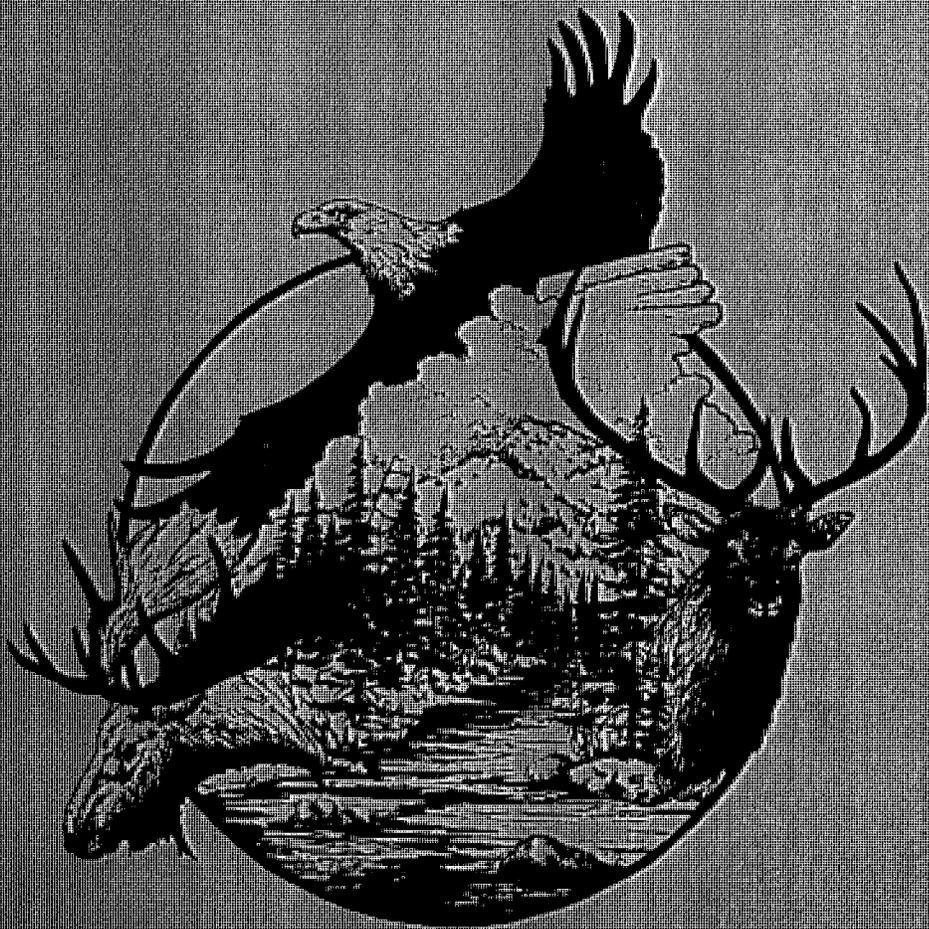




United States  
Department of  
Agriculture

Forest Service  
Northern Region

# Clearwater National Forest Monitoring & Evaluation Report Fiscal Year 1998





United States  
Department of  
Agriculture

Forest  
Service

Clearwater  
National  
Forest

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**Date:** July 23, 1999

Dear Forest User:

We appreciate your interest in the Clearwater National Forest Plan. This is our eleventh *Monitoring and Evaluation Report* since the release of the Forest Plan in September, 1987. We are continually striving to make this annual report more concise and "user friendly." If you would like additional information about a particular area, give us a call, and we'll put you in touch with the appropriate specialist.

Monitoring is a key part of the Forest Plan implementation. This report highlights Forest Service monitoring activities for Fiscal Year 1998 (October 1, 1997 through September 30, 1998) and meets the intent of the Forest Plan (Chapter IV) and 36 CFR 219. It presents an evaluation of our management strategies to see if we are meeting the goals set forth in the Forest Plan. The information gained from monitoring helps us determine what is working and what is not. We can then make adjustments to the Forest Plan when, or if, necessary.

We invite you to review and comment on the *Monitoring and Evaluation Report*. We also invite you to call, visit, or write us anytime.

Sincerely,

for JAMES L. CASWELL  
Forest Supervisor



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# I. INTRODUCTION

This report summarizes results of Forest Plan monitoring and evaluation during Fiscal Year 1998 (FY98). We are continually verifying data and assumptions through monitoring. After analyzing this year's data and the data of previous years, we will continue the process to revise the Clearwater National Forest Plan. Until the Forest Plan revision is completed, the current Forest Plan will remain as the guiding document for the Clearwater National Forest. The current Forest Plan will be kept up-to-date during the revision process utilizing the amendment process. Those amendments implemented this past fiscal year are summarized in Section IV. Amendments anticipated to be proposed this coming year are described in Section V.

The *Monitoring and Evaluation Report* is organized into seven main sections.

I. INTRODUCTION - provides an overview.

II. MONITORING REPORT - focuses on monitoring requirements by resource, that are in alphabetical order. Some resource reports contain more than one "Item No." that refer to the numbering system (established in the Forest Plan) of items to be monitored. The numbering system is not necessarily in numerical order.

III. APPEALS - lists project level appeals received in FY98, the status of each, and the major issues associated with each. (The term "project" is used throughout this report and refers to any Forest Service activity on national forest land, such as campground construction, trail maintenance, timber sales.) Litigation the Forest was involved in this past year is also included in this section.

IV. PLANNED ACTIONS - identifies actions that the Forest plans to take in FY99, and beyond, to implement the Forest Plan.

V. IMPLEMENTED CHANGES - discusses agreements and actions concerning ecosystem management, the Forest Plan, and amendments to the Forest Plan that were taken in FY98.

VI. LIST OF FOREST CONTACTS - includes acknowledgment of people who contributed to the development of this report.

VII. FOREST SUPERVISOR APPROVAL - signature by the Forest Supervisor.

## II. MONITORING REPORT

### ECONOMICS

Item No. 1 Quantitative Estimate of Performance Output or Services Frequency of Measurement: Annual Reporting Period: Annual
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#### Monitoring Action

Present resource outputs and activities for FY98.

#### Accomplishments/Findings

See Table 1, "**Comparison of Outputs and Activities With Those Projected in the Forest Plan,**" for outputs and activities occurring in FY98, along with the percent achieved compared with Forest Plan projections.

Item No. 17 Document Cost of Implementation Compared With Plan Cost Frequency of Measurement: Annual Reporting Period: Annual
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#### Monitoring Action

The Forest Budget and Finance Officer will compile actual costs for comparison with Forest Plan projected costs.

#### Accomplishments/Findings

See Table 2, "**Comparison Between Yearly Expenditures (in Thousand \$) and Forest Plan Projections (in 1998 Dollars),**" for a display of cost comparison.

Table 1. COMPARISON BETWEEN YEARLY EXPENDITURES (in Thousand \$)  
AND FOREST PLAN PROJECTIONS (in 1998 \$)

ACTIVITY DESCRIPTION	FY94	FY95	FY96	FY97	FY98	FOREST PLAN 86	PERCENT OF FOREST PLAN PROJECTION IN FY98
General Administration	2002	1297	1435	1471	1268	3230	39%
Fire Protection	981	730	1341	1346	2033	1306	156%
Fire Protection Fuel	152	237	127	158	231	374	62%
Timber Sale Prep/Admin	1219	1036	1030	833	1176	3887	30%
Timber Resource Plans	285	10	0	0	0	439	0%
Timber Silvicultural Exams	261	175	204	202	102	1288	8%
Range	58	135	67	57	49	156	31%
Range Noxious Weeds	20	37	27	40	55	43	128%
Minerals	129	156	104	114	111	253	44%
Recreation	1115	956	1257	915	953	1558	61%
Wildlife and Fish	1330	895	897	711	1011	1633	62%
Soil and Water	819	534	457	489	541	588	92%
Maintenance of Facilities	333	277	220	210	234	723	32%
Special Uses	101	61	77	70	80	135	59%
Land Ownership Exchange	53	66	106	50	65	198	33%
Land Line Location	261	220	151	147	145	525	28%
Road Maintenance	715	804	715	734	827	1224	68%
Trail Maintenance	522	353	0	252	167	647	26%
Co-op Law Enforcement	106	108	98	83	94	100	94%
Reforestation Appropriated	850	1180	757	458	691	2624	26%
TSI Appropriated	111	123	113	37	163	616	26%
Tree Improvement*	710	509	487	405	423	89	476%
KV Reforestation	1810	1980	1734	1631	1141	4055	28%
TSI KV	83	54	38	117	83	126	66%
Other KV	614	145	140	192	46	872	5%
Other CWFS Trust Fund	714	634	928	342	859	991	87%
Timber Salvage Sales	2988	3151	4732	4392	2768	443	624%
Brush Disposal	623	677	525	518	442	2418	18%
Range Betterment	2	3	3	4	4	11	35%
Construction Recreation Facilities	445	198	-4	107	37	126	29%
Facility Construction	412	173	2	0	0	841	0%
Engineering Construction Supp	692	527	608	294	248	2488	10%
Construction Capital Investment	174	226	1062	-19	46	3756	1%
Trail Construction/Reconstruction	623	542	220	345	299	436	69%
Timber Purchase Road C/R	28	779	0	0	0	6657	0%
Land Acquisition	31	48	32	26	20	95	21%
Insect/Disease Sup	42	50	49	60	47	0	NA
Economic Recovery	120	37	76	97	70	0	NA
Appeals/Litigation	0	101	46	67	47	0	NA
Ecosystem Management		1179	811	662	660	0	NA
Federal Highway Relief			1222	1994	947	0	NA
Flood Repair			807	2110	2210	0	NA
<b>TOTAL</b>	<b>\$21,532</b>	<b>\$20,403</b>	<b>\$22,700</b>	<b>\$21,721</b>	<b>\$20,393</b>	<b>\$44,954</b>	<b>45%</b>

\* Includes Lenore Seed Orchard management and genetic tree improvement program funds which were not in original Forest Plan projections.

Table 2. COMPARISON OF OUTPUTS & ACTIVITIES WITH THOSE PROJECTED IN THE FOREST PLAN

(Figures are all in 1998 dollar equivalents and in thousands of dollars)

OUTPUT or ACTIVITY	UNIT of MEASURE	FY94	FY95	FY96	FY97	FY98	First Decade Average Annual from Forest Plan	FY98 % of Forest Plan Predicted
<b>RECREATION</b>								
Developed Use	MRVDs	301.1	322.9	303.3	367.7	416	201.1	183
Dispersed Use								
Wilderness <sup>1</sup>	MRVDs	33.9	35.4	35.4	37.7	40	121.0	31
Non-Wilderness <sup>4</sup>	MRVDs	838.6	799.7	819.3	1,275.8	1352	686.2	186
<b>WILDLIFE &amp; FISH</b>								
Wildlife Habitat Improvement								
Non-structural	Acres	90	100	1,000	700	1700	1,300	54
Fish Habitat Improvement								
Non-structural	Acres	143	73	95	116	135	219	53
T&E Habitat Improvement								
Non-structural <sup>2</sup>	Acres	130	50	500	0	0	NA	NA
Structures	Str.	15	0	0	0	0	NA	NA
<b>RANGE</b>								
Grazing use	MAUMs	10.4	10.0	10.7	10.5	9.7	16.0	46
Range improvement								
Non-structural <sup>3</sup>	Acres	2,300	1,200	1,000	500	300	7,000	7
Structures	Str.	0	0	1	1	1	NA	NA
Noxious Weed Control	Acres	130	108	200	200	1150	380	53
<b>MINERALS<sup>5</sup></b>								
Minerals Management	Cases	99	109	73	80	101	265	30
<b>TIMBER</b>								
Volume Offered								
Roaded Primary	MMBF	13.2	18.4	21.3	32.3	20.5	90	23
Roaded NICS	MMBF	14.6	10.0	10.5	21.0	6.7	10	66
Unroaded	MMBF	0	2.9	0	0	3.0	73	04
Volume Under Contract	MMBF	108.3	63.3	78.5	73.6	77.5	NA	NA
Reforestation							14,416	16
Appropriated Funds	Acres	1,498	1,806	1,513	549	923	NA	NA
KV Funds	Acres	3,597	1,937	2,111	1,751	1,355	NA	NA
Timber Stand Improvement							1,928	38
Appropriated Funds	Acres	687	827	724	54	638	NA	NA
KV Funds	Acres	313	251	119	671	123	NA	NA
<b>FUELS MANAGEMENT</b>								
Natural Fuels Treatment	Acres	534	853	429	709	2,838	NA	NA
Brush Disposal	Acres	1796	1359	955	1,252	1,418	NA	NA
Wildland Fire Benefit <sup>6</sup>	Acres					4,385	NA	NA
<b>FACILITIES</b>								
Trail Const./Reconst.	Miles	27.5	40.4	12.1	46.8	85.3	14.0	30
Trail Flood Repair	Miles	NA	NA	235.2	53.2	NA	NA	NA
Road								
Construction	Miles	8.6	1.5	1.8	1.0	4.1	69.0	1
Reconstruction	Miles	61.6	109.9	72	52.0	1.1	NA	NA

<sup>1</sup> Figures for wilderness were based on the expectation that an Idaho Wilderness bill would classify additional wilderness on the Forest. This has not happened yet.

<sup>2</sup> A portion of the wildlife habitat improvement also benefitted T&E species.

<sup>3</sup> This figure represents the acres harvested by methods that provide a temporary forage base for range resources.

<sup>4</sup> Portions of the increase in recreation visitor days may be the result of implementation of a new accounting system (INFRA) in FY97.

<sup>5</sup> Due to the difference in definitions of accomplishment in FY96, case numbers cannot be directly compared to Forest Plan estimates.

<sup>6</sup> Natural ignition managed to achieve resource benefit with approved plan.

NA - The Forest Plan did not project an average annual output for this output or activity

## EFFECTS

Item No. 22 Effects of National Forest Management on Adjacent Land and Communities

Frequency of Measurement: Annual

Reporting Period: Annual

### Monitoring Action

A report will be prepared to determine concerns and goals regarding Forest management.

### Findings

Issues and Concerns: Primary concerns during FY98 included the following.

- ▽ Roads Policy: In January, 1998, the Washington Office announced the development of a new road building policy on national forest lands, including a proposal to suspend road construction in areas currently unroaded. Expected outcomes are that fewer roads will be built in the future, those that are built will be built to minimize environmental impacts, and roads no longer needed or that cause significant environmental damage will be removed. A temporary suspension of road building in roadless areas for an 18-month period was proposed to preserve management options while new scientific and analytical tools are developed to make better decisions about road building.

The announcement gave rise to a great deal of controversy. The environmental community largely supported the idea; timber industry interests and those who are concerned about access to the Forest objected. More than 25 open house meetings were held nationwide to explain the proposal and accept comments.

In February 1999, the 18-month moratorium on new road construction in unroaded areas went into effect. While there were no projects on the Clearwater National Forest that were affected by the moratorium, three projects would potentially be affected if the moratorium lasts longer than 18 months.

- ▽ Roadless Areas: Approximately 950,000 acres of the Clearwater National Forest were identified as roadless when the Forest Plan was completed in 1987. Since then, a small amount of this area has been developed with roads and timber harvest. However, in FY98, there was no development in the roadless area.
- ▽ Elk Habitat Initiative: In early 1998, flight surveys made by Idaho Fish and Game revealed a 30% to 50% decline in portions of the Clearwater Basin elk herd, and another Fish and Game study showed meager survival of calves. The decline has been attributed largely to loss of shrubby browse, such as willows, that are favored by elk. The natural balance of forage for all animals was interfered with when fire suppression began in the 1940s. Both prescribed fire and thinning will likely be used to restore the habitat.

The Clearwater Basin Elk Habitat Initiative was begun to address the problem and find solutions. It is a collaborative effort with state and federal agencies, and many private sector partners

participating. A self-organized citizens group, called Clearwater Elk Recovery Team, is very active in working on solutions. It is composed of people from a wide variety of interests.

▽ Lewis and Clark Bicentennial Observance: Thousands of visitors are predicted to visit Idaho to celebrate the 200th anniversary of the Corps of Discovery's voyage. In preparation for these visitors, the Clearwater National Forest is making plans for enhancing the visitors' experience with an improved visitor center at Lolo Pass, interpretive signs along the Highway 12 corridor, and informative publications. A strategy for visitor use on the Lolo Trail (the actual route of Lewis and Clark) was developed by a team from the Clearwater National Forest, National Park Service, and the Nez Perce Tribe. Because the Lolo Trail has significant cultural and historical resources, and is too rugged and sensitive to withstand large numbers of people, a permit system is being proposed to be put into effect during periods of high visitor use. This strategy is being presented to communities and organizations as requested. Copies are available on the Forest's website at [www.fs.fed.us/r1/clearwater/lewis\\_clark.htm](http://www.fs.fed.us/r1/clearwater/lewis_clark.htm), or by calling the Supervisor's Office.

### Special Projects/Programs

Rural Community Assistance Program - The Forest continues to work with local communities to assist in applying for funds through the Farm Bill's Rural Community Assistance Program. In 1998, the following grants were awarded:

- Clearwater Unlimited - \$5,500;
- the City of Kooskia - \$500;
- the Nez Perce Tribe - \$15,000;
- the Scenic 6 Development Council - \$6,600; and
- the City of Weippe - \$37,900.

Receipts to Counties - Twenty-five percent of the money received from use of national forest resources is returned to the counties in which national forest land is located. The Clearwater National Forest contributed \$1,794,944 in FY98.

North Lochsa Face Ecosystem Assessment Project - This landscape-scale assessment involves 128,000 acres and is located between Highway 12 and the Lolo Motorway, extending east to the Fish Creek drainage, and west to the Pete King drainage.

The study included extensive dialogue with a wide spectrum of public interests in order to better understand the various viewpoints in regard to this land. Public meetings, open houses, interviews, field trips and workshops were held. A citizen group met with the interdisciplinary team to help draft a strategy for motorized and non-motorized use of trails and roads. The Draft Environmental Impact Statement (EIS) was published in May 1997. The Final EIS was delayed when concern over proposed prescribed burning was expressed. To provide an opportunity for further dialogue with the public on this issue, a public hearing on the use of prescribed fire was scheduled for February 12, 1998. The final EIS and decision is anticipated in 1999.

Lolo Pass Development Proposal - An environmental assessment was completed for an improved rest stop at Lolo Pass. The Forest has been working together with the Idaho and Montana Departments of Transportation and interested members of the public on the project. Access to the site will be made safer, parking will be improved, and a new visitor center will be built. Reconstruction opens the opportunity to improve recreational and interpretive opportunities as well. The improved area will be only slightly larger than it currently is, and all buildings will retain the current rustic design.

Landscape Assessments - The Forest continues to work on landscape assessments in preparation for the Forest Plan revision. Landscape assessments display information about the vegetation, soils, wildlife, fisheries, stream conditions and all other resources. They also portray human uses of the land, past and present. The public is invited to share their knowledge of the area and their ideas for management as each assessment is conducted. This is in addition to the formal public involvement activities that will occur during the revision phase.

Item No. 23 Effects of Other Agencies on the National Forest

Frequency of Measurement: Annual

Reporting Period: Five Years

### Monitoring Action

A report will be prepared to determine effects of the activities of other agencies on the Forest.

### Accomplishments/Findings

The Clearwater National Forest works together with many agencies. They include:

- ◇ Idaho Department of Fish and Game - This department participates with the Forest regularly on projects affecting the fish and wildlife resource on the Forest. Department personnel also enforce Idaho Department of Fish and Game laws on the Forest. The Forest's contribution to this partnership consists of habitat maintenance and enhancement.
- ◇ Idaho Department of Lands - Forest Service and Department of Lands professionals work together on landline location. Last year, approximately 4.5 miles of boundary marking were completed jointly.
- ◇ Idaho, Latah and Clearwater County Sheriffs' Departments - Through a cooperative agreement, these departments patrol campgrounds and forest roads, and assist Forest Service law enforcement officers.
- ◇ Natural Resources Conservation Service - This agency monitors precipitation stations on the Forest. They are also working with the Forest Service on the Potlatch River Basin Assessment Project that looks for ways to improve watershed conditions.
- ◇ Coordinated Resource Management Group - Several state agencies, private landowners, timber industry and the Forest Service are working together on a plan to improve the water quality and riparian condition of the Jim Brown Creek watershed, located just west of national forest land near Weippe. Group members include Idaho Department of Lands, Idaho Fish and Game Department, Idaho Department of Environmental Quality, the Natural Resources Conservation Service, Potlatch Corporation, several private landowners in the area and the Clearwater National Forest.
- ◇ Access Management Strategy - This strategy to help preserve and protect wildlife and wildlife habitats in Idaho is spearheaded by the Idaho Department of Fish and Game and Potlatch Corporation. Many other organizations and agencies are involved, including the Forest.

# FIRE

## Goal

Prevent, suppress and manage fire commensurate with resource values to be protected, while recognizing the role of fire in the ecological processes.

## Strategy

Analyze organizational needs using the National Fire Management Analysis System (NFMAS) to determine the most cost efficient fire suppression organization and methods. Staff suppression organization to extent possible with current year funding. Develop a Fire Management Organization Spreadsheet (5100-2), to show the level of fire protection being provided as per current year budget level.

Continue to stress SAFETY as the primary focus in all fire management activities with special emphasis on the aviation program, firefighting, and recurrent training in "*Standards for Survival*".

Continue to evaluate fire protection boundaries to promote economic and efficient fire suppression.

Continue to use prescribed fire as a tool when its use is determined to accomplish management objectives for fuel hazard reduction, site preparation, wildlife habitat improvement and ecosystem management.

Provide a continuous cadre of specialists with the knowledge and experience to accomplish prescribed fire programs and participate as members of the wildland fire Incident Command System.

Ensure sufficient brush disposal funds will be collected from timber sales to treat activity fuels created by each project, where deemed necessary to treat those fuels.

Implement "*Ecosystem Management*" concepts into fire management programs. Look at ways of how fire can be utilized and incorporated into sustaining healthy ecosystems.

Participate in the planning efforts of the Clearwater Elk Initiative and implement identified fuels management action items.

Continue to implement the North Idaho Smoke Management Airshed guidelines and coordinate prescribed burning and wildfire smoke impacts with this group and adjacent cooperators.

Continue the "*Minimum Impact Suppression Tool*" (MIST) concept.

Continue use of alternative suppression strategies as appropriate to meet fire management objectives.

## Monitoring Action

The Fire staff will annually prepare and implement a Fire Management Action Plan (FMAP) that will provide specific direction for accomplishing the fire management objectives outlined in the Forest Plan.

## Accomplishments/Findings

The Forest coordinated efforts with the Bitterroot and Nez Perce National Forests in implementing the Selway-Bitterroot Wilderness Prescribed Natural Fire program. During 1997 these three Forests jointly rewrote the *Selway Bitterroot Wilderness Prescribed Natural Fire Guidebook* to reflect current policy and procedure. This revision was approved in mid winter of 1998 and should be implemented in 1999..

The Forest implemented the Federal Wildland and Prescribed Fire Management Policy which was adopted nationally in 1998. This policy incorporates many new concepts and provides for consistent fire management direction within federal agencies.

The Forest maintained an excellent safety record.

MIST guidelines were used for all lands protected by the Clearwater National Forest. MIST guidelines are specifically written to protect resource values within wilderness, research natural areas, cultural sites and any other sensitive areas from fire suppression impacts.

In the area protected by the Clearwater National Forest, 179 fires were initial attacked. Several of these required additional resources and time to suppress. A North Idaho Incident Management Team was ordered to suppress the Wapito Fire on the North Fork Ranger District. Monitoring and holding action was selected as the appropriate management response on another fire. There were 16 prescribed natural fires within the Selway-Bitterroot Wilderness. On national forest lands protected by Idaho Department of Lands and Clearwater Potlatch Timber Protective Association, six fires were successfully initial attacked.

The 1998 fire season was slightly above average on the Clearwater National Forest in terms of numbers of fires. The 10-year average (1985-1994) number of fires was 171. However, this year the Forest had 202 fires. The Forest was successful at meeting the fire protection standards outlined in the Forest Plan given the level of activity and funding provided for the protection of resources.

The 1998 fire season was well above average on the Clearwater National Forest in terms of annual acres burned. The 10-year average (1985-1994) was 3,182 acres burned. In 1998, the Forest burned 5,964 acres. The 1998 fire season began slowly with energy release component (ERC) values well below the 15 year average until August 10 when the Forest ERC values rose above the 15 year average until nearly the end of September. Nearly all the ignitions occurred during this time frame.

Funding to suppress forest fires is based on the National Fire Management Analysis System, a computer program designed to determine the most cost efficient mix of people and equipment. This analysis is based on 10 years of the Forest's fire history, fire weather and past organizational levels. It then establishes the most cost efficient mix of personnel, equipment, budget needed to provide these resources. The program was last updated in 1997 and the most cost efficient level was determined to be \$2,454,559.

◆ Wildfire Detection - The Global Positioning System (GPS) from the detection aircraft which locates fires by latitude and longitude with an accuracy of within 10 meters was used. The type of detection, number of fires located and percentage of the total number of fires detected is displayed in Figure 1.

Figure 1. FIRE DETECTION

Detector	# Fires	Percent
Lookout	58	28.7
FS Aircraft	68	33.7
Other Aircraft	17	8.4
FS Employee	40	19.8
Other	11	5.4
Permittee	3	1.5
Cooperator	5	2.5

Figure 2. NUMBER OF FIRES BY DISTRICT ON THE FOREST

District	# of Fires by District by Size Class			
	1/4 or less Acres	.26 - 9.99 Acres	10 - 99.9 Acres	100 - 299.99 Acres
Pierce	24	11		
Palouse	4			
North Fork	66	20	1	1
Lochsa	18	1	1	
Powell	45	5	2	2

◆ Fire Suppression - The Clearwater National Forest is responsible for the protection of approximately 1,705,000 acres of land. The Idaho Department of Lands and CPTPA protects about 160,000 acres of Clearwater National Forest lands. All six of the fires that occurred on national forest lands protected by these two agencies were control strategy wildfires and are part of the total number of fires shown under the Control Suppression Strategy section.

Wildfires were attacked and suppressed in accordance with the Fire Management Action plan using the control, contain and confine suppression strategies. The intent of the Forest Plan standards and guidelines were met by implementing these different suppression strategies. Each fire was assessed as to its fire potential and location within each land allocation. A suppression strategy was assigned to best fit each fire situation.

