unsuitable forest land not managed for timber production because there is no reasonable assurance that these lands can be adequately restocked within 5 years after harvest. This is based on existing technology and knowledge as reflected in current research and experience. See "Timber Resource Land Suitability Classification, 3.(d)."

Knutsen-Vandenberg Fund (KV) - Authorization to withhold a portion of timber sale receipt funds for reforestation of harvested areas, rehabilitation of streams and habitat affected by timber sales, etc.

Lacustrine - Refers to material deposited in lake water and later exposed either by lowering of the water level or by the elevation of the land.

Land Allocation - The assignment of a particular land area(s) to a specific "Management Area."

Landing - Any place where round timber is assembled for further transport, commonly with a change of method.

Landownership Classification Groups - All National Forest land and land in other ownerships within the Forest boundary will be classified in one of five landownership classification groups. This classification system identifies opportunities to acquire, retain, exchange, or relinquish lands to facilitate administration of the Forest (FSM 1920.42, 1982 or as revised).

Group I - Lands where Congress has either directly or indirectly instructed the Forest Service to retain ownership and acquire non-Federal lands for a designated purpose.

Group II - Retain National Forest ownership and acquire private land as the opportunity and/or need occurs.

Group III - Lands are available for land adjustment and usually will provide most of the land considered in exchange projects.

Group IV - Lands normally made available to acquire private lands in Groups I, II, or III.

Group V - More intensive study and planning are necessary before landownership decisions are made.

Lands Not Appropriate for Timber Production - Includes lands that: 1) are proposed for resource uses that preclude timber production, such as Wilderness; 2) have other management objectives that limit timber production to the point where management requirements set forth in CFR 219.27 cannot be met; or 3) or are not cost efficient over the planning horzon in meeting forest objectives including timber production.

Lands Not Suited (Unsuitable) for Timber Production - Includes lands that: 1) are not forest land as defined in CFR 219.3; 2) are likely, given current technology, to suffer irreversible resource damage to soils productivity, or watershed condition; 3) cannot be adequately restocked as provided in 36 CFR 219.27; or, 4) have been withdrawn from timber production by an Act of Congress, the Secretary of Agriculture, or the Chief of the Forest Service. In addition, Forest lands other than those that have been identified as not suited for timber production shall be reviewed and assessed prior to formulation of alternatives to determine the costs and benefits of a range of management intensities for timber production.

Legendary - Locations that may have, or may have had, spiritual significance. They appear also to be areas which are significant to the cosmology of the Indian groups in the project area. They are significant in mythology having to do with the origin and development of the area and of the people of that area.

Limits of Acceptable Change (LAC) - Maximum limit of human-caused change allowed in wilderness. Each WROS Class has a set of limits which presupposes that certain areas of wilderness (trails) will be allowed to receive higher levels of use than other areas (trailless), and thus will receive more change or resource impact. LAC's are not a management objective, but a maximum limit. See "Wilderness Recreation Opportunity Spectrum."

Local Roads - See "Road, Local."

Logging Systems - See "Yarding."

Tractor - Use of tracked or rubber-tired vehicle to skid logs to a central loading point. This method is typically used on dry, gently sloping ground; it is infrequently used on this Forest.

Highlead - A cable system operated from a tower or spar-tree, which drags logs to a central loading site. One end of a log may be lifted off the ground for short distances. Used most often in moderately steep terrain over relatively short distances.

Skyline - The log yarding cable is attached between a tower or spar-tree and an elevated point in the distance. Logs are transported partially or completely suspended above the ground with a movable carriage on the cable. Used in steep or unstable terrain with minimal impacts on the land, this method can reach for long distances.

Helicopter - Use of helicopter to lift logs from a logging site to a nearby central loading point. Most economical on relatively remote and difficult to reach sites. Avoids road building where roading is inappropriate because of steep terrain, unstable soils, visual consideration, etc.

Long-Term Sustained-Yield Capacity (LTSYC) - The highest uniform wood yield from lands being managed for timber production that may be sustained under a specified management intensity consistent with multiple-use objectives.

Macropore Space - Space in soil composed of larger pore spaces. See "Pore space," "Porosity," and "Soil."

Management Area - An area or non-contiguous areas of the Forest assigned to a specific management strategy (the management strategy then becomes the management prescription for the area(s)).

Management Concern - An issue, problem, or condition which constrains the range of management practices identified by the Forest Service in the planning process.

Management Direction - A statement of multiple-use and other goals and objectives, the associated management prescriptions, and standards and guidelines for attaining them.

Management Emphasis - The major resource uses, outputs, and activities emphasized in a management area.

Management Indicator Species (MIS) - A species selected because its welfare is presumed to be an indicator of the welfare of other species using the same habitat. A species whose condition can be used to assess the impacts of management actions on a particular area. See "Indicator Species."

Management Intensity - A management practice or combination of management practices and associated costs designed to obtain different levels of goods and services.

Management Practice - A specific activity, measure, course of action, or treatment.

Management Prescription - Management practices and intensity selected and scheduled for application on a specific area to attain multiple-use and other goals and objectives.

Management Requirement (MR) - Minimum standards for resource protection, vegetation manipulation, silvicultural practices, even-aged management, riparian areas, soil and water diversity, to be met in accomplishing National Forest System goals and objectives.

Management Strategy - A specific set of management practices appropriate for application to Forest lands or resources. The management strategy should define the management goals or objectives, resource priorities, and intensities to be considered. See "Management Area" and "Management Prescription."

Marginal Component - The portion of the regulated commercial Forest land on which it is presently not feasible (economically or technologically) to manage for timber crops because of soil constraints, difficulties in establishing tree regeneration or excessive development costs.

Market Resources - Products derived from renewable and nonrenewable resources that have a well-established market value for example, forage, timber, water, and minerals.

Market Value - The unit price of an output normally exchanged in a market after at least one stage of production. Market value is expressed in terms of prices as evidenced by market transactions.

Mass Movement - A general term for any of the variety of processes by which large masses of earth material are moved downslope by gravitational forces - either slowly or quickly.

Mass Wasting - All landslide events; the detachment and movement of soil or surface mantle material. Landslides may fall in a single mass or single event, moving downslope to cause debris slides and avalanches, or they may detach and move slowly downslope over a period of years.

Maximum Modification - See "Visual Quality Objectives."

May (or Can) - Verb used in the Management Prescriptions, Proposed Forest Plan. Action is optional.

MBF - One thousand board feet. Lumber or timber measurement term.

MCF - One thousand cubic feet. Lumber or timber measurement term.

Mean Annual Increment (MAI) - The total increment up to a given age divided by that age.

Mesotrophic - Habitats, particularly soil and water, of moderate nutrient capacity.

Middleground - The visible terrain beyond the foreground where individual trees are still visible, but do not stand out distinctly from the stand. See "Foreground" and "Background."

Mineral Entry - The filing of a mining claim upon public domain or related land to obtain the right to any minerals it may contain.

Mineral Soil - A soil consisting predominantly of, and having its properties determined predominantly by, mineral matter. It usually contains less than 20% organic matter but may sometimes contain an organic surface layer up to 30 centimeters thick. Mineral soil is the soil where surface erosion of individual soil particles can take place, not the loose unconsolidated organic surface layer.

