1999

Monitoring and Evaluation Report

Dear Forest User,

I consider monitoring a fundamental of resource stewardship and make it a priority on the Gifford Pinchot National Forest. The focus of this report is on our monitoring of Forest Plan standards and guidelines. However, this is a fraction of monitoring activities conducted on the National Forest. We are monitoring activities and resource conditions every time we leave the office. A brief description of the many monitoring activities conducted on the Forest which are not directly related to Forest Plan implementation begins on page 50.

Results-at-a-Glance, beginning on page 2 of this report, provides a brief summary of the 29 items monitored in FY 1999. The full reports follow.

Beginning on page 46 is a report of the fourth year of an interagency effort to involve our Province Advisory Committee in monitoring our implementation of the standards and guidelines of the Northwest Forest Plan.

This is our ninth consecutive year of reporting the results of our monitoring of our management of your National Forest. If you are reading the printed version of this report, it might interest you to know that reports dating back to 1995 are posted on our Internet site (http://www.fs.fed.us/gpnf/mgtdir/index.html).

I want to learn your views on our monitoring activities. Send me a letter (or an e-mail to gpinchot/r6pnw_gp@fs.fed.us) and let us know what you think.

/s/CLAIRE LAVENDEL
Forest Supervisor

1999 Monitoring and Evaluation Report

Table of Contents

List of Tables

List of Figures

Monitoring and Evaluation Report

Gifford Pinchot National Forest

Fiscal Year 1999

A. Introduction

This document reports Forest activities and accomplishments of 1999 and compares them to the Amended Forest Plan direction, and projected outputs and effects. Monitoring and evaluation are important elements in the implementation of the Forest Plan. They are key to making the Plan a dynamic and responsive tool for managing a complex set of natural resources and values in a climate of social and economic change. This document reflects the eighth year of implementing the Gifford Pinchot National Forest Plan which was approved on June 1, 1990.

The Plan was amended by the Northwest Forest Plan Record of Decision to incorporate new standards and guidelines to ensure protection of late-successional and aquatic ecosystems in April 1994.

Monitoring and Evaluation

There are three types of monitoring:

- **Implementation Monitoring:** determines if goals, objectives, standards and guidelines are implemented as described in the Plan. The question being asked is, "Did we do what we said we would?"
- **Effectiveness Monitoring:** determines if management practices as designed and implemented are effective in meeting the Plan goals and desired future conditions. The concern here is, "Did the management practice accomplish what we intended?"
- **Validation Monitoring:** determines if data, assumptions, and coefficients are accurate. Here, the important question is, "Is there a better way to meet the Plan goals and objectives?"

Our 1999 monitoring effort emphasizes implementation monitoring, although several items contain elements of both implementation and effectiveness monitoring.

Evaluation is the analysis and interpretation of monitoring results. Essentially, the question being asked in evaluation is, "Are changes needed?" These changes may involve amending or revising the Plan or changing the way activities are implemented.

The following outline briefly describes each section of this report:

A. Introduction - This brief overview of what monitoring is about.

B. Monitoring Results - At a Glance - summarizes monitoring results described in detail in Section C.

C. Monitoring Item Results displays the individual results, evaluations and recommended follow-up actions for all items monitored in 1999.

D. Accomplishments show trends in program accomplishments over FYs 1995-1999 and compares 1999 accomplishments to our assigned targets (41).

E. Expenditures - Compares expenditures over the last 9 years and the composition of FY 1999 expenditures (page 43).

F. Forest Plan Amendments - Lists all Forest Plan amendments, and briefly describes the content of each, and when it was approved (page 45).

G. Northwest Forest Plan Monitoring - Included is the report from our third year of implementation monitoring conducted on the Gifford Pinchot as part of an owl region-wide monitoring program (page 46).

Glossary of Terms - Definitions of the technical terms used in this document (page 52).

B. Monitoring Results - At A Glance

The following table briefly summarizes monitoring results by resource area. Detailed information for each monitoring item can be found on the page referenced in Section C, beginning on page 4.

Monitoring items preceded with an asterisk in the table below are all or part effectiveness monitoring, others are primarily implementation monitoring. Refer to the Glossary for meanings of technical terms used in this report.

Monitoring Results - At A Glance

RECREATION	☺	***Wild/Scenic Rivers** (page 4) - Activities in compliance, character of potential Wild and Scenic River corridors was preserved.
	☺	***Semi-Primitive Recreation** (page 5) – There were no projects in semi-primitive or primitive recreation settings to monitor in 1999.
	☺	***Scenic Quality** (page 5) - Scenic standards were met on the project monitored
	😐	***Wilderness Use and Condition (**page 6) **–** Wilderness use dropped by 27 percent compared to 1998 because of late snow melt.
	☺	***Trail Inventory,** (page 7) – Five of the six trails monitored met standards and guidelines.
	😐	***Recreation Use and Facility Condition** (page 9) – No major maintenance or construction projects were completed in 1999. Numerous dispersed camping sites, accessible by vehicle, are continuing to show evidence of overuse.
HERITAGE RESOURCES	☺	***Heritage Resource Protection** (page 10) - Fourteen heritage resource properties associated with projects implemented in Fiscal Year 1999. Protective measures were effective.
WILDLIFE	☺	**Raptor Habitat** (page 11). None of the projects monitored in 1999 impacted raptor or heron nesting or wintering habitat.
	😐	**Legacy Features** (page 11) Retention tree and snag requirements were met on all projects. Plan intent for down wood requirements was met on all projects monitored.
	ⓘ	**Survey and Manage** (page 13) During FY 99, 5,130 acres was surveyed for salamanders and 5,070 acres were surveyed for mollusks. Plant surveys became mandatory in 1999.
GRAZING	☺	***Grazing Practices** (page 14) Cattle and sheep grazing practices conform to standards and guidelines.
***All or part effectiveness monitoring.**		

☺ Standard and guideline met, or no activities to monitor.

😐 Mixed results or mitigating circumstances.

☹ Need for improvement.

ⓘ Information item, not a standard and guideline.

Monitoring Results - At A Glance (Continued)

☺	**Noxious Weeds** (page 15) 1600 acres were monitored and noxious weeds were pulled on 325 acres.
BOTANICAL ☺	***Research Natural Areas** (page 15) - Standards and guidelines and management objectives are being met in the two RNAs that were monitored.
😐	***Botanical Special Interest Areas** - BSIA monitoring was deferred in 1999 because of a lack of staffing to conduct the monitoring.
☺	**Adequate Reforestation** (page 17) - Three years after harvest, 100 percent of the harvested area was adequately stocked.
ⓘ	**Timber Harvest Methods** (page 17) - Harvest activity was approximately 51 percent of the amended Plan projection.
☺	**Regeneration Harvest Units Size** (page 18) – There were no projects to monitor in 1999.
TIMBER ⓘ	**Volume Sold** (page 18) - In 1999 the Forest awarded 3.3 million board feet. The goal for 1999 was 58 million board feet.
ⓘ	**Timber Revenue and Expenses** (page 19) – Timber sale revenue and cost information is not available for 1999
☺	**Silvicultural Prescriptions** (page 20) - All prescriptions reviewed were consistent with the NEPA analysis and meet the applicable standards and guidelines with the exception of down wood requirements.
SOIL AND 😐	**Soil Productivity** (page 22) - The soil productivity standard was met on three of four harvest units monitored.
WATER 😐	**Best Management Practices** (page 22) – Minor departures from 6 of 22 BMPs were found on 2 of the 5 harvest units monitored.
☺	**Fish/Riparian S&G Implementation** (page 24) - All projects were implemented in compliance with fish/riparian standards and guidelines.
☺	***Effectiveness of Riparian S&Gs** (page 27) - Riparian standards and guidelines appear to be effective in maintaining stream channel stability and shading.
FISHERIES ⓘ	***Steelhead and Bull Trout Populations** (page 28**)** - The decline of Wind River steelhead population continued in 1999, The East Fork Lewis River steelhead populations was comparable to the past 2 years at 154 adults. The bull trout population appears to be in flux.
☺	***Effectiveness of In-Channel habitat Improvement Structures** (page 34) – Both structures monitored in 1999 were found to be in-place and fully functional.
ROADS ☺	**Road Closures** (page 35) - Forty-two miles of system roads were decommissioned during 1999. There has been a net reduction of roads in key watersheds.
COMMUNITIES ⓘ	**Community Effects - Payments to Counties** (page 37) - The U.S. Treasury returned $9.6 million dollars to the six counties with lands within the Forest administrative boundary. The Forest administered $632 thousand in community assistance grants.
MINING ☺	**Mining Operating Plans** (page 39) **–** The Forest administered 8 plans of operation in 1999. No cases of noncompliance were identified or reported
***All or part effectiveness monitoring.**	

C. Monitoring Item Results

Wild and Scenic Rivers 1 ☺

Introduction: On the Gifford Pinchot National Forest there are no Congressionally designated Wild, Scenic or Recreational Rivers; however, the Forest Plan recommends the Lewis River, Cispus River, and the Muddy Fork and Clear Fork of the Cowlitz River be designated as Wild and Scenic Rivers. In addition, twelve other rivers are recommended for further study.

The values for which these corridors were either recommended or deemed eligible for recommendation are being protected until Congress takes action on the Forest's recommendation or further studies are completed. The Forest monitors activities in each of these corridors to ensure that the outstandingly remarkable river values are being protected consistent with the Wild and Scenic Rivers Act.

Results: All projects within potential Wild and Scenic River corridors were monitored. The results are displayed in Table 1.

Table 1 - Project Monitoring in Potential Wild and Scenic River Corridors

Corridor	Project	Standards Met
Cispus River	20/35 Timber Sale Unit 2	Yes
Cispus River	Flood Restoration	Yes
Yellowjacket	Flood Restoration	Yes
Wind River	Restoration, Wind River, Dry Creek	Yes
East Fork Lewis River	Riparian habitat restoration	Yes

Evaluation: After reviewing the activities shown in Table 1, all projects were found to be in compliance with the Plan standards and guidelines. The character of the wild and scenic corridors was preserved. No activities have occurred that would adversely affect the outstandingly remarkable values, the free-flowing nature, or classification of any eligible or study river.

The character of the wild and scenic river corridors was preserved.

In the case of the Wind River and the Dry Creek project, the restoration objective was to enhance the steelhead habitat and populations. Steelhead are one of the outstandingly remarkable values for the Wind River. On adjacent non-National Forest System lands, the Stabler Reach Restoration Project funded by USFWS also seeks to improve steelhead populations by stabilizing streambanks. On the East Fork Lewis River, measures such as blocking vehicles access to the river and reducing dispersed campsites in the riparian areas will improve riparian habitat and contribute to improved scenic values. Additional steelhead habitat protection and restoration measures are expected to be implemented on the East Fork Lewis River over the next two years, thereby enhancing one of the outstandingly remarkable values. On all study rivers, the level of protection for Wild and Scenic River values has significantly increased as a result of implementing the Northwest Forest Plan.

The level of protection for Wild and Scenic River values has increased

Recommended Action to be Taken: No corrective action required -- monitoring to continue.

Semi-Primitive Recreation 2 ☺

Introduction: The Forest Plan provides a framework for managing different classes of outdoor recreation settings, activities and opportunities. This framework is a continuum comprised of seven classes: Primitive, Semi-primitive Non-motorized, Semi-primitive Motorized, Roaded Modified, Roaded Natural, Rural and Urban. This monitoring item focuses on maintaining the character of the two semi-primitive classes. The emphasis in these areas is to maintain a predominantly natural or natural appearing environment. Motorized recreation use is not permitted in the semi-primitive non-motorized category.

There were no projects in primitive or semi-primitive recreation settings.

Results: There were no projects in the Primitive and Semi-primitive recreation areas as identified in the Forest Plan.

Evaluation: There were not projects to monitor.

Recommended Action to be Taken: No corrective action required -- monitoring to continue.

Scenic Quality 3 ☺

Introduction: The Forest Plan delineated 37 viewshed corridors across the Forest. Lands within view of 21 of these viewshed corridors have management objectives requiring maintaining or improving scenic values. In these viewsheds, management activities are to be compatible with scenic quality objectives.

Results: One project was monitored for compliance with scenic quality standards in 1999. The project review determined that standards and guidelines for scenic quality, as specified in the Forest Plan, were met.

Standards and guidelines for scenic quality were met.

Table 2 - Scenic Quality Project Monitoring Summary

Project	Viewshed	Standards Met
20/35 TS, Unit 2	Cowlitz Valley	Yes

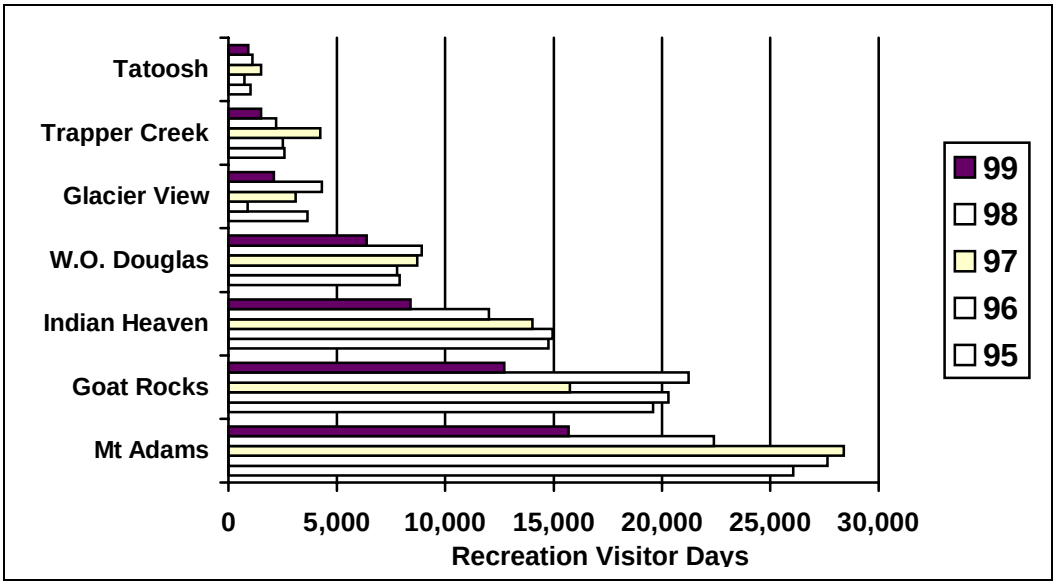
Landscape-scale viewshed condition monitoring was not conducted in 1999. Viewsheds are normally monitored every 5 years to determine if changes in the condition have occurred.

Recommended Action to be Taken: No corrective action required -- monitoring to continue.

Wilderness Use and Condition 4 😐

Introduction: The Forest currently has about 180,000 acres in seven wildernesses. Each wilderness is partitioned according to the nature of recreation opportunity. The range of these opportunities is called the Wilderness Recreation Opportunity Spectrum. Each category has a set of standards describing the desired recreation experience. This monitoring determines if standards for the experience in each category have been met. It measures wilderness use and impacts of recreation use on wilderness character.

Figure 1 - Wilderness Use 1994 - 1999



Results:

A. Wilderness Use - Figure 1and Table 3 compare the 1995 through 1999 wilderness use. Because late snow melt resulted in a shorter visitor season, visitor use dropped by 34 percent for wilderness use across all seven wildernesses.

Table 3 - Wilderness Use

Wilderness	Recreation Visitor Days				
	1996	1997	1998	1999	98-99 % Change
Mt. Adams	27,630	28,410	22,400	19,615	-12%
Goat Rocks *	20,300	15,750	21,250	12,730	-40%
Indian Heaven	14,960	14,030	12,000	8,968	-25%
William O. Douglas *	7,780	8,700	8,920	6,370	-29%
Glacier View	890	3,100	4,300	2,100	-51%
Trapper Creek	2,520	4,230	2,200	2,188	-1%
Tatoosh	730	1,500	1,100	910	-17%
TOTAL	74,810	75,720	72,170	52,881	-17%

* Gifford Pinchot National Forest portion only.