**Control Suppression Strategy:** to complete a control line around a fire, any spot fires and any interior unburned islands to be saved; to burn out any unburned areas adjacent to the fire side of the control line; and cool down all hot spots that are an immediate threat to the control line until the line can reasonably be expected to hold under foreseeable conditions.

*This strategy was selected for 185 fires resulting in 486.5 acres burned.*

In one instance, a monitoring with holding action strategy was selected as the appropriate management response after an evaluation of personnel safety and management boundary defensibility. The fire ultimately burned five acres.

**Contain Suppression Strategy:** to surround a fire and any spot fires with a control line, as needed, which can reasonably be expected to check the fire's spread under prevailing and predicted conditions.

*This strategy was not chosen for any fires during the 1998 season.*

**Confine Suppression Strategy:** to limit fire spread within a predetermined area principally by use of natural or preconstructed barriers or environmental conditions. Suppression action may be minimal and limited to surveillance under appropriate conditions.

*This strategy was not chosen for any fires during the 1998 season.*

**Prescribed Natural Fire Status:** fire ignited by lightning within an approved fire management area and allowed to burn under pre-planned, specific conditions to accomplish specific planned objectives.

*This option was selected for 16 fires within the Selway-Bitterroot Wilderness with 5,472 acres burned.*

◆ **Statistical Cause** - The Forest had three person/miscellaneous-caused fires. These fires burned a total of 0.3 acres, or less than 1% of the acres burned by wildfire.

Figure 3. NUMBER OF FIRES BY CAUSE - 1998

CAUSE	# FIRES	PERCENT	ACRES
Lightning	199	98.5	5963.75
Equipment	1	0.5	0.1
Smoking	0	0	0
Campfire	1	0.5	0.1
Debris Burning	0	0	0
Children	0	0	0
Fireworks	0	0	0
Miscellaneous	1	0.5	0.1
Arson	0	0	0
TOTAL	202	100	5964.05

Extensive support was provided by Clearwater National Forest employees on incidents in many parts of the nation with a large amount of time committed to Florida, Texas, and Montana.

The Forest utilized 111 smokejumpers on 23 fires. Retardant aircraft delivered 148,890 gallons of retardant to fires during the 1998 fire season.

Within the Clearwater/Nez Perce Forest Fire Zone, a total of 965.1 hours were flown by helicopters, 23 different helicopters were used for a total of 303 contract days, 2,386 personnel were transported, 362,626 pounds of cargo moved, and 414,099 gallons of water were dropped on fires.

◆ Fuels Reduction - Prescribed fire (management ignited) was used as a management tool in fuels reduction, site preparation and browse stimulation on 3,170 acres. The Forest target for all uses of prescribed fire to meet management objectives was 5,850 acres. When the acres burned by prescribed natural fire are considered (5,472), the fuels reduction target was exceeded. These targets include appropriated fire protection/fuels funding to treat natural fuels and brush disposal collections generated by timber sales to treat fuels created by timber sales.

Prescribed burning was accomplished during the spring and fall burning periods. Smoke management from prescribed fires was managed within the guidelines of the North Idaho Airshed Group

# FISHERIES

## Goal

Manage the Forest's fisheries streams to achieve optimum levels of fish production by rehabilitating and improving streams on developed areas of the Forest and by maintaining high quality existing habitat.

## Strategy

Provide management direction during the planning and implementation of activities. Identify and implement rehabilitation projects on the Forest.

Emphasis in habitat improvement will be directed toward the sensitive species of westslope cutthroat trout, bull trout, steelhead trout and spring chinook salmon.

The Forest will focus the challenge cost-share program on anadromous fish habitat improvement associated with fisheries in the Columbia River Basin and the direction of the Northwest Power Act. The Forest will develop cost-share partners and projects.

The Forest fisheries biologist will direct development of fisheries expertise on ranger districts. Information regarding district projects and their results are available for anyone interested.

The Forest will emphasize the implementation of the *Columbia River Basin Anadromous Fish Habitat Management Policy and Implementation Guide (PIG)* with priorities placed on monitoring, inventory and National Environmental Policy Act compliance. The purpose of PIG is to provide guidance for implementation of anadromous fish habitat management policy for the three Forest Service Regions with lands in the Columbia River Basin: the Northern, Pacific Northwest, and Intermountain Regions.

## Accomplishments/Findings

PACFISH - No formal review by the PACFISH Implementation Review Team was conducted on the Forest in 1998. Since 1995, the Forest has been conducting the PACFISH/INFISH monitoring programs in conjunction with the annual Best Management Practices (BMP) reviews to determine project implementation compliance and effectiveness of resource protection measures on selected projects. In 1998, the Forest conducted reviews on four projects to determine compliance with Forest Plan direction as amended by PACFISH. Results from these reviews are currently being summarized by the Forest. Additional project monitoring was scheduled in 1998, but the selected projects were not completed and the reviews were rescheduled for 1999.

INFISH - The Forest also completed a review of three projects within the North Fork Clearwater River drainage to determine compliance with Forest Plan direction as amended by INFISH. Similar to the PACFISH reviews, additional project monitoring was scheduled in 1998, but the selected projects were not completed and the reviews were rescheduled for 1999.

Item No. 8 Water Quality and Stream Condition for Fisheries and Non-Fisheries Beneficial Uses

Frequency of Measurement: Annual

Reporting Period: Annual

Information for Non-Fisheries is included in the section entitled "SOIL AND WATER" for Water Quality and Stream Condition for Non-Fisheries Beneficial Uses.

### Monitoring Action

The Forest fisheries biologist will coordinate the monitoring of critical anadromous and inland fish streams to determine habitat conditions and population trends. District field crews will measure key habitat characteristics, such as cobble embeddedness (the degree to which streambed gravel has been infiltrated by sediment).

Streams supporting both anadromous and inland fish were monitored during FY98. The FY97 monitoring program was expanded and intensified to include more monitoring of anadromous and inland fish streams that were impacted as a result of the high flows, flooding and landslides within the Palouse River, Lochsa River and the North Fork Clearwater River drainages. In FY98, this intensity was maintained or expanded in most drainages.

### Accomplishments/Findings

#### FOREST OVERVIEW

Stream Inventory Targets - Approximately 321 miles of anadromous and inland streams were inventoried.

Improvement Targets - Thirty-three miles of fisheries habitat improvement were completed. Project targets, as measured in acres, (135 acres) for anadromous and inland streams were met.

The 1998 stream improvement projects were completed on various streams throughout the Forest. As in 1997, 1998 watershed restoration (road obliteration) made up the majority of the restoration work in drainages affected by the 1995/96 flood. The Nez Perce Tribe assisted the Forest with funding and personnel on several road obliteration and riparian projects. Riparian vegetation was planted and eroding sites within riparian zones rehabilitated, especially sites that were directly putting sediment in streams. Riparian fencing projects involving new fences and fence replacement and maintenance were also completed to meet Forest Plan Riparian Management Objectives (RMOs). Projects included stabilizing slide areas and stream banks, improving stream substrate conditions via maintenance of sediment traps and maintenance of existing instream structures to increased summer and winter-rearing habitat for spring chinook salmon, steelhead trout, cutthroat trout, bull trout, kokanee salmon, and brook trout.

Stream Temperature Monitoring - The stream temperature monitoring program was expanded in 1998 to nearly double the monitoring sites in 1997. Stream water temperatures were measured at over 230 sites on the various streams across the Forest. New sites were located primarily within Lochsa River and North Fork Clearwater River tributaries. Streams will be monitored for at least five consecutive years.

Fish Population and Habitat Monitoring - Fish population numbers and/or stream substrate conditions were monitored within 20 drainages in the Palouse River, Lolo Creek, Lochsa River and North Fork Clearwater River watersheds. Personnel from the Idaho Department of Fish and Game, Nez Perce Tribe, U.S. Fish and Wildlife Service, and Idaho Department of Health and Welfare - Division of Environmental Quality also monitored fish populations within various streams on the Forest; these monitoring projects were coordinated with the Forest programs to avoid unnecessary duplication of monitoring efforts.

Item No. 31 Anadromous Fisheries

POTLATCH RIVER WATERSHED

Habitat Improvement - Potlatch River Drainage: The fisheries enhancement and riparian fencing projects within the Potlatch River drainage assisted in the improvement and/or protection of approximately four miles of stream.

Riparian Fencing - Fences on ten permanent riparian enclosures (seven on the East Fork Potlatch River, one on the East Fork Big Bear Creek, and two on ponds within the Corral Creek watershed) were maintained in 1998. A two mile long "high tensile" electric fence was maintained along Cougar Creek to protect 12 acres of riparian area. Temporary electric fences were installed and maintained on Corral Creek and Hog Meadow Creek to protect the 1993 stream reconstruction projects. Another electric fence was installed and maintained along the Potlatch River.

Road Obliteration - Fisheries funds were used to assist in the obliteration of three miles of road along the mainstem of the Potlatch River near Boulder Creek campground. The road prism was converted to a trail and disturbed areas revegetated to improve the riparian conditions along the river.

Habitat Monitoring - Potlatch River Drainage: The mainstem Potlatch River and various tributaries have been designated a "water quality limited segment" (WQLS) by the State of Idaho. The primary pollutant of concern is sediment. The Forest notes that stream water temperatures are also a concern in the Potlatch River drainage. Past, current, and future monitoring within the Potlatch River drainage will emphasize substrate conditions in terms of sediment and stream water temperatures. Since the stream inventories of all fish-bearing streams within the Potlatch River drainage on National Forest System lands have been completed within the last several years, no additional surveys were scheduled for 1998.

Water Temperature Monitoring - Potlatch River Drainage: Stream temperature monitoring was conducted at nine sites on six streams in the Potlatch River drainage in 1998. From 1990-1996, the Forest has collected temperature data on selected stream within the Potlatch River drainage to determine if stream temperatures meet Forest and State standards, locate temperature problems, identify recovery trends, and prioritize riparian recovery efforts. Seven years of thermograph data indicate that most of the streams have summer stream temperatures that are higher than the desired objectives for salmonid rearing. In most years, all temperature sites within the Potlatch River system exceeded the desired future condition (DFC) for temperatures during the spring spawning period and all temperature sites within the Potlatch River system exceeded the State spawning standard of 13°C during the spring. In 1998, the Potlatch River sites (2) and the West Fork Potlatch River sites (2), exceeded the state standard for cold water biota of the daily maximum of 22°C and the maximum daily average of 19°C. These streams also did not meet the desired future condition (less than 20°C) for steelhead rearing.

Several streams, Cougar Creek, Feather Creek, and Nat Brown Creek met the state standard for cold water biota and the the DFC for steelhead rearing.

Fish Population Monitoring - Potlatch River Drainage: Steelhead redds have been monitored in the E Fork Potlatch River since 1992 twice a year (April and May). These surveys have shown a consistently low number of redds from three to eight. During the 1998 spawning period, one survey conducted in May found four redds.

## LOLO CREEK WATERSHED

Habitat Improvement - Lolo Creek Drainage: Restoration and enhancement work regarding the aquatic resources was primarily associated with watershed restoration activities such as road obliteration and road maintenance work. As part of a challenge cost share agreement with the Nez Perce Tribe, the Forest completed road obliteration projects within the Musselshell Creek drainage. These activities will provide direct and indirect benefits to the substrate and fish habitat conditions in the Lolo Creek drainage.

Riparian Fencing - As part of a 1998 challenge cost share agreement, the Forest and Nez Perce Tribe completed two riparian improvement projects within the Lolo Creek drainage. One riparian fencing project involved the replacement of one mile of existing riparian fence along Musselshell Creek. The second project, a cooperative effort with the Tribe, State and private landowners, involved the reconstruction of 1.5 miles of fence along the USFS boundary to restrict late season livestock from entering USFS lands and protect a riparian area on State and private lands. Fence maintenance on existing riparian enclosures was also completed in 1998.

Habitat Monitoring - Lolo Creek Drainage: The mainstream Lolo Creek and nine tributaries have been designated a WQLS by the State of Idaho. The primary pollutants of concern are sediment and water temperature. Past, current, and future monitoring within the Lolo Creek drainage will emphasize substrate conditions in terms of sediment stream water temperatures. Stream inventories of all fish bearing streams within the Lolo Creek drainage have been completed on National Forest System lands between 1991-94. Resurveys of specific streams are planned every five to ten years dependent upon stream conditions and management proposals. Approximately 20 miles of the mainstem of Lolo Creek were resurveyed during the summer of 1998 to assess any changes in habitat stream conditions from surveys conducted in 1988 and 1993.

In general, the surveys noted that the fish habitat within Lolo Creek drainage were generally similar to conditions documented during the 1993 survey. No changes in overall substrate conditions were observed; the 1998 overall cobble embeddedness levels of 41.5 percent for the 20 miles of stream was basically the same as the 1993 level of 41.0 percent. Of the 49 stream reaches, 25 reaches showed decreases and 24 showed increases in cobble embeddedness levels. The substrate conditions do not meet the DFC for the appropriate Forest Plan standard. Average cobble embeddedness levels within twelve reaches of Lolo Creek met the desired conditions for a "high fishable" standard of 30-35% cobble embeddedness. The remaining stream reaches exhibited average cobble embeddedness levels of 36% to over 61%; although these levels are higher than the desired conditions, the extent the levels are within or outside natural conditions have not been assessed at this time.

Water Temperature Monitoring - Lolo Creek Drainage: A cooperative arrangement to monitor selected key tributaries within the Lolo Creek system was initiated in 1990 between the Nez Perce Tribe and the Pierce Ranger District. In general, past monitoring data has indicated that stream temperatures in Lolo and Musselshell creeks exceeded the desired criteria (16-17°C) by several degrees and maintained these

high temperatures for extended periods of time. However, the data shows that the number of days in which these systems exceeded the standard has decreased since 1990.

Stream temperatures were monitored throughout the summer at 14 sites on 11 streams within the Lolo Creek drainage. Comparison of the 1998 stream temperature data with the desired maximum temperatures as defined for the "high fishable" standard in the Forest Plan is currently being analyzed.

Fish Population Monitoring - Lolo Creek Drainage: For the last nine years, population assessments were conducted via snorkeling to document trends in Lolo Creek; 15 permanent transects established in 1988 were sampled (10 log weir pools and 5 control sites). The Nez Perce Tribe has also conducted fish population assessments in the mainstem of Lolo Creek and other tributaries such as Yoosa Creek, and Eldorado Creek. In 1997, the largest occurrence of spring chinook salmon spawning in 25 years took place throughout the mainstem Lolo Creek drainage. The high number of adults from the outplanting and natural migration produced intensive spawning activity in late August which was not very conducive to snorkeling. The Forest only completed 6 of the 15 transects; monitoring was terminated early to avoid disturbing salmon spawning. The results were not comparable from previous years and in 1998. In 1998, the 15 permanent transects were sampled however, the low numbers of steelhead juveniles observed followed the projected trends when compared to 1994-1996 population information. However, the numbers of spring chinook juveniles were very high.

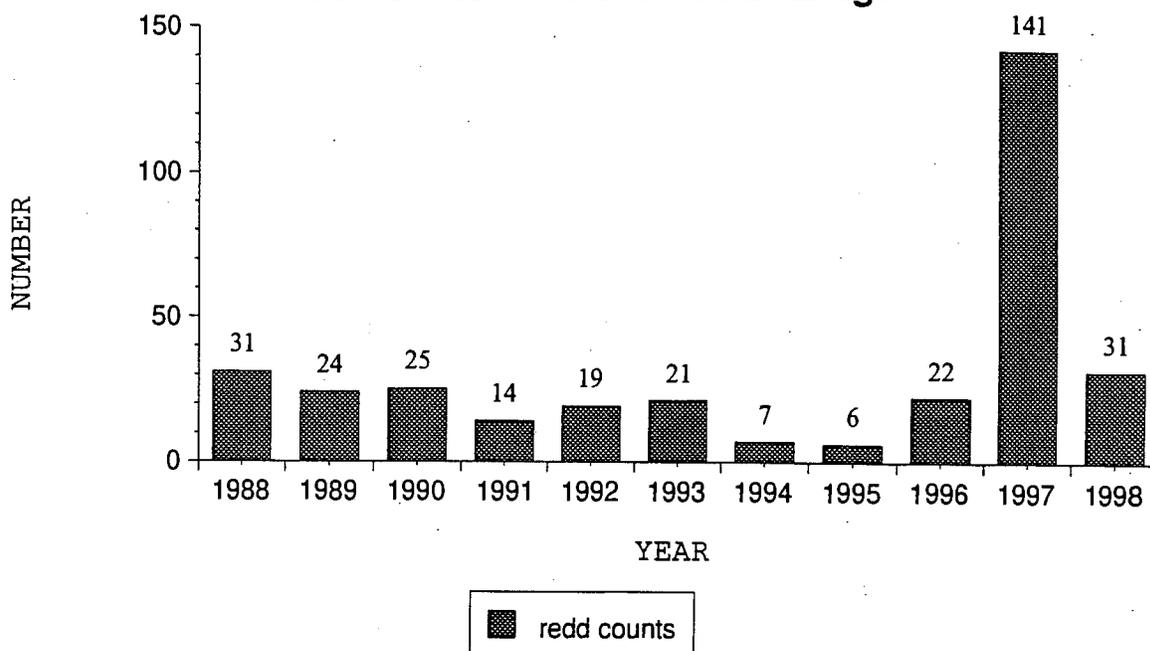
The 1998 steelhead age 1+ densities continued to be very low; densities of 0.33 fish/100 m<sup>2</sup> observed in 1998 was slightly below the densities of 0.51 fish/100 m<sup>2</sup> documented by the Forest in 1996. The decrease in numbers is most likely a result of low adult escapement, low juvenile survival and the high spring stream flows in 1997. Very high densities of spring chinook juveniles are most likely the result of record number of adults and resultant redds during the 1997 spawning season. In 1998, densities of spring chinook juveniles (age 0+) averaged 78.7 fish/100 m<sup>2</sup> which is substantially higher than the 0.21 fish/100m<sup>2</sup> documented by the Forest in 1996.

As part of the continuing Idaho Supplemental Studies being conducted in the Lolo Creek drainage, the Nez Perce Tribal Fisheries Department completed the 1998 Lolo Creek spring chinook spawning ground surveys. These surveys were conducted in the mainstems of Lolo, Eldorado, Musselshell, and Yoosa creeks.

Results of the 1998 surveys indicated that a total of 31 redds were located within the Lolo Creek drainage; 26 were located within mainstem Lolo Creek, and 5 in lower Yoosa Creek. No redds were observed in the Eldorado Creek and Musselshell Creek drainages. The number of redds within the Lolo Creek drainage was about 22 percent of the 1997 redd count, but higher than the 1988-96 average. The primarily reason for the decrease in the number of redds was that fewer spring chinook hatchery adults were outplanted in 1998.

The following chart shows the comparison of spring chinook salmon redd counts observed within the Lolo Creek drainage during 1988-1998 (data provide by Idaho Department of Fish and Game, Nez Perce Tribe and U.S. Forest Service).

## Total spring chinook spawning redd counts in Lolo Creek drainage



### OROFINO CREEK WATERSHED

Water Temperature Monitoring - Orofino Creek Drainage: Due to migration barriers in lower Orofino Creek, streams within the Forest's boundary are considered nonanadromous (no potential for steelhead trout or spring chinook salmon); only water quality and habitat conditions related to resident fish (i.e. westslope cutthroat trout) are monitored and analyzed. As in 1996 and 1997, Orofino Creek, at the Forest Service boundary, was monitored for summer stream temperatures in 1998. Comparison of the 1998 stream temperature data and the desired maximum temperatures as defined for the "low fishable" standard in the Forest Plan revealed that the desired cutthroat trout rearing temperature of 20°C was met. State standards for cold water biota was also achieved; water temperatures did not exceed the daily maximum of 22°C and the maximum daily average of 19°C. State standards of 13°C for the spring spawning periods (for westslope cutthroat trout) was not met at this monitoring site.

### MIDDLE FORK CLEARWATER RIVER WATERSHED

Habitat Monitoring - Middle Fork Clearwater River Drainage: Since the stream inventories of all fish bearing streams within the Middle Fork Clearwater River drainage have been completed on National Forest System lands during 1996, no additional habitat surveys were scheduled for 1998.

Water Temperature Monitoring - Middle Fork Clearwater River Drainage: Stream temperatures were monitored throughout the summer at the mouth of Swan, Little Smith and Big Smith Creeks. In 1997, the Forest started collecting water temperature data from these streams to determine temperature problems and prioritize riparian recovery efforts. Comparison of the 1998 stream temperature data from the three baseline sites and the desired maximum temperatures as defined for the "high fishable" standard in the Forest Plan revealed that:

- (1) the desired cutthroat trout rearing temperature of 16°C was not met at any stream, and
- (2) the desired steelhead trout rearing temperature of 17°C was not met at any stream.

All three streams are relatively small and do not contain any significant spring chinook rearing habitat.

Overall, water temperatures at the Little Smith Creek and Big Smith Creek sites were under the state standard for cold water biota; water temperatures did not exceed the daily maximum of 22°C and the maximum daily average of 19°C. Water temperatures in Swan Creek did exceed the state standard for cold water biota. The state standard of 13°C for the spring spawning periods for steelhead trout was not met at any stream, however, the period exceeding the standard was the last week of the spawning interval. The state standard of 13°C for the spring spawning period for westslope cutthroat trout was not met any site. All three streams do not contain spring chinook spawning habitat. As for bull trout, none of the streams have been designated potential bull trout spawning habitat; none met the fall spawning temperature of 9°C that has been recommended in various research documents.

## LOCHSA RIVER WATERSHED

### Habitat Improvement - Lochsa River Drainage

Lower Lochsa River Area - In 1998, the Forest continued implementation of a stream restoration project involving improving stream substrate conditions within the Pete King Creek drainage. Sediment removal via suction dredge was completed at one site and via an excavator at three sites. These sediment removal efforts provided some immediate benefits to the mainstem of Pete King Creek (8 miles) as the sediment traps stored some of the sediment from the road failures due to the 1995/96 floods.

In 1998, watershed restoration activities included road obliteration work in the Walde Creek drainage and riparian revegetation in the Pete King Creek drainage. Riparian areas along the lower two miles of Pete King Creek were planted with conifers to provide improvements in streamside shade and potential woody debris.

Upper Lochsa River Area - As in 1996 and 1997, the Forest concentrated their efforts on watershed restoration activities within drainages that were affected by the November 1995 flood. District personnel worked with watershed restoration crews from the Nez Perce Tribe with erosion control activities associated with road obliteration work in the upper Lochsa River area. About 46 miles of road were obliterated in the Squaw Creek and Papoose Creek drainages. As recommended in the *Watershed Analysis for the Area from Squaw to Papoose Creeks*, approximately four miles of Squaw Creek and Papoose Creek were treated by placement of large woody debris to improve instream cover and rearing habitat; the 1995 high flows reduced the amount of acting woody debris in a number of stream reaches.

Habitat Monitoring - Lochsa River Drainage: Since the stream inventories of all fish bearing streams within the Lochsa River drainage have been completed on National Forest System lands during 1990-1997, no additional surveys were scheduled for 1998. The ongoing stream substrate and fish population monitoring project was continued on six streams within the upper Lochsa River. Substrate and pool monitoring sites in the mainstem Lochsa River were monitored in 1998. In addition, selected reaches from streams affected by the 1995 floods in the upper Lochsa River drainage were resurveyed to gather post flood information.

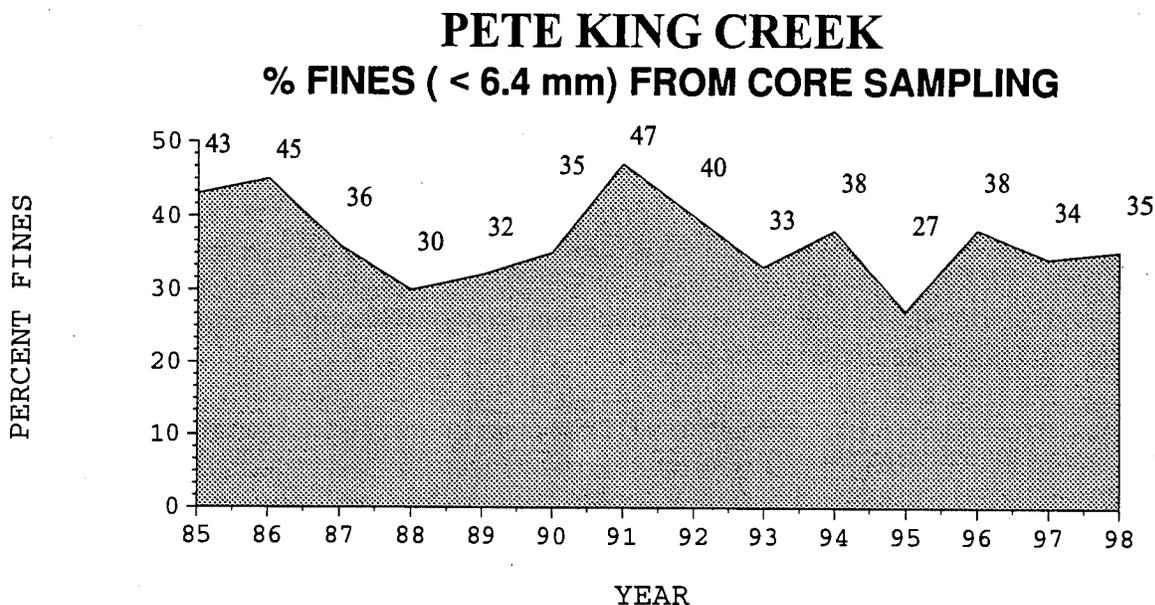
Lower Lochsa River Area - The Forest continued the substrate monitoring project in Pete King and Deadman creeks to determine trends of sediment (% fines) in steelhead spawning areas. This monitoring consists of measuring the substrate particles that are collected by digging a core into

the stream bottom at permanent stations. These stations have been monitored for the last 13 years. Preliminary analysis of the data indicates that the percentage of sediment (fine sediment < 6.4 mm) within the substrate of both streams have been ranging between 27% and 45% fines. After showing a decline in 1997, Pete King stabilized in 1998 with a small increase in percent fines. Deadman Creek showed a declining trend in percent fines between 1996 and 1998. At both streams, the levels are still above the desired conditions of 22-24% for the "high fishable" Forest Plan standard.