Mineral Withdrawal - The exclusion of mining locations and mineral development work on areas required for administrative sites by the Forest Service and other areas highly valued by the public.

Minerals -

1. **Common** - mineral deposits which do not possess distinct, special economic value, such as common varieties of sand, stone, gravel, pumice, pumicite and cinders. They may have value for use in trade, manufacture, science, or in the mechanical or ornamental arts.

2. **Leasable** - federally owned minerals which are disposed of under the Mineral Leasing Act of 1920, as amended. These include coal, oil, gas, phosphate, sodium, potassium, oil shale, and in some states sulphur and geothermal steam.

3. **Locatable** - federally owned minerals which can be located and patented under the 1892 Mining Law, as amended. In general, the locatable minerals are those hardrock minerals which are mined and processed for the recovery of metals. They also may include certain nonmetallic minerals and uncommon varieties of mineral materials, such as valuable and distinctive deposits of limestone or silica.

4. **Valuable Deposit** - where minerals have been found and the evidence is of such a character that a person of ordinary prudence would be justified in further expenditure of his labor and means with a reasonable prospect of success in developing a valuable mine.

Minimum Streamflows - A specified level of flow through a channel that must be maintained by the users of streams for biological, physical, or other purposes.

Minimum Viable Population - The low end of the viable population range.

Mining Claim - A portion of the public lands which a miner, for mining purposes, takes and holds in accordance with mining laws.

Mining Claim, Perfection - All steps legally required to give a secured party an interest in subject property have been met. One cannot perfect a mining claim without actual discovery of minerals in place. Perfection occurs when a discovery of a "valuable" mineral deposit has been made within the boundaries of a mining claim which has been located on public lands in conformance with State and Federal statutes. Once the claim has been perfected, the claim has the effect of a grant by the US of the right of present and exclusive possession and the claimant may receive patent. Discovery normally precedes location, but (US v. Carlile 67 I.D. 417,420 (1960)) discovery may follow location and give validity to a previously located claim as of the time the discovery was made. When such occurs, the claim has been perfected.

Mining Claim, Validity - Synonymous with perfection when exclusive rights against the government are concerned. For a claimant to establish exclusive rights against the government, the claim must be located on public lands in conformance with State and Federal statutes and a discovery of a valuable mineral deposit must have been made within the boundaries of the claim.

Mitigation - Avoiding or minimizing impacts by limiting the degree or magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the effected environment; reducing or eliminating the impact by preservation and maintenance operations during the life of the action.

MMBF - Million board feet. Lumber or timber measurement term.

MMCF - Million cubic feet. Lumber or timber measurement term.

Model - See "Forest Model."

Modification - See "Visual Quality Objectives."

Monitoring - A process to collect significant data from defined sources to identify departures or deviations from expected plan outputs.

Multiple Use - The management of all the various renewable surface resources of the National Forest System so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some lands will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output.

Municipal Supply Watershed - A watershed that provides water for human consumption, where Forest Service management could have a significant effect upon the quality of water at the intake point, and that provides water used by a community, or any other public water system that regularly serves at least 25 individuals at least 60 days out of the year or that provides at least 15 service connections. In addition to cities, this includes campgrounds, residential developments, and restaurants.

Must (or Shall) - A verb used in the Management Prescriptions, in the Proposed Forest Plan. Action is mandatory.

National Environmental Policy Act (NEPA) of 1969 - An act to declare a National policy which will encourage productive and enjoyable harmony between humankind and the environment, to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of humanity, to enrich the understanding of the ecological systems and natural resources important to the Nation, and to establish a Council on Environmental Quality. (The Principal Laws Relating to Forest Service Activities, Agriculture Handbook No. 453, USDA, Forest Service, 359 pp.)

National Forest Management Act (NFMA) of 1976 - A law passed as an amendment to the Forest and Rangeland Renewable Resources Planning Act, requiring the preparation of Regional Guides and Forest Plans and the preparation of regulations to guide that development.

National Forest System (NFS) Land - Federal lands that have been designated by Executive order or statute as National Forests, National Grasslands, or Purchase Units, and other lands under the administration of the Forest Service, including Experimental Areas and Bankhead-Jones Title III lands.

Natural Forest - The Forest that would occur on the planning area if natural processes were allowed to function without man's influence.

Natural Regeneration - Reforestation of a site by natual seeding from the surrounding trees. May or may not be preceded by site preparation.

Net Public Benefits - An expression used to signify the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs), whether they can be quantitatively valued or not. Net public benefits are measured by both quantitative and qualitative criteria rather than a single measure or index. The maximization of net public benefits to be derived from management of units of the National Forest System is consistent with the principles of multiple use and sustained yield.

Net Receipts - Net receipts are the total cash receipts received by the Forest Service less budget costs.

Nitrogen-Fixing (Nitrogen Fixation) - Conversion of free nitrogen into combined forms useful in nutrient cycles and other functions in the biosphere.

Noncash Benefits - These are benefits or values that people derive from the good or service being provided, but where there is no market in which to exchange that good or service for cash, i.e. the person benefitting does not pay any of the actual value received.

Nonchargeable Volume - All volume that is not included in the growth and yield projections for the selected management prescriptions used to arrive at the allowable sale quantity. (FSH 2409.13)

Non-consumptive Use - That use of a resource that does not reduce its supply; for example, non-consumptive uses of water include hydroelectric power generation, boating, swimming, and fishing.

Non-declining Flow - Where the quantity of timber planned for sale and harvest for any future decade is equal to or greater than the planned sale and harvest for the preceding decade, and this planned sale and harvest for any decade is not greater than the long-term sustained yield capacity.

Non-forest Land - Lands that never have had or that are incapable of having 10 percent or more of the area occupied by forest trees; or lands previously having such cover and currently developed for nonforest use.

Nongame - Species of animals not managed for sport hunting.

Non-market - Products derived from National Forest resources that do not have a well-established market value for example, recreation, wilderness, wildlife.
Not Appropriate Land - See 36 CFR 219.4 and FSH 2409.13-23. See "Timber Resource Land Suitability Classification, Unsuitable."

No-Trace Camping - A concept of recreation use in wilderness which encourages the recreation user to leave "No-Trace" of a visit to aid in protection of the wilderness resource.

Not Suited Lands - See 36 CFR 219.14. See "Timber Resource Land Suitability Classification, Unsuitable."

Objective - A concise, time-specific statement of measurable planned results that respond to pre-established goals. An objective forms the basis for further planning to define the precise steps to be taken and the resources to be used in achieving identified goals.

Off-Road Vehicle (ORV) - Any motorized vehicle designed for or capable of cross-country travel on or immediately over land, water, sand, snow, ice, marsh, swampland, or other natural terrain. The term excludes any registered motorboat, any military, fire, emergency, or law enforcement vehicle when used for emergency purposes, and any vehicle whose use is expressly authorized by the respective agency head under a permit, lease, license, or contract. (Executive Order 11644)

Old-Growth Stand - Any stand of trees 10 acres or greater generally containing the following characteristics: 1) stands contain mature and overmature trees in the overstory and are well into the mature growth stage; 2) stands will usually contain a multi-layered canopy and trees of several age classes; 3) standing dead trees and down material are present; and 4) evidence of human activity may be present, but does not significantly alter the other characteristics and would be a subordinate factor in a description of such a stand.