B. Limits of Acceptable Change (LAC). Limits of Acceptable Change is a measure of impacts associated with recreation use such as trampled area, vegetation loss at camp sites, and mineral soil exposed. LAC monitoring was not done this year, but will be resumed next year.

Recommended Actions to be Taken: In the wildernesses, resource conditions that are degrading rather than improving are a clear indication of the needs for corrective action. Measures, such as rehabilitation, education, and attempts to confine damages to areas already impacted have worked to some degree to reduce impacts; however, it has become clear that these are not always effective, and that further actions are necessary to protect wilderness resources. In 1999, the Forest, with the input by wilderness users and other interested parties, decided to limit use at approximately current levels. A wilderness permit system to limit use at current levels is anticipated to be implemented in 2001.

A wilderness permit system to limit use at current levels is to be implemented in 2001.

Trail Inventory and Condition 6 ☺

Introduction: On the Forest there are 1,490 miles of trails, including 317 miles within Wilderness. These trails are managed to maintain a diverse array of travel opportunities. Difficulty, mode of travel, and distance are factors affecting the mix of travel opportunities. Each Forest trail is assigned a trail management level, with associated standards and guidelines for management of adjacent lands. These management levels offer a range of protection from roading and timber harvest impacts. We also monitor the amount of trail construction, maintenance, use, and management.

Results:

A. Trail Construction and Maintenance --

Table 4 compares the amount of trails constructed or reconstructed in 1999 with the amount projected in the Forest Plan.

Table 4 - Trail Construction and Maintenance

Trail Activity	Miles from Forest Plan	1999 Miles Accomplished	Percent of Plan Level
Construction or Reconstruction	34 1/	13.7	40
Maintenance	1490	668	45

1/ Trail mileage average based on projects listed in Appendix A of the Forest Plan.

No reconstruction occurred on any of the 227.9 miles of trails designated for motorcycle use.

668 miles of trails were maintained to standard.

Approximately 668 miles (45 percent) of the 1,490 miles of the existing summer and winter use trails in the Forest Trail System were maintained to full Meaningful Measures Standards (see Glossary).

B. **Trail Setting** - The following table shows trails that were reviewed either in the planning phase (through the review of planning documents) or on the ground.

Table 5 - Trail Setting

Trail Reviewed Name and No.	Planned Mgt. Level	Meets Management Level in Plan	Existing Trail Meets Standards
Dry Cr. #194	II	Yes	Yes
Middle #26	III	Yes	No
Clear Lost #76	I/II	Yes	Yes
Dry Cr. #125	III	Yes	Yes
Independence Pass #227	I	Yes	Yes
Lava Canyon #184	I	Yes	Yes

5 of 6 trails monitored met standards.

Trail #26 did not meet maintenance standards since patrols, security and maintenance was not accomplished.

Trail Use - We responded to public comments concerning use conflicts on several trails across the Forest. There were complaints about mountain bike use by hikers and horse users on the PCT #2000 and Dry Creek Trail #194. On Ape Canyon Trail #234 complaints about mountain bike use by hikers continue. There were more reports of motorcycle use by scientists on the the Truman Trail #207, a hiker only-trail. On the same trail, there were also reports of mountain bike use on the eastern 2 miles. Conflicts between hikers and motorized users was reported on Langille Tr. #259 and Juniper Tr. #261. Attempts were made to address these issues and resource needs on both trails through the NEPA process were unsuccessful. Future resolution of appropriate trail use issues will need to be done during revision of the Forest Plan. On other trails, motorized/non-motorized conflicts were reduced from last year due to new permitted use signing on trails with conflicts.

Evaluation: Only forty percent of the planned target for trail construction/reconstruction was accomplished compared with last year, when nearly twice the annual average mileage estimated in the Forest Plan was accomplished. The budget for this work is considerably less than needed to reconstruct a deteriorating trail system and create new opportunities. In addition, more intensive survey and manage protocols for sensitive species require additional funding and time for doing the work. Since the miles of trail constructed/reconstructed is a multi-year average, monitoring should continue. Trail mileage maintained decreased slightly from last year even though the trail maintenance budget was the same. This was due to late season snowmelt which prevented access to many high elevation trails until late into the season when fire assignments and lack of crew time prevented maintenance from being accomplished. With a trail maintenance budget at less than half the level needed, many trails are expected to continue to deteriorate to a level that requires reconstruction to bring them up to a safe and acceptable standard. User conflicts were reported on fewer than 10 percent of the system trails and thus do not exceed the threshold of concern for complaints.

The budget is considerably less than needed to reconstruct a deteriorating trail system.

Recommended Action to be Taken: In 2001, additional revenues from NW Forest Pass user fees will be available for maintaining trailheads and the trails they serve. The expected result is a continued improvement in the level of maintenance and improved ability to meet trail operation and maintenance standards. Leveraging funds, such as supporting volunteer trail maintenance efforts, will continue to be a major emphasis of the Forest trail system maintenance strategy.

Trail use conflicts continue to be problematic on several trails. Improved signing and more frequent patrols will reduce conflicts. Trail use issues have been identified to be addressed in the Forest Plan Revision.

Developed and Dispersed Recreation Use and Facility Condition 7 😐

Introduction: The Forest has about 120 developed recreation sites, not including visitor centers, with a combined capacity of 16,650 persons-at-one-time (PAOT). We have experienced increasing demand for recreation opportunities from the fast growing populations of the Portland metropolitan area and the international notoriety of Mount St. Helens and the Columbia Gorge. Accompanying the growth in demand has been a decline in recreation budgets. The Forest has pursued some innovative measures to close the gap between demand for services and the recreation budget through partnerships, volunteers, user fees and use of campground concessionaires. Despite these measures, the condition of many recreation facilities continues to deteriorate.

All of the Forest fee campgrounds and some day-use sites are operated by concessionaires. This helps ensure that these sites are managed to standard since sites are operated and maintained according to the concessionaires' operating plans approved by the Forest Service. In addition, most of the revenues generated from camping fees go toward operation and maintenance. However, camping outside of campgrounds (dispersed camping) continues to be popular and is increasing. There are currently few restrictions on where visitors may camp. Since the preference is to be near water, this is where the majority of use of this type occurs. As a result, fragile riparian areas often are impacted.

Results: No major maintenance or reconstruction projects were completed on Forest campgrounds in 1999. However, the majority of all developed sites are still in need of repair or upgrading to meet new standards such as those for handicap accessibility.

The majority of all developed sites are in need of repair or upgrading.

Monitoring of recreation use outside of campgrounds indicates numerous dispersed camping sites, accessible by vehicle, are continuing to show evidence of overuse. In addition, we believe the number of such sites may be increasing due to increased demand resulting from the closure of adjacent private timber lands to recreation use and higher fees for Forest campgrounds. Concerns include inadequate sanitation; resource damage; litter; tree removal; illegal trash dumping; user conflicts; and user-defined sites located too close to streams, lakes, and scenic highways.

Numerous dispersed campking sites show evidence of over use.

Corrective measures are being taken. A number of actions were initiated, including blocking vehicle access to sensitive riparian areas, site restoration and designating approved dispersed campsites.

Evaluation: Many developed recreation facilities are continuing to show the need for reconstruction or heavy maintenance. Deferring routine maintenance of these facilities has resulted in a devaluation of the capital investment and increased maintenance costs. Condition surveys of developed recreation sites indicate that the majority do not meet accessibility or sanitation standards. Monitoring of dispersed recreation camping sites indicates that many of these sites do not meet standards and are impacting riparian areas.

Recommended Actions to be Taken: The Forest will continue to evaluate the ability to meet existing and future developed recreation needs, while providing facilities that meet operation, maintenance, and accessibility standards identified in Meaningful Measures. Actions to address dispersed camping issues include: Implementation of the NW Forest Pass Fee Demo Project will provide additional funds for improved maintenance of several low development level campgrounds and dispersed camping areas, and increased FS recreation and law enforcement presence. Evaluation of some low-development level campgrounds may indicate the need to manage them as dispersed camping areas. Closure of some high use roads to overnight use should be considered. Dispersed recreation

Corrective actions are being taken.

management should be addressed in conjunction with other planning efforts such as habitat restoration on a watershed or drainage basis.

Monitoring of developed and dispersed sites should continue.

Heritage Resource Protection 11 ☺

Introduction: Heritage Resources identified in the project survey and inventory process are evaluated to determine their significance. The level of significance is measured by the criteria of the National Register of Historic Places. Projects are usually designed to protect significant sites through avoidance. In rare cases, effects are mitigated through archaeological data recovery methods, including scientific excavation and analysis. In the case of historic structures, mitigation may take the form of detailed architectural documentation.

Typical heritage site protection strategies involve the maintenance of non-activity buffer zones. Monitoring ensures that prescribed protective measures were properly implemented in the field. Monitoring also provides an opportunity to evaluate the effectiveness of various protective strategies.

There were 14 heritage sites associated with FY99 projects.

Results: There were 14 heritage resource sites associated with projects implemented during Fiscal Year 1999. The projects included the following:

Project Name	District
Muddy Meadows Trail Restoration	Mt. Adams
Dry Creek Restoration	Mt. Adams
Middle/Mining Reach Restoration	Mt. Adams
Carson Fish Hatchery Domestic Water System	Mt. Adams
Two Peaks Timber Sale	Mount St. Helens
Burley Mountain Communications	Cowlitz Valley
Carlton Creek Road Closure	Cowlitz Valley
Berry Patch Turnaround	Cowlitz Valley

Eight of the heritage resource sites identified in these projects were found to be significant. These include prehistoric archaeological sites, historic features associated with the Wind River Lumber Company Historic District, a historic Native American huckleberry processing site, sheepherder camps, and a fire lookout structure.

Avoidance measures were prescribed for all significant sites.

Avoidance measures were prescribed for all of the significant sites. In the case of most sites, protective buffers range from 100 to 200 meters. Exceptions include watershed restoration activities in the Wind River Lumber Company Historic District. Equipment will be allowed to cross historic railroad grades where existing spur roads utilize portions grades or bisect them.

Evaluation: Project managers have reported that protective measures were effective.

Recommended Action:

Recommended action from 1996, 1997, and 1998 pertaining to two prehistoric sites damaged by trail construction has still not been taken. The location is on the Mount St. Helens National Volcanic Monument. A damage assessment investigation is required by law, and should have been accomplished in 1996. A Heritage Expeditions project is planned in 2000 to carry out the damage assessment.

Habitat for Osprey, Swainson's Hawk, Goshawk, Ferriginous Hawk and Great Blue Heron 35b ☺

Introduction: The Forest Plan (page 2-75) provides standards and guidelines aimed at minimizing the disruption of habitat during critical nesting periods. Direction is also provided to minimize disturbance of key winter habitat. Species protected include: Bald Eagle, Peregrine Falcon, Golden Eagle, Osprey, Swainson's Hawk, Goshawk, and Great-Blue Heron.

No projected impacted raptor or heron habitat.

Results: None of the projects within the pool of monitoring candidates in 1999 impacted raptor or heron nesting or wintering habitat. One unit on one timber sale had a seasonal logging restriction for the protection of osprey.

Recommended Action to be Taken: No action required; continue monitoring.

Legacy Features 40 ☺

Introduction: Residual green trees and dead wood in harvested areas function as a bridge between past and future forests. Green trees serve several important functions: they are available for snag recruitment, contribute to multistoried canopies, provide shade and suitable habitat for many organisms and serve as refugia and centers of dispersal.

Dead and partially dead trees or snags are important to certain wildlife species. To provide suitable habitat, a snag needs to be at least 17 inches in diameter and 40 feet high. They serve as breeding areas, shelter, and a host to insects which provide food for birds. Species dependent on snags include the pileated woodpecker and several other woodpecker species, red-breasted sapsucker, red-breasted nuthatch, and northern flicker.

Ecological studies are expanding our understanding of the role of down woody material in forest ecosystems. Down logs are important because of their role in mineral cycling, nutrient mobilization, and moisture retention. In addition, down logs provide structure and habitat suitable to many wildlife species.

Results:

Retention Trees

Retention tree requirements were exceeded.

The Forest Plan prescribes that 15 percent of the harvest unit be retained, with 70 percent in patches and 30 percent scattered through the unit. Retention tree requirements were exceed on Louie/Rosey, and Bug Timber Sales. The retention tree requirement does not apply to thinning sales, like 20/35 Thinning.

Down Wood

We met the intent of the objective for down wood.

The Northwest Forest Plan directs that existing coarse woody debris be protected during logging and that 240 linear feet per acre of decay class I and II logs be left after regeneration harvest.

In Louie/Rosey Timber Sale preharvest sampling counted hard, class III logs as contributing toward the down wood requirement. The primary difference between a hard class III log and a class II log is the presence of bark on the class II logs. Post sale monitoring counted only class I and II logs and found the amount of down wood deficient.

The 240 linear feet of decay class I and II logs wqs not met, but we met the intent of the objective when the amount of hard class III are considered.

Down wood requirements were met for the other two sales monitored, Bug and 20/35 Thinning. For thinning sales, the plan says to leave down wood consistent with the stand's place in the stand development cycle. Snags and down wood will exceed the snag and down wood objectives that the ID team prescribed for this thinning. The objectives were one snag per acre and 120 linear feet per acre. In the 20/35 Thinning sale down logs were staked three-log structures to simulate a large piece of down wood because the trees in a thinning sale are small and individual pieces would decay rapidly. It is believed the log structures also provide better habitat than individual small diameter logs.

Snags

Snags will be created from surplus retention trees.

Retained snags were deficient on Louie/Rosey and Bug sales. Additional snags will be created in FY 2000 or 2001 from surplus retention trees to meet the snag objective of 3.4 per acre.

Table 6 - Projects Monitored for Retention Trees, Snags, and Downed Log

Timber Sale Projects	Standards Met? (Yes or No)		
	Retention Trees	Snag	Down Woods Debris
Louie/Rosey	Y	Y[1]	Y[2]
Bug	Y	Y[1]	Y
20/25 Thinning	N/A	Y	Y

Evaluation: Standards for retention trees and snags were met on all projects. The district biologist believes the hard class III logs on the Louie/Rosey sales are providing the ecological function intended of the Class 1 and 2 logs and that the spirit of the standard was met.

Recommended Action to be Taken:

Continue to refine the Forest guideline describing procedures to be used in designating retention trees, snags and down logs.

[1] Snag requirements will be met by creating snags from surplus retention trees.
[2] The intent of the standard was met when hard class III logs are counted, see text.

Survey and Manage 44

Introduction: The Northwest Forest Plan provides for surveys for over 300 rare plant and animal species known or suspected to exist on the Gifford Pinchot. These species are grouped in four categories:

Manage Known Sites,

Survey prior to ground disturbing activities,

Extensive Surveys,

General Regional Surveys.

Surveys for Larch Mountain and Van Dyke's salamanders were required prior to ground disturbing project decisions beginning in 1997; surveys for other category 2 species were required beginning in 1999.

Results: **Salamander Surveys** Surveying for the Larch Mountain and Van Dyke's salamanders began according to the Northwest Forest Plan in fiscal year 1996.

Plant surveys became mandatory in 1999.