In Pete King Creek, the substrate conditions showed the percent fines increasing slightly from 34% to 35% between 1997 and 1998 respectively. This decrease follows an increase of 38% to 34% between 1996 and 1997 following a sharp increase after the 1995-96 flood event.

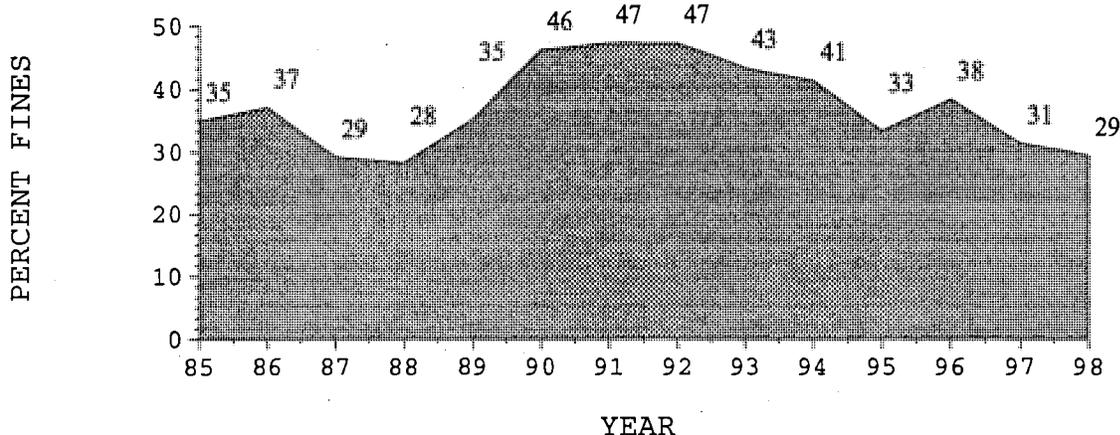
At the Deadman Creek stations, the substrate conditions showed the percent fines decreasing from 31% to 29% between 1997 and 1998 respectively. This decrease follows an increase of 38% to 31% between 1996 and 1997 following a moderate increase after the 1995-96 flood event.

The following chart shows the comparison of average percent fines (< 6.4 mm) by year (1985-1998) for permanent substrate monitoring sites in lower Pete King Creek.



The following chart shows the comparison of average percent fines (< 6.4 mm) by year (1985-1998) for permanent substrate monitoring sites on lower Deadman Creek on the Lochsa River.

## DEADMAN CREEK % FINES (<6.4 mm) FROM CORE SAMPLING



Upper Lochsa River Area - In general, the majority of streams within the upper Lochsa River affected by the 1995/1996 floods show a recovery trend in substrate conditions. Comparisons of monitoring data from 1997 and 1998 indicate that at most stream monitoring sites, cobble embeddedness and/or Wolman pebble count information have shown decreases in fine sediment (< 6.4 mm). This trend was substantiated by several ongoing monitoring projects.

The Forest continued its substrate monitoring project at 22 sites on 8 streams within the Papoose and Squaw Creek drainages. These drainages showed the most stream channel impacts from the 1995/1996 floods. Wolman pebble count data from permanent monitoring sites within the Papoose Creek drainage showed a reversal of the 1996/1997 decreasing trend in fine sediment (< 6.4 mm); 12 monitoring sites within four streams within the Papoose Creek drainage showed substrate conditions with increased fine sediment. With the exception of the Parachute Creek (4.8% - 18.5%), increases were relatively small (4.5-5.1%). All four streams within the Squaw Creek drainage showed an overall decrease in fines. Of the 10 sites surveyed, 7 sites showed decreases (1.3% - 15.0%) and three sites showed additional accumulations of fine sediment (0.3% - 3.6%) in the stream substrate.

In 1997, the Forest completed resurveys of habitat and substrate conditions on selected sensitive stream reaches within 11 streams that were affected by the 1995 floods. Surveys prior to and after the 1995-96 floods, indicated that the average cobble embeddedness levels increased in 16 of the 19 stream reaches surveyed. These increases ranged from 5 to 23 percentage points with the average increase of approximately 14 percentage points; most of the stream reaches showed a substantial increase in cobble embeddedness. In addition to the 11 streams, another two streams (Pete King Creek and Weir Creek) and 15 reaches were added for the 1998 resurvey; all these reaches were surveyed prior to the flood. As part of a cooperative monitoring effort with the Columbia River Intertribal Fish Commission (CRITFC), six of the 15 reaches added in 1998 were completed for CRITFC study by the same contractor. These included two additional reaches in Squaw Creek and four reaches in the undeveloped Weir Creek drainage.

Of the 29 stream reaches that were resurveyed in the 1998 monitoring project, 16 reaches showed average cobble embeddedness levels decreasing from 1997 levels (or where 1997 data was not available 1996 levels). These included reaches in East Fork Papoose, West Fork Papoose, Wendover, Badger, West Fork Squaw, Squaw, Doe, Weir, Indian Grave, and Lost creeks. Decreases ranged from one percentage point (cobble embeddedness of 34% to 33%) in a Papoose

Creek reach to 11 percentage point drop (46% to 35%) in Squaw Creek. Streams that showed increases included: Parachute Creek (2%), Squaw Creek - two reaches (10% and 3%), Post Office Creek (1%), Weir Creek - three reaches (7%, 12%, and 10%), and Pete King Creek - four reaches (17%, 13%, 12%, and 3%). Two reaches did not show any change from 1997 condition these included Indian Graves Creek and Lost Creek. The majority of the streams show substrate conditions improving slowly to preflood conditions. Increases in Parachute and Post Office creeks are considered minimal and most likely do not reflect any substantial change in trend. The moderate increases in Squaw Creek are relative to preflood conditions since no data was collected at these reaches after the flood. Therefore the increase levels only show that the flood degraded substrate conditions and the effects are still evident. Any recovery trends at these reaches will be detected in future surveys. The moderate increases in Weir Creek also reflect a preflood comparison. However, this drainage is an undeveloped drainage and these higher cobble embeddedness levels were not expected. The large increases in the Pete King Creek drainage reflect the transport of the landslide material from the smaller tributaries into the mainstem reaches. The watershed section in this report for more information on Pete King Creek.

As part of the ongoing monitoring program, substrate conditions and salmonid abundance surveys continued at monitoring sites that were scheduled in 1998 at Walton Creek, Brushy Fork Creek and Post Office Creek. The surveys show that substrate conditions may have improved slightly as average cobble embeddedness levels decreased at the sampling sites from a range of 6.2 to 34.9% in 1997 to 12.7% to 23.5% in 1998. Substrate conditions in Brushy Fork Creek continued to exhibit excellent conditions; cobble embeddedness levels ranged from 3.7% to 17.1% in 1998 as compared to 10.8% to 27.0% in 1992. Data for Post Office Creek are incomplete as only two of the five monitoring sites were completed in 1998. However, data from the two sites showed substantial improvement in substrate conditions as cobble embeddedness levels ranged from 8.1% to 24.6% in 1998 as compared to 26.8% to 53.1% in 1992.

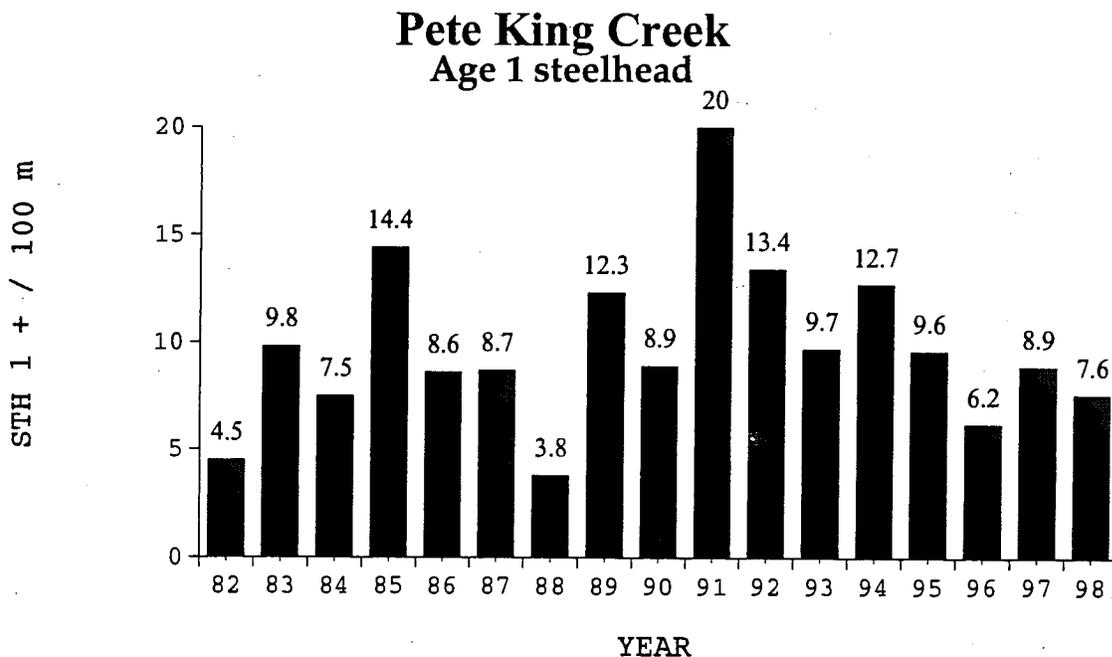
Mainstem Lochsa River - In 1998, the Forest continued the monitoring of substrate and pool conditions to assess the effects of the 1995/96 floods on the fisheries habitat within the mainstem Lochsa River. Comparison of 1996 and 1998 data indicates that the substrate conditions have improved slightly in terms sediment as four of the five stations showed that occurrences of small to moderate-sized particles at the sampling sites have decreased since 1996. Changes in residual pool depths from 1994 and 1998 were variable, but the average changes in residual pool depths within the four study sections were not statistically significant. The trends regarding the substrate and pool conditions will be verified in surveys scheduled for 2000 and 2002.

Water Temperature Monitoring - Lochsa River Drainage: Stream temperatures were monitored throughout the summer at 91 sites on 76 streams within the Lochsa River drainage. Temperature units for 18 streams are still deployed in the field and data is not available. Stream temperature monitoring was initiated at 8 other sites, but equipment failures prevented data collection. The Forest has been collecting water temperature data from 1990-98 to determine temperature problems and prioritize riparian recovery efforts. In past years, thermograph data revealed that temperatures exceeding the desired rearing temperature criteria by several degrees were maintained for extended periods of time. Comparison of the 1998 stream temperature data with desired maximum temperatures as defined for the "*high fishable*" and "*no effect*" standard in the Forest Plan is currently being analyzed.

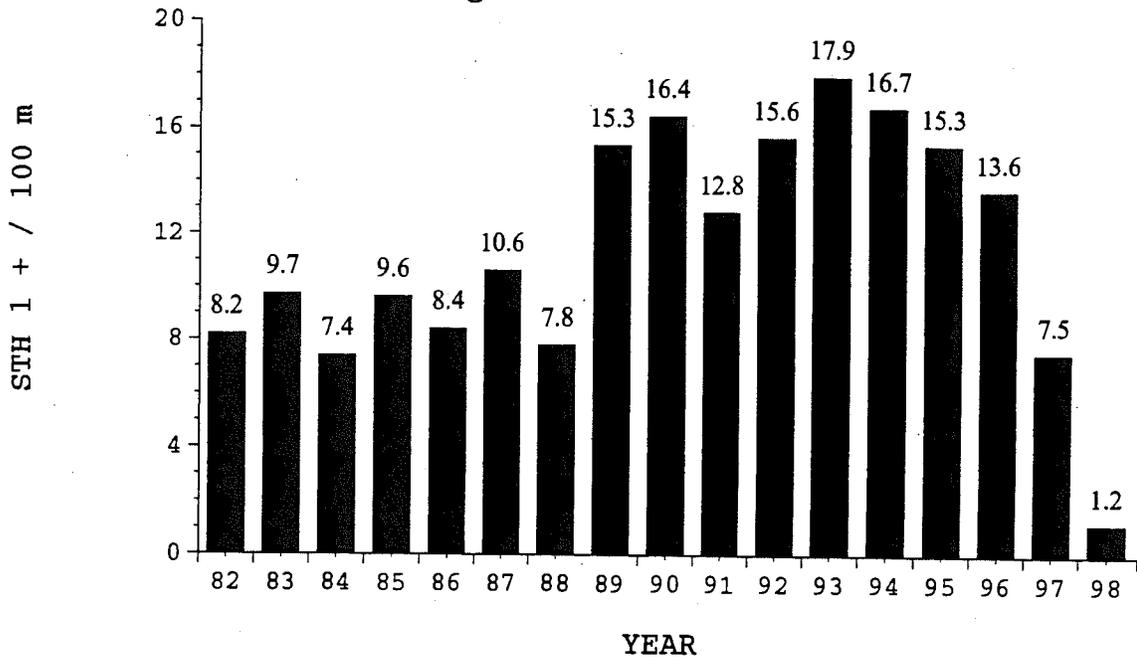
Lower Lochsa River Area - In 1998, fish population monitoring of selected streams continued. Fish species present in some or all of the study streams included chinook salmon, steelhead/rainbow trout, westslope cutthroat trout, mountain whitefish and sculpin. Monitoring of age 1+ steelhead trout juveniles within the Pete King, Deadman, Fish and Hungry Creek drainages has been conducted over a number of years to assess the trend in steelhead production within the Lower Lochsa River drainage. Due to the above average steelhead trout production within these streams, especially the Fish/Hungry Creek drainages, monitoring trends in these drainages are most likely the best scenario to assess the health of the wild steelhead populations within the Lochsa River system.

The 1998 data indicates steelhead populations have not rebounded to the desired densities of juveniles (age 1+) >15 fish/100 m<sup>2</sup>. While higher stream flows during the summer months in 1997 may have contributed to the lower densities observed at the monitoring stations; stream flows during 1988 were mostly average to below average which tend to concentrate fish in smaller areas. In either case, most of the monitoring sites are pool habitat which normally have the highest densities of steelhead (age 1+ and age 2+) especially during periods of low stream flows. Average steelhead densities of age 1+ juveniles increased at the lower Fish Creek site, but these were offset by decreases at the Pete King, Deadman, upper Fish, lower Hungry, and upper Hungry Creek sites. Average steelhead juvenile densities at the middle Fish Creek site remained at the 1997 levels. While decreases at Pete King, upper Fish and upper Hungry Creek sites were small. Substantial decreases were observed at the Deadman Creek, and middle Hungry Creek sites; in both streams the densities were the lowest documented during the 17 years and 22 years of record respectively. The 32% increase in steelhead trout observed at the lower Fish Creek sites follows an increasing trend as the densities increased 57% from 1996 to 1997. The 1998 densities (26.4 steelhead (age 1+)/100 m<sup>2</sup>) at lower Fish Creek site is above the 17 year average of 19.7 steelhead (age 1+)/100 m<sup>2</sup>. Although the lower Fish Creek sites showed good steelhead juvenile densities, the overall data maintains the downward trend in steelhead production at these streams.

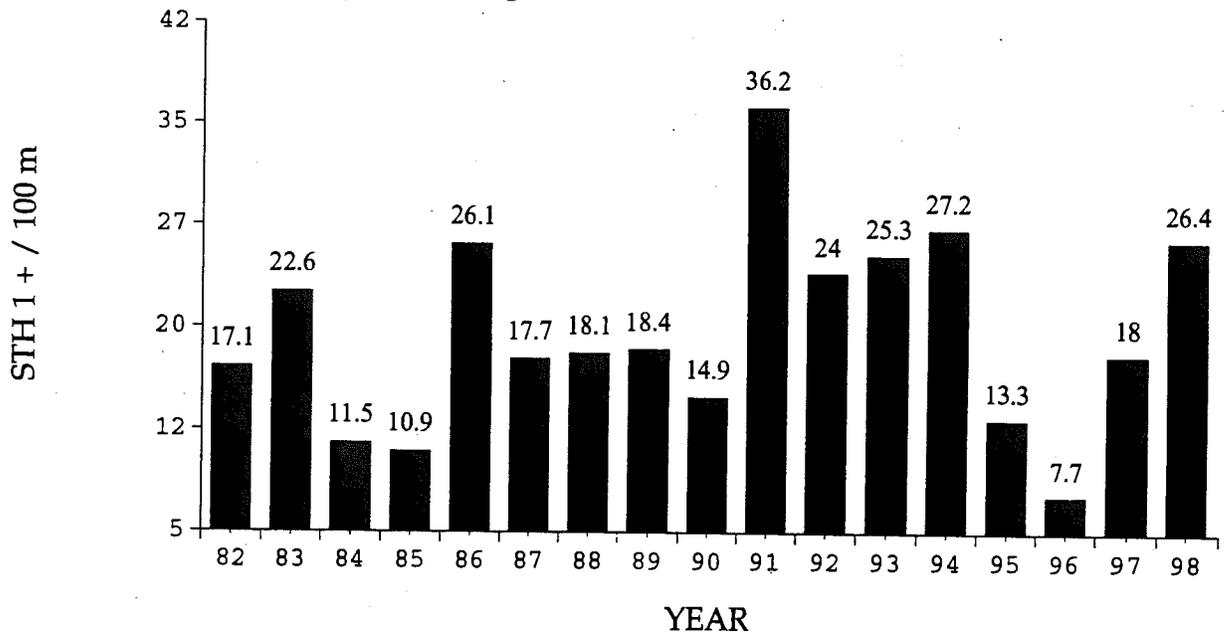
The following charts show the comparison of the average densities (#/100 m<sup>2</sup>) of juvenile steelhead trout (age 1+) that were observed for various survey periods (1976-1998) at permanent snorkeling stations on Pete King, Deadman, Fish and Hungry creeks in the Lochsa River drainage.



## Deadman Creek Age 1 steelhead

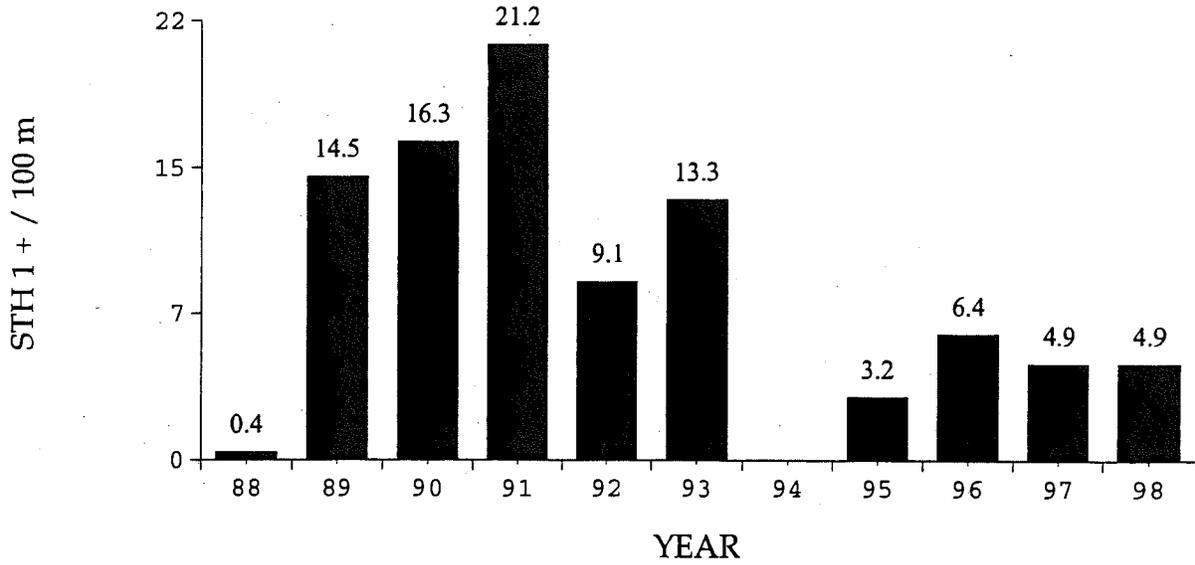


## Lower Fish Creek Age 1 steelhead



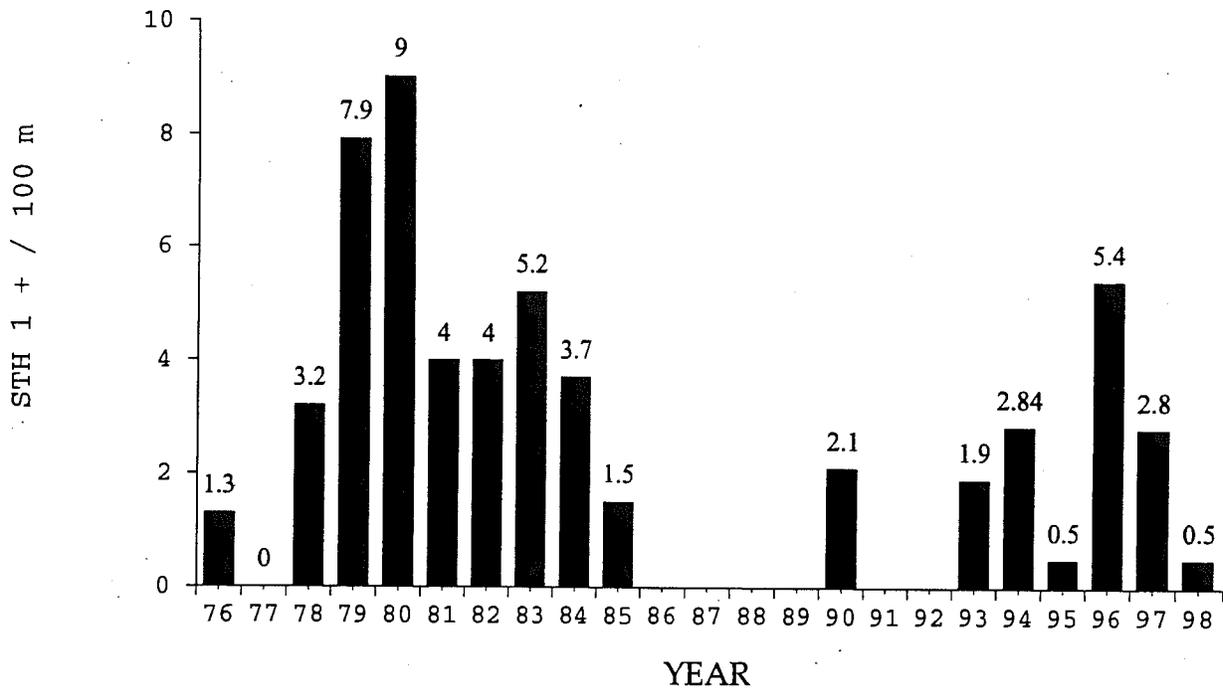
# Middle Fish Creek

## Age 1 steelhead

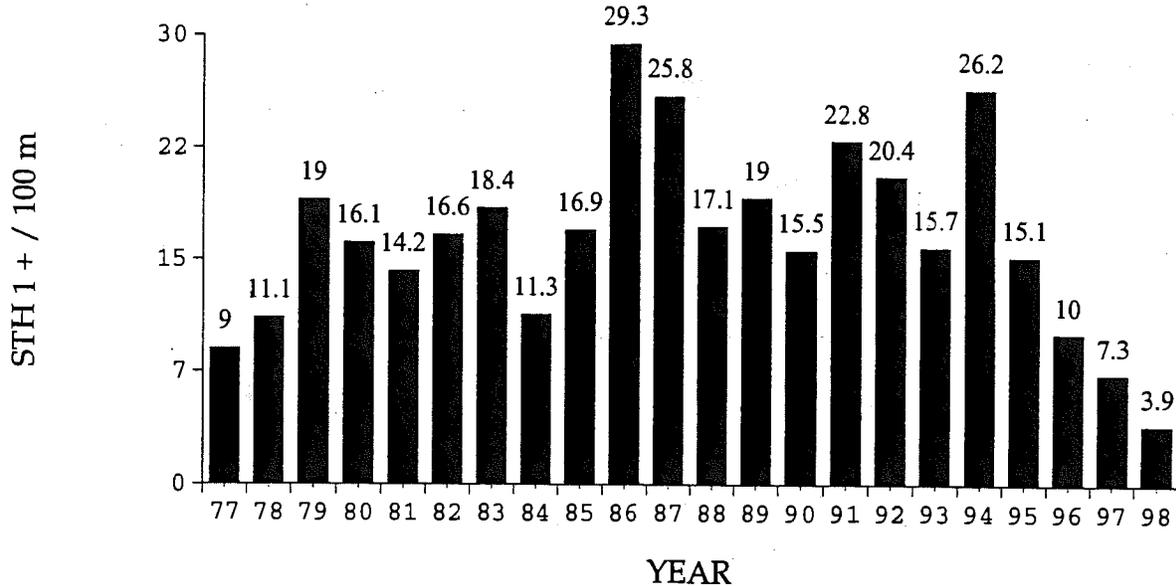


# Upper Fish Creek

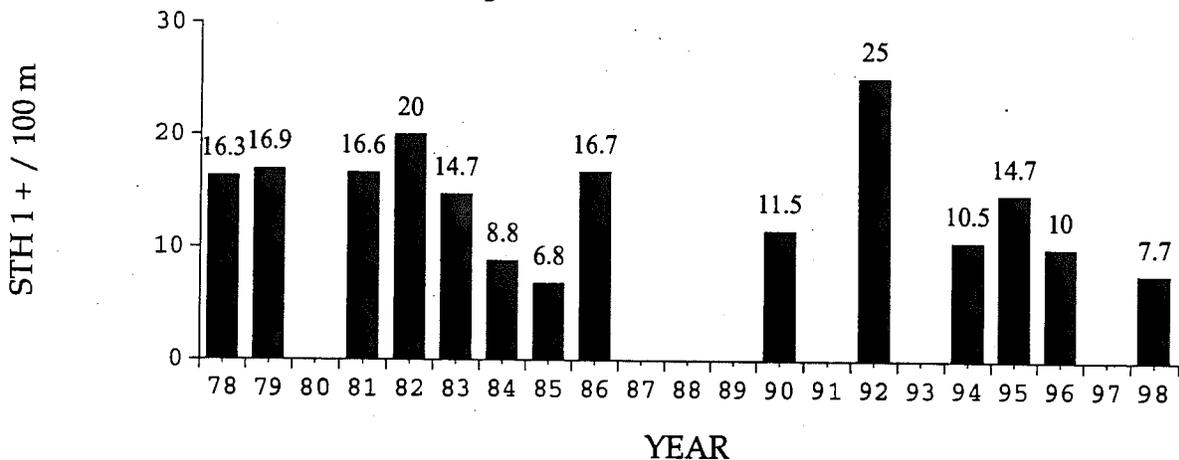
## Age 1 steelhead



## Lower Hungry Creek Age 1 steelhead



## Upper Hungry Creek Age 1 steelhead



Upper Lochsa River Area - In 1998, fish population monitoring of selected streams was continued by the Forest. Fish species present in some or all of the study streams included chinook salmon, steelhead/rainbow trout, westslope cutthroat trout, bull trout, mountain whitefish and sculpin. In 1989 and 1990, permanent monitoring sites were established on nine streams in the upper Lochsa River drainage: Crooked Fork, Brushy Fork, Pack, Walton, Warm Springs, Papoose, Squaw, Post Office, and Weir creeks. Fish population monitoring was scheduled on an alternate year basis. In 1998, the established monitoring sites on Walton Creek were completed. A comparison of fish density data for Walton Creek during the 1995, 1997 and 1998 sampling years showed relatively stable fish densities.