Opportunity Cost - The dollar-quantifiable net loss resulting from a less efficient course of action.

Optimal Cover - a forest stand with: 1) four layers (overstory canopy, sub canopy, shrub layer, and herbaceous layer); and 2) an overstory canopy which can intercept and hold substantial amount of snow yet has dispersed (<1/8 acre) openings. These criteria are generally achieved when the dominant trees average 21 inches dbh or greater, have 70 percent or greater crown closure, and are in the large saw timber or old-growth condition.

Optimum Density - For wildlife, the maximum rate of animal stocking possible without inducing damage to vegetation or related resources; may vary from year to year because of environmental and/or population factors.

Organization Camp - A privately-operated facility providing lodging, meals, social, and educational recreation opportunities in a forest environment. An organization camp is operated on National Forest land under "Special Use Permit."

Output - The goods, end products, or services that are purchased, consumed, or used directly by people. Goods, services, products, and concerns produced by activities that are measurable and capable of being used to determine the effectiveness of programs and activities in meeting objectives. A broad term for describing any result, product, or service that a process or activity actually produces.

Overmature - The stage at which a tree declines in vigor and soundness, for example past the period of rapid height growth.

Overstory - That portion of the trees, in a forest of more than one story, forming the upper or uppermost crown canopy.

Ozone - An allotropic triatomic form of oxygen that is normally a faintly blue irritating gas with a characteristic pungent odor. A predominant compound in a layer of the Earth's atmosphere (the ozone layer) which plays a key role in filtering the Sun's radiation.

Partial Retention - See "Visual Quality Objectives."

Particulate (Concerning air quality) - Minute separate particle of matter suspended in air. Particulate as a measure of air quality condition or standard is expressed in microns per cubic meter.

Penstock - A sluice or gate for regulating a flow (as of water); or a conduit or pipe for conducting water.

Perennial Stream - A stream that flows year round.

Persons-At-One-Time (PAOT) - The number of people in an area or using a facility at the same time. May be used as "maximum PAOT" to indicate the capacity of an area or facility to support peak usage within established user density standards and without degradation to biophysical resources.

Planning Criteria - Criteria prepared to guide the planning process. Criteria applied to collection and use of inventory data and information, analysis of the management situation, and the design, formulation, and evaluation of alternatives.

Planning Horizon - The overall time period considered in the planning process. Spans all activities covered in the analysis or plan and all future conditions and effects of proposed actions which would influence the planning decision.

Planning Period - One decade. The time interval within the planning horizon that is used to show incremental changes in yields, costs, effects, and benefits.

Planning Records - The body of information documenting the decisions and activities which result from the process of developing a Forest Plan, revision, or significant amendment.

Pore Space - Total space not occupied by soil particles in a bulk volume of soil, commonly expressed as a percentage.

Porosity - The degree to which the total volume of a soil, sediment, or rock is permeated with pores or cavities, generally expressed as a percentage of the whole volume unoccupied by solid particles.

Potential Yield - Sustainable output of wood fiber available after the yield foregone for the management opportunities of other resources has been deducted from the biological potential.

Precommercial Thinning (PCT) - The practice of removing some of the trees less than merchantable size from a stand so that the remaining trees will grow faster.

Prescribed Fire - A wildfire burning under specified conditions that will accomplish certain planned objectives. The fire may result from either planned or unplanned ignitions. Use of unplanned ignitions must have prior approval by the Regional Forester.

Present Net Value (PNV) - The difference between the discounted value (benefits) of all outputs to which monetary values or established market prices are assigned and the total discounted costs of managing the planning area. (36 CFR 219.3)

Preservation - See "Visual Quality Objectives."

Presuppression - Activities organized in advance of fire occurrence to ensure effective suppression action.

Primary Cavity Excavators - Wildlife species that excavate cavities in wood, for food and shelter. Example: woodpeckers.

Primitive - See "Recreation Opportunity Spectrum (ROS)."

Program Element - Forest Service areas of responsibility, such as "Wildlife", "Recreation", "Timber" based upon the National Forest budgeting process. Used in this Forest Plan to organize the management area standards and guidelines and tie to budgeting.

Programmed Harvest - The amount of timber on the Forest that is scheduled for harvesting. The programmed harvest is based on current demand, funding, and multiple-use considerations.

Project - An organized effort to achieve an objective identified by location, timing, activities, outputs, effects, accountability, and control of a project.

Public Issue - A subject or question of widespread public interest relating to management of National Forest System. (36 CFR 219.3)

Puddling - Soil puddling is a physical change in soil properties due to shearing forces that destroy soil structure and reduce porosity. Detrimental puddling can be observed as vehicle tracks when soil is molded and when depth of rutting has reached 6 inches or more.

Purchaser Credit - Credit earned by the purchaser of a National Forest timber sale by construction of contract-specified roads. Earned purchaser credit may be used by the purchaser as payment for National Forest timber removed.

Range - Land producing native forage for animal consumption, and lands that are revegetated naturally or artificially to provide forage that is managed like native vegetation.

Raptors - Predatory birds, such as falcon, hawks, eagles, or owls.

Real Dollar Value - A monetary value which compensates for the effects of inflation.

Reasonable Assurance - for the purposes of regeneration suitability decisions in the Forest planning process, "reasonable assurance" is provided when:

1) One or more reforestation projects are known to exist on NFS or non-NFS lands within the subject ecosystem or land stratum, which have succeeded in meeting Regional standards for adequate restocking (as defined in a subsequent portion of the direction), and either

2) The practices used in achieving the regeneration success are known and are accepted by experts in the field of reforestation as being generally applicable to the ecosystem or land stratum being examined.

3) Research results exist which are applicable to the subject ecosystem or land stratum and which provide the means to prescribe treatment(s) that will lead to successful reforestation.

Where a successful regeneration project cannot be found, or applicable research does not exist to demonstrate that a prescription can be written to accomplish reforestation; reasonable assurance of regeneration has not been provided. The stratum or ecotype, therefore, will be classed as not suited for timber production due to regeneration difficulty.

Management prescriptions rely on existing technology. Existing technology includes all techniques that have been proven in research or demonstrated successfully on the ground. Cost of practices will not be a criterion for excluding lands from the suitable land base at this stage in the planning process. For this round of planning, irrigation, exotic-species, and soil importation practices will not be considered as existing technology.

In determining whether or not natural regeneration may be reasonably assured, a certified silviculturist must be able to write a prescription that will provide for successful reforestation within a 5-year period following clearcutting, or a 10-year period following the seed cut when using the shelterwood method of regeneration cutting. The regeneration period is considered to start when the trees in a harvest unit are felled, and ends when the unit is adequately restocked.

Explanatory Notes: the phrase "reasonable assurance" is a subjective expression and is, therefore, not completely definable by precise objective and quantitative terms. By its very nature, the phrase recognizes the necessity of arriving at a decision through judgemental (subjective) processes rather than through precise quantitative analysis (objective) procedures based on measurable data with known statistical reliablility.

Receipts - Those priced benefits for which money will actually be paid to the Forest Service: recreation fees, timber harvest, mineral leases and special use fees.

