United States
Department of
Agriculture

Forest
Service

Northern
Region

Clearwater National Forest

Monitoring & Evaluation Report

Fiscal Year 1991

United States Department of Agriculture
Forest Service
Clearwater National Forest
12730 Highway 12
Orofino, ID 83544
(208) 476-4541

Date: May 5, 1991

Dear Forest User:

We appreciate your interest in the Clearwater National Forest Plan. This is our fourth Monitoring and Evaluation Report since its release in September of 1987.

We invite you to review and comment on the 1991 Monitoring and Evaluation Report. We also invite you to call, visit or write us anytime.

Sincerely,

Win Green

WIN GREEN
Forest Supervisor

Table of Contents

	Page
I. Introduction	1
II. Monitoring Report	3
Cultural Resources	3
Economics	7
Effects	14
Engineering	17
Fire	20
Fisheries	28
Minerals	42
Range	45
Recreation	46
Research Natural Areas	53
Research Needs	54
Riparian Areas	55
Soil and Water	60
Timber	72
Trails	82
Visual Resources	88
Wild and Scenic Rivers	91
Wilderness	93
Wildlife	84
III. Appeals	109
IV. Planned Actions	116
V. List of Forest Contacts	127
VI. Forest Supervisor Approval	128

Introduction

Overview

We recently completed the monitoring of Forest Plan implementation for fiscal year 1991. This is the fourth year of Forest Plan implementation for the Clearwater National Forest and we are continually verifying our data and assumptions through monitoring. We then evaluate the monitoring results to determine whether the Forest Plan should be revised or amended.

This report summarizes results of Forest Plan monitoring and evaluation conducted from October 1, 1990 through September 30, 1991. It meets the requirements of 36 CFR 219 which sets forth the direction for the evaluation of Forest Plans. The direction to prepare an annual monitoring and evaluation report for the Clearwater National Forest is contained in Chapter IV of the Forest Plan.

The report is organized into five main sections following the Introduction. Section II focuses on monitoring requirements by resource. Almost all resource sections contain a goal, strategy, monitoring requirement, monitoring action, and accomplishments/findings. Section III lists all Forest Plan and project level appeals, the status of each and the major issues associated with each appeal. Section IV identifies conclusions drawn from this year's report and identifies recommended changes which could result in amendments to the Forest Plan. It also identifies any amendments made to the Forest Plan in fiscal year 1991. Section V lists those people who contributed to the preparation of the report. Section VI is the Forest Supervisor's Approval.

Evaluation

As identified in the fiscal year 1990 monitoring report, certain changes in the original Forest Planning assumptions were recognized. These changes in assumptions could be the result of action taken by the Forest, other agencies and corporations; or changes that were not anticipated during the forest planning process. Additionally, we suspect that some errors may have occurred in the original planning process. The tracking of such information will enable us to determine the effects that these changes have on our ability to implement the Forest Plan. A four person team was established to conduct the analysis needed to support the Forest Plan Review. The section called Effects in Section II lists the potential major issues.

The Forest identified and collected information comparing Forest Plan data with site-specific information for timber in a ground truthing exercise. The focus of the first step was to determine the existing condition of the Forest, visually display that condition, and track the decisions made since the Forest Plan was signed. The second step will be an evaluation of that information. This evaluation is being completed by the Forest Plan Review Team.

Introduction

A number of inefficiencies were observed in the course of assessing our progress and success in implementing the Forest Plan and conducting site specific analyses for projects. This led us to design an integrated resource analysis (IRA) process for the Forest. The IRA process was designed to provide a stronger link between the desired future condition (DFC) identified in the Forest Plan and the decision of site-specific projects needed to implement the Forest Plan.

The Forest is currently utilizing this process on a district by district basis. The process is enabling us to identify and discover activities and practices that are reasonable and probable in the context of the Forest Plan. It is also enabling us to start the NEPA process on a much more solid and reasonable foundation because the proper focus and scope are established from the beginning.

The conditions of watersheds on the Forest continue to be a major concern. Forest Plan standards with regard to water quality and fisheries direct us to improve the condition of these watersheds. The Forest will continue to emphasize watershed restoration in the year 1992.

The Forest will continue to utilize the 25 foot Stream Protection Zone (SPZ) on Class II streams. The effectiveness of the 25 foot SPZ will be reported in the 1992 Monitoring Report.

One Forest Plan Amendment was made in fiscal year (FY) 1991. This amendment was a result of negotiations with American Rivers, an appellant of the Clearwater National Forest Plan. The amendment modifies the standards in Chapter II (Forestwide Management Direction) and Appendix M (Potential Wild and Scenic Rivers).

II. Monitoring Report

Cultural Resources

Goal

Manage and interpret cultural 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 cultural resource values while enhancing public use and awareness. Nominate significant cultural 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 values on the Lolo Trail system. Work with the public to improve values and increase awareness of cultural resources. Continue to assess cultural sites for nomination to the National Register of Historic Places.