In 1998, the Forest continued bull trout spawning ground surveys on selected streams: Squaw Creek, West Fork Squaw Creek, East Fork Squaw Creek, Pappoose Creek, East Fork Pappoose Creek, West Fork Pappoose Creek, Shotgun Creek, Hopeful Creek, Boulder Creek, Fox Creek, Twin Creek, Beaver Creek, Walton Creek and Fish Lake Creek. Spawning was documented in 9 of the 14 streams.

The Forest established fish population monitoring sites on the inlet of Fish Lake to identify and assess the intensity of bull trout juvenile rearing. The surveys indicated the presence of a adfluvial bull trout population in Fish Lake. The survey also indicated the inlet may be the major spawning and early rearing area for the population. The Forest will continue monitoring the inlet in 1999.

As part of the continuing Idaho Supplemental Studies being conducted in the Lochsa River drainage, the Nez Perce Tribal Fisheries Department completed the 1998 spring chinook spawning ground surveys in Pappoose and Squaw creeks. Results of these surveys indicated that spring chinook spawning were back to average numbers after an extremely high 1997 spawning season when compared to the 1992-1996 spawning seasons. A total of 13 and 7 redds were located within Pappoose Creek and Squaw Creek respectively. This compares to 1-15 redds/year in Pappoose Creek and 0-1 redds/year in Squaw Creek during 1992-96 survey period. In 1997 Pappoose Creek and Squaw Creek had 61 and 17 redds respectively.

Item No. 32 Inland Fisheries

## NORTH FORK CLEARWATER RIVER WATERSHED

Habitat Improvement - North Fork Clearwater River Drainage:

Watershed/Habitat Restoration - The majority of activities within the North Fork Clearwater River drainage involved continued maintenance and rehabilitation of landslides and other erosional areas caused by the 1995/96 floods.

As a result of the 1995/96 floods, the majority of the watershed/habitat restoration projects in the North Fork Clearwater River drainage occurred in the Orogrande Creek drainage. Approximately four miles of road obliteration work was funded and completed by watershed restoration projects; this work will benefit the recovery of the Orogrande Creek drainage.

Sediment Dredging - The two sediment traps that were installed in a small unnamed tributary of Elk Creek as a result of the 1993 debris torrent were cleaned out. The purpose of these sediment traps was to reduce the amount of sediment depositing in the primary fish habitat downstream in upper Elk Creek.

Riparian Fencing - One temporary electric fence that was installed in 1996 around the sediment trap in the upper Elk Creek basin, was maintained in 1998. This provided protection of the riparian vegetation and maintained the integrity of the sediment trap from stream bank alterations.

Habitat Monitoring - North Fork Clearwater River Drainage: Approximately 265 miles of streams were inventoried during the summer of 1998. Fisheries habitat surveys were conducted within the drainages

of upper North Fork Clearwater River (Kelly Creek - Meadow Creek), Skull, Quartz, Eagle, Sheep Mountain, Toboggan, Little Moose, Ruby, and Craig creeks, and streams within the Chateau Rock/Pot Mountain and Smith Ridge areas. Reports are currently being completed.

Mainstem North Fork Clearwater River - In 1998, the Forest completed a survey of the mainstem North Fork Clearwater River from Dworshak Reservoir to Kelly Creek (47 miles); the inventory followed the same methodology that was used in 1994 on the mainstem Lochsa River. In addition to the general inventory, the monitoring of substrate and pool conditions was completed to assess the effects of the 1995/96 floods on the fisheries habitat within the mainstem North Fork Clearwater River. The substrate and pool monitoring procedures were the same as used on the Lochsa River in 1998. Since no pre-flood data is available, no comparisons can be made at this time. Any trends regarding the substrate and pool conditions will be verified in surveys scheduled for 2000 and 2002.

Water Temperature Monitoring - North Fork Clearwater River Drainage: The Forest have been collecting water temperature data from 1992 to 1998 to determine temperature problems and prioritize riparian recovery efforts. Due to migration barrier at Dworshak Dam, streams within the Forest's boundary are considered nonanadromous (no potential for steelhead trout or spring chinook salmon); only water quality and habitat conditions related to resident fish (i.e. westslope cutthroat trout and bull trout) are monitored and analyzed.

In 1998, stream temperatures were monitored at 89 sites on 78 streams within the North Fork Clearwater River drainage. Comparison of the 1998 stream temperature data with the desired maximum temperatures as defined for the "high fishable" and "no effect" standards in the Forest Plan is currently being analyzed.

Fish Population Monitoring - North Fork Clearwater River Drainage: Bull trout spawning surveys were conducted on selected streams within the North Fork Clearwater River drainage; results indicated redfish were very low in the streams sampled, ranging from zero to a few. Additional streams will be surveyed in 1999. As part of their ongoing monitoring program, personnel from the Idaho Department of Fish and Game conducted fish population monitoring via snorkeling and creel census activities within the mainstem North Fork Clearwater River and selected tributaries. In 1997, the Nez Perce Tribe initiated a study to assess genetic status of westslope cutthroat trout populations throughout the North Fork Clearwater River drainage. This study is scheduled to continue in 1999.

## PALOUSE RIVER DRAINAGE

Habitat Improvement - Palouse River Drainage: In 1998, the Forest concentrated the majority of habitat improvement activities in the Palouse area to the Potlatch River drainage.

Habitat Monitoring - Palouse River Drainage: Approximately 36 miles of streams were inventoried during the summer of 1998. Surveys were conducted on 23 streams within the Mannering Creek, Strychnine Creek and Palouse River drainages.

The survey within the North Fork Palouse River drainage noted fair to poor fish habitat conditions; fish habitat potential is limited by several factors, including extremely low summer streamflows, and the lack of large pools which provide marginal summer and winter rearing habitat for brook trout. Cobble embeddedness levels met the DFC (40-45% cobble embeddedness) for the appropriated Forest Plan standard of "low fishable" for only two streams, Ruby Creek and its unnamed tributary. Several other streams, Pup Creek, Mannering Creek, Wepah Creek, Blake's Fork, and Strychnine Creek had reach(es) that met the DFC for the Forest Plan standard.

Water Temperature Monitoring - Palouse River Drainage: Stream temperatures were monitored throughout the summer at eight sites on seven streams within the Palouse River drainage. Data for the site specific projects have not been analyzed. Comparison of the 1998 stream temperature data from the eight baseline sites and the desired maximum temperatures as defined for the "low fishable" standard in the Forest Plan revealed that:

- (1) the desired rainbow rearing temperature of 20°C was met at all sites, and
- (2) all sites also met the desired brook trout rearing temperature of 20°C.

Overall, water temperatures at six sites except the Palouse River and Meadow Creek (downstream of Blakes Fork) were under the State standard for cold water biota; water temperatures did not exceed the daily maximum of 22°C and the maximum daily average of 19°C. Water temperatures at Meadow Creek (downstream of Blakes Fork) exceeded the state standard. The Palouse River site is a yearlong site and the data has not been summarized. The state standard of 13°C for the spring spawning periods for rainbow trout was not met at any of the seven sites. No water temperatures were recorded during the fall spawning period for brook trout. However, the stream temperatures are most likely below the state standard of 13°C.

Fish Population Monitoring - Palouse River Drainage: During the 1998 habitat surveys, 96 fish population stations were established and sampled on 23 streams. At most stations brook trout was either the only salmonid present or the dominant salmonid. Low numbers of rainbow trout were also found in Mannering Creek and Wagner Gulch.

#### NORTH FORK CLEARWATER RIVER DRAINAGE

High Mountain Lake Surveys: In 1994, the High Mountain Lake Fisheries Project, a cooperative project with Idaho Department of Fish and Game and Lewis Clark State College, was initiated on high mountain lakes of the North Fork Clearwater River drainage to develop baseline ecological data. The project continued in 1995 with 43 lakes being surveyed in the Lochsa River drainage. In 1996, 49 lakes totaling approximately 134 acres were surveyed in the Lochsa River drainage. In 1997, a total of 28 lakes (approximately 188 acres) were surveyed within the Lochsa River and North Fork Clearwater River drainages. In 1998, the project conducted surveys on 33 lakes (approximately 92 acres) within the North Fork Clearwater River drainage. It is anticipated that the North Fork surveys will be completed during the 1999 field season.

# HERITAGE PROGRAM

## Goal

Manage and interpret heritage resources in accordance with Federal laws and Forest Service direction. Ensure that Indian tribal rights, as retained in treaties and other agreements with the tribes, are protected. Manage the Lolo Trail system to protect heritage resource values while enhancing public use and awareness. Nominate significant heritage sites to the National Register of Historic Places.

## Strategy

Examine and conduct inventories on all proposed project areas, document findings and provide direction for project implementation to ensure compliance with State and Federal regulations. Improve relations and develop working partnerships with the Nez Perce tribe to facilitate communication, consultation and cooperation. Identify and enhance resource values on the Lolo Trail system. Work with the public to improve values and increase awareness of heritage resources. Continue to assess heritage sites for nomination to the National Register of Historic Places.

**Item No. 4 Protection and Condition of Heritage Resource Sites**

Frequency of Measurement: Annual

Reporting Period: Annual

## Monitoring Action

Compare project effects to environmental analysis documents and project cultural resource reports to determine if projects have caused adverse effects on cultural resources. If this determination is made, necessary mitigation will be prescribed.

## Accomplishments/Findings

In FY98, five new heritage resource sites were recorded:

- 3 sites were prehistoric (pre-European, North American continent), and
- 2 sites were historic.

A total of six projects/sites were monitored. All of these involved facilities construction while projects were in progress.

Table 1 shows the number of projects, acres surveyed and sites identified during the course of project preparation (projects like timber sales and construction of recreation facilities).

Table 1. HERITAGE RESOURCE SURVEYS

YEAR	PROJECTS TESTED*	PROJECTS SURVEYED	ACRES SURVEYED (CLEARED)	NUMBER OF SITES IDENTIFIED
1988	4	27	9,435	36
1989	1	16	4,246	26
1990	0	30	2,747	21
1991	5	85	5,227	20
1992	14	62	6,496	19
1993	10	40	2,117	69
1994	4	41	3,886	52
1995	1	35	5,522	12
1996	5	46	3,947	20
1997	2	25	6,613	12
1998	6	31	2,300	5

\*Archaeological test excavations are conducted in areas within or near site locations, or on landforms that have a high probability of containing evidence of human activity. Tests indicate the absence, presence and/or amount of subsurface cultural material in project areas and help Forest officials decide where ground-disturbing developments may or may not take place.

Program Highlights:

Passport in Time (PIT) - A Pass Port in Time was not hosted on the Clearwater National Forest this year.

Take Pride in the Clearwater (TPIC) - Over 100 people, comprising mostly of families from the local communities and Forest Service employees volunteered for a 3-day weekend outing to clean campgrounds and maintain segments of the Lewis and Clark/Nee Me Poo National Historic Trails.

## LANDS

Item No. 12 Land Ownership Adjustments

Frequency of Measurement: Annual

Reporting Period: Annual

### Monitoring Action

The Forest Lands staff will prepare a report specifying the number of acres acquired, traded or sold. The report will contain the purpose of the land exchanges and how they contribute to the satisfaction of the Forest Plan objectives.

### Findings

The *Meadow Creek Exchange* was completed. The Forest Service acquired 699 acres while conveying 650 acres to the Potlatch Corporation.

Also during FY98, the Forest neared completion of the *Beaver/Butter N Eggs Cleanup Land Exchange* involving approximately 2,454 acres of Federal land and 2,550 acres of non-Federal land. All identified parcels are remnants of previous exchanges with Potlatch Corporation. Completion is expected in FY99.

The *Pits Exchange*, involving approximately 3,132 acres of Federal land and approximately 3,172 acre of non-Federal lands, has been identified. Field work is scheduled for FY99 with completion in FY00.

The overall objective of these exchanges is to consolidate Federal ownership for more efficient and cost-effective land management. These exchanges were consistent with the management area objectives identified in the Forest Plan and the land adjustment criteria also within the Forest Plan.

Completion of these exchanges satisfied several objectives identified in the Forest Plan. Costs for surveying and posting boundary lines; acquiring access easements and constructing access to manage national forest land; acquiring/granting other use permits; and trespass will be reduced.

Implementation of these exchanges contributed considerably to the management objectives and administrative efficiency of the Forest.

Over the past six-year period, the Forest has been involved in eight land exchange cases. During that time, 32,079 acres have been acquired while 21,067 acres have been exchanged. Completion of these exchanges has saved the government in excess of \$1,000,000 through savings in administrative costs such as landline location, rights-of-acquisition, and trespass cases.

# MINERALS

## Goal

Encourage and facilitate the orderly exploration, development and production of the energy and mineral resources on the Clearwater National Forest. Ensure that this exploration, development and production is conducted in an environmentally sound manner.

## Strategy

Process all notices of intent, operating plans, exploration permits and lease applications in a timely manner. Monitor to ensure compliance with State and Federal regulations. Develop adequate reclamation plans to return disturbed land to other productive uses, and monitor to ensure that reclamation is performed to specified standards. Maintain close coordination with local mining groups as well as applicable State and Federal agencies.

<p>Item No. 15 Minerals Prospecting and Development Frequency of Measurement: Annual Reporting Period: Five Years</p>
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## Monitoring Action

The Forest Geologist will prepare a report detailing the status of the minerals program. The report will be based on a review of all projects and mining activities that may have an effect on minerals management. The number of case files, status of case files, estimated quantity and value of mineral production will be evaluated.

## Accomplishments/Findings

Operations - A total of 101 operations were processed on the Forest during 1998. Of the 101 total operations processed, 87 were non-bonded, non-energy operations; 14 were bonded non-energy operations. All 14 bonded non-energy operations were administered to standard.

In FY96, new definitions for accomplishment indicators were issued by the Washington Office. Due to the difference in definitions of accomplishment, the 265 average annual number of cases predicted in the Forest Plan should not be compared to the 101 total operations processed and administered during FY98.

Locatable Minerals - The only significant locatable mineral mined from the Forest is gold. Miners are not required to report their production to the Forest Service. However, the Forest minerals geologist has estimated that approximately 153 ounces of gold were mined from the Forest during FY98. Of the 153 ounces of gold mined, approximately 109 ounces were mined from placers. The remaining 45 ounces were mined from a lode claim. The value of this amount of gold would be approximately \$45,900 at an average gold price of \$300/oz.

Common Variety Minerals - The Forest provides mineral materials for road surfacing to county and state agencies, for national forest roads and for use in private industry. Forest records show that 63,734 tons of material were produced from national forest lands in FY98 with an estimated value \$15,934.00.

Monitoring - All active earth-disturbing minerals activities and suction dredge mining were monitored for compliance with operating plans, Forest Plan standards, and State and Federal regulations. No impacts on mining activities from other resources were identified.

Item No. 36 Minerals Resource Availability

Frequency of Measurement: Annual

Reporting Period: Five Years

### Monitoring Action

The Forest geologist will prepare a report on the probable effect of renewable resource prescriptions and management direction on mineral resources and activities, including exploration and development. Denial of proposed mineral activities and changes in land status affecting mineral availability will be documented. Examples include designation as wilderness or recommended wilderness, legislation such as the Threatened and Endangered Species Act, executive orders, and special resource stipulations or management direction. Changes in land status or restrictions on minerals availability, exploration and development will be documented.

### Accomplishments/Findings

The Clearwater National Forest consists of a total of 1,825,318 acres. Of these acres, 259,167 (approximately 14%) are in the Clearwater portion of the Selway-Bitterroot Wilderness and are withdrawn from mineral entry. In addition to wilderness, the Forest currently has 52 individual sites withdrawn from mineral entry. This figure has remained the same since FY94.

## RANGE

### Goal

Manage livestock grazing land consistent with the protection and management of other resources.

### Strategy

Complete range environmental studies analyzing present management, and prepare allotment management plans for all active allotments. (An allotment is an area of land where one or more individuals graze their livestock.)

Item No. 6 Livestock Forage Available, Range in Good Condition Per Established Allotments Frequency of Measurement: Annual Reporting Period: Five years
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### Monitoring Action

District range personnel will annually monitor each grazing allotment for use, condition of range, forage availability and protection of other resources. The Forest Biologist will coordinate these reports through the "*Range Management Information System*," generating one source of information about range on the Clearwater National Forest.

### Accomplishments/Findings

Range allotments are routinely monitored for use, possible resource damage and maintenance needs. Current range conditions overall are good. There are 17 active cattle allotments on the Forest (14 on the Palouse Ranger District and 3 on the Lochsa Ranger District) that have 35 individual permittees. There are 1,471 cattle and 416 horses permitted to graze on the Forest. This amounted to approximately 9,700 animal unit months (AUMs) in FY98. An AUM is the amount of forage needed to sustain one cow, five sheep, or five goats for a month. These numbers reflect the permitted animals on cattle allotments and Outfitter and Guide Permits and does not include animals associated with recreational visitors.

An environmental analysis was completed for the Purdue Creek Allotment on the Palouse Ranger District in 1998 and a decision will be issued in the spring of 1999. The Environmental Analysis of the Musselshell Allotment was cancelled.

Noxious weeds were controlled on approximately 1,150 acres. Trailheads and campgrounds were treated along the Lower Lochsa River corridor.

# RECREATION

## Goal

Provide a range of quality outdoor recreation opportunities within a forest environment that will meet the public needs now and in the future. Provide opportunities for a broad spectrum of dispersed activities and developed facilities.

## Strategy

The Clearwater National Forest has developed several strategies to meet Forest Plan goals in recreation. These strategies can be summarized as follows.

Identify recreation areas. The Forest has been divided into six areas of similar recreation opportunities, use patterns and user needs. Planning within these areas will attempt to provide a range of recreation opportunities within constraints set by the land base and other uses.

Reconstruct existing recreation facilities to standards appropriate. Facilities at all sites will be reconstructed to meet the needs of people with physical disabilities where topography allows.

Provide for construction of new recreation facilities to complement existing facilities such as interpretive trails near picnic areas. Facilities at all sites will be constructed to meet the needs of people with physical disabilities within the constraints of a site's topography.

Continue to request funding to operate, maintain and reconstruct sites to full service standards.

Item No. 2 Wide Spectrum of Recreation Opportunities

Frequency of Measurement: Annual

Reporting Period: Five years

## Monitoring Action

The Forest Recreation staff will monitor recreation opportunities. Monitoring and evaluation will:

- 1) compare recreation use on the Forest with the broad range of opportunities that could occur and are supported in the Forest Plan,
- 2) identify changes or conflicts in existing recreation use, and
- 3) identify directions for changes and alternatives for conflict resolution.

## Accomplishments/Findings

Introductory Note: No systematic sampling procedures to estimate actual recreation use are in place for the National Forest system. Recreation use estimates are arrived at primarily by observation and are useful primarily for indicating trends in use. Use estimates for developed recreation sites reflect more closely actual use since they are based on fees paid and information provided by visitors at points of visitor contact such as visitor centers.

In monitoring reports for past years, recreation funding was shown in Table 1. "RECREATION FUNDING, USE AND FEES." Due to changes in the way recreation and trails budgets were received by the Forest during different years, the way budget information was displayed in Table 1 is not comparable for different years. The reader is referred to "ECONOMICS Table 1. Comparison Between Yearly Expenditures (in thousands \$) and Forest Plan Projections (in 1998 \$)" for information about recreation and trails budgets that is comparable between years.

- ◇ Recreation Use: Estimated total use on the Clearwater National Forest increased in 1998.
- ◇ General Forest Area Use: Indicators suggest that the number of recreational visitors to the Clearwater National Forest continued to increase in 1998 reflecting an increasing population in North Idaho, repair of flood damaged roads and trails and an increasing interest in the route of the Lewis and Clark expedition as the Lewis and Clark Bicentennial year approaches. Inquiries about the route of Lewis and Clark crossing the Clearwater National Forest continued to increase in number during 1998.

Whitewater rafting use on the North Fork Clearwater and Lochsa Rivers continued to increase (Note: additional information regarding rafting use on the Lochsa River is located in the Wild and Scenic Rivers section.)

- ◇ Developed Area Use: Fees collected in 1998 at developed campgrounds increased about 13% from 1997. Use is assumed to have increased a like amount. This increase in visitor use and fee collection was due primarily to the reopening of the reconstructed Powell, Wendover and Whitehouse Campgrounds along Highway 12 and the Aquarius and Washington Creek Campgrounds along the North Fork Clearwater River.

Major Fenn Picnic Area and the adjacent Major Fenn National Recreation Trail remained closed in 1998.

Table 1: RECREATION USE AND FEES COLLECTED.\*

	FY94	FY95	FY96	FY97	FY98
RECREATION USE (M Visitor Days)	1140	1158	1158	1681	1808
FEES COLLECTED	\$58895	\$63047	\$63330	\$85572	\$96763
Change from Previous Year (%)	+4	+7	+0	+35	+13

\* The use estimate reported for 1997 was drawn from the INFRA system which uses estimates differing from that used in previous years. This method resulted in a skewed estimate of use and indicated a trend of rapid growth in use that did not actually occur. Estimate of use for 1998 is the figure reported from Table 1 in the Economics section and reflects the overall trend in recreation.

## Recreation Facility Improvement

Emphasis continues to be placed on improving existing campground facilities. These improvements include upgrading or replacement of aging water systems, improved access to recreation facilities for the disabled, and improved parking to accommodate a variety of users. Over the last ten years, the Forest has been focusing in improvement of facilities in the U.S. Highway 12 corridor, the North Fork Clearwater corridor, and camp areas in the Palouse region. The Forest is approaching completion of the rehabilitation of developed campgrounds and will now begin focusing on the planning for facilities expected to be in demand during the Lewis and Clark Bicentennial observance.

The following is a list of projects in FY98:

- ◆ Reconstruction projects at Aquarius and Washington Creek Campgrounds were completed during the summer of 1998 using Idaho Department of Parks and Recreation Recreational Vehicle Grant funds, volunteer labor, appropriated capital improvement funds and force account labor.
- ◆ Final planning was completed for another project in the North Fork Clearwater corridor which is partially funded with Idaho Department of Parks and Recreation Recreational Grant funds. Construction is planned to begin in the spring of 1999 on Noe Creek, Kelly Forks and Hidden Creek Campgrounds. Improvements will include resurfacing roads, realignment and leveling of camping units, rehabilitation of water systems, and replacement of tables, fire rings and rest rooms.
- ◆ Utilizing capital investment funds and grant funding from the Idaho Heritage Trust, the Lochsa Ranger District completed another phase of rehabilitation work at the Lochsa Historic Ranger Station. This project rehabilitated the root cellar and log foot bridge.
- ◆ Work also began in the rehabilitation of the Kelly Forks Log Cabin. This historic cabin, constructed in the early 1930s, was severely deteriorated and required a complete roof replacement, major repairs to the porch and work on the log walls. Exterior work on the structure was completed by the regional historic preservation team, volunteers, and Forest Service employees. Partial funding for the project was through a grant from the Idaho Heritage Trust. Work remaining includes replacement of interior wall and floor coverings, construction of new cabinetry, and replacement of appliances. This work will be completed as soon as funding is available. When completed, the rehabilitated cabin will be placed in the cabin rental program and will be available for use by the public.
- ◆ Work to renovate the Elk Summit Guard Station continued under the direction of the Region 1 Building team. All of the windows in the cabin were repaired, reglazed, stripped and repainted.

## Recreation Special Efforts

**Partnerships** - Partnerships continue to be important to the success of the Forest's recreation program. In 1998, as in previous years, partners contributed a significant amount of labor and funding to improve recreational facilities, and help meet forest visitor expectations by providing interpretive and "Good Host" programs.

**Noxious Weed Control** - In a cooperative effort with the Idaho Department of Transportation administrative sites including campgrounds, trailheads and river access sites along the Highway 12 corridor were treated to reduce noxious weed occurrence and invasion. Treatments included pulling, burning, introducing biological controls, and herbicide application. Developed sites along the North Fork Clearwater and elsewhere on the Forest were also treated to reduce the spread of noxious weeds.

Item No. 14 Off Highway Vehicle Use Impacts  
Frequency of Measurement: Annual  
Reporting Period: Five years

## Monitoring Action

The Forest Recreation staff will prepare a report displaying the effects of Off Highway Vehicles (OHVs) on Clearwater National Forest resources. Monitored items include complaints and conflicts between user groups, impacts to trails from motorized use, citations for violations of closure regulations, and resource damage occurring on the Forest.

## Accomplishments/Findings

Observations of recreation activity on the Forest indicates that use of OHVs continued to increase in 1998. OHVs are routinely observed on most Forest roads open to their use throughout the snow free season. Snow machine use also appears to have increased significantly over the last several years as the snow machine industry has improved the capability of these machines to travel in rugged terrain for longer distances. Due to topography and vegetation, most use of OHVs is still confined to roads.

In 1998, complaints and conflicts between user groups, impacts to trails from motorized use, citations for violations of closure regulations, and resource damage were still considered to be minimal. Instances of reported conflict normally involved objection by non-motorized users to the presence of motorized users encountered on trails. Instances of unauthorized construction of trails to permit use of OHVs are still occurring occasionally throughout the Forest. These have been limited to removing down trees and small vegetation to allow passage of small OHVs, commonly referred to as "4 wheelers". The effects of these unauthorized activities have generally been limited to minor ground and vegetation disturbance with short term effects. There have been no cases where action was necessary to correct resource damage from unauthorized use of OHVs other than action to stop the use.