Record of Decision - A document separate from but associated with an Environmental Impact Statement which states the decision, identifies all alternatives, specifying which were environmentally preferable, and states whether all practicable means to avoid environmental harm from the alternative have been adopted, and if not, why not.

Recreation Capacity - The number of people that can take advantage of the supply of a recreation opportunity during an established use period without substantially diminishing the quality of the recreation experience or the biophysical resources.

Recreation Development Scale (Level) - This is a scale of the level of recreation site modification and development coordinated with the ROS classes. The five development scales are described below. See "Recreation Opportunity Spectrum," and "Recreation Development."

Recreation Information Management (RIM) - A computer-oriented system for the organization and management of information concerning recreation use, occupancy, and management of National Forest lands.

Recreation Opportunity - The availability of choices for users to participate in the recreational activities they prefer within the settings they prefer.

Recreation Opportunity Spectrum Class	Development Scale	Level of Site Modification
Primitive	1	Minimum site modification. Rustic or rudimentary improvements designed for protection of the site rather than comfort of the users. Use of synthetic materials excluded. Minimum controls are subtle. No obvious regimentation. Spacing informal and extended to minimize contacts between users. Motorized access not provided or permitted.
Semi-primitive	2	Little site modification. Rustic or rudimentary improvements designed primarily for the protection of the site rather than the comfort of the users. Motorized access provided or permitted.
Nonmotorized		Use of synthetic materials avoided. Minimum controls are subtle. Little obvious regimentation. Spacing informal and extended to minimize contacts between users. Primary access over primitive roads. Interpretive services informal, almost subliminal.

Roaded Natural	3	Site modification moderate. Facilities about equal for protection of site and comfort of users. Contemporary/rustic design of improvements is usually based on use of native materials. Inconspicuous vehicular traffic controls usually provided. Roads may be hard surfaced and trails formalized. Development density about 3 family units per acre. Primary access may be over high standard roads. Interpretive services informal, but generally direct.
Rural	4	Site heavily modified. Some facilities designed strictly for comfort and convenience of users. Luxury facilities not provided. Facility design may incorporate synthetic materials. Extensive use of artificial surfacing of roads and trails. Vehicular traffic control usually obvious. Primary access usually over paved roads. Development density 3-5 family units per acre. Plant materials usually native. Interpretive services often formal or structured.
Urban	5	High degree of site modification. Facilities mostly designed for comfort and convenience of users and usually include flush toilets; may include showers, bathhouses, laundry facilities, and electrical hookups. Synthetic materials commonly used. Formal walks or surfaced trails. Regimentation of users is obvious. Access usually by high-speed highways. Development density 5 or more family units per acre. Plant materials may be foreign to the environment. Formal interpretive services usually available. Designs formalized and architecture may be contemporary. Mowed lawns and clipped shrubs not unusual.

Recreation Opportunity Spectrum (ROS) - A conceptual framework for defining types of recreation opportunities, physical settings, and experiences a visitor can expect. It is an inventory system and a management tool. There are six ROS classes. Each class is defined in terms of the degree to which it satisfies certain recreation experience needs, based on the extent to which the natural environment has been modified, the type of facilities provided, the degree of outdoor skills needed to enjoy the area, and the relative density of recreation use. The six classes are:

1. Primitive--Area is characterized by an essentially unmodified natural environment of fairly large size. Interaction between users is very low and evidence of other users is minimal. The area is managed to be essentially free from evidence of human-induced restrictions and controls. Motorized use within the area is not permitted.

2. Semi-primitive Nonmotorized--Area is characterized by a predominantly natural or natural-appearing environment of moderate to large size. Interaction between users is low, but there is often evidence of other users. The area is managed in such a way that minimum onsite controls and restrictions may be present, but would be subtle. Motorized recreation use is not permitted.

3. Semi-primitive Motorized--Area is characterized by a predominantly natural or natural-appearing environment of moderate to large size. Concentration of users is low, but there is often evidence of other users. The area is managed in such a way that minimum onsite controls and restrictions may be present, but would be subtle. Motorized recreation use of local primitive or collector roads with predominantly natural surface and trails suitable for motor bikes is permitted.

4. Roaded Natural--Area is characterized by predominantly natural-appearing environments with moderate evidence of the sights and sounds of man. Such evidence usually harmonizes with the natural environment. Interaction between users may be moderate to high, with evidence of other users prevalent. Resource modification and utilization practices are evident, but harmonize with the natural environment. Conventional motorized use is allowed and incorporated into construction standards and design of facilities.

5. Rural--Area is characterized by a natural environment that has been substantially modified by development of structures, vegetative manipulation, or pastoral agricultural development. Resource modification and utilization practices may be used to enhance specific recreation activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high. A considerable number of facilities are designed for use by a large number of people. Facilities are often provided for special activities. Moderate user densities are present away from developed sites. Facilities for intensified motorized use and parking are available.

6. Urban--Area is characterized by a substantially urbanized environment, although the background may have natural-appearing elements. Renewable resource modification and utilization practices are often used to enhance specific recreation activities. Vegetative cover is often exotic and manicured. Sights and sounds of humans are predominant on site. Large numbers of users can be expected both on site and in nearby areas. Facilities for highly intensified motor use and parking are available with forms of mass transit often available to carry people throughout the site.

Recreation Residence - A privately owned structure, authorized on National Forest land under a "Special Use Permit."

Recreation Visitor Day (RVD) - A measure of recreation use. Twelve visitor hours, which may be aggregated continuously, intermittently, or simultaneously by one or more persons.

Reforestation - The natural or artificial restocking of an area with forest trees; most commonly used in reference to artificial restocking.

Regeneration - The actual seedling and saplings existing in a stand; or the act of establishing young trees naturally or artificially.

Regeneration Cutting (Harvest) - Any removal of trees intended to assist regeneration already present or to make regeneration possible.

Region - An area covered by a Regional Guide. See FSM 1221.3 for organizational definitions.

Regional Forester - The Forest Service official responsible for administering a single Region.

Regional Guide - The guide developed to meet the requirements of the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended. It guides all natural resource management activities, and establishes management standards and guidelines for the National Forest System lands within a given Region. It also disaggregates the assigned Regional RPA objectives to the Forests within that Region.

Regulations - Generally refers to the Code of Federal Regulations, Title 36, Chapter II, which covers management of the Forest Service.

Rehabilitation - Action taken to restore, protect, or enhance site productivity, water quality, or other resource values over a period of time.

Release - Freeing trees from competition for light, water, and nutrients by removing or reducing the vegetation growth that is overtopping or closely surrounding them.

Released Roadless - See "1) Unroaded," and "Roadless Areas."

Renewable Resources - Resources that are possible to use indefinitely, when the use rate does not exceed the ability to renew the supply.

Research Natural Area (RNA) - In USDA Forest Service usage, RNAs are areas designated to ensure representative samples of as many of the major naturally-occurring plant communities as possible. An area established specifically to preserve a representative sample of an ecological community, primarily for scientific and educational purposes.

Residual Stand - The trees remaining standing after some event such as selection cutting.

Residue Utilization - Removal and use of forest residue (such as slash, litter, brush, dead trees, and snags) for energy production, home heating, or wood products.