Item No. 4	**Protection and Condition of Cultural Resource Sites**
Frequency of Measurement:	Annual
Reporting Period:	Annual

Monitoring Action

The Forest and District archaeologists will monitor cultural resources on the Forest. A minimum of 25% of all projects affecting the following sites will be monitored:

- Known or suspected archaeological sites.
- Sites listed in the National Register of Historic Places.
- Sites considered eligible for listing in the national Register of Historic Places.
- Sites suspected of having cultural significance.

Cultural Resources

Accomplishments/Findings

Table 1 shows the number of projects, acres surveyed and sites identified during the course of project preparation.

Table 1. Cultural 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

**Archaeological test excavations indicate the absence, presence and or amount of subsurface cultural material in project areas where sites are located or on a culturally high probable landform.

The increase in the number of project areas and acres surveyed in FY 1991 was due to accelerated programs in timber, trails, and recreation facilities. The general procedure on the Forest is to limit inventory only to direct impact areas such as timber sale cutting units and timber access roads, due to time constraints and cost. Inventory of direct impact areas (which are usually located on culturally low probable, steep sloped terrain) reflect the low ratio of sites identified compared to the increase in number of acres surveyed.

Low-speed motorized surveys conducted on previous sales and located within FY 1991 project areas were reinventoried with currently acceptable inventory methods. The Forest will continue to complete the reinventory of these low-speed motorized survey routes as opportunities arise.

Nineteen projects were monitored in FY 1991. Improvements were made in insuring the incorporation of cultural resource recommendations into project design and implementation. Improvements were also made in insuring that project implementation monitoring occurred in a timely manner. The Forest continues to fine tune the external and internal communications concerning the overall management of cultural resources. In conjunction with other projects, sites considered significant by the Nez Perce (that the Forest is aware of) were monitored for vandalism or disturbance from on going use.

In addition, the Region encouraged National Forests to make added efforts in the consideration of "Traditional Cultural Properties". Traditional Cultural Properties were defined as "one that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that are a) rooted in that community's history, and b) important in maintaining the continuing cultural identity of the community."

Therefore, in addition to looking for any possible physical evidence of traditional cultural properties in the field, the Forest did and will continue to increase efforts to identify these properties during the process of pre-field research.

The following list displays unique events and activities that promote and enhance cultural resources on various Districts.

Pierce Ranger District

Through the Take Pride In America program, the Forest continued work on the Nee Mee Poo and Lewis and Clark National Historic Trails. Most work included drainage construction on trails but other work occurred such as brushing and clearing vistas, sign installment and clean up of a trash dump.

Members of the Smithsonian Institute and Forest officials visited significant sites along the Lolo Trail and discussed the opportunities for trail management. The Pierce/Weippe "Lolo Trail Muzzleloaders" held their annual three day rendezvous at Weitas Meadows. The annual Q'USEYN'EISSKIT trail ride was sponsored by the Clearwater National Forest and the Nez Perce Tribe. The focus of this ride was to acquaint Nez Perce youth with the events and sites of their cultural heritage along the trail. A select number of independent trail riders who wished to participate were also involved.

Although a programmatic agreement has not been completed, the Tribe and the Forest continue to unofficially recognize a partnership in the management of cultural resource properties within the Clearwater National Forest (such as the Lolo Trail) that are of value to the Tribe.

Several cultural resource inventories led to the discovery of some of Idaho's earliest, most well preserved historic mining properties. These properties were representative of the period beginning with the Civil War and ending with World War II. They include a significant amount of Chinese influence and contributions. As opportunities arise, the Forest will complete the inventory and recording of these unique historic properties that offer classic examples of potential public interpretation sites.

Palouse Ranger District

The Palouse Ranger District offers classic examples of early Idaho logging. Two publications were printed within this last year in partnership with the Forest. They are "Early Logging in Latah County" (through the Idaho Legacy a magazine publication) by Robbin Johnston and "Potlatch Logging Camps, Bovill-Headquarters Sides Idaho (1903-1986)" which included a portion of the North Fork Ranger District by Tom Farbo. The Forest will explore potential interpretation sites and continue to record and protect them.

Lochsa Ranger District

The 1930-era Lochsa Historical Ranger Station, located along Highway 12, approximately 65 miles up river from Kooskia, Idaho, was preserved for public interpretation as a memorial to the history of Forest Service efforts to bring management to the National Forests.

Last July, a living history day was held at the Lochsa Historical Ranger Station in commemoration of the Forest Service Centennial. The celebration provided visitors the opportunity to observe and participate in the nearly forgotten skills of cross cut sawing logs, whip sawing lumber, shake splitting, cross cut saw

sharpening, horse logging, mule packing, quilting and spinning. The opening and dedication of the Lochsa River Historic Trail, which is part of the North-South Idaho Centennial Trail, was also included in the festivities.