Table 7 - 1999 Plant Survey Results

Species	Life Form	Number of Sites*		
		MTA	CV	MSH
Allotropa virgata	vascular plant	0	0	0
Buxbaumia viridis	bryophyte	9	36	2**
Cantharellus formosus	fungi	0	0	0
Corydalis aquaegelidae	vascular plant	0	0	0
Cypripedium montananum	vascular plant	1	0	
Dendriscocaulon intricatulum	lichen	0	1	0
Dermatocarpon luridum	lichen	0	0	0
Helvella elastica	fungus	0	0	0
Hydrothyria venosa	lichen	1	0	0
Hypogymnia oceanica	lichen	0	11	
Leptogium rivale	lichen	1	0	0
Lobaria hallii	lichen	0	5	0
Lobaria oregana	lichen	0	0	0
Lobaria pulmonaria	lichen	0	0	0
Pseudocyphellaria anomala	lichen	0	0	0
Pseudocyphellaria rainierensis	lichen	0	1	0
Ptilidium californicum	Bryophyte	8	3	
Sarcosoma mexicana	Fungus	2	0	
Schistostega pennata	Bryophyte	8	0	
Tetraphis geniculata	bryophyte	1	5	3
Ulota megalospora	bryophyte	4	50	Many**
Usnea longissima	lichen	0	0	0

* MTA - Mt Adams Ranger District
CV - Cowlitz Valley Ranger District
MSH - Mount St. Helens Ranger District

** Positive identification of Bauxbaumia species was not possible at the time of survey. Numerous Ulota meglospora sites were found along a five mile stretch of the East Fork Lewis river.

Over the last four years 23,300 acres were surveyed. Thirty-five Larch Mountain salamanders sites have been located. Seven Van Dyke's salamander sites have been located. One Van Dyke's salamander site was found on a proposed timber sale area, one site was found on a trail project, and one was site was found on a watershed restoration

project. Four other sites were found in Late-Successional Reserves. During FY 99, 5,130 acres were surveyed, and eight target species were located.

Mollusk Surveys: Surveying for mollusks began according to the Northwest Forest Plan in fiscal year 1999. Actual surveys began in 1998 to start the process. Currently 5,070 acres have been surveyed to protocol, and we found six of the nine target species. Those six target species account for 368 locations where the species have been found. We were able accomplish only one visit in the fall of 1998, because weather conditions would not allow us to meet protocol temperature requirements. The second visit was completed last spring or this fall. Again, weather condition and deep snow limited the spring protocol survey period.

Botanical Surveys:

Table 7 portrays the results of Survey and Manage plant surveys. Plant surveys became mandatory for 1999 decisions.

Grazing [45] 

Introduction - Grazing: The grazing of cattle, horses, and sheep are among the historical uses on national forest system lands. Records from 1890 indicate over 100,000 sheep and 1500 cattle grazed on the Forest.

The allotment management plans for these allotments are current and periodic evaluations of the allotment sites are performed. Cattle allotment management plan are reviewed and reissued every ten years; sheep allotment management plans are reviewed and reissued every five years. Every year an annual operating plan is developed by the permittees and the Forest Service. Through our evaluations, we ensure that the Forest Plan standards are met. Forest Plan consistency is ensured through inspections of the sites prior to dispersal of livestock, and monitoring of the livestock to ensure proper utilization of resources, distribution of livestock, and maintenance of ecosystem health. Range improvements such as maintenance of fences, cattle guards, and water lines have been performed cooperatively by the Forest Service and the permittees.

Our monitoring utilizes photo plots of vegetation that aid in determining the condition and trends within certain plant communities over time. When grazing in or near riparian zones we ensure that the objectives for the Aquatic Conservation Strategy are fulfilled, including but not limited to water quality, stability of streams and ponds, riparian vegetation and fish and wildlife habitat. In the past, approved post-grazing levels of vegetation were established by Regional and Forest personnel; our current post-grazing vegetation levels fall within their guidelines.

Grazing is not permitted in research natural areas, botanical special areas, and most administrative sites.

Results: There are three active allotments on the Gifford Pinchot National Forest. These allotments are all on transitional rangeland. They are located on portions of the Mt. Adams District and Mt. Saint Helens District in the areas of Twin Buttes, Mt. Adams and Ice Caves. Livestock use for the 1999 season totaled 1,732 head months (HMs) for the Forest, which is 40 percent below the allowed and permitted head months. This reduction was agreed to by the Mt. Adams and Twin Buttes Permittees to reduce effects to bull trout habitat from grazing..

All grazing allotments were in compliance with standards and guidelines.

Evaluation: During 1999 all grazing allotments were in compliance with the amended

Gifford Pinchot Forest Plan standards and guidelines.

Recommended Action To Be Taken: No corrective action required - monitoring and current management practices are to be continued. Three new riparian photo sites in potential bull trout watersheds will be added in FY 2000.

Continue to emphasize prevention and coordinate monitoring activities with the permittees, US Fish and Wildlife Service, and botany, wildlife, fish, and hydrology specialists to maintain current resource conditions.

Noxious Weeds 456 ☺

Introduction

Noxious weeds are a problem because they can be toxic to wildlife, domestic livestock, and humans and they displace desirable plant communities. Toxicity to flora and fauna is the primary concern because they are rarely ingested by people. Ecosystem changes produced by noxious weeds can be dramatic and have highly adverse impacts to plant and animal environments. These types of changes impact all resources.

Noxious weeds were hand-pulled on 325 acres.

Results: Approximately, 1600 acres were monitored across the Mt. Adams and Mt. St. Helens districts. We hand pulled nine targeted noxious weed species on 15 sites. These 15 sites are conservatively estimated to represent infestations of 325 acres. Included in the 15 treatment sites are the Mt. Adams Ranger Station, Wind River Work Center, Wind River Nursery and the Willard Work Center Equipment yard and the eastern portion of Mt. St. Helens Ranger District.

Recommended Action To Be Taken: Continue the inventory of noxious weed infestations and aggressive treatment.

Research Natural Areas (RNA) 5 ☺

Introduction: The Forest Plan requires that no activity occur within an RNA that would adversely affect the natural values of an RNA for which it was established. Prohibited activities include livestock grazing; timber and miscellaneous forest products harvest; recreation development and use; road construction; temporary facility installation; unlawful mining or mining of common variety materials; establishment of exotic plant, animal, or insect species; and establishment of non-endemic levels of insects, pathogens, or disease.

The seven areas designated as RNAs through the planning process are listed in the table below. These areas provide representative examples of biologically important ecosystems and are managed to conserve their biological diversity. They serve as undisturbed controls for comparison with managed areas and are valuable for studying natural processes. Research Natural Areas are permanently protected federally designated reserves where long-term studies that contribute to our knowledge of the ecosystem is encouraged. The standards and guidelines for Research Natural Areas focus on maintaining their natural state for research and education. Monitoring serves to evaluate whether the natural conditions of the Research Natural Area have been modified, and prescribes corrective actions if necessary.

Table 8 - Research Natural Area Monitoring

Research Natural Area	Last Monitored	Standards & Guidelines Met?
Butter Creek	1991	yes
Goat Marsh	1993	no
Sisters Rock	1999	yes
Steamboat Mountain	1999	yes
Cedar Flats	1996	yes
Thornton T. Munger	1999	yes
Monte Cristo	1998	yes

Results:

In 1999:

- Steamboat Mountain RNA Addition EA and Steamboat Mountain RNA Addition Establishment Record were completed and signed.
- T.T. Munger, Steamboat Mountain, and Sister Rocks RNAs were monitored.
- Class B noxious weeds in the Wind River Nursery and along Road 41 that threatened to encroach T.T. Munger were eradicated. Class C weeds, i.e., St. Johns wort, continue to persist.
- Further evaluation of Smith Butte Proposed RNA occurred in light of several large-scale fire-reduction and spruce budworm activities surrounding the area.
- Fungi were inventoried in T. T. Munger RNA
- Contracts to inventory lichens in Cedar Flats and Sister Rocks RNAs and Smith Butte Proposed RNA were awarded for the 2000 field season.

The Wind River Nursery is being conveyed to Skamania County who will be the new stewards of the developed land neighboring our oldest RNA, T.T. Munger. A list of the 17 most active research activities in T.T. Munger RNA and the Wind River Canopy Crane in 1999 can be located at their website, http://depts.washington.edu/wrccrf/.

A project is underway on the Gifford Pinchot National Forest that will create a Natural Areas website on the Internet with information relating to rate plant, community, and animal information, with research needs and opportunities highlighted. This site will target researchers, students, scientists, natural resource managers, and others, with the goal of stimulating interest to conduct scientific research and higher-educational excursions within the Natural Areas.

Standards and guidelines were met at the two RNAs monitored in 1999.

Evaluation:

Standards and guidelines and management objectives were met at T.T. Munger, Steamboat Mountain, and Sister Rocks RNAs.

Recommended Action to be taken:

- Continue compiling species lists to determine plant and animal diversity
- Promote additional research opportunities with RNAs
- Continue to emphasize noxious weed control in RNAs.

Vegetation Management

In 1994, the Gifford Pinchot National Forest began implementing the standards and guidelines of the Northwest Forest Plan. In 1996, we began comparing accomplishments to the projections made for the 1994 Northwest Forest Plan. Prior to 1996, we compared accomplishments to our 1990 Forest Plan projections.

Adequate Reforestation 50 ☺

The standard and guideline for stocking varies by site, depending on elevation, exposure, soil and other factors. Adequate stocking can vary from 125 to 400 trees per acre. Standards and guidelines regarding plantation stocking were met in 1999 on the Mt. Adams Ranger District. Because of the decline in regeneration harvest, neither the Cowlitz Valley nor Mount St. Helens Districts conducted surveys in 1999.

Table 9 - Adequate Reforestation

Plantation Acres Surveyed	Adequately Stocked	% Adequate Stocking
647	647	100%

100% of the acres surveyed met the standard for ade3quate stocking.

In 1999, 923 acres were regenerated; 893 acres were hand planted and the remaining 30 acres will be naturally regenerated. Within the next five years, these areas will be monitored to ensure they are adequately stocked. Additional planting will occur if stocking levels fall below the minimum stocking level requirements for the species and management objectives of the site.

Timber Harvest Methods 51 ⓘ

Table 10 shows acres harvested by category of harvest method.

Table 10 - Timber Harvest Methods

Silvicultural Practice	1999 Acres Harvested	NW Forest Plan Projection
Clearcut Harvest	**0**	**0**
Other Regen Harvest[1]	**416**	**1454**
Commercial Thinning	**947**	**1264**
Salvage	**25**	**N/A**
Totals	**1,388**	**2718 acres**

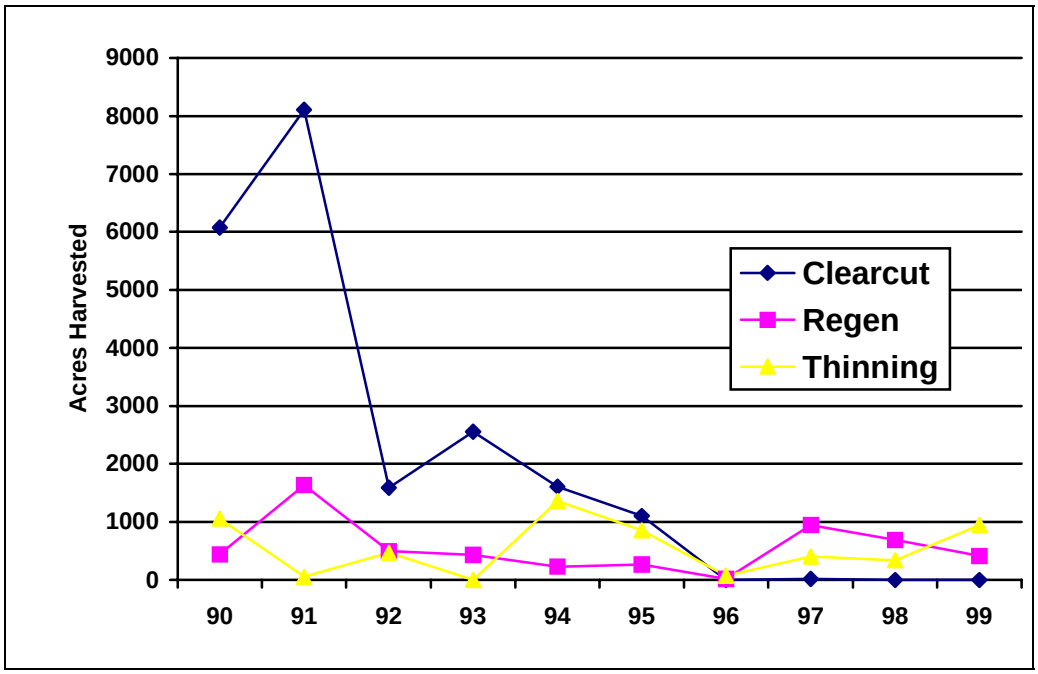
About 51 percent of the plan projection was harvested in 1999.

Under the NWFP clearcutting would only be proposed under exceptional circumstances. Overall, an acreage about 51 percent of the Northwest Forest Plan projection was harvested in 1999.

Harvest activity by silvicultural prescription category is displayed over the past 10 years in Figure 2, page 18.

[1] Includes shelterwoods, light, medium and high forest retention but not clearcuts.

Figure 2 - Historical Harvest by Method



Regeneration Harvest Units Size 52

During 1999, only one timber sale decision was signed. Other projects were delayed pending the completion of survey protocols and an EIS to reassess survey and manage requirements. Because field work had not been completed on the project with a signed decision, there were no projects to monitor for regeneration harvest size and separation this year.

Volume Advertised to be Sold 54

The Forest did not accomplish the 1999 sale goal. The 1999 sale goal was 58 MMBF* or 11.1 MMCF. Actual volume awarded from sales in 1999 was 3.3 MMBF or 0.66 MMCF. The reduction in volume offered for sale was a result of delays caused by litigation related to the Northwest Forest Plan Survey & Manage requirements.

The Forest awarded 3.3 of its 58 million board feet sale goal in 1999.

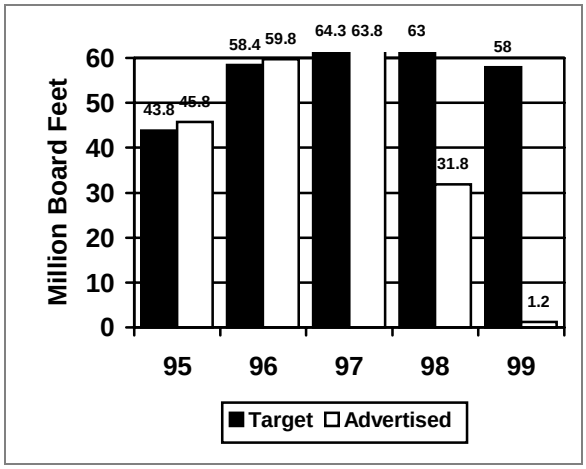
Table 11 - Volume Advertised

Volume Advertised MMBF	Volume Goal MMBF	Volume Advertised MMCF[1]	Volume Goal MMCF	% of Volume Goal
1.2	58	0.3	11.0	2%

*MMBF – Million Board Feet
MMCF – Million Cubic Feet

[1] Based on an average of 5.26 board feet per cubic foot or 0.19 cubic foot per board foot.

Figure 3 - Target Accomplishment



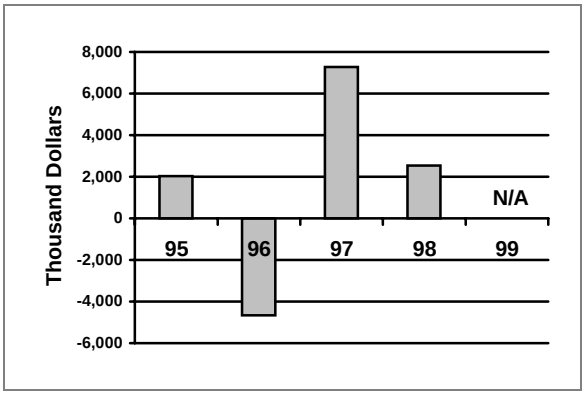
Timber Revenue and Expenses [55]

Table 12, page 19, shows timber harvest and timber program related financial transactions over the past five years. The primary factors that determine the financial status of the timber program are volume harvested and the value of the timber harvested. Timber revenue and costs for FY 1999 were not available at the time this report went to press.