Resource - Anything which is beneficial or useful - be it animal, vegetable, mineral, a location, a labor force, a view, an experience, etc. Resources, in the context of land use planning, thus vary from such commodities as timber and minerals to such amenities as scenery, scenic view points, or recreation opportunities.

Resource Use and Development Opportunities - A possible action, measure, or treatment and corresponding goods and services identified and introduced during the scoping process, which subsequently may be incorporated into and addressed by the Forest Land and Resource Management Plan in terms of a management prescription.

Retention - See "Visual Quality Objectives."

Riparian - Pertaining to areas of land directly influenced by water. Riparian areas usually have visible vegetative or physical characteristics reflecting this water influence. Stream sides, lake borders, or marshes are typical riparian areas.

Riparian Area - A geographically delineated area with distinctive resource values and characteristics that is comprised of aquatic and riparian ecosystems. This includes floodplains, wetlands, and all areas within a horizontal distance of approximately 100 feet from the normal line of high water of a perennial stream channel or from the shoreline of other bodies of water.

Riparian Ecosystem - A transition between the aquatic ecosystem, and the adjacent upland terrestrial ecosystem. Identified by soil characteristics and distinctive vegetation communities that require free or unbound water.

Road:

1. **Arterial** - A road that serves a large land area and usually connects with a public highway or other arterial road to form an integrated network of primary travel routes. The location and standard are often determined by a demand for maximum mobility and travel efficiency rather than specific resource-management service. They are usually developed and operated for long-term land and resource management purposes and constant service.

2. **Collector** - A road that serves a smaller land area than an arterial road and is usually connected to an arterial road or public highway. They collect traffic from local roads or terminal facilities. The location and standard are influenced by both long-term multi-resource service needs, as well as travel efficiency. Collector roads may be operated for either constant or intermittent service, depending on land use and resource management objectives for the area served by the facility (FSM 7700).

3. **Local** - A road that connects terminal facilities with a collector road, arterial road, or public highway. The location and standard are usually determined by that required to serve a specific resource activity, rather than travel efficiency. Local roads may be developed and operated for either long- or short-term service.

Roaded Natural (RN) - See "Recreation Opportunity Spectrum."

Roaded Modified (RM) - A classification of the Recreation Opportunity Spectrum that characterizes a predominately altered environment, allowing for noticeable to strongly-evident management activity.

Roadless Area Review and Evaluation (RARE II) - A comprehensive process directed by the Secretary of Agriculture to identify roadless and undeveloped land areas in the National Forest system and to determine their uses for either wilderness or other resource management and development and to determine areas that would require further planning to make such a decision.

Roadless Areas - These lands, inventoried in the Roadless Areas Review and Evaluation (RARE II), were not designated wilderness by the Washington State Wilderness Act of 1984. See "Released Roadless," and Unroaded."

Rotation - The number of years required to establish, including the regeneration period, and grow timber crops to a specified condition or maturity for regeneration harvest. Rotation age is based on the selected management prescriptions in a Forest Plan Alternative.

RPA - The Forest and Rangeland Renewable Resources Planning Act of 1974. Also refers to the National Assessment and Recommended Program developed to fulfill the requirements of the act. The most recent recommended program was completed in 1985.

S-8 - A map code used to designate unsuitable forest land that is not managed for timber production because technology is not available to prevent irreversible damage to soils productivity, or watershed conditions. See "Timber Resource Land Suitability Classification, (3)C."

Sale Schedule - The quantity of timber planned for sale and harvest, by time period, from the area of suitable land covered by the Forest Plan. The first period, usually a decade, of the selected harvest schedule provides the allowable sale quantity. Future periods are shown to establish that sustained yield will be achieved and maintained.

Salvage Cutting (Harvest) - The exploitation of trees that are dead, dying, or deteriorating before their timber becomes worthless. Cutting done essentially to prevent the spread of pests or pathogens is termed "Sanitation Cutting."

Sanitation Cutting - See "Salvage Cutting."

Saprophyte - A plant living on dead or decaying organic matter.

Saturation Density - (Same as tolerance density.) Intraspecific tolerance permits no future increase. Is most marked in territorial species. Space is the limiting factor to the further increase of this population density.

Sawtimber - Trees containing at least one 12-foot sawlog or two noncontiguous 8-foot logs, and meeting regional specifications for freedom from defect. Softwood trees must be at least 9 inches in diameter and hardwood trees 11 inches in diameter at breast height.

Scarified - Land in which the topsoil has been broken up or loosened in preparation for regenerating by direct seeding or natural seedfall. Also refers to ripping or loosening road surfaces to a specified depth for obliteration or "putting a road to bed".

Scenic Areas - Places of outstanding or matchless beauty which require special management to preserve these qualities. They may be established under 36 CFR 294.1 whenever lands possessing outstanding or unique natural beauty warrant this classification.

Scenic River Areas - See Wild and Scenic River.

Scheduled Timber Harvests - Volumes and acres programmed for harvest which are within the allowable sale quantity. This does not include salvage and sanitation harvesting.

Scion - A detached shoot or twig containing buds from a woody plant and used in grafting.

Scoping Process - A part of the National Environmental Policy Act (NEPA) process; early and open activities used to determine the scope and significance of the issues, and the range of actions, alternatives, and impacts to be considered in an Environmental Impact Statement.

Second Growth - Forest growth that has come up naturally after some drastic interference (for example, wholesale cutting, serious fire, or insect attack) with the previous forest growth.

Sediment - Solid material, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, gravity, or ice and has come to rest on the earth's surface.

Sedimentary - Rock formed of sediment, such as conglomerate, sandstone, or shales, formed of fragments of other rock transported from their sources and deposited in water. Also, rocks formed by precipitation from solution, as, rock salt and gypsum, or from secretions of organisms, as most limestone.

Seedlings and Saplings - Live trees less than five inches in diameter at breast height. (See also Size Class.)

Selection Cutting - The annual or periodic removal of trees (particularly mature), individually or in small groups ("Group Selection"), from an uneven-aged forest to achieve the balance among diameter classes needed for sustaining yield and to establish a new crop of irregular distribution representative of age and/or size classes.

Semi-primitive Motorized ROS Class - See "Recreation Opportunity Spectrum."

Semi-primitive Nonmotorized ROS Class - See "Recreation Opportunity Spectrum."

Sensitive Species - Plant or animal species which are susceptible or vulnerable to activity impacts or habitat alterations. Those species that have appeared in the Federal Register as proposed for classification and are under consideration for official listing as endangered or threatened species, that are on an official State list, or that are recognized by the Regional Forester as needing special management to prevent their being placed on Federal or State lists.

Sensitivity Analysis - A determination of the effects of varying the level of one or more factors, while holding the other factors constant.

Sensitivity Levels - These levels represent an evaluation of public use and concern for the scenic quality of the National Forests. In Region 6 sensitivity levels will be reviewed every 5 years, and revised as necessary. There are three sensitivity levels, each identifying a different level of user concern for the visual environment:

1. Level 1 - Highest Sensitivity Level - An example would be seen areas from Interstate and U.S. Highways.

2. Level 2 - Average Sensitivity - (Also termed "Moderate Sensitivity") Examples are seen areas from county and Forest system roads not meeting the criteria for Level 1 sensitivity.