The collaborative effort to reach agreement on use of OHVs in the North Lochsa Face Assessment Area reported on in 1997 has been completed. Management direction for resolution of conflicts between non-motorized users and motorized users and for avoiding and mitigating effects of OHV use are included in the *Final Environmental Impact Statement* to be released this summer.

## Monitoring Items

In 1999, monitoring of the following items will be initiated:

- ◇ Number of reported complaints relating to use of OHVs, or instances of conflict between user groups. Informal survey of office receptionists and recreation managers on the Clearwater National Forest indicated that the frequency of complaints regarding use of OHVs is increasing, but the number of complaints received was less than 10 in 1998.
- ◇ Number of citations for violations of regulations relating to use of OHVs. In 1998 there were 118 violations or incident reports issued for violations of regulations - an increase of 136% over that reported in 1997.

In 1998, two instances of minor resource damage (minor ground disturbance and/or vegetation damage) caused by unauthorized trail building for OHV use were reported by managers.

## LAW ENFORCEMENT STATISTICS RELATING TO OHV USE\*

	FY94	FY95	FY96	FY97	FY98
OHV Road Closure Violation Citations	0	2	4	1	0
OHV Trail Closure Violation Citations	0	0	0	1	0
Unauthorized Trail Building Citations	0	0	0	0	2
Incident Reports of Violations Related to OHV Use	7	33	69	48	116
TOTAL	7	35	73	50	118

\* Source of information is LEMARS law enforcement statistical report.

Statistics presented in the above table indicate the rapid increase in use of OHVs on the Clearwater National Forest. While the number of incidents of violation of regulations by OHV users has risen commensurately with the amount of use, the number of instances of resource damage attributable to OHV use has not risen. Most conflicts associated with use of OHVs are still related to use on roads or trails where use is restricted by regulation, or are social conflicts between motorized and non-motorized users.

# RESEARCH NATURAL AREAS

## Goal

Identify and manage unique and/or outstanding botanical, geological and historical areas of the Forest for public enjoyment and use.

## Monitoring Action

Establish a sufficient number of Research Natural Areas (RNA) on the Forest. Each should include at least two or three examples of major habitats and at least one example of a minor habitat. Major habitats are widespread, whereas minor habitats are unique, with little occurrence on the Forest.

## Accomplishments/Findings

There are twelve RNAs identified in the Forest Plan on the Clearwater National Forest. The Lochsa River RNA was officially designated before the release of the Forest Plan in September, 1987. Since then, nine additional RNAs have been designated.

<i>Aquarius</i>	<i>Chateau Falls</i>	<i>Grave Peak</i>
<i>Bald Mountain</i>	<i>Dutch Creek</i>	<i>Sneakfoot Meadows</i>
<i>Bull Run Creek</i>	<i>Four-Bit Creek</i>	<i>Steep Lakes</i>

Fenn Mountain and Rhodes Peak are in application process for official designation. Official designation can occur when an "*Establishment Report*" (a complete botanical flora and fauna report) is finished for the proposed RNA. This report is not anticipated to be completed until 2000.

## RESEARCH NEEDS

Item No. 24 Research Needs  
Frequency of Measurement: Annual  
Reporting Period: Five years

### Monitoring Action

The Forest Planning staff will maintain a list of research needs. The initial list of approved research needs appears in the Forest Plan (pages II-15, 16). As additional research needs are identified, they will be added to this list.

### Findings

## RECREATION

In 1999, monitoring of the following items for off highway vehicle use will be initiated:

- ◇ Number of reported complaints relating to use of OHVs, or instances of conflict between user groups. An informal survey of office receptionists and recreation managers on the Clearwater National Forest indicated that the frequency of complaints regarding use of OHVs is increasing, but the number of complaints received was less than 10 in 1998.
- ◇ Number of citations for violations of regulations relating to use of OHVs. In 1998 there were 118 violations or incident reports issued for violations of regulations - an increase of 136% over that reported in 1997.

## WILDLIFE

Changes in elk habitat and the potential increase in calf mortality will be monitored.

# RIPARIAN AREAS

## Goal

Manage riparian areas under the principles of multiple use as areas of special consideration for distinctive values. Integrate riparian management with the management of adjacent areas to ensure the protection of the water resource and other dependent resources.

## Strategy

Evaluate on-site and cumulative effects of proposed actions, resolving conflicts in favor of riparian-dependent resources. Define and identify riparian areas and their values. Develop direction and techniques to protect or enhance these values.

Item No. 10 Riparian Area Condition Frequency of Measurement: Annual Reporting Period: Five years
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## Monitoring Action

Riparian monitoring stations have been established to determine baseline or current riparian conditions and also to determine the effects of road construction, timber harvest, site preparation, and grazing.

## Accomplishments/Findings

Baseline or current conditions, including channel characteristics, are monitored annually on several streams. This monitoring is repeated on a three to five year cycle to determine trend in channel condition. Permanent channel cross sections are established in which gradient (channel slope), instream sediment concentration, channel substrate (rock size) composition, and photo points are established. Channel type and stability are determined for each of the streams. An attempt is made to associate cause with effect when conditions do not appear as natural.

Instream sediment was analyzed using the Wolman pebble count and cobble embeddedness techniques. (A Wolman pebble count classifies the size of stream substrate.) Channel cross sections were measured to determine changes in deposition (sediment deposits) or scour (removal of channel rock) over time.

In 1998, the Forest measured channel geometry and instream sediment in 48 streams across the Forest. Table 1 lists these monitoring sites. Data collected at each site is available in the Supervisor's Office.

Table 1: Channel Morphology Sites - 1998

BASIN	WATERSHED	BENEFICIAL USE	ACTIVITIES	
Palouse River (17060108)	Palouse River	Brook, Minimum Viable	Timber Harvest and Grazing	
	E.F. Meadow Creek	Brook, Minimum Viable	Timber Harvest and Grazing	
	Mannering Creek	Brook, Minimum Viable	Timber Harvest and Grazing	
	Wepah Creek	Brook, Minimum Viable	Timber Harvest and Grazing	
	Piah Creek	Brook Trout	Timber Harvest and Grazing	
	Strychnine Creek	Brook Trout	Timber Harvest and Grazing	
	Poorman Creek	Brook, Minimum Viable	Timber Harvest and Grazing	
	Torpid Creek	Brook Trout	Timber Harvest and Grazing	
Lochsa River (17060303)	Post Office Creek	Steelhead High Fish	Timber Harvest	
	Squaw Creek (Lower)	Chinook High Fish	Landslides	
	W.F. Squaw Creek	Cutthroat High Fish	Landslides	
	Squaw Creek (Abv Doe)	Chinook High Fish	Landslides	
	Doe Creek	Steelhead High Fish	Landslides	
	Papoose Creek	Steelhead High Fish	Landslides	
	E.F. Papoose Creek	Steelhead High Fish	Landslides	
	W.F. Papoose Creek	Steelhead High Fish	Landslides	
	Parachute Creek	Steelhead High Fish	Landslides	
	Spruce Creek	Steelhead High Fish	Road Construction	
	N.F. Spruce Creek	Steelhead High Fish	Road Construction	
	S.F. Spruce Creek	Steelhead High Fish	Timber Harvest	
	Beaver Creek	Cutthroat High Fish	Timber Harvest	
	Swamp Creek	Cutthroat High Fish	Timber Harvest	
	Savage Creek	Cutthroat High Fish	Timber Harvest	
	Colt Creek	Steelhead High Fish	Timber Harvest	
	Walton Creek	Steelhead High Fish	Road Construction	
	Clearwater River (17060306)	Lolo Creek	Steelhead High Fish	Timber Harvest and Grazing
		Yoosa Creek	Steelhead High Fish	Timber Harvest and Grazing
		Chamook Creek	Cutthroat High Fish	Timber Harvest and Grazing
Mox Creek		Cutthroat High Fish	Timber Harvest and Grazing	
Camp Creek		Steelhead High Fish	Timber Harvest and Grazing	
Dollar Creek		Steelhead High Fish	Timber Harvest and Grazing	
Yakus Creek		Cutthroat High Fish	Timber Harvest and Grazing	
Upper North Fork Clearwater River (17060307)	North Fork Clearwater River	Cutthroat No Effect	Landslides, Timber Harvest	
	Gravey Creek	Cutthroat High Fish	Timber Harvest	
	Weitas Creek	Cutthroat High Fish	Baseline	
	Little Weitas Creek	Cutthroat High Fish	Baseline	
	Hemlock Creek	Cutthroat High Fish	Baseline	
	Collins Creek	Cutthroat No Effect	Baseline	
	Quartz Creek	Cutthroat High Fish	Timber Harvest	
	Saddle Creek	Cutthroat High Fish	Baseline	
	Wolf Creek	Cutthroat High Fish	Baseline	
	Cougar Creek	Cutthroat Moderate Fish	Timber Harvest	
	Grizzly Creek	Cutthroat Moderate Fish	Timber Harvest	
	Little Moose Creek	Cutthroat High Fish	Baseline	
	Ruby Creek	Cutthroat Trout	Baseline	
Lower North Fork Clearwater River (17060308)	North Fork Kelly Creek	Cutthroat Trout	Baseline	
	Toboggan Creek	Cutthroat High Fish	Baseline	
	Cloverleaf Creek	Brook, Minimum Viable	Timber Harvest and Grazing	

Pete King Creek. Between 1988 and 1998 the Clearwater National Forest has made several measurements of instream channel conditions in the Pete King Creek watershed. Instream sediment measurements using the Wolman pebble count procedure began in 1988 and were repeated in 1994 and 1997 in Pete King Creek. Wolman pebble counts were also collected at Pete King above the West Fork, Nut Creek, Placer Creek, and Walde Creek in 1997. This data is presented in Table 2.

Table 2: Pete King Creek Watershed Wolman Pebble Count Results

STREAM	YEAR	TRANSECT	% FINES <sup>1</sup>	D50 <sup>2</sup>
Pete King Creek (Near Mouth)	1988	2	16.0%	Very coarse gravel
	1994	1	24.1%	Small cobble
		2	29.9%	Very coarse gravel
		3	29.9%	Small cobble
Pete King Creek	1994	Mean	28.0%	Small cobble
	1997	1	19.9%	Small cobble
		2	23.8%	Small cobble
		3	10.5%	Small cobble
Pete King Creek	1997	Mean	18.1%	Small cobble
Pete King Creek (above West Fork)	1997	A	56.0%	Sand
		B	56.0%	Sand
		C	71.0%	Sand
Pete King (above West Fork)	1997	Mean	61.0%	Sand
Nut Creek	1997	A	25.2%	Large cobble
		B	28.3%	Large cobble
		C	64.0%	Sand
Nut Creek	1997	Mean	39.2%	Large cobble
Placer Creek	1997	A	25.9%	Very coarse gravel
		B	46.4%	Medium gravel
		C	43.3%	Medium gravel
Placer Creek	1997	Mean	38.5%	Medium gravel
Walde Creek	1997	A	25.0%	Large cobble
		B	42.0%	Coarse gravel
		C	29.3%	Very coarse gravel
Walde Creek	1997	Mean	32.1%	Very coarse gravel

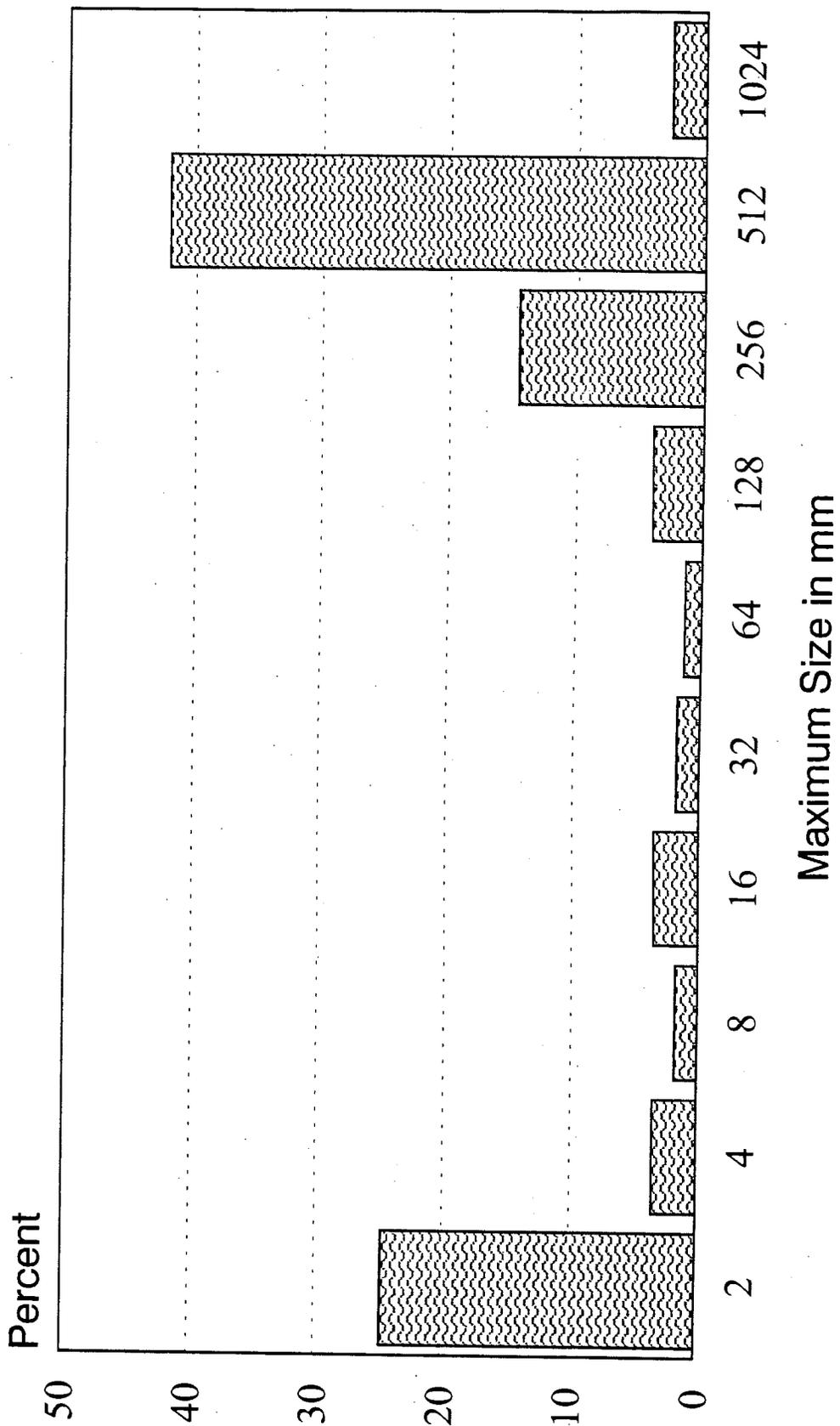
<sup>1</sup> Percent fine sediment, four millimeters and less.

<sup>2</sup> Mean particle size.

The Pete King Creek watershed is dominated by border zone geology which decomposes into fine textured soils. Streams within this geology tend to have a high level of instream fine sediment. It appears that streams within the Pete King Creek watershed have high levels of sediment, even for border zone geology. Two transects in Nut Creek had bimodal distributions, as can be seen in Figure 1, for Transect B. A bimodal distribution differs from a normal bell shaped distribution in that there are two distinct and separate populations of data. In this case, fine sediment less than two millimeters and small boulders 256 to 512 millimeters in size are the two populations of data indicating that the cobbles and gravels are present in Nut Creek but buried by sand. Most likely this condition is related to past management practices, including road construction and timber management without the aid of today's best management practices and PACFISH buffers.

# Figure 1: Nut Creek Transect B

## Particle Size Distribution



Cobble embeddedness and stream bank stability were also measured in Pete King, Nut, Placer and Walde Creeks in 1991 and 1997. Channel stability was determined in the 1997 survey only. The results of this information are presented in Table 3.

Table 3: Stream Channel Measurements in Pete King, Nut, Placer, and Walde Creeks

Stream	Survey Year	Cobble Embeddedness %	Bank Stability <sup>1</sup>	Channel Stability <sup>2</sup>
Pete King Creek	1991	50.4%	5.0	
	1997	35.7%	5.0	62.3 (Good)
Nut Creek	1991	44.7%	5.0	
	1997	38.3%	4.9	78.2 (Fair)
Placer Creek	1991	39.0%	5.0	
	1997	37.7%	5.0	88.9 (Fair)
Walde Creek	1991	49.5%	4.9	
	1997	40.1%	4.9	84.0 (Fair)

<sup>1</sup> A stream bank stability rating of 5.0 equates to 100% stable banks. A stream bank stability of 1.0 equates to 0% stable banks.

<sup>2</sup> "Good" channel stability (39-76); "Fair" (77-114); "Poor" (115-152).

Cobble embeddedness, a measurement of instream sediment, is less in 1997 than in 1991 in all channels surveyed. Although Pete King Creek experienced 47 landslides in 1995 and 1996, cobble embeddedness went down. Nineteen of these landslides were in the Walde Creek watershed, yet cobble embeddedness went from 49.5% before the landslides to 40.1% after the landslides. Possibly, the effects of higher water in the 1995/1996 flood that exceeded bankfull flow, was a more important factor in the overall condition of the channels than the landslides, which effected isolated portions of reaches. When streamflows exceeded bankfull flow, sediment that was scoured from the channel or delivered to the stream from landslides, was deposited in the floodplain and not within the stream. This condition led to lower levels of cobble embeddedness as sediment was deposited in the floodplain.

Another explanation is the sediment from the landslides had not yet been distributed evenly throughout the reaches of Pete King Creek where it would be monitored as an increase in cobble embeddedness. In an effort to determine this, the Forest also conducted instream measurements in the lower five reaches of Pete King Creek in 1998. This information is presented in Table 4.

Table 4: Stream Channel Measurement in the Lower Five Reaches of Pete King Creek

Survey Year	Reach	Channel Type	Cobble Embeddedness %	Bank Stability	Channel Stability
1991	PK12	B3	43	5.0	
	PK13	B3	33	5.0	
	PK14	B3	38	5.0	
	PK15	B3	34	5.0	
1997	PK12	B3	30	5.0	64 (Good)
	PK13	B3	29	4.9	63 (Good)
	PK14	B3	32	5.0	59 (Good)
	PK15	B3	29	4.5	69 (Good)
1998	PK12	C3b	47	5.0	79 (Fair)
	PK13	C3b	42	4.9	73 (Good)
	PK14	C3b	43	5.0	73 (Good)
	PK15	B3	36	4.6	77 (Fair)

Cobble embeddedness levels dropped between 1991 and 1997, most likely due to the 1995-1996 flood event that scoured the channel. This scouring also caused 115 meters per kilometer of streambank erosion in Reach PK15 (Bank Stability 4.5). However, in 1998 cobble embeddedness levels went up exceeding the 1991 levels, probably due to two causes:

- 1) The landslide effects are now showing up at the mouth of Pete King Creek; and
- 2) 1997 was a low flow year when bankfull flow was not reached.

Sediment would have been deposited within the channel instead of in the floodplain, as previously described. In 1999, above average runoff is expected that will exceed bankfull flow. Monitoring of the four lower reaches in Pete King Creek will continue in 1999. The higher channel stability numbers in 1998 is probably related to the increased sediment in the channel and Reaches PK12 and PK15 going from "good" channel stability to "fair" channel stability. This is due to the increase in sediment deposition and decrease in stable channel materials, which are two very important ratings in the Stream Reach Inventory and Channel Stability Evaluation procedure used.

# ROAD OBLITERATION

## Goal

The goal of road obliteration on the Clearwater National Forest is to reduce watershed degradation by reclaiming roads that are no longer a necessary part of the Forest's transportation system. The primary objectives for the Forest's obliteration program are:

- Reduce erosion from road surfaces and slopes and related sedimentation of streams.
- Reduce the risk of mass failures and subsequent impact on streams.
- Restore natural surface and subsurface drainage patterns.
- Use road maintenance funds more effectively - concentrate the available funds on roads that are needed for long term access.

## Accomplishments/Findings

Obliteration is designed to significantly reduce if not eliminate mass failure risks, promote continuous drainage, revegetate eroding areas, and leave the area ready to be reforested or able to reforest naturally. Based on field information about the roads condition, a road to be eliminated is targeted either for abandonment or some level of obliteration.

A road to be *abandoned* is already stable and revegetating naturally. No physical work is required for abandonment, just a change in the database to reflect the fact that it no longer will be tracked as a road. However, road to be *obliterated* will require some physical work in addition to the database change. The extent of obliteration work required is classified in four levels:

- *Level 1* Recontouring at the start of the road to restrict vehicle access.
- *Level 2* Some work required along the road to address mass failure or erosion risk factors.
- *Level 3* Substantial work required along the full length of the road.
- *Level 4* Recontouring of most of the road.

Generally, the following work is performed in obliteration levels 2 through 4:

Culverts are removed. Fills are removed in the area around live streams and stream channels are restored to their original grade. Ditches are eliminated and the road surface is strongly outsloped or recontoured to provide continuous drainage. The road surface may be decompacted to promote tree growth. Disturbed areas are grass seeded, and fertilized. Erosion control blankets are installed at sensitive locations such as near stream crossings to control surface erosion. Other disturbed areas receive straw mulch, native woody debris mulch, or a scattering of logs and stumps. Native forbs, shrubs and duff excavated during outsloping or recontouring are transplanted into the disturbed areas. At completion, the area will no longer convey vehicle traffic, and requires no maintenance.

In FY98, 134 miles of road were obliterated at a cost of \$8,800 per mile. This cost includes equipment, materials, labor and project administration and inspection.

YEAR	RECONSTRUCTION (Miles)	NEW CONSTRUCTION (Miles)	OBLITERATION (Miles)
1987	20.1	18.9	0
1988	45.4	49.2	0
1989	77.6	34.7	0
1990	39.8	31.5	0
1991	61.4	36.1	0
1992	66.4	37.2	9.5
1993	45.3	3.8	2.6
1994	61.6	8.6	1.4
1995	108.9	1.5	9
1996	72.0	1.8	15
1997	7.6	1.0	52
1998	85.3	1.1	134
<b>TOTAL</b>	<b>691.4</b>	<b>225.4</b>	<b>223.5</b>

# ROADS

Item No. 13 Miles of Road Open/Restricted  
 Frequency of Measurement: Annual  
 Reporting Period: Five years

## Monitoring Action

The Forest Engineer will annually review total miles of road on the Forest and display the data to show miles of open roads and miles of restricted roads. The restricted road information will be broken down to show roads that are closed yearlong to all vehicle traffic and roads that are restricted for some part of the year.

## Accomplishments/Findings

The Forest development road system on the Clearwater National Forest is made up of roads that vary from narrow single-lane unsurfaced to double-lane paved roads. This system of approximately 4,602 miles provides access to all major areas of the Forest. Road restrictions are a major component in resource protection. Driven by resource needs, including habitat needs of big game and water quality, road restrictions are reviewed annually and revised when necessary to meet the current management situation

### MILES OF RESTRICTED AND OPEN ROADS

RESTRICTED			METHOD OF CLOSURE				OPEN
DISTRICT	Yearlong (miles)	Seasonal (miles)	Gates	Guar- drail	Earthen Barrier	Posted: Sign Only	Year-round, weather permitting
Pierce	396	181	140	69	49	37	525
Palouse	170	451	74	41	71	34	352
North Fork	467	160	67	42	135	24	627
Lochsa	247	43	80	53	45	18	126
Powell	410	103	44	48	129	17	344
<b>TOTAL</b>	<b>1,690</b>	<b>938</b>	<b>405</b>	<b>253</b>	<b>429</b>	<b>130</b>	<b>1,974</b>

# SCENIC RESOURCES

## Goal

In association with other resource management activities, maintain a natural appearing forest landscape as viewed from designated visual travel corridors, recreation sites, wilderness, high-use recreation areas and administrative areas.

## Strategy

The Forest landscape architect and District personnel will review proposed management activities; provide input when proposed management activities are located in the viewshed of designated visual travel corridors, recreation sites, wilderness, high use recreation areas and administrative areas; and recommend actions that will meet Forest Plan scenic integrity objectives (formerly referred to as Visual Quality Objectives). Management activities will be monitored during implementation and at completion for success in meeting scenic integrity objectives (SIOs).

Item No. 3 Visual Quality Objectives

Frequency of Measurement: Annual

Reporting Period: Annual and five years

## Monitoring Action

The Forest landscape architect, assisted by District personnel reviewed all of the current year's completed timber harvesting activities to determine if SIOs were met for FY98. Other management activities that were monitored for their effects on the scenic resource were selected campground construction projects, road maintenance projects, and road obliteration projects. Monitoring of completed activities included field observations of management activities and an office review of project reports. Several additional timber projects were monitored during implementation to ensure that SIOs were being met as the projects progressed.

## Accomplishments/Findings

The Forest landscape architect and District personnel provided input by serving on interdisciplinary teams (IDT) and by providing recommendations for practices that would aid the Districts in meeting SIOs on several proposed management activities. A total of 33 timber sales were completed and closed out in FY98. Of the activities reviewed, all the projects met the Forest Plan standard for scenic quality. In some cases projects exceeded the Forest Plan SIOs designated for the area or rehabilitated past activities. Approximately 12% of the sales were located in areas with a *High SIO (VQO of Retention)*, 24% were in areas with a *Moderate SIO (VQO of Partial Retention)*, 28% were in areas with a *Low SIO (VQO of Modification)*, and the remaining 36% were located in areas with a *Low SIO (VQO of Maximum Modification)*.

Of the activities reviewed, 14 projects were minor road-side salvage projects which had no affect on scenic quality. An additional eight projects were salvage sales within the modified area of a previous sale and again had little affect on scenic quality. Of the remaining eleven projects, four were located in areas where Forest Plan objective for scenery was *Very Low SIO (VQO of maximum modification)*. While several projects had units that were easily visible from low use travel corridors or in background views from more prominent sites, all of the activities met the criteria for very low scenic integrity (*maximum modification*).