Table 12 - Timber Revenue and Expenses

Timber Harvest and Monetary Outlays	1995	1996	1997	1998	1999
Timber Revenues	$16,501,000	$3,296,000	$13,993,000	$11,319,000	N/A
Timber Expenses	$14,474,000	$7,961,000	$6,701,000	$8,772,000	N/A
Net Revenue Before Payments to Counties	$2,027,000	$-4,665,000	$7,292,000	$2,547,000	N/A
Payments to Counties	$11,287,000	$10,874,642	$10,465,537	10,052,424	9,639,311
Volume harvested (MMBF)	59	11.3	41	32	30
Volume under contract (MMBF)	34	63	78	77	37
Volume advertised (MMBF)	45.8	59.8	63.8	31.8	1.2
Volume sold (MMBF)	45.8	48.8	57.5	48.8	3.3
Total Acres Harvested	2,229	643	1,359	1,092	1,388

Figure 4 - Timber Program Net Revenue



Silvicultural Prescriptions [56]

Introduction: The silviculture prescription is the result of examining forest stands and diagnosing treatment needs. The prescription establishes the methods and timing of silvicultural activities. These determinations take into account numerous factors involving silvics of the trees and the local site conditions but also other resource objectives and Forest Plan direction. The process consists of preparing a general prescription and having an interdisciplinary team establish limits and objectives to be achieved based on Forest Plan goals and objectives and standards and guidelines. The purpose of this item is to ensure that silviculturists are considering all resource objectives and the prescriptions are developed through an interdisciplinary process.

Results: Monitoring was completed in three different land allocations: Matrix, Late-Succesional Reserves and Adaptive Management Area. The following information details the units and types of silvicultural activities monitored in 1999.

Eight post-harvest units and their silvicultural prescriptions were selected for review to determine compliance with the Forest Plan. These units were evaluated to determine if the actions implemented through the prescription meet the objectives of the standards and guidelines of the Forest Plan. The monitoring also determines if the post treatment conditions meet the intent of the prescription.

Three regeneration units, three commercial thinning units, one precommercial thinning unit, one pruning unit and one young stand improvement in the LSR were reviewed.

All units were evaluated for stocking level, structural diversity and snag retention. The regeneration units were also evaluated for retention of live trees and disease.

REGENERATION HARVETS UNITS

The overall objectives identified in the prescriptions and environmental analysis for the three regeneration units monitored, meet the intent of the Forest Plan Standard and Guidelines. Below is a detailed description of the items and evaluation of the items that were monitored for the three regeneration units.

All regeneration harvest units met the 15% retention objective; 2 of the 3 units did not appear to meet the down wood objective.

Live tree retention - All three units retention met the 15 percent Northwest Forest Plan objective.

Disease - One harvest unit contains laminated root rot. Alternate species have been identified for planting.

Stocking Level - Stocking level and composition could not be evaluated since the three units have not as as yet been planted. These units are scheduled for planting in the year 2000.

Snag Retention/Down logs – adequate numbers of trees were retained for snag creation. on all three units. Two units are did not appear to meet the down log requirements.

COMMERCIAL THINNING

Commercial thinning units met 3 of 4 objectives. Canopy closure objective was not met.

Commercial Thinning - Three units were evaluated to determine if they met the desired post harvest conditions for number of trees per acre, species composition, structural diversity in terms of canopy closure and snag retention. Commercial thinning did not meet the prescription objectives for canopy closure. Canopy closure and it's relationship to stocking level and species composition should be reviewed in the future. A survey of wildlife habitat should also be conducted to establish whether the deviations result in temporary or long-term effects to habitat.

PRECOMMERCIAL THINNING

Precommercial thinning met Forest Plan objectives.

Precommercial thinning in the Matrix and young stand improvement in the LSR met the standard and guidelines identified in the Forest Plan. One precommercial thinning unit was evaluated for stocking level, species diversity, and structural diversity. The unit met the monitoring requirements as designed in the prescription. Underburning and monitoring for blister rust have been prescribed for the future to eliminate undesirable species and control disease if needed.

PRUNING

The objectives for pruning were to improve structural diversity and wood quality. One unit was monitored for the second pruning on a 24 by 24 feet spacing with 25 percent variability. The desired results were achieved as prescribed for enhancing wood quality and improving structural diversity.

REVIEW OF OBJECTIVES

How to manage understory vegetation?

As a part of the monitoring review, two silvicultural objectives were identified that may not lead to the desired future condition. The first of these objectives is management in the understory when crown closure exceeds 40 percent on regeneration units. The concern is that only shade tolerant hemlock and true fir species will thrive in the understory. This would result in an undesirable change in species composition.

The second objective, which was questioned, was retaining legacy trees susceptible to laminated root rot in areas infected with the disease. The concern is that leaving the susceptible trees will perpetuate the disease. It may be more desirable to regenerate the stand and plant to a resistant species.

Will retaining trees susceptible to rot perpetuate the disease?

Both conditions will be monitored and management will be adapted if more conclusive information is acquired.

Evaluation The prescription objectives for regeneration units were met with the exception down log requirements. Canopy closure objectives were not met in most commercial thinning units monitored. A shortage of canopy closure resulted from too few residual trees for the species composition of the stand. Precommercial thinning and pruning objectives prescribed and monitored were successfully met. Young stand improvement in the LSR met the prescribed objectives to accelerate development of late-successional characteristics..

Action to be Taken: Find a remedy for inadequate canopy closure in thinning prescriptions. Monitor the development of understory vegetation under high retention harvest prescriptions. Monitor the health of legacy trees in stands infected with laminated root rot.

Soil Productivity [60] 😐

Introduction:

Maintenance of soil productivity is essential to sustaining ecosystems and is mandated by every act of Congress directing national forest management. Region 6 (FSM 2550.3-1, R6 Supplemental #50) and the Gifford Pinchot NF Plan require a minimum of 80 percent of an activity area to have unimpaired soil productivity. Since associated roads average 5 percent of a unit area, 75 percent of a unit area not associated with a road should have unimpaired soils.

Units sampled are stratified by disturbance class and a subset of each class is evaluated for the degree and extent of soil productivity impairing conditions including compaction, displacement, erosion and severe burning.

Results:

Four timber sales were monitored for compliance with the soil productivity standard, Bug Timber Sale Unit 9, 20/35 Timber Sale Unit 2, Tower Timber Sale Unit 27 and Louie/Rosey Timber Sale Units 10. Only the Louie/Rosey Timber Sale Unit 10 did not meet the standard of less than 20 percent unimpaired soils. Operation of equipment on slopes greater than 30 percent and loader operations off the main skid trail without the benefit of cushioning slash resulted in most of the disturbed soil. Subsoiling with a loader grapple resulted in incomplete compaction mitigation.

Loader operation on steep slopes

Although the Bug Timber Sale Unit 9 met the standard for soil productivity with only 12 percent soil damage, a loader grapple was used to subsoil compacted areas and was only 50 percent effective.

Grapple scarification was only 50% effective.

Recommendations: Minimize loader logging on slopes greater than 30 percent and/or where slash and litter layers are shallow.

Grappling as a scarification tool should be discouraged in projects.

Continue review of treatment effectiveness to update knowledge on scarification treatment techniques and site specific needs.

Best Management Practices (BMPs) [61] 😐

Introduction:

Best Management Practices are the primary mechanism to ensure water quality standards are met during project implementation. Best Management Practices (BMPs) are selected and tailored for site-specific conditions to provide project level protection of water quality. The 1976 National Forest Management Act directs us to protect streams, streambanks, shorelines, lakes, wetlands, and other bodies of water from detrimental changes in water temperature, blockages of water courses and deposits of sediment, where activities have the potential to seriously and adversely affect water conditions or fish habitat.

3 of 5 units monitored complied with all BMPs.

Results:

Four timber sales were monitored for compliance with Best Management Practices (BMPs), Bug Timber Sale Unit 9, 20/35 Timber Sale Unit 2, Tower Timber Sale Unit 27 and Louie/Rosey Timber Sale Units 10 and 14 for a total of 5 units. Three of the units complied with all the BMPs. The Louie/Rosey Timber Sale Units 10 and 14 had minor departures from six of the twenty two BMPs that apply to timber management.

Wetlands were not shown on the Sale Area Map.

The Louie/Rosey Timber Sale contract did not show wetlands on the sale area map although all wetlands were buffered appropriately. This resulted in a minor departure from the BMP T-4 Use of Sale Area maps for Designating Water Quality Protection Needs.

Recommendation: Assure all wetland or any protected areas are designated on sale area maps.

Skid Road Location

Unit 10 proposed logging system was designated as loader and skyline in the Environmental Analysis (EA). The unit size was reduced during the layout process and the skyline logging system eliminated. One skid road leading to a landing was located within a swale. The original plan for a skyline logging system in this portion of the unit should have been implemented. The 30 percent slope of the area would have indicated to an aquatic specialist that a skyline logging system was necessary and thus avoid the necessity to locate skid trail on slopes. This resulted in a minor departure from the BMPs T-10 Log Landing Location and T-11 Tractor Trail Location and Design. No erosion had occurred at the landing or on the skid road, although the risk of future erosion was present due to compacted soil within a swale increasing overland flow.

Recommendation: Emphasize the need to include aquatic specialist when altering logging systems from those specified in the EA.

Delayed Revegetation

Grass seed and mulch were not applied to Units 10 and 14 until after the sale was closed. The Sale Administrator waived the seed and mulch requirements of the contract. The Sale Administrator did not accomplished this erosion control measure by other means in a timely manner. Grass seed and mulch were applied on these units after the monitoring took place. This results in minor departures from BMP T-14 Revegetation of Areas Disturbed by Harvest Activities, T-15 Log Landing Erosion Prevention and T-16 Erosion Control on Skid Trails. These BMPs specify that the Forest Service shall provide requirements of suitable seed mixture application and make sure the revegetation work is done correctly including on landings and skid trails. Scarification of the skid road and landing along with the wood slash that was left on the ground were effective at preventing erosion which indicates that grass establishment may not have been necessary. Although the recommendation for grass establishment in the EA and resultant contract specification may not have been necessary for this area, the lack of implementing specified erosion control measures results in the minor departures from these BMPs.

Recommendation: Sale Administrator should ensure that revegetation work is done correctly and in a timely manner. If the sale administrator waives the seed and mulch requirements from the contractor, then they should ensure that the seed and mulch requirements are accomplished by other means and in a timely manner.

Delayed Erosion Control

The Sale Administrator closed the units and waived the requirement to apply grass seed and mulch as erosion control. This resulted in a major departure from the BMP T-19 Acceptance of Timber Sale Erosion Control Measures Before Sale Closure and the closure of the timber sale without accomplishment of planned erosion control measures.

Recommendation: Timber Sale Administrator needs to consult with an aquatic specialist prior to closing a sale to assure erosion control measures are completed to the standard prescribed and if not, feasible actions need to be planned and implemented that would accomplish the prescribed erosion control measures.

Designated Refueling Areas

As with all Gifford Pinchot National Forest Timber Sales, the Louie/Rosey Timber Sale Environmental Analysis (EA) and sale contract specified refueling areas if the quantities of fuel were greater than 660 gallons in a single container or if total storage at a site exceeds 1320 gallons. Designated fuel areas are not specified for quantities of fuel less then these amounts. This results in a minor departure from the Best Management Practices T-21 Servicing and Refueling Of Equipment. No significant detrimental effects occurred on the ground as a consequence of this omission in the Louie/Rosey Timber Sale.

Recommendation: Designation of refueling areas should be accomplished not only for large quantities of fuel but also for small amounts of fuel. These designations should be included in all Timber Sale EAs and contracts. Refueling or servicing equipment that has the risk of spilling fuels, lubricants, or road oils should be specified to take place away from wet areas or surface water. The required sale area map with details for protection of water features could be used as a guideline to specify where refueling or servicing should be avoided.

Fish/Riparian S&G Implementation 62a ☺

Introduction: The Forest Plan outlines specific standards and guidelines to ensure protection of fish and riparian resources. The emphasis of this monitoring item is to determine whether fish and riparian standards and guidelines are implemented through project planning and implementation. This monitoring item is evaluated at the project-level. Specific questions addressed are:

- What riparian mitigation was planned for the project?
- Was planned mitigation consistent with standards and guidelines?
- Was the project contract written to include provisions to meet standards and guidelines?
- Was the project implemented in compliance with standards and guidelines?

A variety of project types (i.e., timber sale, road construction, recreation development, watershed restoration, etc.) may be evaluated under this monitoring item. Timber sale and stream restoration projects were the focus for this year's monitoring effort. The Forest's three ranger districts selected three timber sales (Louie-Rosey, Tower, and 20/35 timber sales) and one stream rehabilitation project (Layout Creek Rehabilitation) for review. The same projects are evaluated, under *Effectiveness of Riparian S&Gs*, page 27. A total of four harvest units and one mile of stream restoration were evaluated. Projects implementation dates ranged from 1996-1998 and all projects were planned under the 1994 *Northwest Forest Plan*.

Results:

Riparian Mitigation Planned?

Mitigations prescribed by the NEPA document.

All of the projects employed mitigation measures to protect riparian resources. Layout

Creek Restoration was planned as a riparian restoration project. Riparian mitigations for the timber sales were developed during the project planning process as part of required environmental analysis. Mitigations included:

- Establishment of riparian reserves along streams and wet areas.
- Designation of streams on sale area maps.
- Directional tree felling away from Class III (perennial, non-fish bearing) and Class IV (intermittent) streams. Class I (municipal water supply and/or anadromous fish-bearing) and Class II (resident fish-bearing) streams were not found within or adjacent to the 10 units evaluated.
- Felled trees should be yarded away from streams.
- Stream crossings (road reconstruction) would follow management guidelines in the Washington Department of Fish and Wildlife Hydraulic Permit.

Mitigations were consistent with the Standards and Guidelines.

Table 13 - Projects Monitored

Ranger District	Project Name	Timber Sale Unit	Planning Vintage	
			1990 [1]	1994 [2]
Mt. Adams	Layout Creek Rehabilitation	NA		√
MSH NVM	Louie-Rosey Timber Sale	10, 14		√
CowlitzValley	20/35 Timber Sale	2		√
Cowlitz Valley	Tower Timber Sale	27		√

[1] *Project planned under 1990 Gifford Pinchot National Forest Plan.*
[2] *Project planned under 1994 Northwest Forest Plan.*

Planned Mitigation Consistent with S&Gs?

In all cases, planned riparian mitigation measures were consistent with Forest Plan Standards and Guidelines.

Contracts Written to Include Necessary Provisions?

In all cases, the contracts were written to reflect the planned riparian mitigation (Table 14).

Table 14 – Fish/Riparian Mitigation Measures

Project	Unit	Riparian/Fish Mitigation Measures	Result
Louie-Rosey TS	10, 14	Direction felling Erosion Control Specific yarding requirements	Maintain stream bank integrity. Reduce surface soil erosion.
Layout Creek Rehab	NA	Thinning overstocked riparian stands	Improved stand density and vigor.
Tower TS	27	60 ft. unthinned buffer where slopes >35% 30 ft. unthinned buffer where slopes <35%	There were no streams in this particular harvest unit; therefore, no effect to riparian areas.
20/35	2	446 ft. wide riparian reserves along oversteepened slopes on fish bearing streams. 150 ft. no cut buffer along fish bearing streams. 232 ft. wide riparian buffer along non-fish bearing streams 75 ft. no harvest dispersed retention thinning maintaining a 60% canopy cover along non-fish bearing streams.	Maintain steam bank stability Maintain shade component Maintain LWD recruitment potential Reduce surface soil erosion potential

Were projects implemented in compliance with S&Gs?

All three timber sale projects were implemented in compliance with Forest Plan Standards and Guidelines. Results of measures are summarized in Table 14. There are no specific S&Gs for restoration work by which to evaluate the Layout Creek Restoration project.

All projects were in compliance with fish and riparian standards and guidelines.

Evaluation: There were no reported non-compliance with fish and riparian standards and guidelines on the four projects evaluated. Appropriate mitigation measures were identified in the planning process; the measures were subsequently tracked through contracting process and then appropriately implemented on the ground. The Layout Creek Rehabilitation contract was uniquely written as a rental agreement, consequently, there was no contractual language specifying mitigation measures. In this case tracking mitigation measures was largely the responsibility of the Forest Service Contract Officer Representative.