Powell Ranger District

The Powell Ranger District hosted the dedication of the Nee Mee Poo National Historic Trail as part of the Forest Service Centennial. The Nee Mee Poo Trail was the route Chief Joseph and the non-treaty band of Nez Perces took while in flight of General Howard's troops during the War of 1877. Within a colorful and lively setting of an encircled tepee encampment, enhanced by traditional Nez Perce dress, song, and dance, approximately 1,500 Forest visitors witnessed the dedication. Tribal, Federal, State, and other dignitaries gave speeches on the historic event - reminding us of the symbol of courage and strength it has become for people of today.

Economics

Item No. 1	Quantitative Estimate of Performance Outputs or Services
Frequency of Measurement:	Annual
Reporting Period:	Annual

Monitoring Action

This item presents resource outputs and activities for FY 1991.

Accomplishments/Findings

Table 1 shows the outputs and activities occurring in FY 1991 along with the percent achieved compared with Forest Plan projections.

Table 1. Comparison of Outputs and Activities With Those Projected in the Forest Plan

Output or Activity	Unit of Measure	1988	1989	1990	1991	First Decade Avg. Annual From Plan	Percent of Predicted 1991 Achievements
Recreation							
Developed Use	M RVD's	348.2	319.1	280.6	226.5	260.0	87
Dispersed Use							
Wilderness *	M RVD's	32.4	30.6	29.1	30.5	121.0	25
Non-Wilderness	M RVD's	357.5	445.2	446.4	587.3	687.3	85
Wildlife & Fish							
Wildlife Habitat Improvement	Acres	1384	513	930	600	1300	46
Fisheries Habitat Improvement	Acres	98	127	166	211	219	96
T&E Species Habitat Improvement**	Acres	0	0	0	0	N/A	N/A
Wildlife Habitat Improvement	Structures	0	72	0	0	N/A	N/A
Fisheries Habitat Improvement	Structures	29	151	154	186	N/A	N/A
T&E Habitat Improvement**	Structures	0	0	0	0	N/A	N/A
Range							
Grazing Use	M AUM's	13.0	13.0	15.0	12.5	16.0	78
Range Improvement (Non-struct.)***	Acres	2470	2470	3268	2500	7000	36
Range Imprvmnt (Structures)	Structures	0	2	1	0	N/A	N/A
Noxious Weed Control	Acres	110	295	150	330	380	87
Soil and Water							
Watershed Inventory	M Acres	.3	16.04	91.7	121.08	N/A	N/A
Soil Inventory	M Acres	35.0	20	24	100	17.0	588
Minerals							
Minerals Management	Cases	231	174	158	178	265	67

* The Forest Plan use 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.

** A portion of the wildlife habitat improvements also benefit threatened and endangered species, particularly the grizzly bear and grey wolf.

*** This figure represents the acres harvested by clearcut methods. These acres provide a temporary forage base for the range resource.

N/A means that the Forest Plan did not project an average annual output for any output or activity.

Table 1. Comparison of Outputs and Activities With Those Projected in the Forest Plan (continued)

Output or Activity	Unit of Measure	1988	1989	1990	1991	First Decade Avg. Annual From Plan	Percent of Predicted 1991 Achievements
Timber							
Volume Offered							
Roaded Primary	MMBF	111.2	104.4	104.9	100.3	90	111
Roaded NICS	MMBF	13.1	19.4	17.5	15.7	10	157
Unroaded	MMBF	13.2	22.8	3.4	7.9	73	11
Volume Under Contract	MMBF	405.0	422.3	371.9	300.1	N/A	N/A
Reforestation-App. Funds	Acres	1884	1675	1695	1311	N/A	N/A
Reforestation-KV Funds	Acres	1366	3254	2896	3440	N/A	N/A
Timber Stand Improvement (App. Funds)	Acres	355	444	583	754	1928	43
Timber Stand Improvement (KV Funds)	Acres	343	473	618	83		
Protection							
Fuels Management Natural Fuels Treatment	Acres	447	340	309	294	N/A	N/A
Fuels Management Brush Disposal	Acres	2308	3955	2733	3389	N/A	N/A
Facilities							
Trails Construction and Reconstruction	Miles	2.0	8.0	14.6	17.4	13.8	126
Road Const./Reconst.							
Timber (Const)	Miles	49.9	30.5	31.2	26.4	69.6	38
Timber (Recon)	Miles	41.6	45.5	39.1	44.7	N/A	N/A
Recreation	Miles	1.3/8.7	.42/2.31	.25/.25	0.0/0.0	N/A	N/A
Other	Miles	0/0.1	0.0/0.9	0.0/0.0	0.0/0.0	N/A	N/A

N/A means that the Forest Plan did not project an average annual output for any output or activity.

Economics

Item No. 17	Document Cost of Implementation Compared to Plan Cost
Frequency of Measurement:	Annual
Reporting Period:	Annual

Monitoring Action

The Forest's Budget and Finance section will compile the actual costs for comparison with the projected costs from the Forest Plan.