3. Level 3 - Lowest Sensitivity - An example would be seen areas from a local road in a Management Area where timber production is emphasized.

Seral - A biotic community that is a developmental, transitory stage in an ecological succession.

Series - A level of vegetation classification that is identified by the most common species found in the tree, shrub, and/or herbaceous layer of a plant community. Series is a subdivision of a subformation.

Shall - See "must."

Shelterwood - The cutting method that describes the silvicultural system in which, in order to provide a source of seed and/or protection for regeneration, the old crop (the shelterwood) is removed in two or more successive shelterwood cuttings. The first cutting is ordinarily the seed cutting, though it may be preceded by a preparatory cutting, and the last is the final cutting. Any intervening cutting is termed removal cutting. An even-aged stand results.

Should (or ought) - Verb used in the Management Prescriptions, Proposed Forest Plan. Action is required unless justifiable reason exists for not taking action.

Silviculture - The theory and practice of controlling the establishment, composition, constitution (the distribution and representation of age and/or size classes), and growth of forests.

Silvicultural System - A process that applies silvicultural practices, including the tending (thinning, pruning, etc.), harvesting, and replacing, to a stand in order to produce a crop of timber and other forest products. The system is named by the cutting method with which the regeneration is established, e.g. clearcutting, shelterwood, selection and group selection. See "Harvest Cutting Methods."

Site Index - A numerical evaluation of the quality of land for plant productivity, ... based on the height of dominant trees in a stand at an arbitrarily chosen age.

Site Preparation - 1) An activity (such as prescribed burning, disking, and tilling) performed on a reforestation area, before introduction of reforestation, to ensure adequate survival and growth of the future crop; 2) manipulation follows harvest, wildfire, or construction in order to encourage the growth of favored species. Site preparation may include the application of herbicides; burning, or cutting of living vegetation that competes with the favored species; tilling the soil; or burning of organic debris (usually logging slash) that makes planting or seeding difficult.

Site Productivity - Production capability of specific areas of land.

Size Class - For purposes of Forest planning, size class refers to the intervals of tree stem diameter used for classification of timber in the Forest Plan data base.

seedling/sapling = less than five-inch diameter
pole/sapling = five-inch to nine-inch diameter
sawtimber = greater than nine-inch diameter

Skidding - A general term for hauling loads by sliding, not on wheels as developed originally, from stump to roadside, deck, skidway, or other landing.

Skyline Deflection - The distance a skyline cable drops below line of sight during the yarding operation.

Skyline Logging - See "Logging Systems."

Skyline Tailhold - Anchors consisting of stumps, trees, deadmen, or rock bolts to hold the end of the skyline yarding cable that is opposite the yarding machine.

Slash - The residue left on the ground after timber cutting or other vegetation disturbing activity and/or accumulating there as a result of storm, fire, or other damage. It includes unused logs, uprooted stumps, broken or uprooted tree stems, branches, twigs, leaves, bark, and chips.

Slope Class - See "Topographic Class."

Small Game - Birds and small mammals typically hunted or trapped.

Snag - A standing dead tree.

SOHA (Spotted Owl Habitat Area) - A habitat area designated to support one pair of owls. See the Final SEIS for the Pacific Northwest Regional Guide.

Special Component - The portion of the regulated commercial forest land that needs specially designed treatment of the timber resource to achieve landscape or other key resource objectives.

Special Use Permit - The most common permit authorizing use of Forest lands by individuals and public agencies. Examples of use authorized are: recreation residence, pasture, power or telephone line, water transmission pipeline, powerplant, and electronic site.

Soil Stability Classes - A grouping of soil types on the Forest with respect to their tendency to erode or move from natural conditions or land use activities. The three soil stability classes used in the Forest are: 1) Stable soils; 2) Moderately unstable; and 3) Highly unstable soils. See "Topographic Classes."

Spirit Sites - Locations where an individual may seek a personal spirit power. The areas are isolated, include fresh running streams or lakes, or are near some stands of cedar. They may also be areas that are considered inbued with a power of their own.

Stand (Tree Stand) - An aggregation of trees occupying a specific area and sufficiently uniform in species, composition, age arrangement, and condition as to be distinguishable from the forest in adjoining areas.

Standard - A statement which describes a condition when a job is done properly. Standards show how well something should be done, rather than what should be done.

Standards and Guidelines - Principles specifying conditions or levels of environmental quality to be achieved.

Standard Component - The portion of the regulated commercial forest land on which crops of industrial wood can be grown and harvested with adequate protection of the forest resources under the usual provisions of the timber sale contract.

Stream Class - See Class I,II,II, and IV Streams.

Streamflow - The flow of water, generally with its suspended load, down a well-defined water course.

Streamside Management Unit (SMU) - The stream and an adjacent area where practices that might affect water quality, fish, and other aquatic resources are modified, as necessary, to meet water quality goals for each class of stream. The width of the area will vary with the management goals for each class of stream, characteristics of the stream and surrounding terrain, and type and extent of the planned activity. In the Mt. Baker-Snoqualmie National Forest, the area adjacent to wetlands and other bodies of water is termed a Wetland Management Unit (WMU). See "Class I, II, III, and IV streams."

Stream Structure - The arrangement of logs, boulders, and meanders which modify the flow of water, thereby causing the formation of pools and gravel bars in streams. Generally, there is a direct relationship between complexity of structure and fish habitat. Complex structure is also an indication of watershed stability.

Stocking - The degree of occupancy of land by trees as measured by basal area or number of trees and as compared to a stocking standard; that is, the basal area or number of trees required to fully use the growth potential of the land.

Stumpage (stumpage value) - The value of timber as it stands uncut, in terms of an amount per unit of volume.

Substantive Comment - A comment that provides factual information, professional opinion, or informed judgement germane to the action being proposed.

Successional Stage - A stage or recognizable condition of a plant community that occurs during its development from bare ground to climax.

Suitable - See "Timber Resource Land Suitability Classification."

Suitable Forest Land - Land to be managed for timber production on a regulated basis. See Timber Resource Land Suitability Classification.

Suitability - The appropriateness of applying certain resource management practices to a particular area of land, as determined by an analysis of the economic and environmental consequences and the alternative uses foregone. A unit of land may be suitable for a variety of individual or combined management practices.

Suppression - The process of extinguishing or confining a fire.

Surface Erosion - The detachment and transport of individual soil particles by wind, water, or gravity. Surface erosion can occur as the loss of soil in a fairly uniform layer across the land surface or in many small rills.

Sustained Yield of the Products and Services - The achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the National Forest System without impairment to the productivity of the land.

Talus Slope - A collection of fallen disintegrated material which has formed a slope at the foot of a steeper descending slope.

Tentatively Suitable - See "Timber Resource Land Suitability Classification."

Thermal Cover - Cover used by animals to lessen the effects of weather; for elk, a stand of coniferous trees 40 feet or more tall with an average crown closure of 70 percent or more.

Thinning - See "Intermediate Cutting" and "Precommercial Thinning."

Threatened Species - Those plant or animal species likely to become endangered species throughout all or a significant portion of their range within the foreseeable future.

Till - Nonsorted, nonstratified sediment carried or deposited by a glacier.