Effects of the proposed mitigation measures were all positive. All mitigation measures were reported to have met their desired objectives. No observable impacts to fish and riparian resources were documented by the fish biologist, hydrologist, and soil scientist staff members conducting these evaluations.

The 1999 monitoring effort indicates the Forest has made a transition to the 1994 Forest Plan standards and guidelines. Because all projects evaluated were planned under the 1994 Northwest Forest Plan, there seemed to be far less confusion than previous years when projects were planned under the 1990 Forest Plan and monitored against the 1994 Northwest Forest Plan.

Recommended Actions to be Taken:

Successful planning and implementation is attributed to several factors including the following:

Continue to have fish biologist, hydrologist, and soil scientist personnel participate in locating and classifying streams and wet areas prior to completion of the timber sale contract (preferably during preparation of the environmental analysis).

Continue to provide necessary training for timber sale layout and marking personnel to ensure that all streams and wet areas are properly identified and treated in accordance with specified mitigations.

Thorough ground surveys should be extended outside the immediate planning area boundary a distance of two site-potential tree-heights. This precautionary measure helps ensure that all adjacent streams and wet areas are treated appropriately.

Projects implemented with a rental agreement contract should be actively administrated by a contracting officer's representative (COR) to ensure the successful implementation of planned mitigation.

Riparian Standards and Guidelines 62b ☺

Introduction: The intent of this monitoring item is to determine if planned mitigations are effectively meeting *Forest Plan* management objectives for protection of riparian, fish, and water resources. The same projects investigated under *Fish/Riparian S&G Implementation* (Table 14, page on page 26) are evaluated here. Three specific questions shall be answered:

1. Is channel stability maintained?
2. Is stream shading maintained?
3. Are sediments originating from management activities reaching the stream course?

Results:

Maintenance of Channel Stability

Channel stability was maintained or improved on all projects.

Channel stability was maintained or improved for all projects evaluated. The minimum planned riparian treatment was achieved on the ground in all cases. In the case of Louie-Rosey TS Unit 14, the actual riparian buffer width exceeded the planned width by 15 to 75 feet. Layout Creek rehabilitation project noted several improvements to channel stability including a 20 percent increased channel stability, reduced lower bank erosion, and abated headcutting.

Maintenance of Stream Shading

Stream shading was maintained along all streams examined.

Stream shading was adequately maintained along all streams examined. Long-term restoration objectives of Layout Creek rehabilitation included an increase in stream shade to 80 percent. These objectives are not expected to be met until riparian stands fully mature (approximately 100 years). No water temperature data were provided for any of the projects evaluated.

Sediment Transport to Affected Stream Course?

Sediment was not observed reaching any associated stream channel.

Sediment originating at the project was not observed reaching any of the associated stream channels for the three sales monitored. Instream restoration work, similar to that

completed on Layout Creek, typically produces a short-term pulse of sediment during implementation that is confined to the local area. Post implementation monitoring results showed the lower banks are now stabilized so erosion and consequent sediment transport should be reduced as a result.

Riparian standards and guidelines appear effective in protecting riparian, fish and water resources.

Evaluation: Riparian standards and guidelines appear effective in meeting Forest Plan management objectives for protection of riparian, fish, and water resources. In all cases prescribed mitigations were followed as specified, and appear effective. Logging was completed on the Louie-Rosey Timber Sale and Tower Timber Sale in 1998 field season. While we had the benefit of seeing the effects of one rainy season, a more thorough evaluation of riparian standard and guideline effectiveness can be made after two winters have passed.

Instream restoration and riparian silvilculture work on Layout Creek appears to have set the stage for providing long-term positive benefits on promoting improved channel stability and instream sediment conditions. Promoting stream shade is a long-term proposition and will not be realized for several decades.

The Forest Plan standards and guidelines are not focused on restoration projects such as the Layout Creek Project. As a result, the proper evaluation of restoration projects requires a well-defined, quantifiable objective. Layout Creek restoration did a good job of defining and documenting objectives (e.g. increase stream shade to 80 percent, increased channel stability to 80 percent, decreased channel width:depth to 10 inches, increase LWD to 80 pieces per mile) which facilitated a post-implementation review.

Other standards that could potentially be used to evaluate the effectiveness of instream restoration include: Policy Implementation Guide (PIG), National Marine Fisheries Service's Environmental baseline, or the Forestwide health assessment.

Recommended Action to be Taken:

Continue monitoring.

Revise format to incorporate non-traditional projects (e.g. restoration projects, recreation sites)

Define some quantifiable numerical standards for restoration monitoring.

Examine alternative sources of standards (e.g. PIG, NMFS environmental baseline matrix, or Forestwide health assessment) for evaluating restoration project effectiveness

Steelhead and Bull Trout Populations 62c 😐

Steelhead

Introduction: Steelhead (*Oncorhynchus mykiss*) are listed as Federally listed Threatened species in the lower Columbia River Ecologically Significant Unit. The steelhead is an anadromous form of rainbow trout that inhabits several rivers and streams throughout the Forest. Adult steelhead spawn in rivers and streams by laying their eggs in depressions in the gravel called "redds." Fry emerge from the gravel and rear for one to three years in freshwater before migrating to the ocean as smolts where they grow to adults. The number of fish present may serve as an indicator of stream health. However, many factors other than habitat quality influence the population size and structure of anadromous fish such as angling, hydroelectric facilities, ocean conditions, avian and marine mammal predation, and hatchery introductions.

This year's monitoring efforts continue emphasis on adult steelhead counts for the Wind and

East Fork Lewis rivers. Additionally, a smolt population estimate was made for the Wind River. While data provided here are insufficient to determine population viability, these data do provide useful information on population trends.

Results:

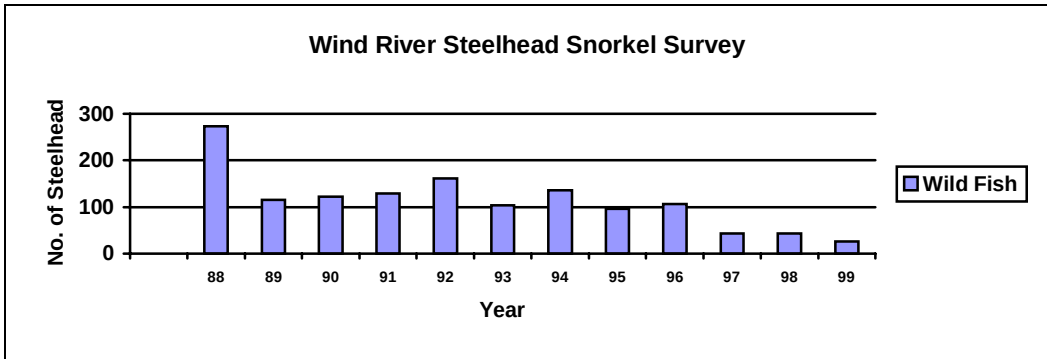
Wind River

Adult steelhead counts were made on the Wind River by snorkel surveys conducted in partnership with the Washington Department of Fish and Wildlife and Clark/Skamania Flyfishers and other agencies and civic organizations. Multiple surveyors made a basin-wide count on 26 miles of mainstem and tributaries in mid-summer. Only 26 wild summer steelhead were observed during the 1999 snorkel count; 31 percent of the 9-year average (Figure 5). This is the lowest recorded count documented since surveys began in 1988. The past three year average (1997-1999) steelhead count has dropped to 37 fish and has prompted the Washington Department of Fish and Wildlife to issue an emergency sport angling closure for steelhead.

Only 26 wild summer steelhead were observed during the 1999 snorkel count.

The 1999 Wind River steelhead snorkel survey was expanded to include a Peterson mark recapture estimate. A population estimation was generated based on observations of fish marked at Shippherd falls adult trap. WDFW estimates that between 65 and 107 fish returned to the Wind River in 1999. The numbers reported in Figure 5 however, are actual numbers of fish observed using methods consistent with the previous nine years of snorkel surveys.

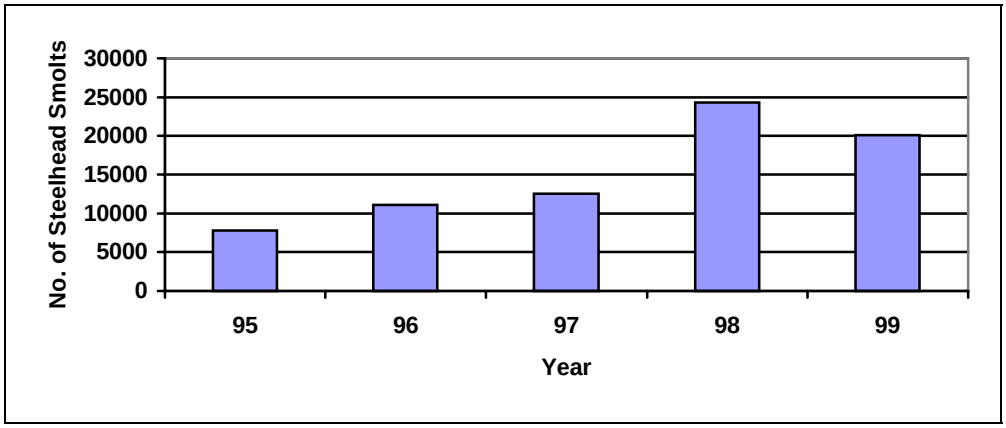
Figure 5- Wind River Adult Steelhead Counts



A system of rotary screw traps has been used to estimate the Wind River smolt production since 1995. Population estimates are based on the total number of steelhead smolts captured at the mouth of the Wind River. The reported 1999 estimates are the midpoint of the 95% confidence limits of trap efficiencies. Smolt trap mark and recapture data requires intensive refinement and analysis to produce statistically valid estimates due to the large number of variables influencing the efficiencies of the traps. Figure 6 displays the total number of steelhead smolts estimated leaving the mouth of the Wind River

Continued operation of the traps on the Wind River will provide analysis of population trends and additional year's data will provide the necessary information to further refine the production estimates.

Figure 6 - 1999 Wind River Smolt Population Estimates

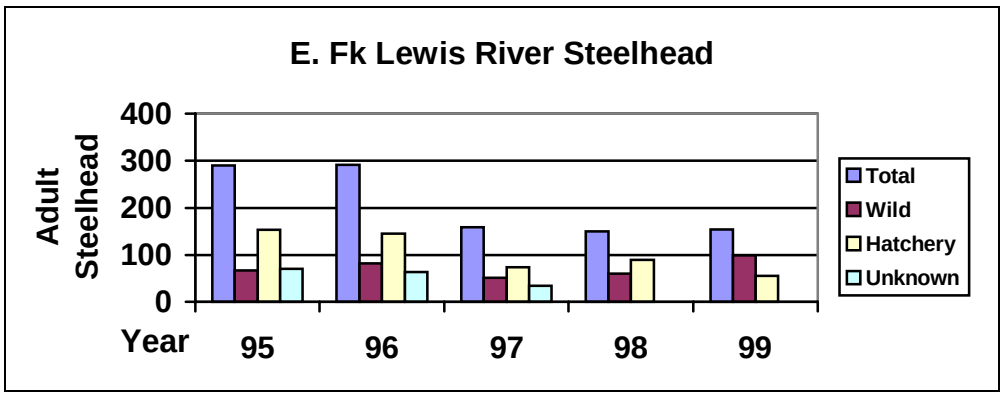


East Fork Lewis River

154 adult steelhead were observed in the East Fork Lewis River.

Snorkel counts on the East Fork Lewis River were conducted in partnership with the Washington Department of Fish and Wildlife and other agencies and citizen groups. Snorkel counts are made in mid-summer on approximately 30 miles of mainstem and tributaries. Stock status of each fish are determined as wild (no marks) or hatchery (fin clipped). Occasionally, fish were observed only briefly and thus were recorded as "unknown." Only 154 total adult steelhead were observed in the East Fork Lewis River system in 1999 (Figure 7). This number is right in line with the previous two-year average. However the 1999 adult steelhead count is down by almost half from where it was in 1995 and 1996.

Figure 7 - East Fork Lewis River Snorkel Counts



Evaluation: Population Viability and Influencing Factors

Wind River

Many factors in addition to habitat affect anadromous fish populations.

Many factors in addition to habitat are known to affect anadromous fish populations. Global weather patterns, specifically the drought years from the late 1980s through 1993, have exacerbated the effect of declining habitat conditions. Sport and commercial fishing have also taken their toll. Continued harvest of depressed stocks further contributes to their decline. The Wind River steelhead population has shown a continued decline in the last three years of surveys over the 10-year record. Losses of riparian vegetation, altered streamflow and sediment regimes have reduced the watershed's ability to support aquatic

life. Impacts are manifested by increased water temperatures, reduced pool quality and abundance, reduced woody debris in streams, and increased stream width-to-depth ratios (*Wind River Watershed Analysis*, 1996).

Ineffective fish passage and mortality at Hemlock Dam has been highlighted as major contributing factor for decline based on assessments WDFW's *Limiting Factor Analysis* (1999) and Washington State University's *Hemlock Dam Fish Passage Evaluation and Restoration (1999)*. Additionally, according to state officials, passage at Bonneville Dam accounts for 10-15 percent mortality of outmigrating smolts on the Columbia River.

The Forest Service is undertaking an extensive effort to restore habitat in the Wind River system.

The Forest Service is currently undertaking an extensive effort to restore watershed and habitat conditions in the Wind River system. Major restoration efforts have already been made in Trout Creek, a primary spawning and rearing tributary. Efforts include road decommissioning, riparian vegetation improvement, and fish habitat enhancement. Substantial habitat restoration work was completed along the Trout Creek and the mainstem Wind River in 1999. Further efforts are planned for 2000 and 2001. Additionally, the Forest Service is an active participant in a multi-agency, multi-partner approach to building a basin-wide recovery effort for wild steelhead in the Wind River. We have taken a system-wide approach to determining factors contributing to steelhead decline. A second iteration of the Wind Rive watershed analysis is currently in progress and scheduled for completion summer of 2000.

East Fork Lewis River

The Forest Service is aggressively pursuing habitat restoration in East Fork Lewis River.

Very few wild adult steelhead have been observed over the previous three-year survey period. Major factors influencing population levels are habitat loss, reduction in habitat quality, harvest, illegal take, disease and predation, and poor ocean conditions. The Forest Service is currently pursuing an aggressive watershed and habitat restoration effort in the East Fork Lewis River system upstream of Sunset Falls. Substantial habitat improvements are planned for implementation on Forest Service lands by the end of 2000 field season.

Recommended Action to be Taken: The following actions are recommended:

- Continue watershed restoration partnership efforts aimed at Wind River steelhead recovery.
- Promote the development of a similar watershed restoration partnership recovery approach for steelhead in the East Fork Lewis River.
- Implement planned watershed and habitat restoration.
- Monitor restoration results.
- Continue to develop mark recapture estimates for steelhead adults and smolts on the Wind River.
- Develop a biological monitoring plan (e.g. adult escapement and freshwater survival) for East Fork Lewis River.
- Develop partnerships on East Fork Lewis River and actively pursue salmon recovery initiative funding to continue restoration and monitoring efforts.

Bull Trout

Introduction: Bull trout (*Salvelinus confluentus*) are listed as Threatened under the Endangered Species Act in the lower Columbia River Distinct Population Segment (DSP). A verified population exists in the North Fork Lewis River system above Swift Dam.

Bull trout are a good indicator of watershed condition and

Preliminary information suggests that the Kalama River and Yellow Jacket Creek may have an existing or historic bull trout population. However, no verifiable evidence exists. The Lewis River population is considered adfluvial while the two other population's life history is unknown. Adults spend the majority of their life cycle in Swift Reservoir, ascending its tributaries each year to spawn. Since juvenile bull trout require exceptionally cool, clean water, they are considered a good management indicator of watershed condition and aquatic ecosystem health.