Four campground reconstruction projects were completed in FY98. Major renovations were completed in Aquarius and Washington Creek Campgrounds and minor upgrades were completed in Laird Park and Little Boulder Campgrounds. All work was completed with minor changes to the existing landscape and all meet the scenic objectives of *High (VQO of Retention)* designated for the area.

Another area of concern in retention of the scenic quality of the forested landscape is in road building. The Forest currently is completing a number of road obliteration projects where it is anticipated that this work will help to restore the scenic quality of the area. Selected projects can now be observed over time to determine if road obliteration can be used as an effective tool in rehabilitating an area where scenic quality does not meet Forest Plan standards.

Following are some examples of projects that protected or enhanced the scenic character of travel corridor viewsheds on the Forest.

The Powerline Salvage Sale located on the Lochsa Ranger District was designed to salvage dead and dying timber adjacent to the transmission lines above the community of Syringa. Through selective harvesting along the edge of the existing openings, mostly along the powerline corridor, hazard trees were removed without changing the visual appearance of the area. The project area, which is visible from U.S. Highway 12 and Syringa, Idaho meets the *SIOs of High (VQO of Retention)* from Syringa and *Moderate (VQO of Partial Retention)* from U.S. Highway 12.

The Bridge Creek Salvage Sale located on the Lochsa Ranger District was designed to reduce the visual impact of previous harvest activities in the area and to salvage dead and dying timber. Trees were harvested adjacent to a large unit that was visible from U.S. Highway 12 above the community of Syringa. Harvest of selected trees along the boundary of the existing unit created a much more natural appearing opening, which more effectively meets the Forest Plan objective of *Moderate (VQO of Partial Retention)* designated for the area. Additional harvesting in the area specifically designed to remove dead and dying timber did not adversely effect the scenic quality of the area.

The Mineral Mountain Timber Sale located on the Palouse Ranger District meets the Forest Plan objective of *Moderate (VQO of Partial Retention)* in the foreground. This project is located in an area that is adjacent to the Mary Minerva McCroskey State Park. Visual concerns were a major issue in this project. The area had a significant disease problem that was also affecting the adjacent state lands. The work on this project was completed in a way that reduced the visual impact of logging through careful location of logging corridors, cutting of low stumps, and disposal of logging slash.

Additional information about the effects on scenery of other FY98 management activities is available at the Supervisor's Office.

# SOIL AND WATER

## Goal

Manage watersheds and soil resources to maintain Forest Plan water quality standards, that meet or exceed State and Federal standards. Protect all beneficial uses of water: fisheries, water-based recreation and public water supplies. Ensure that soil productivity and stability are maintained.

## Strategy

Provide input and direction during management activity planning and implementation. Establish monitoring stations to determine the impacts of past and current management activities. Monitor the application and effectiveness of Best Management Practices (BMPs) during and after project implementation. Maintain an inventory of areas needing soil and water restoration. (Restoration will be completed as funding allows.) Develop cost-effective methods of evaluating sources of soil-productivity damage caused by compaction, displacement and severe burning.

Item No. 8 Water Quality and Stream Condition for Fisheries and Non-Fisheries Beneficial Uses Frequency of Measurement: Annual Reporting Period: Annual
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## Monitoring Action (Non-Fisheries)

This section deals with water quality and stream conditions for non-fisheries beneficial uses. To read about water quality and stream conditions for fisheries, please refer to the "FISHERIES" section.

The Forest hydrologist will coordinate with District personnel to establish water quality monitoring stations. These stations will collect data so as to monitor water quality to determine trends or impacts of past and/or current road construction, timber harvesting and mining activities.

## Accomplishments/Findings

The primary emphasis of Forest water quality monitoring has been to determine the effects of sediment and water yields from timber production and road construction on water quality and fisheries. Baseline monitoring and project water quality monitoring of streams has occurred in the following way. Baseline stations have been located at the mouths of large drainages, generally larger than five square miles. Water level recorders and automatic water samplers have been installed for continuous collection of information. Water level recorders track seasonal fluctuation of stream water levels. This information is calibrated to determine stream discharge. Automatic water samplers have been installed at most baseline stations to collect suspended sediment samples at predetermined intervals.

Project stations have been located downstream from management activities. Control stations (no activity) generally have been established upstream from activities, in a different but similar watershed, or at the same project station but prior to the activity. Project sampling allows the quantification of site-specific impacts, primarily sediment yield from a given activity. Data is collected at each project

station with automatic water samplers. Parameters measured are stream flow, suspended sediment, and instantaneous water level. Water level recorders and automatic samplers are normally in operation from March through September.

Table 1 shows the Forest's monitoring network by major drainage basin and watershed. The number of years of record and the type of monitoring station is also presented. Additional water temperature monitoring was done during the summer months at 215 stations. Contact the fisheries biologist for water temperature information, or the hydrologist for sediment or stream flow information.

Table 1. Water Quality Monitoring Network

BASIN	WATERSHED	YEARS OF RECORD	DATA TYPE
Palouse River (17060108)	Palouse River (below Strychnine Creek)	17	Suspended Sediment, Discharge
Lochsa River (17060303)	Walde Creek (Walde Lookout)	32	Annual Precipitation
	Crooked Fork	20+	Snow Course
	Crooked Fork (Lolo Pass)	20+	SNOTEL, Precipitation (NRCS)
	White Sand Creek (Savage Pass)	20+	SNOTEL, Precipitation (NRCS)
	Lochsa River	71	Discharge (USGS)
	Crooked Fork	19	Discharge
	White Sand	19	Discharge
	Walton Creek	7	Sediment
	Pete King Creek	23	Discharge, Suspended Sediment
	Canyon Creek	7	Discharge, Suspended Sediment
	Deadman Creek	18	Discharge, Suspended Sediment
	Fish Creek	7	Discharge, Suspended Sediment
	Squaw Creek	2	Discharge, Suspended Sediment
Papoose Creek	2	Discharge, Suspended Sediment	
Clearwater River (17060306)	Orofino Creek	20+	Snow Course
	Potlatch River	4	Discharge, Suspended Sediment
	Lolo Creek (Mouth)	20	Discharge, Suspended Sediment (USGS)
	Lolo (Section 6)	18	Discharge, Suspended and Bedload Sediment
	Eldorado Creek	8	Discharge, Suspended Sediment
	Upper North Fork Clearwater River (17060307)	Cayuse Creek (Cayuse Landing)	32
	Weitas Creek (Doris Butte)	28	Annual Precipitation
	North Fork of the Clearwater River (Aquarius Bridge)	32	Discharge (USGS)
	Quartz Creek	17	Discharge, Suspended Sediment
Lower North Fork Clearwater River (17060308)	Beaver Creek (Beaver Divide)	28	Annual Precipitation
	Isabella Creek	18	Discharge
	Elk Creek	18	Discharge, Suspended and Bedload Sediment

The Forest processed approximately 2,500 suspended sediment and 40 bedload samples in 1998. The sediment was combined with streamflow information using watershed computer programs to calculate sediment loading, or how much suspended sediment passes the monitoring station. Bedload sediment samples are also collected, however on a less frequent basis, to determine the proportion of sediment moving as suspended and bedload in the watershed. Total sediment load can be determined for the watershed with these measurements. This information is useful for determining the effects of activities and calibrating watershed models. This data is summarized in Table 2.

Table 2. Water Quality Monitoring Results (Provisional Data)

Station	Period of Record	Average Discharge (CFS) Through 1997	1998 Discharge (CFS)	Average Suspended Sediment Through 1997 (mg/l)	1998 Suspended Sediment (mg/l)
Palouse River	81-98	81.7	72.5	34.2	*
Crooked Fork	80-98	424	1191	*	*
White Sand Creek	80-98	723	1076	*	*
Walton Creek	92-98	*	*	4.2	6.2
Pete King Creek	76-98	47.0	40.7	34.2	15.4
Canyon Creek	92-98	47.2	52.6	11.9	16.4***
Deadman Creek	80-98	46.9	41.2	8.0	36.5
Fish Creek	92-98	204	253	14.2	44***
Squaw Creek	89-91			8.6	
	95-98	51.1	43.7		3.8
WF Squaw Creek	96-98	17.4	14.0	3.4	4.6
Papoose Creek	95-98	102	64.1	35.9	4.4
WF Papoose Creek	96-98	59.1	40.4	4.7	3.1
Potlatch River	95-98	304	131	10.4	10.0
Lolo Creek (Mouth)	91-98	326325	304	16.3	13.6
Lolo Creek (Sec 6)	80-98	98.3	91.2	18.3	19.3
Eldorado Creek	91-98	64.0	NA	7.2	7.6
Quartz Creek	81-98	146	156	13.5	159***
Isabella Creek	80-98	118	140	*	7.7
Elk Creek	81-98	84.0	69.8	9.9	6.8

\*Data not collected at this site.

\*\*Papoose flow record is only 96-98.

\*\*\*Incomplete data set.

Generally, monitoring of suspended sediment from past activities has shown a recovery trend forestwide. Suspended sediment concentrations tended to be less in the 1990s than in the 1980s. Much of the recovery is believed to be the result of less land disturbing activities, better application of BMPs, and better road location and design. In some watersheds, an increase in suspended sediment in 1996 and 1997, has been associated with the floods, landslides, and above normal snowpack.

1998 Precipitation Measurements - The Forest maintains four yearly catch precipitation stations for the purpose of assisting the State Climatologist in developing isohyetal maps (maps of equal rainfall areas). The gages are located at Beaver Divide, Cayuse Landing, Doris Creek, and Walde Lookout.

- ◇ Beaver Divide received 48.98 inches or 93.4% of average.
- ◇ Cayuse Landing received 32.91 inches or 82.6% of average.
- ◇ Doris Creek received 41.91 inches or 99.6% of average.
- ◇ Walde Lookout received 50.01 inches or 106 percent of average.

Records at these stations go back to 1966.

West Fork of Squaw Creek - Road 5619, adjacent to West Fork of Squaw Creek, was obliterated in July 1998. This creek contains some of the highest value fisheries on the Forest, supporting populations of natural or wild spring chinook, wild steelhead, westslope cutthroat trout and bull trout. Road 5619 ran immediately adjacent to this high value fishery and was actively eroding into it. In places, the road was built up on log cribbing which was set in the stream. As the 40 year old cribbing rotted, slopes failed directly into the stream. The scope of this project was to remove the fill material of Road 5619 from the riparian area of the creek and minimize the risk of future mass failures. In the section where the road

was built in the stream on log cribbing, dump trucks were used to haul approximately 3,000 cubic yards of excess fill to a waste area. One side channel crossing, a perennial stream in this segment of road had experienced a debris torrent during the 1995/96 flood event. This channel was re-established to its original contours.

During the obliteration project, two automatic sediment samplers were installed to determine levels of suspended sediment and turbidity in the West Fork of Squaw Creek. One of these samplers was located upstream of the project site for control purposes. The other sampler was located downstream of the road obliteration project to measure the impacts of removing the road fill located immediately above the stream. The monitoring results obtained are presented in Table 3.

Table 3: Suspended Sediment and Turbidity in the West Fork of Squaw Creek

Date	Control Sediment mg/l	Control Turbidity NTU	Downstream Sediment mg/l	Downstream Turbidity NTU
7-16	2.5	0.9	2.3	0.4
7-17	2.0	0.6	1.6	0.4
7-18	1.1	0.4	3.1	0.5
7-19	2.2	0.2	2.9	0.4
7-20	1.5	0.2	2.6	0.3
7-24	ND	1.9	5.5	1.2
7-25	2.0	2.3	8.4	2.7
7-26	2.2	1.7	8.6	1.7
7-27	4.0	1.6	11.1	2.1
7-28	2.2	1.8	12.0	1.5
Mean Period of Record	2.3 mg/l	1.2 NTU	5.7 mg/l	1.2 NTU

Suspended sediment appears to have increased from 2.3 mg/l to 5.7 mg/l during the road obliteration project. This small increase would not be visible as turbidity for the period of record did not show an increase, remaining at 1.2 NTU. Increases in suspended sediment are very small considering the magnitude of the project and its location. Increase in suspended sediment amounts to  $2.65 \times 10^{-7}$  pounds per cubic feet of water. The mean stream flow for the month of July for West Fork of Squaw Creek was 5.2 cubic feet per second. Based on this streamflow, sediment delivered from obliterating Road 5619 was 1.6 cubic feet, or 0.06 cubic yards, or 120 pounds.

The State of Idaho turbidity standard for the project to comply with the Clean Water Act is "no more than 50 NTU instantaneously or more than 25 NTU of more than ten consecutive days." On July 26, at 0200 there was a 2.1 NTU increase in turbidity. This was the largest instantaneous increase in turbidity for the 13 day period of monitoring. There was no increase in turbidity over a ten day consecutive period. The results show that turbidity is well within the State of Idaho standard.

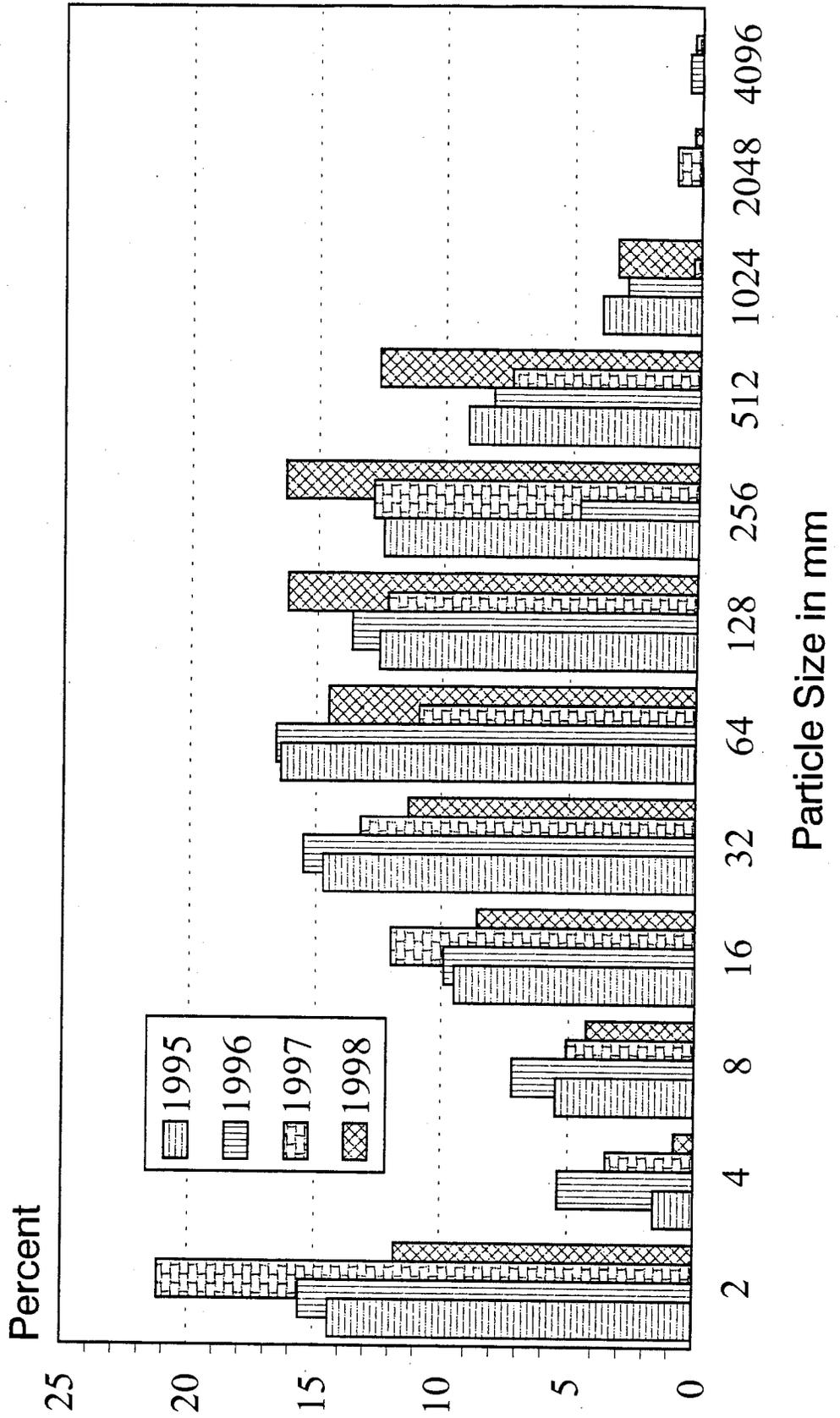
Three Wolman pebble counts were taken on September 14, 1998 in three separate riffles below or adjacent to the road obliteration project. This monitoring was a repeat of data collected in 1995, 1996, and 1997 and is presented in Figure 1. The mean particle size (D50) for the three riffles was small

cobble, very coarse gravel, and small cobble. The mean fine sediment, less than or equal to 4 mm, for the three riffles was 12.5% in 1998. In 1995, fine sediment totaled 16.0%; in 1996, 21.0%; and in 1997, 24.8%. There was a two year increase in fine sediment after the 1995-1996 flood event. In 1998, data indicates the channel scoured this fine sediment and recovery is occurring. There is no indication that sediment was added to the stream substrate as a result of road obliteration. Data from this monitoring indicates the channel is stable.

In conclusion, the monitoring results have verified what was expected; that road obliteration, when located in close proximity to streams, will deliver some sediment. The benefits of removing roads with high potential for mass wasting adding hundreds, if not thousands of cubic yards of sediment to streams is obvious. A very small increase of sediment in the short term is a small trade-off to prevent mass wasting in the future that can aggrade streams and impact threatened and endangered species such as bull trout and steelhead.

# West Fork of Squaw Creek

## Particle Size Distribution - Figure 1



## Item No. 9 Best Management Practice (BMP) Applications

Frequency of Measurement: Annual

Reporting Period: Five years

### Monitoring Action

The Forest hydrologist will coordinate with employees, including timber sale administrators, engineering representatives, contracting officer representatives, the Forest ecologist, soil scientist, and fire management officers to monitor all projects for compliance with BMPs (best management practice). BMPs are actions taken to minimize negative, detrimental or undesirable effects that may result from implementation of management activities and are defined in the Idaho Forest Practices Act. The primary objective of BMPs is the maintenance of water quality. Examples of BMPs include seeding and mulching of disturbed areas, such as road cut- and fill-slopes; construction and maintenance of drainage structures on roads and trails and modification of tree harvest methods so as to retain forest canopy.

In addition, the Forest hydrologist will monitor 10% of timber sale units for BMP effectiveness. The Forest soil scientist/ecologist will monitor 100% of all new road construction for BMP implementation and effectiveness. The sale administrator and road contracting officers are responsible for BMP implementation.

### Accomplishments/Findings

In the summer of 1998, the Forest conducted an audit of the Idaho Forest Practices Act BMPs for the Clearwater National Forest. The audit consisted of a review of 14 different timber harvest units and roads on the Lochsa and North Fork Ranger Districts. Units and roads were selected because of the soil or geology hazards or the presence of Class I or Class II streams. Timber sales and roads audited included Cubcat, Cougar, French Fidelity, Flying Dutchman, Fan-Lunch, Rascal Salvage, Goat Roost, and normal road maintenance.

Table 4, 1998 Forest Practices Act Internal Audit, includes the following information:

- 1) FPA# refers to the rule number in "Rules Pertaining to the Idaho Forest Practices Act." Title 38, Chapter 13, Idaho Code;
- 2) description of the FPA rule;
- 3) the number of BMPs that were observed Forest wide;
- 4) the number of BMP observations that were in compliance with the FPA rules;
- 5) the percent of BMP compliance;
- 6) the number of occurrences where sediment or other pollutants were not delivered to a stream or draw; and
- 7) the percent of BMP effectiveness.

Table 4: 1998 Forest Practices Act Internal Audit

FPA#	Description	# of Checks	Implemented	% Implemented	Effective	% Effective
030	TIMBER HARVEST					
030.03	SOIL PROTECTION					
a.	Skidding Erosion	6	6	100	6	100
b.	30% Limitation	5	5	100	5	100
c.1.	# of Skid Trails	5	4	80	5	100
c.2.	Tractor Size Appropriate	5	5	100	5	100
d.	Cable Yarding	12	12	100	12	100
030.04	LOCATION LANDINGS/SKIDS					
a.	Locate Landings & Skid Trails out of SPZ	10	10	100	10	100
b.	Size of Landings	12	12	100	12	100
c.	Landing Fill Stabilization	11	11	100	11	100
030.05	DRAINAGE SYSTEMS					
a.	Drainage Skid Trails	5	5	100	5	100
b.	Drainage Landings	12	12	100	12	100
030.06	TREATMENT OF WASTE MATERIALS					
a.	Slash out of Class I Streams	2	2	100	2	100
b.	Slash out of Class II Streams	10	10	100	10	100
c.	Soil out of SPZ	10	10	100	10	100
d.	Oil, Fuel out of SPZ	10	10	100	10	100
030.07	STREAM PROTECTION					
a.	Lakes - Riparian Management Px					
b.	Skidding, Stream Xing SPZ	3	3	100	3	100
c.	Skidding in SPZ	3	3	100	3	100
d.	Cable Stream Xing	10	10	100	10	100
e.1.	Hardwoods, Shrubs, Grasses, Rocks, Shade	2	2	100	2	100
e.2.	Class I - 75% Current Shade	2	2	100	1	50
e.3.	Logging of SPZ	2	2	100	2	100
e.4-8.	Large Organic Debris	2	2	100	2	100
030.08	MAINTENANCE OF RELATED VALUES					
c.	Wet Areas	10	10	100	10	100
040	ROAD CONSTRUCTION & MAINTENANCE					
040.02	ROAD SPECIFICATIONS AND PLANS					
a.	Minimize Road Construction in SPZ	8	8	100	8	100
b.1.	Roads No Wider Than Necessary	8	8	100	8	100
b.2.	Minimize Cuts and Fills	8	8	100	8	100
c.	Disposal on Geologically Stable Areas	7	7	100	7	100
d.	Drainage Planned in Road	8	8	100	8	100
e.	Relief Culverts and Ditches	8	8	100	8	100
f.1.	50 Year Culvert Design	7	7	100	7	100

FPA#	Description	# of Checks	Implemented	% Implemented	Effective	% Effective
f.2.	Relief Culvert Size	8	8	100	8	100
g.1.	Plan Minimum Stream Xings	8	8	100	8	100
g.2.	Plan Culvert Fish Passage					
h.	Variance Procedure Followed					
040.03	ROAD CONSTRUCTION					
a.	Construction Followed Plan	8	8	100	8	100
b.	Debris Cleared From Drainageways	6	6	100	6	100
c.	Stabilize Exposed Areas	8	8	100	8	100
d.	Compact & Minimize Soft Material in Fills	8	8	100	8	100
e.	Stream Alteration Act	3	3	100	3	100
f.	Remove Berms on Outsloped Roads	8	8	100	8	100
g.	Quarry Drainage					
h.1.	Minimize Erosion of Embankments at Culverts	8	8	100	8	100
h.2.	Install Drainage Prior to Runoff	8	8	100	8	100
h.3.	Relief Culvert Gradient	8	8	100	8	100
i.	Wet Weather Delays	6	6	100	6	100
040.04	ROAD MAINTENANCE					
a.	Sidecast Out of Streams	10	9	90	9	90
b.	Stabilize Slumps and Slides	1	1	100	1	100
c.	ACTIVE ROADS					
c.1.	Culvert and Ditch Function	8	8	100	8	100
c.2.	Crown and Waterbar	8	8	100	8	100
c.3.	Minimize Road Surface Erosion	8	8	100	8	100
c.4.	Oil Out of Streams	6	6	100	6	100
d.	INACTIVE ROADS					
d.1.	Culverts and Ditches Cleared	6	6	100	6	100
d.2.	Road Closed	6	6	100	6	100
e.	ABANDON ROADS					
e.1.	Outslope, Waterbar, Seed					
e.2.	Ditches Cleaned					
e.3.	Road Closed					
e.4.	Bridges and Culverts Removed					
040.05	WINTER OPERATIONS					
a.	Adequate Cross Drainage					
b.	Road Maintenance					
	SUMMARY	343	341	99.4%	341	99.4%

There were 343 BMP observations in 1998 with an implementation and effectiveness rate of 99.4%. Sediment was observed as delivered to streams only once in 343 BMP observations. Solar radiation was increased once due to blowdown of a buffer that was designed before INFISH/PACFISH RHCA's. Many BMPs continue to have a 100% implementation and effectiveness rate. BMPs that delivered sediment or solar radiation to streams in 1998 were:

- 1) 030.07.e.ii., "leave seventy-five percent (75%) of the current shade over the Class I streams"; and
- 2) 040.04a. "sidecast all debris or slide material associated with road maintenance in a manner to prevent their entry into streams."

1) Leave seventy-five percent (75%) of the current shade over the Class I streams. The French Fidelity Timber Sale, Unit 19, in the French Creek watershed was logged in 1994. The Class I streamside protection zone in this unit met the rule, however, blowdown occurred after the logging which resulted in a decrease in shade over the stream. A rating of "Class I stream exposed to midday direct sunlight occasionally" was given. The unit and streamside protection zone was designed prior to INFISH RHCAs. Sediment was not delivered to the stream.

2) Sidecast all debris or slide material associated with road maintenance in a manner to prevent their entry into streams. The cleaning of culvert inlets on Road 5021 at Class II streams resulted in erosion and deposition of sediment in streams. An "unsatisfactory - noncompliance with the rule noted" and "erosion and delivery of sediment to Class II streams, draws, or floodplains; no sediment noted in Class I streams" was given.

3) Skid trails shall be kept to the minimum feasible width and number. In the Cubcat Timber Sale, Unit 12, in the Grizzly Creek watershed, skyline logging was used to harvest timber. After logging was complete, tractor windrowing was used to treat the slash. This windrowing resulted in numerous tractor skids in the unit resulting in a call of "number or severity on noncompliance high." Sediment was not delivered to streams.

Practices in the 1998 audit were further analyzed by method of application:

- 1) aerial logging systems;
- 2) tractor logging; and
- 3) temporary and system road design, construction, and maintenance.

- The audit included 108 observations of BMPs where aerial logging systems were applied. The implementation rate was 100% and the effectiveness rate was 99.1% (Table 5).

- For tractor logging, 41 observations of BMPs occurred. The implementation and effectiveness rate was 97.6% and 100%, respectively.

- For roading, including the planning, construction, and maintenance of roads, 194 BMP observations occurred. The implementation and effectiveness rate was 99.5%.