Accomplishments/Findings

Table 2 displays figures for cost comparison.

Table 2. Comparison Between Yearly Expenditures And Forest Plan Projections (In 1991 Dollars)

Act. Code	Activity Description	FY 88 Expenditures (Thousand $)	FY 89 Expenditures (Thousand $)	FY 90 Expenditures (Thousand $)	FY 91 Expenditures (Thousand $)	Forest Plan Projections (Thousand $)	1991 Percent of Projection
00	General Administration	2,821	*2,239	**1,527	1,816	2,558	71
01	Fire Protection	653	673	621	659	1,054	63
02	Fire Protection (Fuel)	139	64	105	68	63	108
03	Timber Sale Prep./Admin.	2,116	2,058	2,369	2,911	3,077	95
04	Timber Resource Plans	312	128	324	259	347	75
05	Timber Silvicultural Exams	657	619	759	1,058	1,019	104
06	Range	79	57	56	88	124	71
07	Range (Noxious Weeds)	22	16	15	8	34	24
08	Minerals	89	83	94	97	200	49
09	Recreation	524	679	798	945	1,235	77
10	Wildlife and Fish	637	592	1,083	780	1,292	60
11	Soil and Water	239	389	633	491	465	106
12	Maintenance of Facilities	205	158	223	240	572	42
13	Special Uses	52	52	36	37	107	35
14	Geometronics	0	0	0	0	0	0
15	Landownership Exchange	54	47	40	52	156	33

* Reprogrammed $261,000 of FY89 funds and $147,900 of FY88 carryover to NFGA in FY89.

** Nearly $400,000 of activities previously financed from NFGA now financed from other resources. No reprogramming to NFGA in FY90.

Table 2. Comparison Between Yearly Expenditures And Forest Plan Projections (In 1991 Dollars) (continued)

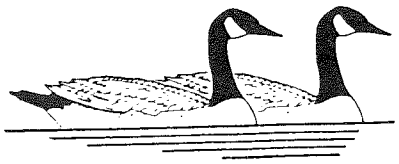
Act. Code	Activity Description	FY 88 Expenditures (Thousand $)	FY 89 Expenditures (Thousand $)	FY 90 Expenditures (Thousand $)	FY 91 Expenditures (Thousand $)	Forest Plan Projections (Thousand $)	1991 Percent of Projection
16	Landline Location	184	310	201	339	416	81
17	Road Maintenance	651	*777	*689	792	968	82
18	Trail Maintenance	382	385	569	513	513	100
19	Co-op Law Enforcement	61	57	81	74	80	93
20	Reforestation-Appropriated	1,168	632	1,149	862	2,077	42
21	TSI-Appropriated	165	104	156	164	487	34
23	Tree Improvement	258	296	169	261	**72	363
26	KV-Reforestation	1,101	1,766	1,648	1,997	3,210	62
27	TSI-KV	96	105	301	58	100	58
28	Other-KV	131	543	501	500	691	72
29	Other-CWFS (Trust Fund)	835	991	363	434	785	55
30	Timber Salvage Sales (Perm. Fund)	177	218	452	1,235	351	352
31	Brush Disposal (Perm. Fund)	1,018	1,047	1,275	1,372	1,914	72
32	Range Betterment	8	4	2	2	8	25
33	Construction (Recreation Facilities)	57	103	118	251	100	251
34	Facility Construction	0	578	206	298	666	45

* $59,000 for contract preparation.

** This figure is due to development of the Lenore Seed Orchard, which was not accounted for in the Forest Plan.

Table 2. Comparison Between Yearly Expenditures And Forest Plan Projections (In 1991 Dollars) (continued)

Act. Code	Activity Description	FY 88 Expenditures (Thousand $)	FY 89 Expenditures (Thousand $)	FY 90 Expenditures (Thousand $)	FY 91 Expenditures (Thousand $)	Forest Plan Projections (Thousand $)	1991 Percent of Projection
35	Engineering Constr. Support	1,454	1,403	1,327	1,417	1,970	72
36	Construction-Capital Investment	1,495	1,248	301	155	2,973	5
37	Trail Construction/ Reconstruction	148	185	250	212	345	61
38	Timber Purchaser Road Const./Reconst.	1,411	1,680	145	22	5,270	.42
43	Land Acquisition	42	41	41	21	75	28
	TOTAL	19,443	20,361	18,627	20,488	35,585	



Effects

Item No. 22	Effects of National Forest Management on Adjacent Land and Communities
Frequency of Measurement:	Annual
Reporting Period:	Annually

Item No. 23	Effects of Other Agency Activities on the National Forest
Frequency of Measurement:	Annual
Reporting Period:	Five years (1993)

Accomplishments/Findings

As identified in the FY 1990 monitoring report, certain changes in the original forest planning assumptions were recognized. These changes in assumptions could be the result of actions taken by the Forest, other agencies and corporations, or changes that were not anticipated during the Forest planning process. Additionally, we suspect that some errors may have occured in the original planning process. The tracking of such information will enable us to determine the effects that these changes have on our ability to implement the Forest Plan. The Clearwater National Forest established a four person team to conduct the analysis needed to support the Forest Plan Review.