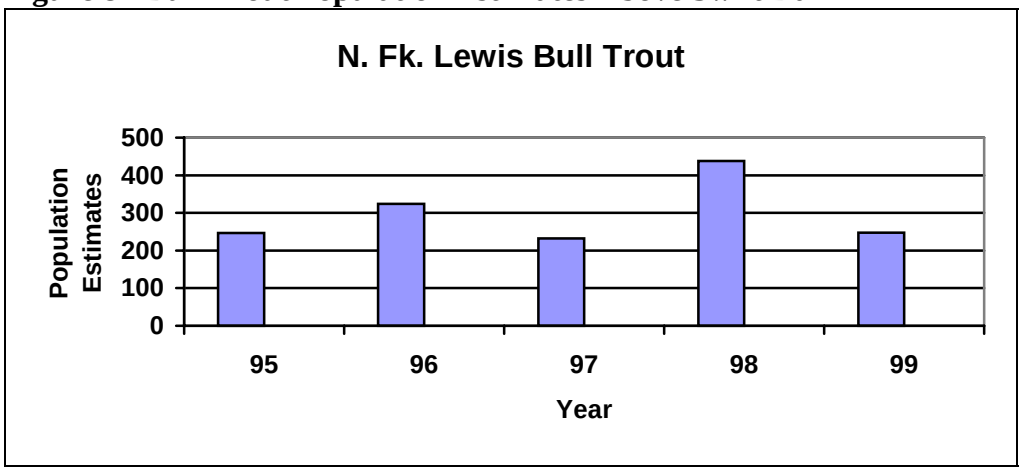
Bull trout population monitoring has been conducted in partnership with the Washington Department of Fish and Wildlife and PacifiCorp since the early 1990s. Early monitoring efforts focused on determining population size and viability through collection of catch per unit effort data. Beginning in 1994, population estimates were derived using a mark-visual observation method. Adults are captured in the reservoir in the spring, uniquely marked, then released. In the late summer and early fall, repeated snorkel surveys are used on a weekly basis to observe the ratio of marked to unmarked adults active on the spawning grounds. Using a Joint Hypergeometric Maximum Likelihood Estimator (JHE), a population estimate is calculated along with a 95% confidence limit.

Two conditions are modeled in deriving the JHE include the following:

1. A 10 percent reduction in the number of reservoir marked adults appearing on the spawning grounds (based on prior year radio telemetry studies), and
2. A 10 percent tag loss.

Results: The 1999 estimated population size for bull trout in the North Fork Lewis River system upstream of Swift Dam was 248 fish in 1999 (Figure 8). We are 95% sure that the true population size is between 181 and 395 adults. These results are down from an estimate of 437 fish in 1998 but is comparable to estimates from 1995 and 1997.

Figure 8 - Bull Trout Population Estimates Above Swift Dam



Evaluation: Population Trend and Influencing Factors

The population trend appears to be in flux.

The population trend appears to be in flux. A major flood in February 1996 hindered reliability of the population estimation because of difficulty sampling fish in the spring. Reliability of the 1997 - 1999 population estimate is much better.

Factors affecting the bull trout population above Swift Dam are habitat quality, illegal harvest, and the hydroelectric facility. Certain tributaries to Swift Reservoir, such as the Muddy River, contain sub-optimal habitat for bull trout. Despite restrictive angling regulations on Swift Reservoir and its tributaries, illegal take of bull trout still occurs on

occasion. Lack of fish passage facilities at Swift Dam isolate the Swift Reservoir population from mixing and reestablishing with the isolated population of a Yale Lake tributary.

Population status on the Kalama River and Yellow Jacket Creek is unknown. The only known evidence of bull trout is anecdotal reports from WDFW biologists.

Recommended Actions to be Taken:

Continue supporting education and law enforcement efforts to curb illegal take of bull trout.

Install adult traps in partnership with Trout Unlimited and the Washington Department of Fish and Wildlife to obtain actual spawner escapement counts.

Participate in FERC relicensing efforts on the North Fork Lewis River system to address bull trout needs in relationship to existing hydroelectric facilities.

Conduct/presence absence surveys for all bull trout areas believed to contain suitable habitat.

Develop partnerships with other agencies to coordinate bull trout survey efforts

Verify WDFW reports on bull trout in Kalama River and Yellow Jacket Creek

In-Channel Habitat Structures 62c

Introduction: Stream habitat restoration activities have been implemented on the Forest since the early 1980s. Activities generally focus on improving habitat availability and quality. The majority of restoration efforts have focused on improving habitat for anadromous species, primarily steelhead. Monitoring provides important feedback for improving in-channel habitat structure designs and applications for future efforts.

Structure monitoring in 1999 was conducted at a bridge-crossing site. These structures were specifically designed to protect the bridge (Table 15). Fish biologists surveyed the one site evaluating the function and performance of individual structural development. Specific data were collected to provide insight on structure success.

Table 15 - In-channel Habitat Improvement Projects Evaluated in 1999.

Ranger District	Stream	Project Location (RM[1])	Project ID Number	Distance Surveyed	Year Implemented
Mt. Adams	Wind River	16.1	1	100 meters	1997
Mt. Adams	Wind River	16.1	2	100 meters	1997

[1] RM = river mile.

Both structures monitored were found to be fully functional and in-place.

Results:

A total of two structures were evaluated in 1999. Both the structures were made of anchored large wood and designed to function as bank protectors. Both structures were identified as "fully functional" and remained "in place".

Evaluation:

Wind River

The overall project goal for the evaluation site was to dissipate energy along the stream bank and prevent debris from accumulating on the bridge abutments.

Table 16 - Summary of In-channel Habitat Improvement Structure Performance.

Stream	Number of Structures Evaluated	Meeting Objectives			Current Location		
		Fully	Partially	Not	In Place	Shift On Site	Left Site
Wind River	1	1			1		
Wind River	1	1			1		
Total	**2**	**2**			**2**		

Primary project treatments included keying in individual logs along the gravel bar and creating low profile log complexes at site two. Careful project design based on intensive study and analysis of physical and ecological characteristics of the site resulted in 100 percent effectiveness of structures.

The Wind River Restoration Project incorporated structural designs not represented in the adopted Regional monitoring protocol. For example, bar retaining structure type codes and associated structure type objectives are not available in the Regional protocol.

An expanded Regional structure monitoring protocol is needed.

District personnel conducted this monitoring effort using an expanded protocol to fit the unique structural designs and treatment applications. Adoption of an expanded Regional protocol is needed. Important monitoring data may be obscured or information lost with the limitations of the existing Regional protocol.

Effectiveness monitoring should be conducted during a time period when the structures are functioning as designed. Surveys conducted during low flow makes it difficult to recognize all processes influencing the success or failure of individual treatment sites. For example, the bank protection structures evaluated on the Wind River are designed to function at high flows and would best be evaluated under design flows.

Recommended Actions to be Taken: The following actions are recommended:

Emphasize interdisciplinary involvement during project initiation and design. Assure, at a minimum, the design team has the following mix of skills and expertise:

An understanding of fluvial geomorphic processes.

An understanding of hydraulic processes and relationships.

An understanding of life cycles and ecology of fishes present in project area.

Practical experience with heavy machinery and construction of in-stream structures.

Establish a Forest monitoring protocol, compatible to the Regional protocol, that addresses all types of in-channel habitat improvement designs and applications.

Conduct surveys during a time period when structures are designed to function.

Increase sample size of instream structure monitoring.

Develop a long term sampling scheme of representative structures and stream types across the Forest.

Road Closures 70 ☺

Introduction: Several factors lead to road closures across the Forest.

The Northwest Forest Plan calls for no net increase in roads in key watersheds.

Some roads have been identified as sources of sediment in streams and are no longer needed to provide access.

Road use can lead to harassment of wildlife.

We are closing roads because in an era of declining budgets and reduced support from our timber program we can no longer afford to maintain them properly.

Road closures include permanent and seasonal closures and decommissioning. Permanent closures are year-around closures created by berms, rock barricades, or by allowing vegetative growth to obscure the road. Seasonal closures are effected by gates or other barriers that allow the road to remain open during non-critical periods. Decommissioning involves permanent removal of the road from the system by removing drainage structures, restoring the natural grade and ripping and revegetating the roadbed.

Results: Road closures are one of the means of reducing wildlife harassment in deer and elk winter range. The Forest Plan established a goal of reducing open road density to 1.7 miles of open road per square mile within the biological winter range. Currently the density within biological winter range is 1.5 miles of open road per square mile. This is a

Current road density in biological winter range is 1.5 miles per square mile.

decrease from last year, with actual open miles of road down 108 miles from 759 to 651 miles. This is partly due to maintenance accomplished on closures, but some of the apparent decrease is due to availability of more accurate road data on the higher standard roads, following the "deferred maintenance" data-gathering effort. Accuracy will increase again this year, as many of the lower standard roads will be inventoried this summer.

The projected road closure from the Forest Plan are 1,230 miles of road in seasonal or permanent closure, forest-wide. With 1,421 miles closed year-round or seasonally, the Forest is at 115 percent of the projected goal.

The Forest is at 115% of the Forest Plan road closure goal.

Table 17 compares current road mileage in the 10 key watersheds on the Forest with mileage at the time the Northwest Forest Plan was implemented in 1994. The Forest is required to maintain or decrease the road density in each key watershed. As can be seen from Table 20, this objective has been achieved; there are now 6.7 percent fewer miles of roads in key watersheds on the Forest than there were in 1994.

Table 17 - Roads in Key Watersheds

KEY WATERSHED	1994 Road Miles	Miles Decomissioned	Miles Constr.	1999 Road Miles	Net Change Road Miles
Clear Fork Cowlitz	110	0	0	110	0
E.Fork Lewis	79	3	0	76	-3
Lewis River	737	36*	0	701	-36
Little White Salmon	133	9	1	125	-8
N. Fork Cispus	102	4	0	98	-4
Packwood Lake	23	0	0	23	0
Siouxon Creek	69	0	0	69	0
Upper Cispus	70	7	0	63	-7
White Salmon	129	17	1	113	-16
Wind River	433	49*	0	384	-49
Totals	1,885	125	2	1,762	-123
* Corrected from last year's report based on better information.					

Evaluation:

Closures For Biological Winter Range (BWR)

Road closure effectiveness in BWR was improved in 1999.

Road closure effectiveness in BWR range was improved in 1999, and there may be several reasons: Many areas of the Gifford Pinchot NF that were closed to normal traffic due to flood damage from the 1996 and 1997 floods have been repaired, making roads accessible for maintenance activities once again. Better inventories have been compiled, which has improved maintenance timing. The Forest's estimated density is now 1.5 mile per square mile of BWR, which is better than the 1.7 mile goal. If all the roads in BWR that are prescribed for closure were effectively closed, we would have achieved a road density of 1.2 mile per square mile of BWR.

The 1.5 mile figure may under-represent actual closures during the critical period, since during the years that BWR is needed by elk and deer populations, many more roads are closed to vehicle traffic by snow.

General Road Closures

The goal of 1,230 miles of closed road was intended to include roads no longer used for vehicular traffic, so this should not only include roads permanently barricaded or seasonally closed by means of gates, but also those roads we have decommissioned and taken permanently out of service. Since the Plan took effect, 221 miles of system roads have been decommissioned, (42 miles in 1999) bringing the total of roads closed permanently or at least part of every year to 1,642 this year, which is far in excess of the goal. The need to mitigate the effects of storm-damaged roads on streams resulted in funds being available to decommission many roads that would otherwise have waited years to receive funds. This has resulted in a major reduction in the number of roads and their impacts on wildlife habitat and water quality, within just a few years.

Table 18 - Road Closures and Density

Road Density in Deer & Elk Winter Range	
Miles of open road	651
Land Area (sq. mi.)	431
Road Density	1.5 mi./mi.^{2}

Recommended Action to be Taken: Continue to check for the effectiveness of road closures, repair road closure devices that are breached or ineffective, and continue to close unneeded roads. It would also help to use more effective types of road closures, though this is more expensive. The Mt. Adams District kept records last year showing the breakdown of closure effectiveness, and found that while 89% of gate and rail closures were effective in preventing vehicular traffic from using the roads, berms were only 67 percent effective and "brush and other" methods were only 53% effective. The Cowlitz Valley District had 100% effective closures on gated roads this year, and only 67% effectiveness on other closure types. It is also important to note that no traffic occurred on the decommissioned roads that were monitored.

On the Mt. Adams District, gates were 89% effective as road closures.

Community Effects – Payments to Counties ⓘ

Introduction: By an act of Congress in 1908, 25 percent of revenues are paid to the counties in proportion to the amount of national forest system land in each county. The act stipulates that the money generated is to be spent on public schools and roads.

County receipts on the Gifford Pinchot National Forest are generated primarily by timber harvest. Collections from recreation, mining, grazing, and administrative uses account for less than 5 percent of the total receipts

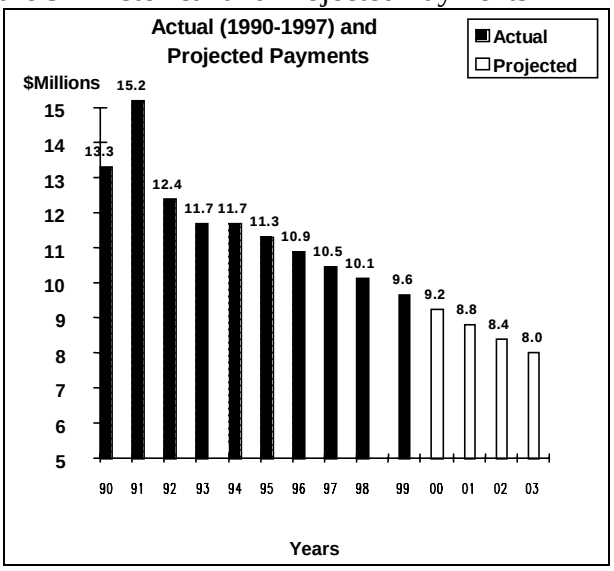
Results: Over $9.6 million was returned to the six counties with lands in the Forest boundary. If payments were based on actual receipts from timber harvested, less than $1.5 million would be returned to the counties. Instead, payments were computed under a provision of the Interior and Related Agencies 1993 Appropriations Act which provided for 1994 payments to counties of not less than 85 percent of the five-year average payments for fiscal years 1986-90 for those National Forests affected by decisions on the northern spotted owl. Beyond 1994, guaranteed payments are reduced 3 percent per year until 2003. Under the law, payments for 1999 were computed as 70 percent of the 1986 to 1990 average. Next year the receipts will be 67 percent of the same average. These funds are distributed to the counties based on the proportion of the total National Forest in each county. In 1999, $7.32 was returned to the counties for each acre of the Gifford Pinchot National Forest within each county. The current distribution among counties within the Forest boundary is displayed in, Table 19, page 38.

$9.6 million was returned to the 6 counties within the Forest boundary.

Table 19 - Community Effects--Payments to Counties

County	Percent Total Distribution	1999 Distribution
Clark	0.1	8,657
Cowlitz	2.6	250,459
Klickitat	1.1	109,148
Lewis	28.3	2,728,807
Skamania	65.1	6,271,231
Yakima	2.8	271,008
Total	100%	9,639,310

Figure 9 - Historical and Projected Payments



The Rural Community Assistance program invested $633 thousand in communities surrounding the

An important Forest Service goal in recent years has focused on helping rural communities adjust to changing federal land management practices and policies. The Forest Service has developed a program designed to provide both financial and technical assistance to natural resource-based communities and rural development organizations striving to diversify and revitalize local economies. In 1999, the program, called Rural Community Assistance, invested $633 thousand in the infrastructure of communities surrounding the Forest. Grants by county in the past three years are tabulated in Table 20.