Table 5: 1998 BMP Implementation and Effectiveness; Aerial, Tractor, and Roads

Activity	# of BMP Observations	BMPs Implemented	% Implemented	BMPs Effective	% Effective
Aerial Logging Systems	108	108	100%	107	99.1%
Tractor Logging	41	40	97.6%	41	100%
Roads	194	193	99.5%	193	99.5%
TOTAL	343	341	99.4%	341	99.4%

The high rate of implementation and effectiveness is a function of the Forest changing to aerial logging systems, including helicopter logging, on the more difficult ground. Most of the tractor units are now located on gentle ground or near ridges that are away from streams. Roading systems are now being located on or near ridges and away from streams. The results of the audit indicate that BMPs are being applied on the Clearwater National Forest and they are effective in preventing sediment from entering stream channels. Recommendations based on this audit are as follows:

1) Leave seventy-five percent (75%) of the current shade over the Class I streams. When buffer widths were designed at 75 feet over Class I streams to comply to FPA, blowdown occasionally occurred increasing solar radiation to the streams. Although the buffers were properly implemented, they were not always effective in preventing solar radiation increases over the streams. With the new PACFISH/INFISH buffers, this problem should be eliminated.

Recommendation: Apply PACFISH/INFISH default buffers. Modify the PACFISH/INFISH RHCA buffers only after site-specific review considering the potential for blowdown.

2) Sidecast all debris or slide material associated with road maintenance in a manner to prevent their entry into streams.

Recommendation: While maintaining roads, equipment operators need to recognize where opportunities exist to sidecast materials from the cutslopes, ditches, and running surface. This sidecasting must be done in stable areas where the potential for delivery to streams does not exist. There has been great improvement in this BMP since the early 1990s, however, this activity still occasionally occurs. Additional training of contract and force account equipment operators is needed to increase their awareness of water quality concerns.

3) Skid trails shall be kept to the minimum feasible width and number. It defeats the purpose of soil and water protection to skyline harvest a timber sale unit only to later site prep with tractor windrowing, as was done in the Cubcat Timber Sale, Unit 12. Skyline harvest systems are generally selected to reduce the impacts to soil and water resources. BMP 030.03.c., "*skid trails shall be kept to the minimum feasible width and number,*" is still a requirement during site preparation activities. In general, tractor site preparation of skyline harvest units should not be done unless that activity is clearly displayed in the NEPA document and addressed by an interdisciplinary team.

In conclusion, the Clearwater National Forest is doing an excellent job at BMP implementation and effectiveness. It is actually, a very rare event anymore when sediment is delivered from timber harvest and road construction activities to the stream.

Item No. 11 Site Productivity Frequency of Measurement: Annual Reporting Period: Five years
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### Monitoring Action

The Forest soil scientist will evaluate project sites for soil compaction, disturbance and other activities that may affect productivity.

### Accomplishments/Findings

A number of project areas were evaluated for soil condition and management impacts in FY98, but the analysis of data has not been completed. When the analysis of this information is completed, it will be included in the *FY99 Monitoring and Evaluation Report* along with additional monitoring information in project areas that were sampled that year.

# TIMBER.

## Goal

Provide a sustained yield of timber and other forest products to help support the economic structure of local communities and provide regional and national needs. Select on the ground those silvicultural systems that will be the most beneficial to long-term timber production, but modified as necessary to meet other resource and management area direction. Continue to work toward achieving the desired future condition identified in the Forest Plan.

## Strategy

The Forest will continue to manage the timber program to provide for the long-term health, diversity and productivity of the Forest. Complete site-specific analysis of the land base will be used to design the timber sale program. Silvicultural systems will be selected to build biological diversity and maintain ecological processes. The timber sale program will provide for a wide range of sale sizes and product types. An appropriate mix of logging systems will be specified. The Forest will make every effort to respond to the needs of the local communities that depend upon the Forest for their economic survival by continuing to pursue and develop new timber sale opportunities.

Timber Stand Inventory - The compartment inventory program, initiated in FY85, produces a comprehensive inventory and data base representing all timber stands on the Forest. The compartment inventory looks at a geographic unit (average unit size is 10,000 acres) in three phases.

In the first phase, aerial photographs are examined to identify areas that are relatively alike in size, tree density and species. **Phase one has been completed; all stands on the Forest have been mapped and identified for suitability and management area.**

The second phase involves field stand examination of randomly selected stands. **Phase two has been completed on approximately 82% of the 173 Forest compartments.** No additional compartments were field sampled in FY98, however approximately 4,200 acres of project plot stand exams were accomplished, thereby increasing the numbers of stands with field inventories as well as adding to the pool of stand exams from which to match to unsampled stands.

The third phase involves data compilation, then application of the data to unsampled stands. **The introduction in FY93 of the "Most Similar Neighbor Estimation Procedure" allowed the Forest to initially complete phase three on most of the timbered strata.** This procedure matches sampled stands to unsampled stands using photo-interpreted and physical characteristics of the stands. It will make timely, statistically unbiased estimates of the important characteristics for every stand on the Forest. Further enhancements were made to the "Most Similar Neighbor" inventory compilation process in FY98. Testing and validation of this process continues.

Forest Product Sales and ASQ - In FY98, the Forest offered a variety of products, including sawlogs, pulp, cedar products, firewood, Christmas trees, and fence posts. These products were sold through 18 timber sales and 1,334 miscellaneous collection permits. A total volume of 37.1 million board feet (MMBF) was sold. The majority of the sales were less than 2 MMBF and the

Forest sold three sales greater than 2 MMBF. The annual volumes offered, sold, harvested and under contract since FY94 are shown in Table 1.

Table 1. Annual Timber Volume Offered, Sold, Cut and Under Contract (MMBF)

	FY94	FY95	FY96	FY97	FY98
OFFER	27.8	31.2	31.8	53.5	30.2
SOLD	25.3	11.5	40.6	38.7	37.1
CUT	92.0	58.9	25.0	42.0	34.4
CONTRACT	108.3	63.3	78.5	73.6	77.5

The total acres SOLD by harvest method during the past five years are shown in Table 2.

Table 2. Total Acres of Timber Sold on the Forest by Harvest Method

	FY94	FY95	FY96	FY97	FY98
Clearcut and Clearcut with Reserves	615	158	323	269	187
Shelterwood and Seed Tree	186	101	639	679	668
Final Removal	212	89	607	351	0
Selection	33	0	83	5	314
Intermediate Harvest	778	846	3,754	3,314	2840

Table 3 shows the volume of timber SOLD for the roaded and unroaded components of the Forest.

Table 3. Roaded and Unroaded Timber SOLD

YEAR	ROADED SAWTIMBER	ROADED NIC	ROADED TOTAL	UNROADED SAWTIMBER	UNROADED NIC	UNROADED TOTAL	FOREST TOTAL
88	90	13	103	13	0	13	116
89	120	19	121	23	0	23	144
90	81	18	99	4	0	4	103
91	80	16	96	8	0	8	104
92	53	12	65	0	0	0	65
93	21	9	30	3	0	3	33
94	21	11	32	0	1	1	33
95	6	3	9	0	0	0	9
96	28	11	39	0	0	0	39
97	26	11	37	0	0	0	37
98	21	12	33	3	0	3	37.1

Table 4 compares the projected annual acres and volumes used to derive the annual ASQ, with the number of actual acres and volumes sold, by management area as defined in the Forest Plan.

Table 4. Comparison of Forest Plan Projections With Annual Acreage of Timber Sales, 1988-1998

MANAGEMENT AREA	FOREST PLAN	FOREST PLAN	TIMBER SALE	TIMBER SALE
	ACRES	VOLUME MMBF	AVERAGE ACRES	AVERAGE VOLUME MMBF
Timber Production	3,561	81.2	3354	54.7
Road/Trail Corridors	125	.8	41	.3
Big-Game Summer Range	3,099	62.5	43	.9
Big-Game Winter Range	1,007	23.6	528	9.4
Riparian Areas	3,516	5.2	82	1.6

The difference between planned ASQ volume and the average annual volume sold shown in Table 2 is mainly in the big-game summer range management area, most of which is located in the unroaded portion of the Forest.

**Item No. 18 Harvested Land Restocked Within Five Years**

Frequency of Measurement: Annual

Reporting Period: Five years

**Monitoring Action**

The Forest silviculturist will prepare a report showing the percentage of stands and acres meeting the five-year regeneration standard. Data obtained from the Timber Stand Management Records System will provide the basis for determining the percentage of successfully regenerated stands.

**Accomplishments/Findings**

The National Forest Management Act of 1976 requires that when trees are cut to achieve timber production objectives, the cuttings shall be made in such a way as to ensure that the technology and knowledge exist to adequately restock the land within five years after final harvest. Reforestation records pertaining to regeneration harvests that occurred in 1993 were compiled and the required percentages calculated. The data presented in Table 5 is based on the status of regeneration at the end of 1998. The time elapsed since harvest is five years. Seedcuts are not considered final harvests but because seedcutting initiates stand regeneration, the Forest monitors restocking success on the same basis as with the final harvests.

Table 5. 1993 Regeneration Harvests Adequately Restocked in Five Years

	Clearcut	Seedcut	Final	Selection	Total
Number of Stands	100	3	28	0	131
Number of Acres	2054	58	938	0	3050
Stand Success %	94%	100%	100%	0%	95%
Acres Success %	94%	100%	100%	0%	96%

Of the 131 stands that received regeneration harvesting in 1993, six clearcuts were not adequately restocked after five years. The lack of adequate stocking in all six of the clearcuts is due to delays in carrying out the prescription for site preparation burning due to weather and poor burning conditions.

**Item No. 19 Unsuitable Timberlands Examined to Determine if They Have Become Suitable**

Frequency of Measurement: Annual

Reporting Period: Ten years

**Monitoring Action**

Timberlands classified as unsuitable during development of the Forest Plan will be examined, using more exacting methods, to determine if they should be reclassified as suitable.

## Accomplishments/Findings

All timberlands, both suitable and unsuitable are currently being inventoried as part of the Forest compartment inventory program. Occasionally, unsuitable timberlands may also be examined in association with an analysis of a proposed project. Both types of examinations are directed at confirming and refining the suitability determinations made in the Forest Plan.

Item No. 20 Validate Maximum Size Limits for Harvest Areas

Frequency of Measurement: Annual

Reporting Period: Annual

## Monitoring Action

The Forest silviculturist will prepare a table displaying the number of stands harvested by harvest type, meeting the 40-acre maximum harvest size standard compared to the number of stands exceeding this standard.

## Accomplishments/Findings

The maximum size of harvest openings created by even-aged regeneration harvesting (a method of harvest that results in a regenerated stand of similar age) should normally be less than 40 acres. Harvest opening size may exceed 40 acres when certain exceptional conditions apply such as insect outbreaks that threaten surrounding stands, catastrophic blowdown or for final removal of shelterwood trees in order to protect established regeneration in existing shelterwood and seedtree areas.

Table 6. FY98 Even-aged Regeneration Harvests by Harvest Type and Size Category

District	Clearcut & Clearcut with Reserves.		Seedtree & Shelterwood		Final Removal	
	#Stands <40 Acres	# Stands > 40 Acres	#Stands < 40 Acres	# Stands > 40 Acres	# Stands < 40 Acres	# Stands > 40 Acres
Pierce	9	0	24	0	12	1
Palouse	0*	0	0*	0	0*	0
North Fork	3	0	3	1	2	0
Lochsa	2	0	1	0	0	0
Powell	13	0	0	0	0	0
<b>TOTAL</b>	<b>27</b>	<b>0</b>	<b>28</b>	<b>1</b>	<b>14</b>	<b>1</b>
<b>Average Size</b>	<b>11 Acres</b>	<b>0</b>	<b>13 Acres</b>	<b>46 Acres</b>	<b>16 Acres</b>	<b>45 Acres</b>

\*The Palouse Ranger District failed to get their accomplishments entered in the database for FY98, therefore, will enter their acres harvested in FY98 as a FY99 accomplishment.

In FY98, 69 stands received even-aged regeneration harvests. Two of these stands are larger than 40 acres in size.

Item No. 21 Insect and Disease Status as a Result of Activities

Frequency of Measurement: Annual

Reporting Period: Five years

## Monitoring Action

Insect and disease status is evaluated during post-treatment stand exams. District silviculturists will use these exams in the preparation of silvicultural prescriptions to deal with identified insect and disease problems. Additionally, annual aerial detection surveys will be used to identify the limits of widespread insect and disease problems.

## Findings

There were no reports of insect or disease increases caused by management activities.

Annual aerial detection surveys are used to assess current levels of insect and disease activity on the Forest. Areas with active insect outbreaks and recent forest fires are summarized and mapped. Many types of forest disease mortality, however, are not apparent from the aerial surveys and are not recorded. Because of this, reported losses from disease may not be complete.

Regular aerial detection surveys were conducted on the Forest in FY98. Mapping of current tree mortality occurred on all districts. Tree mortality caused by the Douglas-fir beetle increased significantly in FY98. The acres affected increased from 505 in FY97 to 9,511 acres in FY98. A 19 fold increase. Recently killed Douglas-fir trees within these areas increased 8 fold from 1,407 acres in FY97 to 11,287 in FY98.

Mortality of grand fir caused by the fir engraver beetle, however, showed a sharp decrease with 115 recently killed trees on 71 acres. In comparison in FY97, some 4,200 recently killed grand fir trees were counted over a composite area of 5,400 acres.

Both the area and number of recently killed lodgepole pine in the upper North Fork Clearwater River has declined somewhat as have the number of mature western white pine succumbing to blister rust and mountain pine beetle. There was a dramatic decrease in the area infested with balsam wooly adelgid with the acres affected dropping to 9,564 from 28,960 in FY97, but the number of subalpine fir trees killed by this insect was not counted this year so no comparison can be made with tree numbers.

The decline of mature and old western redcedar caused by what is believed to be Armillaria root disease continues, producing trees with dead tops, dead branches, a reduced tree crown clustered around the tree bole and tree mortality. This past field season insect and disease specialists from the Regional Office were on the Forest to determine if this is a different species than Armillaria and collected samples to culture and identify. Monitoring will continue on the effects of this disease which appears to be slowly increasing.

# TRAILS

## Goal

Manage trails to provide for a variety of recreation experiences. Provide for safety, minimize use conflicts and prevent resource damage.

## Strategy

- ◆ Public safety, use and resource considerations will be used to set trail work priorities.
- ◆ Identify relocation and construction needs,
- ◆ Manage an effective trail maintenance program.
- ◆ Maintain safe bridges.
- ◆ Manage an effective trail construction/reconstruction program.
- ◆ Use special flood funding to repair and reinforce damaged trails.

Item No. 16 Trail Management

Frequency of Measurement: Annual

Reporting Period: Five years

## Monitoring Action

The Forest trails coordinator will prepare a report annually that focuses on the status of the trail system, trail bridges, and the trail construction and reconstruction program. Reports from the Infrastructure database will be reviewed to ensure this information is current.

## Accomplishments/Findings

Trail Maintenance - Table 1 provides information on accomplishments by maintenance level for the Forest's summer trail system. Significant difference in accomplishment in 1998 versus other years is attributed to efforts to repair damage from flooding and landslides in 1995-96. In addition, approximately 350 miles of snow trails are maintained annually. Three hundred of these miles are groomed for snowmobiles in Clearwater County using State of Idaho snowmobile funds. Maintenance levels are defined as follows:

- Level I: minimum clearing, minimum drainage work and no tread work
- Level II: brushing with some structure and tread work
- Level III: heavy clearing, tread repair, and construction of drainage

Table 1: Miles of Trail Maintenance Accomplished\*

	1994	1995	1996	1997	1998
Level I	826	817	641	950	863
Motorized				487	424
Non-Motorized				463	439
Level II	28	72	94	208	398
Motorized				147	234
Non-Motorized				61	164
Level III	153	116	257	100	259
Motorized				49	46
Non-Motorized				51	213
<b>TOTAL MAINTAINED</b>	<b>1,007</b>	<b>1,005</b>	<b>992</b>	<b>1,258</b>	<b>1,520</b>
Motorized				683	704
Non-Motorized				575	816

\*Wilderness trail accomplishments are located in the Wilderness section of the Monitoring Report.

**Bridge Inspection and Maintenance** - The current inventory lists 32 trail bridges on the Forest. Five bridges were inspected and four bridges maintained in 1998. Two bridges, Clark Tree and Isabella trail bridges were replaced.

**Trail Reconstruction** - Table 2. 1998 Trail Reconstruction Program\*

PROJECT	TRAIL NO.	MILES	COST *
Pierce Drainage	232	10.0	24,000
Oldman	206	3.0	30,000
Fish/Gold (Grotto segment)	206	6.0	54,000
Cleveland Gulch	333	2.5	35,000
Meadow Creek	224	3.5	35,000
Smith Ridge	240	5.9	43,000
Lower Big Sand	4	5.7	23,000
Palouse ROW		na	5,000
Survey & Design		na	37,000
Junction Mountain	191	na	2,000
Pouliot	30	1.3	8,000
<b>TOTAL TRAIL RECONSTRUCTION</b>		<b>37.9</b>	<b>\$296,000</b>
Mocus Bridge			6,000
Junction Creek Bridge			\$40,000
Eagle Mountain Bridge			6,000
<b>TOTAL BRIDGES</b>			<b>\$52,000</b>

\*Note: Cost included construction and contract administration

**Partnerships** - In 1998, cooperative efforts with individual volunteers, organized motorized and non-motorized user groups, organized youth groups, state funded trail programs, and inmate labor programs resulted in a significant increase in trail maintenance across the Forest.

TRAIL MAINTENANCE LABOR TYPE	1993	1994	1995	1996	1997	1998
Force Account Maintenance (includes flood repair in 96 & 97)	159	431	287	510	623	246
Volunteer Maintenance	141	276	365	201	258	308
Contract Maintenance	344	300	353	446	377	363

# WILD AND SCENIC RIVERS

## Goal

Protect and enhance the inherent values of existing designated Wild and Scenic Rivers and those being studied for possible future designation. Analyze and recommend suitability for classification of selected rivers to the Wild and Scenic system.

## Monitoring Action

- ◇ Monitor ongoing projects for adherence to established protection measures.
- ◇ Manage existing scenic easements to standards defined in the Forest Plan.
- ◇ Improve access to rivers, facilities along their banks, and availability of interpretive information.
- ◇ Work with river floaters and Special Use Permittees to ensure that the best available river experience is preserved.

## Accomplishments/Findings

Scenic Easements - Administration of the scenic easements has been functioning as a joint program between the Clearwater and Nez Perce National Forests since July 1995. The 1998 easement administration program coordinated and processed a variety of landowner proposals including: residence construction, timber harvest, outbuilding proposals, property redevelopment, and residential vegetation removal. The easement review board met six times during the year to make recommendations to the Ranger on landowner, Forest Service, and Idaho Transportation Department proposals. A seventh meeting was held using "virtual" office systems such as faxes, phones, and computers. Forest Service activities in the Wild and Scenic River corridor included toilet evaluation, new boat ramp installation, a corral project, generator house construction and timber sale planning and layout.

A private timber harvest became an outdoor educational opportunity when approximately eighty 7th and 8th graders participated in a variety of learning stations highlighting timber harvest in the Wild and Scenic River corridor. Negotiations were begun with a willing landowner to explore termination of an original scenic easement for a modern easement deed to benefit the public interest and meet the long term needs of the landowner. Two easement updates, highlighting easement administration, were mailed to landowners and interested parties during 1998. A third easement open house was held in May 1998 but attendance was poor.

Real estate agents continue to direct potential property purchasers to the Forest Service for information on specific scenic easement restrictions. This has resulted in purchases by individuals fully aware of the property restrictions on the land they buy leading to better understanding and cooperation for long term easement administration.

River Administration - Five outfitters operate on the Lochsa River under special use permit. One outfitter is focused on building a kayaking school while the others emphasize rafting. During 1998, the Outdoor Adventure Program sponsored by the Fairchild Air Force Base was brought under a temporary special use permit for operations on the Lochsa River and several rivers on the Panhandle National Forest. The Clearwater National Forest initiated and took the lead on this permit action.

Boating, both private and commercial, is increasing in numbers each year on the Lochsa River. The season is starting earlier than ever with kayakers starting to boat in late March. In 1998, steady rain throughout May maintained river levels at very enjoyable boating levels until approximately July 1. Issues, such as highway safety, parking at put ins and take outs, and increasing use, continue to raise hard questions for on the ground management solutions.

1998 was the first year the Clearwater and Nez Perce National Forest cooperated in sharing river rangers for the Lochsa patrol season. A detail agreement was signed by the Rangers from the Lochsa, Moose Creek and Salmon River Districts so the Upper Selway and Main Salmon River Rangers could cover the patrol duties on the Lochsa. The program was a success because it provided the Lochsa District with knowledgeable, competent and experienced river rangers.

# WILDERNESS

## Goal

Maintain wilderness values both in existing wilderness areas and in those areas being recommended for wilderness classification. Provide for limiting and distributing visitor use in wilderness areas to allow natural processes to operate freely and to ensure integrity of values for which wilderness areas are created. Coordinate management of the wilderness with other national forests that share in the management of those lands.

Item No. 5	Wilderness
Frequency of Measurement:	Annual
Reporting Period:	Annual

## Monitoring Action

Note changes occurring within existing and potential wilderness areas and determine if they are affecting the wilderness character of the lands. Recommend management practices to correct adverse changes.

## Accomplishments/Findings

This report is a summary of the Clearwater National Forest's findings from the Selway-Bitterroot Wilderness (SBW) "*State of the Wilderness Report*". The full report can be obtained from the Forest Supervisor's office.

**Monitoring Use Impacts** - Based on Levels of Acceptable Change (LAC) monitoring and field inventory, the following identifies areas where Forest Plan standards are not being met. These are identified by Opportunity Class Areas. Opportunity Classes are used in the Forest Plan to delineate areas with different management goals. In general, Opportunity Class I provides the most primitive visitor experience with the least social encounters while Opportunity Class IV provides the least primitive visitor experience with the most social encounters.

- Opportunity Class I

*Crags*: Impact levels continue to improve, site density was stable at 1997 levels but still does not meet Forest Plan standards.

- Opportunity Class II

*Army Mule/Warm Springs Junction*: The number of sites has remained static since 1991. Conditions improved at one site, but worsened at one other. Conditions remained out of standard.

*Junction of Cedar and Moose Creeks*: This problem area remained static. One site decreased in impact from extreme to light, but the other site increased in impact from low to heavy.

*Maple Lake Trail 939*: The trend in impact levels was upwards. Site density remained static.

### Opportunity Class III

*Seven Lakes:* Impact levels and site density both improved somewhat over 1997.

*Flea Lake Ridge:* Impact levels were lowered at this site by volunteers who lowered stumps, removed nails and wire from trees, filled in and planted tree wells and reduced site size.

*Siah Lake:* Impact levels have decreased at the lake. Site density is still above standard. General trend is toward improvement at this site.

*Dan Ridge Spring:* This site is no longer considered to be a problem area. It now meets standards for Opportunity Class III.

*Hidden Lake:* Conditions remain out of standard at this site. Site density remained the same. Impacts at one site increased from moderate to heavy since last monitored in 1994. Campsite restoration is planned for 1999.

*Bridge Creek Vicinity:* Site remains out of standard. One site improved from extreme to heavy impact while two sites remained static with low and moderate impacts.

*Storm Creek Trail:* This site is improving while showing little evidence of use. Weeds were pulled in 1998.

*Big Sand Lake:* This site remains out of standard for site impacts and within standard for campsite density.

*Warm Springs Crossing:* Conditions remain static since monitored in 1991. This site is out of standard for both site impacts and camp density.

*Wind Lakes:* The site remained out of standard for site impacts and site density. Impacts improved in one site, but increased in two sites.

### Opportunity Class IV

*Fish Lake:* Site conditions still do not meet standards, but are improving. Volunteers reduced campsite impacts in 1998 by cutting stumps lower, revegetating barren areas, cleaning fire rings, restoring tree-tie scars and blocking areas off to discourage tying to trees, installing check dams and closing trails, cleaning around the cabin and removing broken fencing. Visitor registration boxes were replaced and bulletin boards were repaired.

**Trail Maintenance Accomplishments** - The following table identifies accomplishments by Opportunity Class. In general, trails in Opportunity Class IV are "*easiest*," trails in Opportunity Class III are "*more difficult*" and trails in Opportunity Class II are "*most difficult*." There are no trails in Opportunity Class I. Additional information regarding wilderness trail accomplishments is located in the TRAILS Section, including maintenance level definitions.

Table 1. Summary of Trail Maintenance Accomplishments by Opportunity Class

	Opp Class IV (easiest)	Opp Class III (more difficult)	Opp Class II (most difficult)	TOTAL
Level I Maintenance	23.4	205.5	22.9	251.8
Level II Maintenance	0	5.0	0	5.0
Level III Maintenance	0	6.5	0	6.5
Total Miles Maintained	23.4	217.0	22.9	263.3
Miles in Opportunity Class	28.5	254	54.5	337
% of System Maintained	82%	85%	42%	78%

Note: Implementation of Infrastructure database may have resulted in a slight inconsistency in total miles and total miles maintained in 1997 and 1998 when compared to previous years data

Recreation - As in past years, volunteer groups complemented Forest efforts to accommodate recreational use in wilderness while promoting protection of the wilderness resource.

#### Conservation Education and Management of High Use Areas:

The Skills Trail program hosted over 300 elementary and home schooled students during 1998. This hands-on program promotes backcountry and wilderness land ethics through education.

The IDAWA project wherein Iowa teachers work in the Selway Bitterroot Wilderness restoring trails and campsites and teaching wilderness and land use ethics to students in their home states continued in 1998. These efforts have reduced the number of "extreme" impact sites that must be administratively reviewed under the Forest Plan.

A volunteer was again stationed at Stanley Hot Springs for visitor education. This volunteer also worked at campsite restoration at the site.

*Leave No Trace* and minimum impact information was provided at Elk Summit Guard Station by volunteer hosts.

Educator and student groups from Iowa, Student Conservation Association volunteers and a number of individual volunteers worked to reduce site impacts at Long Lake, Seven Lakes, and Stanley Hot Springs and open and improve trail conditions along Gold Hill and Eagle Mountain trails.