Potential Major Issues

Our ability to meet timber output predictions identified in the 1987 Forest Plan have been a great concern to some of our employees and the general public. We are reviewing the following situations to determine if a Forest Plan amendment may be necessary.

Riparian - The 1987 Forest Plan estimated that there was approximately 107,000 acres of riparian areas (M2). Implementation of the Forest Plan has identified that this estimate may have

been low and that more riparian acres actually exist on the Forest. The effect of having more riparian acres than anticipated may be a reducion in timber production from the levels assumed in the Plan. We have initiated an effort to more accurately map the riparian areas and a revised estimate will be made soon.

Water Quality/Fisheries - The Forest is having difficulties achieving fisheries and water quality objectives commensurate with meeting timber harvest objectives in the roaded portion of the Forest. It is possible that some of the streams in the roaded portion of the Forest were not in as good a condition as modeled in the Forest Plan and/or that watershed recovery rates are slower than anticipated. We are nearing completion of an updated stream and watershed analysis for the roaded portion of the Forest to compare against the Forest Plan standards for water quality and fisheries. Streams not meeting standards limit our ability to provide the amount of timber and other forest products we had anticipated.

Old-Growth Forests - When the Forest Plan was signed (September 1987), old-growth dependent species were recognized as important wildlife resources. At that time, estimates concluded that there was approximately 19% of the Forest available for designation as old-growth habitat. No inventory was conducted to verify the estimate. Since then, field observations have indicated that there is considerably less old-growth habitat than assumed in the Forest Plan. During FY 1991, field data on old-growth habitat was gathered and methods to determine the amount present were tested. (A detailed and comprehensive assessment of the amount and distribution of old-growth habitat on the Forest was completed in March 1992. This information is currently available on request.)

Prescriptions - At the time the Forest Plan was developed, a silvicultural prescription was assumed for each management area. However, there have been changes in policies and practices that may have led to changes to the actual timber prescriptions applied on the ground. We are evaluating what these changes are, the magnitude of these changes and the effect to overall timber production of the Forest. For example, the effect of reducing the use of clearcutting and substituting other silvicultural techniques may mean that more acres are actually impacted to produce an equal volume of timber.

Timber Volumes - Timber volume estimates used to support the Forest Plan are being reviewed and compared with recent surveys to verify that the estimates were reasonable.

Unroaded Area - During the development of the Forest Plan, certain unroaded areas were proposed for designation as wilderness and others were expected to be available for timber management. At the time the Forest Plan was signed, the Allowable Sale Quantity (ASQ) was partitioned into non-interchangeable roaded and unroaded components. Since completion of the Forest Plan, entry into the unroaded areas has been much less than anticipated. We are evaluating past and current efforts to enter the unroaded areas. We are also preparing estimates of costs and timelines needed to accelerate this effort. However, each previously proposed timber harvest activity in unroaded areas has been highly controversial with the public and we expect this pattern to continue.

Effects

Spatial - There may have been some basic modeling errors in the original Forest planning process which did not adequately reflect requirements for the spatial relationship between timber harvest units. The effect of activities occurring on adjacent private lands may also have been underestimated. At times, we must modify or delay activities on National Forest land in order to mitigate for activities occurring on adjacent or upstream private land.

Our current Forest Plan Review timeline shows the internal evaluation of these seven issues to be completed by August 1992. The findings from this review will be presented to the Regional Forester for his approval. At that time, we may begin the process of a Forest Plan amendment for one or more of the problems. If the decision is made to begin an amendment process the Forest will ask for significant public involvement as well as consultation with various State and Federal Agencies, local governments, and the Nez Pierce Tribe.

The Clearwater National Forest is working with three Montana Forests in the development of a regional process for the Five-Year Forest Plan Reviews which are required by the National Forest Management Act (NFMA). These reviews are to be based on monitoring data collected during the five years of Forest Plan implementation. The monitoring data will help validate estimates and projections made in the Forest planning process or show where changes have occurred.

Engineering

Item No. 12	Land Ownership Adjustments
Frequency of Measurement:	Annual
Reporting Period:	Annual

Monitoring Action

The Lands staff will prepare a report specifying the number of acres acquired, traded, or sold. The report will contain a narrative detailing the purpose of the land exchanges and how they contribute to satisfaction of Forest Plan objectives. The Forest lands staff will research the land transactions records to obtain information for the report.

Accomplishments/Findings

During FY 1991, the Clearwater National Forest acquired, through a land exchange with Potlatch Corporation, 206.32 acres while exchanging out of 85 acres. The Forest Service acquired two tracts from Potlatch in the Clearwater Gulch and Clark Mountain areas on the Pierce and North Fork Ranger Districts. In exchange, Potlatch Corporation acquired one small parcel of 85 acres from a 600 acre tract in the Ford Creek area on the Pierce Ranger District.