Table 20 - Rural Community Assistance Grants

County	1996	1997	1998	1999
Cowlitz	400,200	90,538	2,500	0
Klickitat	302,832	227,600	178,700	129,000
Lewis	417,754	223,691	32,000	167,75
Wahkiakum	48,200	28,000	105,000	62,785
Clark	23,426	0	0	0
Skamania	118,560	192,050	164,000	273,280
Pierce	7,314	15,000	0	0
Total	1,318,286	$776,879	$482,200	$632,840

Mining Operating Plans [91] ☺

Introduction: The Forest Service has been charged with making minerals available to the economy, while minimizing the adverse impacts of mining activities on other resources. Mining is unlike other activities on federal lands in that the General Mining Law of 1872 grants the federal land management agencies far less authority over mining activities than over timber harvest, recreation, grazing and other activities. The Forest Service minerals regulations, 36 CFR 228, provide rules to ensure that mining operations be conducted to minimize environmental impacts. These regulations require that a Notice of Intent (NOI) be submitted to the Forest Service district ranger on the district where the mining is proposed. The operator is required to submit a Plan of Operations (POO) if the district ranger determines "that such operations will likely cause significant disturbance of surface resources." Recreational suction dredgers are required to get hydraulic permits from the state for working in streams but are not required to submit a POO or NOI.

Results: The Forest administered in 14 Notices of Intent and 8 Plan of Operations for mining activities. Eleven of the 14 NOIs and two of the POOs were on Cowlitz Valley District, Mt. St. Helens administering 3 NOIs and 5 POOs, and Mt. Adams received 1 POO.

Most of the minerals involved salable (common variety) mineral resources. The districts administered 55 small use permits for rock during FY 1999. Mt. Adams also had 4 rock permits for larger quantities. These permits were issued for either building material (flat, platy flagstone-type rock), construction material (used for fill, road rock or similar use) or landscaping material (decorative type uses). The Forest has sold little to no processed rock such as crushed aggregate that is used as a surfacing for roads.

On-Forest use of rock for numerous construction projects amounted to about 100,000 tons. Most of this rock was crushed for use as aggregate or paving rock. Some was utilized for rock fills or riprap for stabilization of slopes. Most will be utilized on the new Curly Creek road, and most of the remainder was used for various repair projects dating from the storm event of 1996.

An area of concern that has been raised is the potential for adverse effects to fish habitat from recreational suction dredging on certain streams within the Forest. The required hydraulic permits limit mining activity and its timing, based on guidelines set up in a state

An area of concern is the potential for adverse effects to fish habitat from recreational suction dredging.

publication *Gold and Fish* which contains rules and regulations for mineral prospecting and placer mining in Washington State (WDFW Publication GF-1-99).

Evaluation: Standards and guidelines were met.

Recommended Action: Monitor the level of activity by recreational suction dredgers. Encourage the state to notify the Forest of applicants for hydraulic permits on the Forest.

D. Accomplishments

The following table compares program accomplishments for FY's 95-99:

Table 21 - Program Accomplishments

Output	Units	Outputs					
		1995	1996	1997	1998	1999	Target
Developed and Dispersed Recreation Use	Recreation Visitor Days	7,740	3,981	5,600	5,518	4480	*
Wilderness Use	(thousand)	76.5	74.8	76.1	72.2	44.7	*
Trail Const/Recon.	Miles	55.3	46.7	10.9	66	13.7	*
Trails Maintained	Miles	903	256	627.3	832	668	*
Wildlife Habitat Improvement:							
Structural	Structures	1,919	1,253	28	19	0	*
Nonstructural	Acres	46	433	199	250	1,200	*
Wildlife Indicator Species:							
Deer	Habitat Capability	18,600	18,450	18,300	18,150	18,000	*
Elk	animals	4,650	4,610	4,570	4,530	4,490	*
Mountain Goat	animals	290	290	290	290	290	*
Net Sell Volume	MMCF	8.3	11.3	12.0	9.4	0.66	*
	MMBF	43.6	57.8	61.9	48.8	3.3	*
Volume Harvested	MMBF	58.7	11.3	41.0	34	30	*
Reforestation	Acres	3109	1,801	3,888	1,342	923	770
Fuel Wood	MCF	560	328	295	141	279	
Precommercial Thin	Acres	3113	3,123	2,643	2,087	1,419	*
Release	Acres	100	0	257	438	25	*
Fertilization	Acres	100	0	74	0	0	*
Grazing	HMs	1,732	1,732	2,756	1,736	1732	*
Watershed Improvement	Acres	155	50	72.3	53	55	55
Air Quality	Particulate/ Tons	74	41	30.2	16.8		*
Fuel Treatment	Acres	2,183	1,279	316	0	629	621

*There are no Regional targets for these items.

D. Accomplishments (continued)

Output	Units	Output					
		1995	1996	1997	1998	1999	1999 Target
Timber Purchaser Roads:							
• Construction	Miles	2.9	2.9	0	0	0	*
• Reconstruction	Miles	4.9	15.1	41.5	14.3	1.1	*
Allocated Funding (Roads):							
• Construction	Miles	0	0	6	0	0	*
• Reconstruction	Miles	14.4	10.8	31.4	0	48.0	*
• Decommissioning	Miles	30	25	37	47	42	*
Roads Open to:							
• Passenger Cars	Miles	828	808	828	822	822	*
• High Clearance	Miles	2,424	2,402	2388	2,352	2,319	*
Roads Closed	Miles	1,019	1,017	1009	1,004	995	*
TOTAL ROAD SYSTEM	Miles	4,284	4,261	4225	4,178	4,136	*
Returns to Govt.	$ Million	11.3	2.7	6.1	6.8	4.1	*
Payments to Counties	$ Million	11.3	10.9	10.4	10.0	9.6	*
Potential Timber Related Jobs Source: TSPIRS Reports	Jobs	864	147	533	499	440	*
Landlines:							
• Located	Annual Mi.	10	6	4	3.8	6	*
• Maintained	Annual Mi.	6	6	7	7	2	*
Congressionally Designated Boundaries	Miles	5	6.5	2.5	4.3	0	*
Total Expenditures	$ Million	28	32	35	36	29	*

*There are no Regional targets for these items.

E. Expenditures

The budget for the Gifford Pinchot National Forest is an outcome of the annual congressional appropriations process. Congress allocates an annual budget for the Forest Service that is subsequently disaggregated to the nine Forest Service Regions. Forest Service Regional Offices then allocate the Regional budget among Forests in each Region. Budgets are not directly related to receipts from timber sales or other activities on the Forest. With few exceptions, receipts collected on the Forest are returned to the US Treasury. In FY 1997, the Forest began collecting user fees on the Mount St. Helens National Volcanic Monument. Eighty percent of the user fees collected on the Monument in are kept on the Forest for use in maintaining recreation facilities.

The chart below display expenditures on the Gifford Pinchot National Forest over the seven years we have implemented the Forest Plan.

Forest budgets have been buoyed the past four years by funds to repair damage from the 1996 floods. Flood repair accounts for most of the expenditures labeled Transportation expenditures in **Figure 11**.

Figure 10 - Total Expenditures 1991-1999

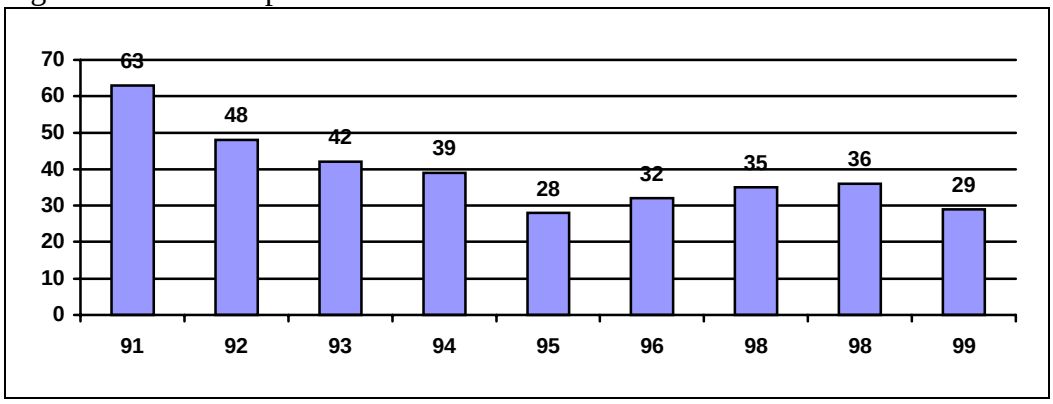
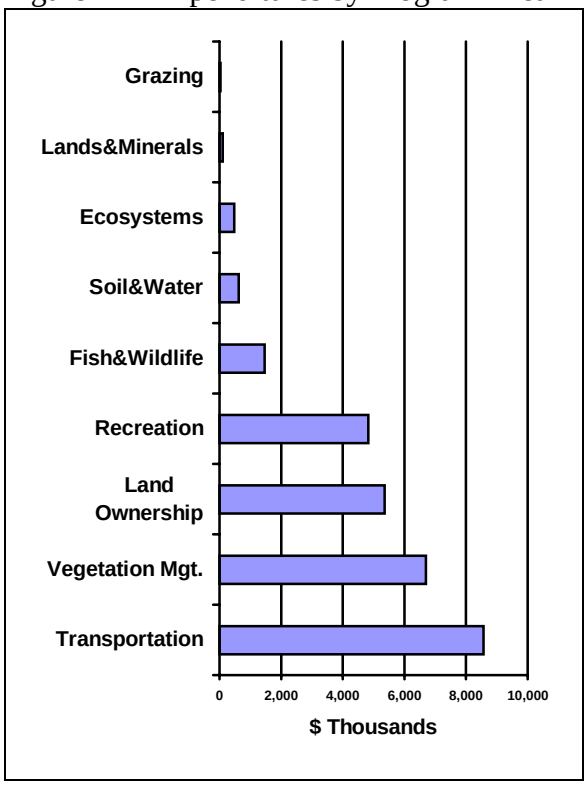


Figure 11 shows the composition of 1999 expenditures by program area.

Figure 11 - Expenditures by Program Area



F. Forest Plan Amendments

The following is a list of amendments to the Forest Plan that have been approved to date:

Table 22 - List of Forest Plan Amendments

Amendment No.	Approved	Description
1	5/1/91	Decision Memo - Adds Pacific Yew to the list of Acceptable Species in all working groups.
2	9/24/91	Decision Memo - Provides additional direction for visual resource management and mineral claims and leases in Wild River corridors.
3	9/24/91	Decision Memo - Clarified the lower terminus of the Cispus River Wild and Scenic River recommendation in the Forest Plan documents so that it coincided with the Federal Energy Regulatory Commission license boundary of the Cowlitz Falls Hydroelectric Project.
4	9/24/91	Decision Memo - Adds Bigleaf Maple as an Acceptable Species in the Western Hemlock Working Group.
5	9/24/91	Decision Memo - Includes monitoring criteria for the goldeneye and wood duck.
6	8/12/92	Decision Memo - Adds a section on Managing Noxious Weeds and Unwanted Vegetation to the Forest Plan.
7	11/24/92	Decision Notice - Opens Blue Horse Trail 237 to winter motorized use (snowmobiles).
8	3/3/93	Decision Memo - Modifies boundaries of the Forest Plan Map of Record.
9	12/13/93	Decision Notice - Allows grazing in exclosure area of the Cave Creek Wildlife Special Area.
10	7/08/94	Decision Memo - Allows grazing in the Grand Wildlife Special Area, a great blue heron rookery.
11	4/13/94	Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl. Subsequent documentation reconciles Forest-wide and Management Area Standards and Guidelines and the Forest Plan Map with the Record of Decision for the President's Plan. Replaces Forest Plan pages IV-45 through IV-150.
12	5/29/98	Decision Notice – Established the Monte Cristo RNA
13	9/30/98	Record of Decision - White Pass Ski Area Expansion Amends the GP Forest Plan and Northwest Forest Plan to authorize construction of approximately 0.25 miles of road across gentle terrain to access the base area of Chair 5 within a Tier 2 Key Watershed in an Inventoried Roadless Area. It also corrects the Gifford Pinchot FEIS Appendix C map for the White Pass Roadless Area to move the southeast line to the Forest Boundary, as displayed on the original maps for the White Pass Inventoried Roadless Area.
14	4/19/99	Decision Notice - Amends wilderness management standards and guidelines, particularly those related to determining limits of acceptable change.

G. Northwest Forest Plan Implementation Monitoring

Monitoring is a key component of the Northwest Forest Plan. A Region wide implementation monitoring program was initiated in FY 1996 to monitor our implementation of the Northwest Forest Plan standards and guidelines. The Middle Lewis Watershed and timber sale in that watershed were selected for review in 1999. Below is an excerpt from the monitoring report filed by the Gifford Pinchot and Southwest Washington Province.

Northwest Forest Plan Implementation Monitoring

Southwest Washington Province

August 3-5, 1999

The SW Washington Province conducted the 1999 implementation monitoring on August 3rd through 5th, 1999 on the Middle Lewis watershed and Rock Timber Sale of the Mount St. Helens National Volcanic Monument. This report was presented and discussed at the January 26, 2000 Province Advisory Committee Meeting.

The province implementation monitoring team was comprised of members of the Province Advisory Committee Monitoring Subcommittee.

Participating on the team from the subcommittee were:

Name	Affiliation	Name	Affiliation
John Squires	PAC Member	Pam Repp	USFWS
Dorothy Saunders	PAC Member	Philo Greg	PAC Member
Ron Lee	EPA	Lee Carlson	Yakama Nation
James Bouchard	Cowlitz Indian Tribe	Bob Dick	Northwest Forestry Association

The monitoring team was supported by Forest Service staff who are knowledgeable of the watershed and project:

Sue MacMeeken	District Silviculturist
Dave Allaway	Sale Administrator
Jan Robbins	Hydrologic Technician
Ruth Tracy	Forest Hydrologist

Monitoring Process

In keeping with this year's theme of conducting monitoring at the watershed and project scale, the team spent one day viewing a sample of non-timber projects around the watershed. The second day focused on an individual timber sale project in the watershed; down wood and riparian reserves were monitored on the Rock Timber Sale. On the third day the questionnaires were discussed, summary findings were compiled, and the monitoring process was critiqued.

Watershed Scale Monitoring

On August 3, after a brief overview of the watershed in the district conference room, the team visited five different types of projects which were intended to give

the team a flavor of the kinds of activities conducted in the watershed to implement the recommendations of the watershed analysis.

The group first visited and discussed a road decommissioning intended to reduce sedimentation in the Lewis River and illegal bull trout fishing. The team was impressed by the extreme measures required to effectively close a road to four-wheel-drive vehicles. It was clear that this obliteration project had eliminated vehicular access and that it no longer served to channel sediment to the Lewis River.

The second stop was the terminus of the Curley Creek Road construction project. The road project initiated in the early 1980's was intended to improve access to the National Volcanic Monument from the east while replacing a substandard section of existing road. The Curley Creek Road accounts 5 of the 17 miles of new construction on the Forest since the NFP was implemented.

At the third stop we viewed the replacement of a culvert damaged by the 1996 flood on Pepper Creek. The larger culvert was designed to accommodate a 100-year storm and provide fish passage. We also saw some innovative slope stabilization adjacent to the culvert site. The team suggested that pools blasted into the channel bedrock be monitored to see if they fill with sediment and to establish that they benefit fish.

The fourth stop was a precommercial thinning in the LSR portion of the watershed. The riparian reserve in this plantation was not thinned. The team was concerned that the high stumps left in the unit might resprout. There was discussion about whether jobs-in- the-woods money should be spent on vegetation management projects, where the stands would grow to late-successional habitat without active management.

The final stop was at Spencer Meadows, an area of wet meadows where user created roads and campsites threaten the meadow and associated riparian reserve. The area has been proposed for road obliteration through the jobs-in-the-woods program to lessen the risk damage to the meadow. The team agreed that the meadow was at-risk from damage by recreationists and that it should be a priority for funding through jobs-in-the-woods or other sources.