The Back Country Horsemen of North Central Idaho stationed a volunteer at Elk Summit for one week prior to hunting season to promote minimum impact stock practices among stock users. They also packed wire and garbage from the Dan Ridge Lookout.

Vegetation - At Wind Lakes, ecodata monitoring plots established in 1991 to measure vegetation recovery from a 1990 fire were re-measured. In 1998, preliminary analysis indicates major regrowth of beargrass, grouse whortleberry, pale yellow penstemon, and Hitchcock's woodrush. Many snags have fallen since the fire and no regeneration of whitebark pine was observed. Some lodgepole pine seedlings were observed. Formal analysis of ecodata re-measurements was not completed in 1998 and is scheduled for completion in 1999.

A new population of spotted knapweed was found in an outfitter camp near the confluence of Big Fl Creek and White Sand Creek. Approximately 50 plants within an area of 180 square feet were found.

Wildlife and Fisheries - Hungry, Duck and Porphy Lakes were stocked in 1998 by the Idaho Department of Fish and Game. Fish and amphibian populations were monitored and/or surveyed in Craggs Lakes by Forest Service personnel.

Forest Biologists in partnership with Nez Perce Tribe and Trout Unlimited personnel surveyed Fish Lake and its tributaries for presence or Bull Trout and their spawning habitat. Bull Trout and spawning habitat were found and recommendations made for mitigation of adverse effects.

Three collared wolves from the Salmon area were released into the Selway Bitterroot Wilderness in 1998.

In Big Sand Creek, 26 miles were surveyed by contract for fish habitat to estimate pool and fish numbers and two miles of Warm Springs Creek were monitored.

Soil, Water and Air - Three lakes were surveyed for natural reproduction of trout by the Forest and the Idaho Department of Fish and Game and Lewis Clark College. This effort completed lake surveys that will be used to determine future fish stocking plans. Water temperature monitoring was conducted in Boulder, Old Man, Big Stew, Surprise, Rock Lake, and Huckleberry Creeks.

Administrative Sites - Hidden Peak Lookout received repairs to railings and stairs. Old equipment was flown out by helicopter.

Research - The Aldo Leopold Center monitored Seven Lakes in 1998. The results of their research and monitoring at this site indicates that both impact levels and site density have improved since restoration efforts were begun.

Law Enforcement - In 1998, four incident reports were written. These are written when a violation of law occurred but the violator was unknown. No warning or violation notices were written. Incident reports were issued for unauthorized structures and state game violations.

Prescribed Natural Fire - Information regarding the prescribed natural fire program in the Selway Bitterroot Wilderness is located in the FIRE Section of this report.

## WILDLIFE

### Goal

Manage and provide habitat that will support viable populations of all resident wildlife species. Maintain and enhance big-game winter and summer habitat to support a huntable population of elk, deer and moose. Manage habitat to contribute to the recovery of each threatened and endangered species on the Forest.

Maintain or enhance biological diversity to the extent practicable and consistent with overall objectives of multiple use so that it is at least as great as that of a natural (unmanaged) forest.

### Strategy

Monitor the effects of Forest activities on preservation and enhancement of biological diversity and provide biological input to proposed management activities.

Each year improve approximately 2,300 acres of winter big-game habitat using a variety of methods such as prescribed fire, fertilization, slashing, logging, and seeding. Use road closures and modification of timber sale design, layout and scheduling to maintain or enhance elk summer habitat.

Review, coordinate and consult with the U.S. Fish and Wildlife Service (USFWS) on all projects that involve impacts to threatened and endangered species. Conduct biological assessments for all projects where threatened and endangered species may occur. Recommend practices to lessen or mitigate adverse effects of projects and ensure viable populations or promote the recovery of all listed species.

Continue to inform and provide the public with current information on the programs and status of wildlife habitat management on the Forest.

Item No. 7 Provision for Plant and Animal Diversity

Frequency of Measurement: Annual

Reporting Period: Five years

### Monitoring Action

Monitor the effects of Forest activities to maintain and enhance plant and animal diversity.

### Accomplishments/Findings

A wide variety of plant and animal habitats currently exist and are well represented on the Clearwater National Forest. The exception is old growth or late successional habitat. A status report is prepared and updated annually to display the amount and distribution of old-growth habitat. An updated 1998 status report has been completed and is available upon request at the Supervisor's Office.

The Forest is continuing to meet the Forest Plan standard of maintaining at least 10% of the Forest in old-growth forest condition. The 1998 "Old Growth On the Clearwater National Forest Status Report" states that there is 11% old growth on the Forest.

Item No. 25 Big-Game Habitat Improvement.

Frequency of Measurement: Annual

Reporting Period: Annual

### Monitoring Action

Areas being treated will have monitoring plans developed.

### Accomplishments/Findings

Winter and Summer Range - During FY98, approximately 1,700 acres of habitat were treated or impacted by a variety of methods and techniques in accordance with the Forest Plan goals and objectives. Monitoring results indicate that it will be very difficult to meet the Forest Plan goals and objectives for big-game habitat using prescribed fire on small areas. Prescribed fire will need to be used at a landscape level and be allowed on a much larger amount of acres. Smoke management and other fire policies will need to be reviewed to accomplish habitat improvement objectives. In addition, Forest Plan model assumptions and outputs for winter habitat management need to be updated and revised. This work will begin as the Forest Plan revision progresses.

Due to the difficulties mentioned previously, a Clearwater Basin Elk Habitat Initiative was developed during FY98. This initiative is a cooperative effort in the Clearwater basin to improve elk habitat with an emphasis on the use of prescribed fire and other forest practices. Cooperators are the Clearwater and Nez Perce National Forests, Idaho Department of Fish and Game, the Army Corps of Engineers, Potlatch Corporation, the Rocky Mountain Elk Foundation (RMEF), and the Idaho State Department of Lands. A citizens group has formed to help the cooperators implement projects and advise managers. A basin-wide analysis of habitats and treatments is ongoing. Some prescribed fire projects were implemented in FY98 in cooperation with RMEF. A memorandum of understanding and charter were developed to help cooperators coordinate management and public involvement. The long range goal is to restore declining habitat conditions.

On the Clearwater National Forest, the Big Game Habitat Restoration on a Watershed Scale (BHROWS) project was developed to improve the health of the ecosystem and habitat for elk on 840,000 acres of the North Fork Ranger District.

Item No.'s 26-35 Population Trends of Management Indicator, Threatened and Endangered Species

Frequency of Measurement: Annual

Reporting Period: Five years

### Monitoring Action

Reports will be prepared on these species focusing on population trends and effects of management of these species.

## Accomplishments/Findings

Management Indicator Species - The following species were selected for inclusion in the Forest Plan as indicator species: elk, moose, white-tailed deer, pileated woodpecker, goshawk, pine marten, and all Threatened and Endangered plant and animal species.

**Elk** - Based on information from the Idaho Department of Fish & Game big game surveys, the elk population on the Clearwater National Forest is estimated at 11,000. Winter conditions during FY98 were mild. The elk population remained static or slightly increased from the effects of the very severe winter conditions in FY97 which resulted in approximately a 50% reduction in elk population. The trend in the overall population the past five years has been a sharp downward movement. Elk numbers were estimated by the Idaho Fish & Game to be around 20,000 in 1994.

**Moose** - Approximately 1,200 moose inhabit the Forest based on Idaho Department of Fish & Game estimates. Harvest has remained stable. The Powell Ranger District continues to support habitat for approximately 75% of the moose population on the Forest. The trend in moose population over the past 5 years is stable.

**Deer** - Approximately 5,000 white-tailed deer inhabit the Forest according to the Idaho Department of Fish & Game. Annual harvest has remained stable. Implementation of management practices to mitigate impacts on elk, riparian areas and old-growth habitat will benefit overlapping white-tailed deer habitat. The trend in deer population over the past 5 years is stable.

**Pileated Woodpecker, Goshawk, and Pine Marten** - These three species were selected as indicator species for monitoring a variety of old-growth habitat across the Forest. Trends in population numbers are correlated with overall old-growth acres maintained on the Forest as directed in the Forest Plan. A stable population of pileated woodpeckers and goshawks were commonly observed across the Forest and coincide with maintenance of old-growth habitat. Pine martens are very common in higher elevations and continued to be trapped with no limits or harvest restrictions being considered. Pine martin population is considered to be stable based on maintenance of old-growth habitat and annual authorization of commercial trapping by Idaho Department of Fish & Game. A cooperative program was initiated with Potlatch Corporation to offer a monetary reward to individuals for reporting the location of active goshawk nests that could be confirmed by a biologist. Six new nest sites were reported in the Clearwater basin as a result of this program.

**Gray Wolf (Experimental/non-essential)** - Wolves have been reintroduced into North Central Idaho in 1997. Currently, 7-10 wolves inhabit the Clearwater National Forest. The Nez Perce Tribe is responsible for monitoring and coordinating wolf recovery efforts in Idaho. Recovery goals are being met more rapidly than expected with the possibility of delisting being considered. Trends in numbers are expected to increase as young adults disperse from existing packs and populate un-occupied suitable wolf habitat.

**Bald Eagle (Threatened)** - The bald eagle occurs only as a winter resident in the Clearwater basin. Approximately 60 bald eagles winter in the Clearwater basin and its tributaries. Biologists from the Forest work on the National Wildlife Federation's annual bald eagle survey each January. Most of the bald eagle habitat is found along major watercourses. Recovery goals for the bald eagle have been exceeded for the past 5 years. Delisting is being considered. Trends in

numbers of bald eagles over the past 5 years is stable based on incidental observations and annual surveys.

Grizzly Bear (Threatened) - A decision to draft an environmental impact statement (EIS) dealing with grizzly bear recovery in North Central Idaho was made by the Interagency Grizzly Bear Committee during FY96. Interim direction for dealing with grizzly bear habitat has been issued until the EIS is finalized. Public comments were analyzed during FY98 and will be included in the final EIS. Existing populations of grizzly bear on the Forest are unknown at this time. Occasional unconfirmed sightings have been reported in the higher elevations of the eastern portions of the forest.

### Threatened Plant Species

Water Howellia (*Howellia aquatilis*) - Water howellia is an aquatic plant found in glacial potholes and oxbow sloughs where water is present in the spring, but dries up by late summer. It is generally found in shallow water or the edges of deeper ponds in Engelmann spruce or lodgepole pine cover types. This species is known to occur as an anomaly in a stock pond in Latah County. There is no known suitable habitat for water howellia on the Forest at this time due to lack of suitable aquatic habitat.

Ute Ladies'-tresses (*Spiranthes diluvialis*) - The USFWS added this species to the Clearwater National Forest's bi-annual forestwide list, USFWS 1-9-98-SP-100, dated March 2, 1998. Based on information from the Boise office of the USFWS (Section 7 Guidelines, given to the Clearwater and Nez Perce National Forests, dated 2/4/1998), this species is thought to be a marginal Great Basin species. A review of this species' habitat (per ICDC, Montana Natural Heritage and Washington Natural Heritage records) indicates this species to be found in wetland habitats in a physiographic setting of large, low gradient valley bottoms. Other typical habitats include transition areas where river systems leave high gradient, mountainous settings and enter shrub (sagebrush, greasewood, bitterbrush) or grassland-steppe physiographic settings. Plants are nearly always in low gradient, alluvial valleys, open, grass dominated wet meadows, shrub or deciduous tree (i.e. cottonwood) riparian areas. Soils are often alkaline or periodically flooded alkaline flats, adjacent to lowland lakes.

The best information available indicates this species has not been found in:

- 1) high gradient, western redcedar/western hemlock riverine, riparian systems;
- 2) boreal riparian plant communities dominated by subalpine fir, spruce or mountain hemlock;
- or
- 3) cold, boreal sedge or sphagnum moss dominated peatlands or subalpine meadows.

To assume the presence of this species in upland, high gradient, densely shaded, conifer dominated riparian systems, or subalpine communities is not substantiated by the existing habitat information. Botanists feel that if this species is present in northern Idaho, it would be in alluvial bottomlands, generally less than 3,000' elevation, with open, mixed conifer and deciduous (i.e. cottonwood), grass and shrub mosaic communities, along our major river systems or adjacent to lowland lakes.

For new projects, the Clearwater National Forest will conduct surveys of high potential habitats during the blooming period (late July - September) and follow standard Threatened and Endangered Species protocols (FSM 2670). Proposed projects in the steppe zone habitat types in the Palouse Prairie or canyon grasslands should be evaluated as potential habitat. Most of the Clearwater National Forest would not be considered suitable habitat for this species. Currently, Montane coniferous forest, subalpine coniferous forest, and alpine zones are not considered suitable habitat.

### III. APPEALS AND LITIGATION

There are two parts to this section: a listing of individual project level appeals on the Clearwater National Forest, and a listing of the lawsuits in which the Clearwater is currently involved.

Project Level Appeals - The Forest received eight new project appeals on six projects during FY98. The following table presents the status of these appeals.

Project Name	Appellant	Status	Major Appeal Issues
Shoot Creek Timber Sale EA	The Ecology Center, et. al.	Decision Withdrawn by Forest Supervisor - Reissued later in FY98, Appealed FY99	Size of Opening Cumulative Effects Management Indicator Species
Dworshak Blowdown Timber Sale EA	Friends of the Clearwater	Decision Upheld by Regional Forester	Cumulative effects Range of Alternatives Roadless Area Water Quality
Tom Beal Post and Pole Timber Sale	Ecology Center, et. al.	Decision Withdrawn by District Ranger - Reissued later in the year	Cumulative Effects Roadless Areas Inappropriate use of CE
Molly-Mud Timber Sale	Ecology Center, et. al.	Decision Upheld by Regional Forester	Inappropriate use of CE Extraordinary Circumstances
Tom Beal Post and Pole Timber Sale	John Swanson Forest Guardians and Native Forest Council Friends of the Clearwater, et. al	Appeals Dismissed by Regional Forester	Inappropriate use of CE Economic Analysis Roadless Areas
Piah Creek Placer Mine	Julia and Christopher Burdge	Decision Upheld by Forest Supervisor and Regional Forester	Mineral prospecting operation in noncompliance

Litigation - The Forest was involved in three lawsuits during FY98; two of which were settled. The following table presents the current status of these lawsuits.

Topic of Lawsuit, Plaintiffs and Defendants	Status	Major Issues
Bull Trout Friends of the Wild Swan v. Regional Foresters, R1 and R4	District Court Decision in Favor of Forest Service. Appealed to the 9th Circuit Court.	Alleged failure to provide for viable population of bull trout.
Pacfish Prairie Wood Products v. USDA Secretary Glickman	Court Decision in Favor of Forest Service.	Alleged failure to provide for viable populations of anadromous fish. Plus, failure to prepare significant amendments to Forest Plan and regional guides to adopt Pacfish guides.
Forest Plan Implementation Wilderness Society, et. al. v. Regional Forester, R1 et. al.	Documentation being prepared for the Court.	Alleged failure to meet Forest Plan standards for old growth. Alleged failure to supplement the Forest Plan due to the effects of the flooding event of 1995-1996. Alleged violation of 1993 Settlement Agreement. Implementation of the White Pine and Fish Bate timber sales.

In addition to these lawsuits the Forest was involved with in FY98, shortly after the beginning of FY99, the Clearwater National Forest was notified of an intent to sue in another lawsuit. Details of this lawsuit, if filed, will be included in the *FY99 Monitoring and Evaluation Report*.

## IV. IMPLEMENTED CHANGES

Ecosystem Management - The Forest continued with the implementation of Ecosystem Management concepts and principles when designing projects. A draft Environmental Impact Statement for the North Lochsa Face project has been released for the public to review and provide input.

Extension of PACFISH and INFISH interim management direction provides further management direction for all projects on the Forest.

The Forest has developed a proposed forest-wide schedule of priorities of watersheds for completing Ecosystem Analysis at the Watershed Scale. Copies were sent to Idaho Fish & Game, U.S. Fish & Wildlife Service, National Marine Fisheries Service, U.S.E.P. Agency and the Nez Perce Tribe.

Forest Plan Revision - Forest Plan revision procedures are under review. Procedures to link plan revision to the findings and any decisions from the Interior Columbia River Basin Ecosystem Management Project are being developed.

Efforts in FY98 largely centered around continuation of completing needed data layers in the geographic information system (GIS), ongoing ecosystem assessments of subbasin watersheds and meeting with Columbia River Basin Project representatives to gain an understanding of the project.

Until the revision of the Forest Plan is completed, the current Forest Plan, as amended, remains as the guiding document for the Forest. The Forest continues to incorporate the four "*interim measures*" or exceptions that were agreed to in the Settlement Agreement (Wilderness Society, et al v. Robertson, 1993).

### AMENDMENTS

Amendment No. 21 - updates the water quality objectives for Wepah Creek. Page K-5 in Appendix K of the Forest Plan is updated to reflect this change. The need for this change was identified during the environmental analysis for the Wepah-Pup Timber Sale conducted by the Palouse Ranger District.

# V. PLANNED ACTIONS

## Introduction

This section identifies actions slated for FY99 and beyond, in the following order.

- (1) Discussion of the Large Scale Area Assessment Documents
- (2) Discussion of Clearwater National Forest Ecosystem Management Documents
- (3) Steps in the Revision of the Forest Plan
- (4) Amendments that may be Proposed to the Current Forest Plan
- (5) Discussion of Projected Budget (Appendix C in the Forest Plan)
- (6) List of other Activities Planned in FY99

(1) Area Assessment Documents - *Interior Columbia Basin Ecosystem Management Project* - The Forest received copies of the Upper Columbia River Basin Draft Environmental Impact Statement Volumes I and II. This document presents alternative ways to develop and implement a coordinated scientifically sound ecosystem-based management strategy for Forest Service and Bureau of Land Management lands in the Upper Columbia River Basin. Copies are available from the project office in Walla Walla, Washington (509-522-4030) or Boise, Idaho (208-334-1770). Based on public comment on the Draft EISs, a new alternative will be developed in 1999 that addresses a limited number of issues that must be resolved at the basin- wide level. This approach will be less complex and less costly, while still meeting scientific standards that will ensure sound management and compliance with environmental laws. A limited amount of information is available on their web sites. The web site for the Interior Columbia Basin Project is <http://icbemp.gov>. The web site for the Upper Columbia Basin Project is [http://icbemp.gov/html/ucrb\\_eis.html](http://icbemp.gov/html/ucrb_eis.html).

(2) Ecosystem Management Documents - *Clearwater National Forest Ecosystem Management Documents* - The Forest completed an ecosystem assessment of the Clearwater Subbasin in FY97. Copies of the assessment report are available at the Clearwater National Forest Supervisor's Office in Orofino, Idaho (208-476-4541, contact Cliff Mitchell). Procedures for updating the Forest vegetation and land system inventory data bases are established and in use. Procedures for conducting broad-scale ecosystem analysis are better understood and being used to guide the Forest's ecosystem analysis projects.

Subbasin assessments for the Lower North Fork of the Clearwater and Palouse River subbasins were completed in 1998. The subbasin assessment of Lochsa River will be completed in 1999.

(3) Steps in the Revision of the Forest Plan for the Clearwater National Forest - The regional strategy for completion of revision of Forest Plans is to have this done as required by law. The law states they are to be revised within 10 - 15 years from when they were signed. The completion date for the Clearwater National Forest is no later than 2002. Current strategies for completion of all Region One Forest Management Plans are under review due to projected reductions in future budgets. Possible strategies may need to be re-aligned to stay within projected budget and workforce capabilities.

As agreed under the terms of the Forest Plan lawsuit settlement, the Forest has filed a Notice of Intent (NOI) in the Federal Register in March 1995 announcing the intent to revise the Forest Plan. This revision process will be done in conjunction with the Region One revision strategy.

(4) Amendments That May be Proposed to the Current Forest Plan - Following are some of the proposed Forest Plan amendments that may be expected in FY99.

Amendment No. 20 - Within the North Lochsa Face planning area, this proposed amendment would change the maximum number of acres that a wildfire is expected to exceed. Currently, each management area has a set number of acres that a wildfire is not to exceed. This amendment would change that set number to an unscheduled acreage. Each wildfire would be analyzed individually, to balance the values in that area with the cost to suppress that fire to determine a maximum fire size. The need for this change is identified in the North Lochsa Face analysis conducted by the Lochsa Ranger District.

West Fork Potlatch Water Quality Amendment - Preliminary analysis indicates there may be a need to update the water quality standards for several creeks in this drainage. The need for change will be based on a site-specific analysis conducted by the Palouse Ranger District and documented in the West Fork Potlatch Final Environmental Impact Statement and Record of Decision.

Other Amendments - Throughout FY99, several other project-specific amendments are expected to be identified as analysis continues or is initiated on other projects.

(5) Projected Budget (Appendix C of Forest Plan) - As implementation of the Forest Plan continues, actual dollars versus projected dollars are continually adjusted. Instead of amending the Forest Plan, Table 2 under "Economics" displays this information annually.

(6) Other Planned Activities.

## EFFECTS

In celebration of the 200th anniversary of the Lewis and Clark voyage, the Clearwater National Forest is making plans for enhancing the visitors' experience with an improved visitor center at Lolo Pass, interpretive signs along the Highway 12 corridor, and informative publications. A strategy for visitor use on the Lolo Trail (the actual route of Lewis and Clark) was developed by a team from the Clearwater National Forest, National Park Service, and the Nez Perce Tribe

The Clearwater Basin Elk Habitat Initiative was begun to address the problem of elk herd declines and find solutions to restore habitat. This is a collaborative effort with state and federal agencies, and many private sector partners.

The final Environmental Impact Statement for the North Lochsa Face Ecosystem Assessment Project and decision is anticipated in 1998.

## FISHERIES

In 1998, the Forest conducted reviews on four projects. Reviews of additional project monitoring to determine compliance with Forest Plan direction as amended by PACFISH were not completed. These were rescheduled for 1999.

Selected projects for INFISH were not completed and the reviews were rescheduled for 1999.

## LANDS

The *Pits Exchange*, involving approximately 3,132 acres of Federal land and approximately 3,172 acres of non-Federal lands, has been identified. Field work is scheduled for FY99 with completion in FY00.

## RANGE

An environmental analysis was completed for the Purdue Creek Allotment on the Palouse Ranger District in 1998 and a decision will be issued in the spring of 1999.

The Environmental Analysis of the Musselshell Allotment was cancelled.

## RECREATION

Construction is planned to begin in the spring of 1999 on Noe Creek, Kelly Forks and Hidden Creek Campgrounds. Improvements will include resurfacing roads, realignment and leveling of camping units, rehabilitation of water systems, and replacement of tables, fire rings and rest rooms.

As funding becomes available, rehabilitation of the historic Kelly Forks Log Cabin may be completed in 2001 and will be placed in the cabin rental program for use by the public.

## RESEARCH NATURAL AREAS

Fenn Mountain and Rhodes Peak are in application process for official designation as research natural areas with a completion date of 2000.

## RESEARCH NEEDS

In 1999, monitoring of the following items for off highway vehicle use will be initiated.

- ◇ Number of reported complaints relating to use of OHVs, or instances of conflict between user groups. An informal survey of office receptionists and recreation managers on the Clearwater National Forest indicated that the frequency of complaints regarding use of OHVs is increasing, but the number of complaints received was less than 10 in 1998.
- ◇ Number of citations for violations of regulations relating to use of OHVs. In 1998 there were 118 violations or incident reports issued for violations of regulations - an increase of 136% over that reported in 1997.

Changes in elk habitat and the potential increase in calf mortality will be monitored.

## RIPARIAN AREAS

In 1999, above average runoff is expected that will exceed bankfull flow. Monitoring of the four lower reaches in Pete King Creek will continue in 1999.

## SOIL AND WATER

Analysis of project areas evaluated for soil condition and management impact in FY98 will be included in the *FY99 Monitoring and Evaluation Report*.

## TIMBER

The Palouse Ranger District will enter the acres harvested in FY98 as a FY99 accomplishment.

Monitoring of Armillaria root disease will continue.

## WILDERNESS

Formal analysis of ecodata re-measurements for vegetation at Wind Lakes was not completed in 1998 and is scheduled for completion in 1999.

Campsite restoration at Hidden Lake is planned for 1999.

## WILDLIFE

A status report will be prepared and updated annually to display the amount and distribution of old-growth habitat.

On March 2, 1998, the USFWS added Utle Ladies'-tresses (*Spieranthes diluvialis*) to the Forest's threatened plant species list. New projects for this plant species will include conducting surveys of high potential habitats during the blooming period (late July - September) following standard Threatened and Endangered Species protocols (FSM 2670).

# VI. LIST OF FOREST CONTACTS

The following people contributed to the development of this report.

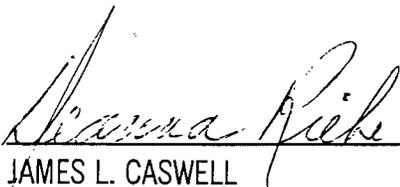
NAME	TELEPHONE	RESOURCE AREA
Duane Annis	476-4541	Recreation/Resources
Jerry Arsenia	"	Report Manager, Planning
John Case	"	Forester
Anne Connor	"	Civil Engineer
Dan Davis	"	Wildlife Biologist, Range Specialist
John Keerseemaker	"	Staff Officer, Ecosystem Management
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Bill Jones	"	Forester, Lands
Diana Jones	"	Landscape Architect
Richard Jones	"	Hydrologist
John Kasza	"	Civil Engineer
Rollin Kehlet	"	Trails Coordinator
Lisa Klinger	926-4274	Scenic Easement Administrator
Jim Mital	476-4541	Forest Ecologist
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Cindy Lane	926-4274	District Ranger, Lochsa Ranger District
Blake Ballard	875-1131	Acting District Ranger, Palouse Ranger District
Ed Lozar	476-4541	Planning
Jim Mital	"	Forest Ecologist/Soil Scientist
Pat Murphy	"	Fisheries Biologist
Deanna Riebe	"	Public Affairs, Staff Officer
William Wulf	"	Silviculturist

# VII. FOREST SUPERVISOR APPROVAL

## Approval

I have reviewed this annual *Forest Plan Monitoring and Evaluation Report for FY98*. This report meets the intent of the Forest Plan (Chapter IV) and 36 CFR 219. I have also considered the recommendations of my staff on proposed changes to the Forest Plan. Amendments needed to keep the Forest Plan current will be implemented only after appropriate participation and analysis.

This report is approved.



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JAMES L. CASWELL  
Forest Supervisor

7/26/99

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Date