The overall objective of this exchange was to consolidate Federal ownership for more efficient and cost-effective land management. This exchange was consistent with the management area objectives and the land adjustment criteria identified in the Clearwater National Forest Plan.

By completing the exchange, fiscal costs were reduced for surveying and posting boundary lines, acquiring access easements, constructing access to manage National Forest land, acquiring/granting other use permits, and trespass. An estimated $227,300 was saved.

The Forest acquired productive timber land in order to manage timber stands for optimal growth and health, to address big game management (primarily elk), and to provide for dispersed recreation and livestock grazing.

Engineering

Implementation of this exchange contributed considerably to the management objectives and administrative efficiency of the Forest.

Item No. 13	Miles of Road Open/Restricted
Frequency of Measurement:	Annual
Reporting Period:	Five Year Intervals (1993)

Monitoring Action

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

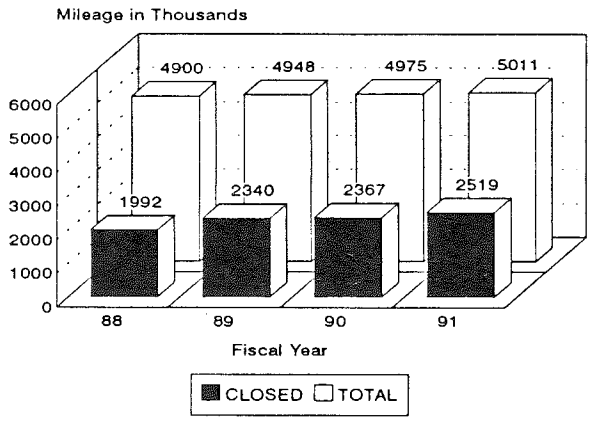
Accomplishments/Findings

Table 1 displays the miles of open roads and miles of restricted roads on the Forest in FY 1991. The restricted roads are further divided into length of closure and closure devices.

Table 1. Miles of Open/Closed Roads

	Restriction Use		Miles		Closure Devices			
Ranger District	Year-long	Seasonal	Open	Total	Gates	Guardrail	Earth	Sign
D-1	254	250	627	1131	140	36	50	20
D-2	230	232	731	1193	70	33	61	11
D-3	422	234	614	1270	64	35	165	24
D-5	135	209	127	471	60	20	52	5
D-6	368	185	393	946	42	20	137	7
Forest Total	1409	1110	2492	5011	376	144	465	67

Figure 1. Road Closure Status



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

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. Manage all fires: management ignited, prescribed natural and wildfires, according to that plan.

Analyze organizational needs using the National Fire Management Analysis System (NFMAS) to determine the most cost efficient fire suppression organization and methods. Staff to indicated levels if funding allows. 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 and the training of people in Standards for Survival.

Continue to work toward developing an interagency fire management dispatch office. 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 and wildlife habitat improvement.

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 "New Perspectives" concepts into fire management programs. Look at ways of how fire can be utilized and incorporated into sustaining ecosystems on the Clearwater National Forest.

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

Accomplishments/Findings

The Forest Fire Management Action Plan was revised from the previous year and implemented.

The Forest coordinated efforts with the Bitterroot and Nez Perce National Forests in implementing the Selway-Bitterroot Wilderness Prescribed Natural Fire program.

Funding

The National Fire Management Analysis System (NFMAS) was used to determine the Forest's most cost efficient level of operation for fire management. This analysis system incorporates the past 10 years of Clearwater National Forest fire history, which includes actual fire weather, past organizational levels, and the size and occurence of previous fires to establish the most cost efficient level. The analysis determined that this level was $1,054,100 for FY 1991. However, the Forest received a total Forest Fire Protection (FFP) budget of only $741,900 for FY 1991. This included $22,500 in special funding from the Washington Office to fund a new developmental position on the Palouse Ranger District in fire management. The Forest was left with approximately $719,400 to fund the Forest fire fighting forces and treat 300 acres of natural fuels. This meant the Forest was funded at about 68% of the most cost efficient level and that the Forest could fund approximately 68% of the fire fighting forces needed to meet Forest Plan standards and protect the Forest.

The Forest was more than successful in meeting the fire protection standards outlined in the Forest Plan even though it was funded at the 68% level. In FY 1991, 140 acres burned due to wildfire. The Forest's costs were approximately $447,300 for fire fighting and $36,800 in resource damage. Fire severity dollars, $54,900, were also expended in this effort for a total cost of $1,258,400 for fire protection and resource loss. See Table 1 for FY 1991 actual results compared with the FY 1991 NFMAS projections.