Timber Resource Land Suitability Classification - National Forest System lands are classified according to the following definitions:

1. **Non-forest** - Land that has never supported forests and land formerly forested where use for timber production is precluded by development or other uses.

2. **Forest** - Land at least 10-percent stocked (based on crown cover) by forest trees of any size, or formerly having had such tree cover and not currently developed for non-forest use.

3. **Unsuitable Forest Land (Not Suited)** - Forest land that is not managed for timber production because (a) the land has been withdrawn by Congress, the Secretary, or the Chief; (b) the land is not producing or capable of producing crops of industrial wood; (c) technology is not available to prevent irreversible damage to soils, productivity, or watershed conditions; (d) there is no reasonable assurance that lands can be adequately restocked within 5 years after final harvest, based on existing technology and knowledge, as reflected in current research and experience, (e) there is at present, a lack of adequate information to responses to timber management activities; or (f) timber management is inconsistent with or not cost efficient (not appropriate) in meeting the management requirements and multiple-use objectives specified in a Forest Plan land management alternative.

4. **Tentatively Suitable Forest Land** - Forest land that is producing or is capable of producing crops of industrial wood and (a) has not been withdrawn by Congress, the Secretary, or the Chief; (b) existing technology and knowledge is available to ensure timber production without irreversible damage to soils, productivity, or watershed conditions; (c) existing technology and knowledge, as reflected in current research and experience, provides reasonable assurance that adequate restocking can be attained within 5 years after final harvest; and (d) adequate information is available to project responses to timber management activities.

5. **Suitable** - Tentatively suitable forest land identified as appropriate for timber production in a Forest Plan land management alternative.

6. **Commercial Forest (CFL)** - Forest land that is producing or is capable of producing crops of industrial wood and (a) has not been withdrawn by Congress, the Secretary of Agriculture, or the Chief of the Forest Service; (b) existing technology and knowledge is available to ensure timber production without irreversible damage to soils productivity, or watershed conditions; and (c) where existing technology and knowledge, as reflected in current research and experience, provides reasonable assurance that adequate restocking can be attained within 5 years after final harvesting.

Timber Production - The purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use other than for fuelwood.

Timber Sale Program Quantity (TSPQ) - The volume of timber planned for sale during the first decade of the planning horizon. It includes the allowable sale quantity (chargeable volume) and any additional material (nonchargeable volume) planned for sale. The timber sale program quantity is usually expressed as an annual average for the first decade.

Timber Stand Improvement (TSI) - Measures such as precommercial thinning, pruning, release cutting, prescribed fire, girdling, weeding, or poisoning of unwanted trees aimed at improving growing conditions for the remaining trees.

Topographic Class (Slope Class) - Divisions of the Forest important primarily for determining soil sediment outputs, tendency for soil erosion and slope failure, and difficulty in road construction and timber harvesting activities. The three classes defined in the Forest to reflect these concerns are:

A - Gentle topography, less than 35% slope.
B - Somewhat uneven topography with rock outcrops in less than 35% of the area. Steep slopes (35% to 80%).
C - Rugged highly dissected topography with rock outcrops in 35% - 100% of the area. Steep slopes (50% to 90%). Stream density greater than 5 miles per section.

See "Soil Stability Class." The latter (three classes) were used in combination with each topographic class to develop coefficients such as soil sediment output caused by management activities.

Tree Line - A loose term for the limit beyond which trees cannot or do not appear. The limiting factor is most commonly altitude or geographical latitude. A distinction may be drawn between tree line and timber line, the latter being roughly the limit of timber rather than isolated trees.

Turbidity - The cloudy condition caused by suspended solids in a liquid. See "Sediment."

Understory - The trees and other woody species growing under a more-or-less continuous cover of branches and foliage formed collectively by the upper portion of adjacent trees and other woody growth.

Undeveloped Area - Portion of the National Forest that is essentially unroaded.

Uneven-Aged Management - The application of a combination of actions needed to simultaneously maintain continuous high-forest cover, recurring regeneration of desirable species, and the orderly growth and development of trees through a range of diameter or age classes to provide a sustained yield of forest products. Cutting is usually regulated by specifying the number or proportion of trees of particular sizes to retain within each area, thereby maintaining a planned distribution of size classes. Cutting methods that develop and maintain uneven-aged stands are single-tree selection and group selection. (36 CFR 219.3)

Unroaded - 1) RARE II roadless areas released by the Washington State Wilderness Act of 1984 from being considered for designation as wilderness during development of the initial Forest Plan; 2) In the Forest's FORPLAN Model, an analysis area identifier which includes roadless areas defined in "1" above in addition to other unroaded areas in the Forest containing tentatively suitable forest land; 3) A term used to equal the sum of recreation use or carrying capacity from the primitive, semi-primitive nonmotorized, and semi-primitive motorized recreation opportunity spectrum areas outside wilderness.

Unsuitable Lands - See CFR 36 219.14. See "Timber Resource Land Suitability Classification, Unsuitable."

Utility and Transportation Corridors - A strip of land designated for the transportation of energy, commodities, and communications. Examples are power transmission lines, pipelines, penstocks, water lines, etc. Transportation of minor amounts of power for short distances are not treated in the Forest Plan.

Utilization Standards - Standards guiding the use and removal of timber, which is measured in terms of diameter at breast height, top diameter inside the bark, and percent "soundness" of the wood.

Variety Class - A measure of visual diversity or inherent capability of the land to produce attractive scenery. There are three variety classes. See "Character Type."

Class A - Distinctive - Refers to areas where features of the landscape are of unusual or outstanding visual quality. They are usually not common in the character type.

Class B - Common - Refers to areas where features contain variety in form, line, color, texture, or combinations thereof, but which tend to be common throughout the character type. These landscapes are the benchmark from which distinctive and minimal can be judged.

Class C - Minimal - Refers to areas where features have little change in form, line, color, or texture. Includes all areas not found under Classes A and B.

Vegetation Leave Area - Area of land in which vegetation is left undisturbed in order to provide shade and organic debris to streams, or to prevent the acceleration of natural erosion processes. No regulated timber harvest is planned in these areas.

Vegetative Management - Activities designed primarily to promote the health of the crop forest cover for multiple-use purposes.

Vertical Diversity - The diversity in a stand that results from the complexity of the aboveground structures of the vegetation; the more tiers of vegetation and/or the more diverse the species makeup, the higher the degree of vertical diversity. This concept is similar but not identical to "uneven-aged management;" each may influence the other. Application of even-aged management, for example, can be designed to accomplish vertical diversity objectives. See also "Horizontal Diversity."

Viable Population - The number of individuals of a species required to ensure the long-term existence of the species in natural, self-sustaining populations adequately distributed throughout their region.

Viewshed - (Sometimes termed "Viewshed Corridor" or "Visual Corridor") Viewsheds are the "seen" landscape visible to most Forest visitors from roads, trails, rivers, and recreation areas. Most are corridors, one-quarter to two miles wide. Viewsheds viewed from primary travel routes and use areas are "Sensitivity Level 1." Viewsheds viewed from secondary travel routes and use areas are "Sensitivity Level 2."

Visual Absorption Capacity (VAC) - An estimate of the relative ability of a landscape to accept management manipulations without significantly affecting its visual character, or the relative capacity of the land to absorb visual change. Rated as low, moderate, and high.