Project Monitoring

The Rock Timber Sale consists of Units 1-3 of a project documented through NEPA as the Hard Time Timber Sale. The purpose of the sale was to “manage timber stands to produce predictable and sustainable level of wood products through time while maintaining healthy ecosystems.” The sale accounted for 3.2 million board feet (0.69 MMCF). The sale was loader logged. All three units were located in the Matrix and were assigned the Partial Retention Visual Quality Objective (VQO) by the Gifford Pinchot Forest Plan. Because of the VQO, retention levels were increased from the NWFP requirement of 15 percent to from 20 to 40 percent retention.

Rock Unit 2 is unique in that the Forest Service allowed the purchaser to meet the down wood requirement by hauling in cull logs from a nearby unit having surplus down wood. This practice was advantageous to the purchaser because Unit 2

contained little defective material and it would otherwise be necessary to leave sound logs for coarse woody debris. This practice has not since occurred on the Gifford Pinchot.

Rock was monitored for down wood, snags, riparian reserves and soil disturbance for the 1998 Forest Plan Monitoring Report. The 1998 monitoring found the project to be in compliance with down wood, snags and riparian reserve requirements on the ground. Unit 2 did not meet the Forest Plan goal for limiting ground disturbance to 20 percent of the activity area.

In the 1999 NFP monitoring effort the team collected data concerning two standards and guidelines, down wood and riparian reserve widths. The riparian reserve adjacent to Unit 3 was measured in six randomly selected locations. Since the stream was fish bearing, the goal for the two site-tree-width buffer was 320 feet. The measured widths ranged from 323 feet to 421 feet. The average of the six transects was 351 feet.

The team measured and tallied down wood in Unit 2. The goal for the 16.6-acre unit was 3,984 linear feet. The team tallied 3,621 linear feet, which accounted for 91 percent of the goal. The sale administrator who had monitored the unit for the Forest Plan Monitoring Report suggested the difference was probably the result of his estimating log diameters and lengths, while the team measured most logs.

Summary Findings

The table below shows the results of timber sale questionnaire after review and discussion with the monitoring team and District staff.

Exceeds	Met	Not Met	Not Capable	N/A
0	26	2	1	61

As discussed above, the questions concerning soil disturbance and down wood were marked “Not Met.” A question asking whether beetle infested trees were retained after harvest was marked “Not Capable” because there were no beetle infested trees in the harvest units.

Although two departures from NFP standards were discovered, the Team felt the Forest had done a credible job of meeting NFP intent on the Rock Timber Sale.

There was some discussion concerning the adequacy of providing recruitment trees in lieu of protecting existing snags during logging. There is a concern that when green trees are girdled or their tops blasted, it will be many years before they provide the same ecologic function as existing snags. There may also be an interpretation by another agency that the 240 feet down wood requirement be over and above existing down wood before logging. The Forest Service interpretation is that the 240 feet includes any existing class 1 and 2 down wood.

Recommendations for Future Monitoring

The team enjoyed the opportunity to participate in the monitoring data collection, and recommended that it be continued in future years. There was a consensus, particularly among the veteran PIMT members, that they had moved beyond the "show-me trip" approach to monitoring. It is important that PIMT members better understand the ecological context within which projects are being planned and implemented. It was suggested that we devote a day to discussions of hydrologic and ecological functions with the specialists who prepared the watershed analysis. These discussions would lead to identification of areas of interest that the team could visit.

While the team supported the concept of monitoring implementation at the watershed scale, they found little utility in many of the questions in the watershed questionnaire. Particularly troublesome were the large matrices of questions 7 and 33, which ask for generalized characterization of resource programs.

It was also emphasized that the specialists who answered the questionnaires should be present at the meeting to explain their answers. The team felt all answers should be supported with a brief comment. The present instructions do not require explanatory comments for "Met" answers.

John Roland
PIMT Leader
January 27, 2000

H. Other Forest Monitoring Activities

The Forest routinely conducts a wide range of monitoring activities which are not directly linked to the Forest Plan. Examples of these monitoring activities, which we conduct to evaluate the effectiveness of resource program management and trends in the resources, are briefly described in this section.

Recreation

- Campsite facilities monitoring.
- Activity reviews.
- Review and inspection of special-use permittees at visitor centers.

Research Natural Areas (RNAs)

- Monitoring for compliance with RNA management plans. Long-term structure monitoring every three to four years.

Wildlife

- Monitoring of northern spotted owl nests not connected to timber sales.
- Effectiveness monitoring for K-V projects.
- Periodic monitoring (throughout the year) of raptor (osprey/goshawk) nests.
- Nest box monitoring (ducks, etc.).
- Annual surveys for harlequin ducks.
- Annual breeding bird surveys.
- Monitor restoration projects.
- Verification of wildlife sitings.
- Status checks on various habitats (e.g., heron rookeries).
- Monitoring for challenge cost-share projects (e.g. amphibian project).

Botany

- Informal monitoring of sensitive species sites.
- Monitoring of specific species across the Forest in partnership with Partners for Plants.
- Tracking of population trends of rare plant species (such as the fringed pinesap, which has nine sites across the Forest).
- Pine broomrape monitoring study.
- Pale blue-eyed grass monitoring study on grazing impacts.

Fisheries

- Annual stream surveys.
- Annual steelhead snorkel surveys.
- Bull trout monitoring in the Lewis River.

Hydrology/Watershed

- Implementation and effectiveness monitoring of restoration projects including erosion control, culvert removal, and riparian fencing.
- Monitoring of restoration projects within the Adaptive Management Area (in collaboration with PNW Research).
- Yearly utilization monitoring for grazing allotments.
- Informal observation/monitoring of watershed/ soils condition when FH personnel out in the field.
- Monitoring of mass movement through the watershed analysis process.
- Baseline stations monitoring water temperature (25 stations across the Forest).

Air Quality

- Air quality monitoring (Packwood Lake) in collaboration with EPA and WA State Ecology Department, June through September.
- Lichen surveys, one quarter of the Forest each summer.

Timber

- Surveys for down and dead woody material, and standing wildlife trees during sale administration.
- Random sale inspections documented with Inspection Reports.
- Monitoring of roads, landings, mitigation, riparian areas, wildlife trees, and down woody material.
- Forest Headquarters sale area visits.
- Contracting Officer Review of performance/ techniques of individuals administering timber sales.
- Official sale inspections.
- Genetics program monitoring.
- K-V reforestation surveys (1st and 3rd year).
- Informal slash monitoring.

Engineering/Roads

- Maintaining status of roads gated and decommissioned (necessitated by p. C-7 of ROD, which requires no net increase in roads).
- Inventory of number and mileage of temporary roads.
- Monitor road maintenance activities (ours and purchasers) for compliance with Road Management Objectives and Road Management Specifications.
- Monitor road and trail bridges for safety.
- Monitor public drinking water stations.

Monitor traffic signing program (monitoring of uniform traffic control devices).

- Quarterly groundwater monitoring at Chelatchie Prairie.
- Year-round traffic counts across the Forest.
- Weather conditions, especially rain-on-snow events for flood forecasting.

Fire

- Effectiveness monitoring in units after prescribed burning.
- Annual preparedness monitoring.
- Periodic NIFMAS monitoring.
- Pre/post-prescribed burn fuel inventories.

Glossary

A

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

B

Big game - Large mammals hunted for sport. On the National Forest these include animals such as deer, elk, antelope, and bear.

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.

C

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

Ceded lands - Lands surrendered to the federal government by treaty.

CF (cubic foot) - The amount of timber equivalent to a piece of wood one foot by one foot by one foot.

Creel - A wicker basket used by anglers to carry fish.

Cultural resource - The remains of sites, structures, or objects used by humans in the past-historic or prehistoric.

Cumulative effects - Those effects on the environment that result from the incremental effect of the action when added to the past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other action. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

D

Diameter at breast height (d.b.h.) - The diameter of a tree measured 4 feet 6 inches above the ground.

Dispersed recreation - A general term referring to recreation use outside developed recreation sites; this includes activities such as scenic driving, hiking, backpacking, hunting, fishing, snowmobiling, horseback riding, cross-country skiing, and recreation in primitive environments.

E

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

F

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

Fringed pinesap - A sensitive plant species.

K

Knutson-Vandenberg (K-V) - Legislation authorizing the collection of money from timber sales receipts for reforestation, stand improvement or mitigation projects on timber sale areas.

M

Management Area - Provides direction and practices for specific portions of the Forest. Each Management Area identifies a goal, or management emphasis, and the desired future condition of the land. Each MAC includes one or more Management Prescriptions.

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

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.

Meaningful Measures - A recreation management process to better guide recreation management activities at the project and site level intended to provide quality service to recreation visitors. It includes standards of quality, as well as prioritization for work to be accomplished based on documented expectations, needs, visitor preference and resource condition. Examples of standards for trail maintenance include: trees removed, tread maintained and brush cleared to predetermined widths.

MMBF - Million board feet

MMCF - Million cubic feet

MRVDs (Thousand recreation visitor day) - A measure of recreation use, in which one RVD equals twelve visitor hours, which may be aggregated continuously, intermittently, or simultaneously by one or more persons.

N

National Environmental Policy Act of 1969 (NEPA) - 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 Principle Laws Relating to Forest Service Activities, Agriculture Handbook No. 453, USDA, Forest Service, 359 pp.)

Northwest Forest Plan (NWFP) -An amendment to westside Forest Plans intended to ensure viability of the spotted owl and other late-successional dependent species, and maintenance and restoration of healthy riparian ecosystems.

O

Optimal cover - For elk, cover used to hide from predators and avoid disturbances, including humans. It consists of a forest stand with four layers and an overstory canopy that can intercept and hold a substantial amount of snow, yet has dispersed, small openings. It is generally achieved when the dominant trees average 21 inches diameter at breast height or greater and have 70 percent or greater crown closure.

ORV - Off Road Vehicle. A category of recreational vehicles which includes four-wheel-drive vehicles and trail bikes.

Owl Region - National Forests and BLM districts within the range of the northern spotted owl.

P

Partial Retention - Management activities remain visually subordinate to the characteristic landscape.

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

R

Raptor - Predatory birds, such as falcons, hawks, eagles, and owls.

Redd - Depressions in gravel in streams where salmon, steelhead, and trout lay their eggs.

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

S

Selection - The annual or periodic removal of trees (particularly mature trees), individually or in small groups, from an uneven-aged forest, to realize the yield and establish a new crop of irregular constitution.

Semiprimitive motorized - A classification of the Recreation Opportunity Spectrum, characterized by a predominantly unmodified natural environment in a location that provides good to moderate isolation from sights and sounds of people, except for those facilities/travel routes sufficient to support motorized recreational travel opportunities which present at least moderate challenge, risk, and a high degree of skill testing.

Semi-primitive non-motorized - A classification of the Recreation Opportunity Spectrum, characterized by a predominately unmodified natural environment of a size and location that provides a good to moderate opportunity for isolation from sights and sounds of people. The area is large enough to permit overnight foot travel within the area, and presents opportunity for interaction with the natural environment with moderate challenge, risk, and use of a high degree of outdoor skills.

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

Seral - Transitory stage in an ecological succession.

Shelterwood - A regeneration method under an even-aged silvicultural system. A portion of the mature stand is retained as a source of seed and/or protection during the period of regeneration. The mature stand is removed in two or more cuttings.

Silviculture - The art and science of controlling the establishment, composition, and growth of forests.

Snag - A standing dead tree.

Soil productivity - The capacity of a soil to produce a specific crop such as fiber or forage under defined levels of management. Productivity is generally dependent on available soil moisture and nutrients, and length of growing season.

Special Interest Areas - Areas managed to make recreation opportunities available for the understanding of the earth and its geological, historical, archeological, botanical, and memorial features.

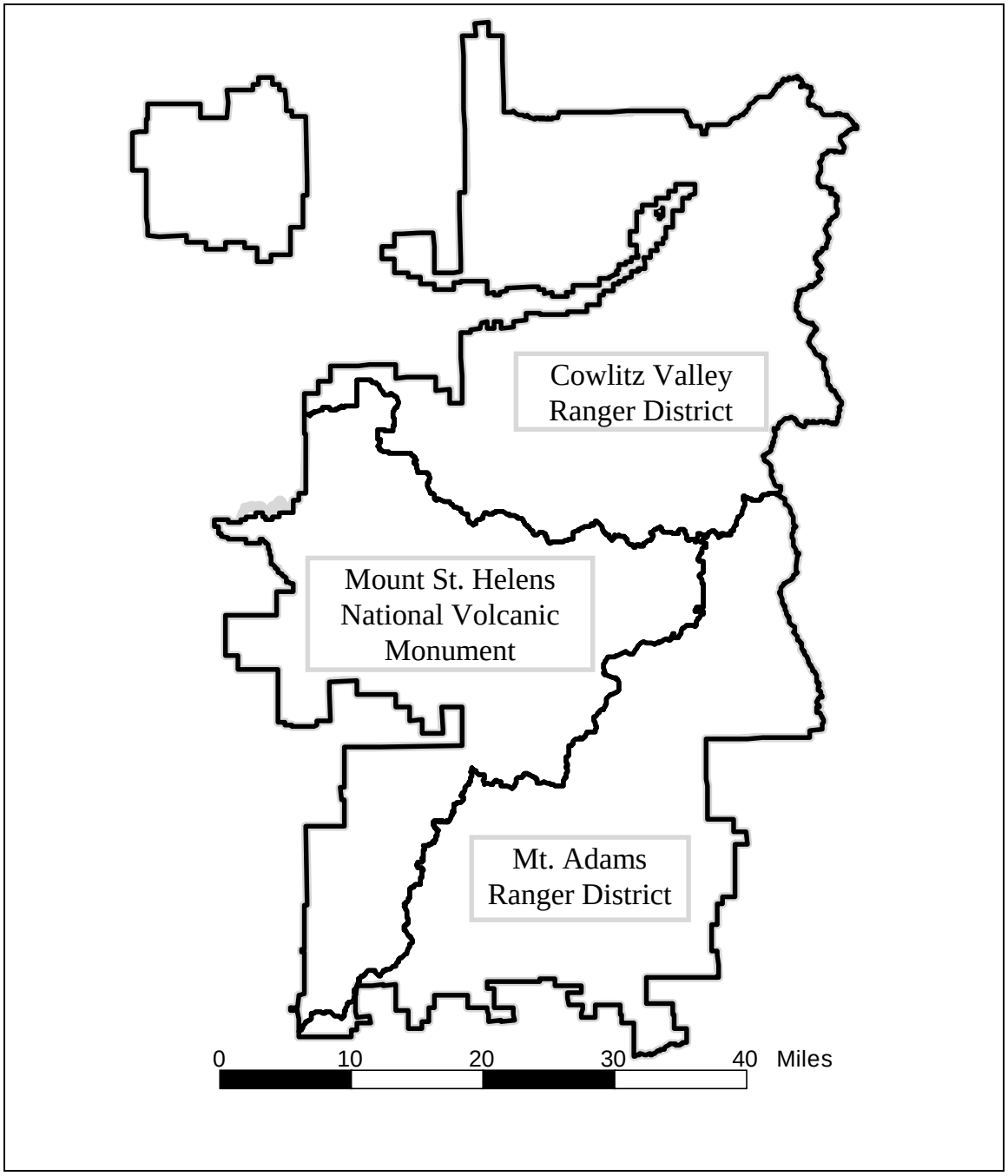
T

TE&S - Threatened, endangered and sensitive species.

Threshold of Concern - Degree of departure from a standard and guideline which would trigger an analysis to determine if a change in practices or plan adjustment is needed.

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

Gifford Pinchot National Forest
Administrative Units



PREPARERS

Name	Discipline
Dave Porter	Recreation
John Roland	Monitoring Coordinator
Joseph Esteves	Grazing
Kathleen Williams	Transportation
Mike Pond	Timber
Sally Clagett	Botany
Ray Scharpf	Wildlife
Rick McClure	Heritage Resources
Ruth Tracy	Hydrology
Ken Wieman	Fisheries