Table 1. NFMAS Projections vs Actual Outcome

	FY 1991 Projections at 68% Level	FY 1991 Actual Outcome
Wildfire Acres	1,500 ac	140 ac
Expenditures		
Fire Suppression	$2,200,000	$447,300
Resource Loss	$275,000	$36,800
Fire Severity	Not Projected	$54,900
Total $	$3,529,100	$1,258,400

Fire

Special fire contingency funds were provided by the Washington Office during the latter part of the fire season. This funding enabled the Forest to bring on a helicopter and support people to assist with the fire suppression effort on the Forest. The Forest experienced a more severe fire season than the ten year historical average. The energy release component (ERC) is the measure used in the National Fire Danger Rating System to show the Forest drying trend compared to the 10 year average. For 39 days throughout the 1991 fire season, ERC was above the 10 year average. This indicated much dryer than normal conditions, especially during the month of September.

Aviation

The Forest aviation program was free of incidents and accidents during FY 1991 (see Table 2). There were 556 hours of accident-free flying under Forest contracts.

Table 2. Aviation Program - Aircraft Flight Hours

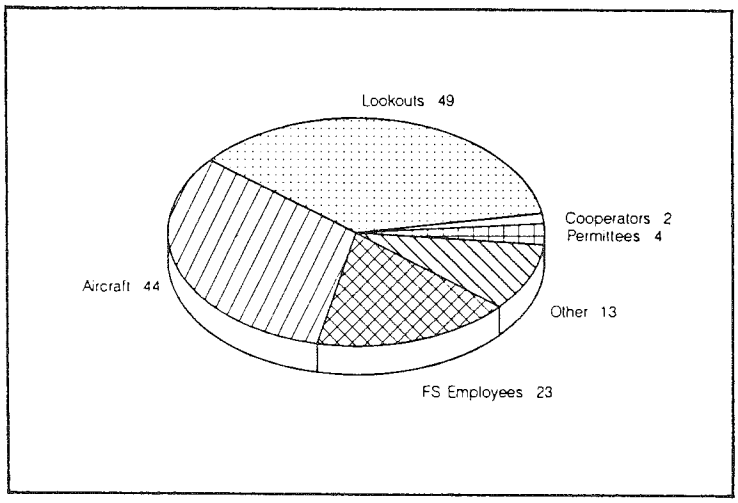
Type of Aircraft	Fire Management Hours	Administrative Use Hours	Total Flight Hours	Number of Incidents or Accidents
Fixed-wing aircraft	285	24	309	0
Helicopter	154	93	247	0
Total	439	117	556	0

Wildfire Detection

The Forest continued to use the automated lightning activity detection system. The system displays lightning strike locations by latitude and longitude and plots each strike on a map. This information was used by the Forest aerial detection observer in concentrating detection efforts in areas of known lightning activity, which added much improved efficiency to the detection program. The Forest also used the Global Positioning System (GPS) to assist in locating fires from detection aircraft after discovery. This system plots the fires by latitude and longitude and is accurate within 10 meters. It was also used to accurately map the perimeter of several prescribed natural fires.

The number of fires detected and type of detection is displayed in Figure 1 below.

Figure 1. Number of Fires and Type of Detection



The Forest experienced 135 fires during the 1991 fire season, a figure slightly higher than the 10 year annual average of 124. Table 3 shows the number of fires by ranger district on the Forest.

Table 3. Number of Fires by Ranger District

District	1991 # of Fires	10 Year (1981-1990) Annual Average
Pierce RD	14	25
Palouse RD	6	11
North Fork RD	21	37
Lochsa RD	*25	16
Powell RD	**69	35
Total	135	124

*One of these fires was a prescribed natural fire.
**Nine of these fires were prescribed natural fires.

Fire

Fire Suppression

Wildfires were attacked and suppressed in accordance with the FMAP using the control, contain and confine suppression strategies. The Forest met the intent of the Forest Plan standards and guidelines 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 Stategies: To complete a control line around a fire, any spot fires and any interior unburned islands to be saved; to burn out any unburned area 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 116 fires. The resulting direct suppression expenditures were approximately $440,800. One hundred thirty-seven acres burned.

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 determined appropriate for two fires. Direct suppression costs were approximately $5,200. Two Acres burned. A savings of approximately $2,300 was the result of implementing this strategy rather than full control.

Confine Suppression Strategies: 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 chosen for 7 fires. Direct suppression costs were approximately $1,300. Approximately 1 acre burned. Implementing this strategy resulted in a savings of about $13,700 over the cost of applying a full control strategy on these fires.

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

This strategy was selected for 10 fires within the Selway-Bitterroot Wilderness with 3,062 acres burned and $17,900 expended. Cost savings in fire fighting funds as a result of this management action is estimated to be $26,500. (Estimated costs assume the application of full control strategy to these ten fires when first discovered.)

The Forest saved approximately $42,500 in Forest Firefighting Funds (FFF) expenditures during the 1991 fire season by utilizing all of the suppression options and the prescribed natural fire program (see Table 4).