Visual Condition - The visual appearance of a landscape described in terms of the degree of alteration of the natural appearing landscape. Descriptive degrees of alteration are:

1. Natural Appearing - Area appears untouched by man; changes are not visually evident.

2. Slightly Altered - Changes may be noticed by the average visitor but do not attract attention. Natural appearance dominates minor disturbances.

3. Moderately Altered - Changes are easily noticed by the average visitor and may attract attention. Disturbances are apparent.

4. Heavily Altered - Changes are strong and obvious to the average visitor. Changes dominate the landscape but may resemble natural patterns when viewed from a distance of 3 to 5 miles. Disturbances are major.

Visual Corridor - See "Viewshed."

Visual Quality Levels (VQL) - An inventoried measure of acceptable levels of modification of the visual resource. VQL's are used in Forest planning as an indicator of social (visual) acceptability and as an input for management decisions. VQL's become Visual Quality Objectives in the approved Forest Land Management Plan.

1. Preservation--Allows ecological changes only.

2. Retention--Human activities are not evident to the casual Forest visitor.

3. Partial Retention--Human activity may be evident, but must remain subordinate to the characteristic landscape.

4. Modification--Human activity may dominate the characteristic landscape, but must, at the same time, follow naturally established form, line, color, and texture. It should appear as a natural occurrence when viewed in foreground or middleground.

5. Maximum Modification--Human activity may dominate the characteristic landscape, but should appear as a natural occurrence when viewed as background.

6. Enhancement--A short-term management alternative which is done with the express purpose of increasing positive visual variety where little variety now exists.

Visual Quality Objectives (VQO) - See "Visual Quality Levels."

Visual Resource - The composite of basic terrain, geologic features, water features, vegetative patterns, and land-use effects that typify a land unit and influence the visual appeal the unit may have for visitors.

Wetlands - Areas that are inundated by surface water or groundwater with a frequency sufficient to support, and under normal circumstances does or would support, a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction (Executive Order 11990).

Wetland Management Unit (WMU) - See "Streamside Management Unit."

Wilderness - Areas designated by congressional action under the 1964 Wilderness Act. Wilderness is defined as undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation. Wilderness areas are protected and managed to preserve their natural conditions, which generally appear to have been affected primarily by the forces of nature, with the imprint of human activity substantially unnoticeable; have outstanding opportunities for solitude or for a primitive and confined type of recreation; include at least 5,000 acres or are of sufficient size to make practical their preservation, enjoyment, and use in an unimpaired condition, and may contain features of scientific, educational, scenic, or historical value as well as ecologic and geologic interest.

Wild and Scenic Rivers - Those rivers or sections of rivers designated as such by congressional action under the 1968 Wild and Scenic Rivers Act, as supplemented and amended, or those sections of rivers designated as wild, scenic, or recreational by an act of the Legislature of the State or States through which they flow. Wild and Scenic Rivers may be classified and administered under one or more of the following categories:

1. Wild River Areas--Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

2. Scenic River Areas--Those rivers or sections of rivers that are free of impoundments, with watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

3. Recreational River Areas--Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Wilderness Recreation Opportunity Spectrum - See "Recreation Opportunity Spectrum." Wilderness ROS and their standards apply to all designated wilderness on the Forest. For specific direction regarding Alpine Lakes, consult the Alpine Lakes Area Land Management Plan.

Within each WROS Class there are Limits of Acceptable Change (LAC). LAC is a maximum limit of change allowed. Managers try to achieve the best conditions possible rather than allowing conditions to deteriorate until the threshold is reached. See "Limits of Acceptable Change."

1. Transition - This trailed class includes system trails that have a travelway worn to mineral soil over long distances, and is characterized by having a large proportion of day-users, often mixed in with overnight and long distance travelers. This area is usually adjacent to trailheads and extends into the wilderness a distance that is typically traveled in one day by a hiker. This class includes areas accessed by trail, around lakes, or other attractions used by people or pack stock, within the day-use influence area. The class extends at least 500 feet on either side of a trail; it may be wider around lakes or heavily used areas. The length of this trail class will be established for each trail depending on ease of travel, distance from trailhead outside wilderness, and destination attractions inside wilderness. Length will generally be 3 to 5 miles inside the wilderness boundary. If the day-use activity occurs entirely outside wilderness, the trail will have no Transition Class.

2. Trailed - This class includes all managed system trails. It extends beyond the Transition Class. This class extends at least 500 feet on either side of the trail but may be wider around lakes or heavily used areas.

3. General Trailless - This class includes areas not falling into the other classes. It attracts very low use because of a relative lack of trails or destination spots. The area is unmodified; user-made trails are not encouraged, but they may exist. If obvious user-made trails become well established, or are causing resource damage, consideration will be given to their reconstruction in order to protect the wilderness resource from further damage. Reclassification from general trailess to railed requires a supplement of the Forest Plan, which shall include full public involvement. This class is available for new trail construction or relocation of existing trails to protect resources or meet objectives by dispersing use. If this should occur, the trail will only be constructed to no higher than "more difficult or "most difficult" standards.

4. Dedicated Trailless - This class is managed forever trailless; user-made trails are not permitted. It may include popular attractions accessed only by cross-country travel. Human impact and influence is, by design, minimal; therefore user restrictions may be necessary to insure that trailless experiences remain. Dedicated Trailless areas should be of a size that will allow for a meaningful experience and can be reasonably protected for the experiences and remoteness identified. Generally the class is at least 1,000 acres in size and contain whole drainages or basins out of sight and sound of trails or areas outside the wilderness.

5. Special Areas - The intent of this class is to provide for significant changes in standards or other management guidelines for unique areas. Areas that qualify for Special Area designation include congressionally acknowledged areas, areas of significant cultural or historic value, areas with special considerations, and areas with limited management options to deal with unique situations. Areas do not qualify for this class for administrative convenience in dealing with overuse. The class is rare and will not exist in many wildernesses.

Wildfire - Any wildland fire that is not a prescribed fire.

Wildland - Uncultivated land, other than fallow, virtually uninfluenced by human activity. It may be neglected altogether or maintained for such purposes as wood or forage production, wildlife habitat, recreation, or protective plant cover.

Wildlife Fish User Day (WFUD) - One WFUD consists of 12 hours of recreation that is the result of fish or wildlife, such as hunting, fishing, birdwatching, etc.

Will - Verb used in the Management Prescriptions, Proposed Forest Plan. Is not restrictive; applies only to a statement of future condition or an expression of time. Not used in the place of "shall."

Windfall - A tree thrown or the stem or other parts (such as branches, foliage, or fruit) broken off or blown down by the wind.

Wood Residue - The residual wood remaining as a result of timber cutting, other vegetation disturbing activity, storms, fire, or other natural event. It includes any unutilized woody material. See "Slash" and "Residue Utilization."

Yarding - The moving of logs from the stump where cut to a central concentration area or landing. See "Logging Systems."

Yield Tables - Tables that estimate the level of outputs that would result from implementing a particular activity. Usually referred to in conjunction with FORPLAN input or output. Yield tables can be developed for timber volumes, range production, soil and water outputs, and other resources.