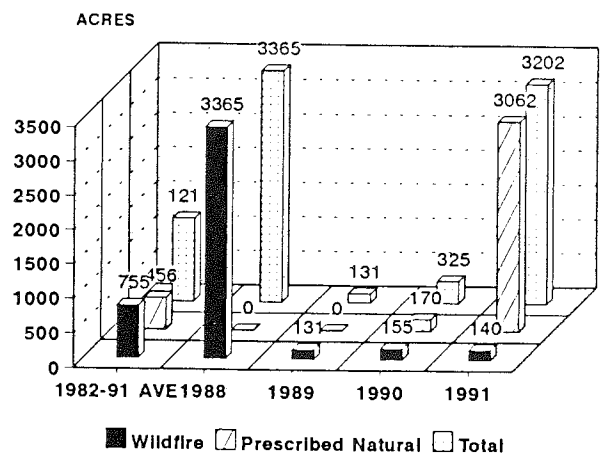
Table 4. Forest FFF Savings for FY 1991

	Projected * FFF ($)	Actual Expenditures ($)	Savings ($)
Containment Strategy	7,500	5,200	2,300
Confinement Strategy	15,000	1,300	13,700
Prescribed Natural	44,400	17,900	26,500
Total	66,900	24,400	42,500

* Projected FFF dollars assume the application of a full control strategy.

During the 1991 fire season, 140 acres burned in wildfires and 3,062 acres burned under prescribed natural fire status in the Selway-Bitterroot Wilderness. The 10-year average total acres for wildfire is 1,211 acres (see Figure 2).

Figure 2. Wildfire Acreage - Current and 10-Year Average



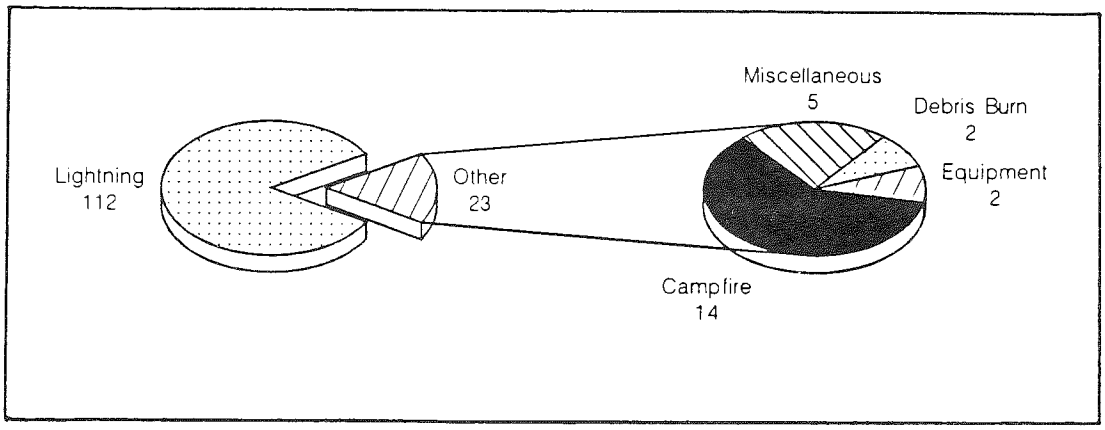
Wildfire Cause

The Forest had one person-caused cooperator fire. The Forest determined this to be a negligent fire, consequently the cooperator was billed approximately $103,000 for fire suppression costs. This case is still pending.

Fire

Figure 3 displays the causes of fires for FY 1991.

Figure 3. Number of Fires by Cause - FY 1991



The Palouse Ranger District is protected by the State of Idaho and a small portion of the North Fork Ranger District (Beaver Block) is protected by the Clearwater-Potlatch Timber Protective Association.

Off-unit wildfire support involved assignments both within the Idaho zone and other parts of the Region and nation. Total dispatches for the season included 82 overhead, 13 crew, and 11 engines for 1,183 person days.

Fuels Reduction

Prescribed fire (management ignited) was used as a management tool in fuels hazard reduction, site preparation and wildlife habitat improvement on 3,683 acres. The Forest target for all uses of prescribed fire to meet fire management objectives was 4,534 acres. Weather conditions played a large factor in the Forest's shortfall. September is normally one of the busiest prescribed burning months. September 1991 turned out to be much drier than normal so the prescribed burning operations had to be curtailed during most of the month. Burning restrictions were put into effect during the latter part of the month by the Regional Office. The restrictions did not allow any new prescribed burn ignitions until all existing burns were mopped up. The Forest had insufficient people, equipment and funding available to accomplish this. Consequently, no burning was allowed until a significant favorable weather change occurred. This change did not occur until October 21, 1991.

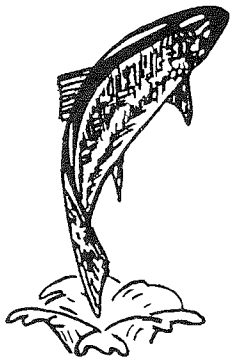
Table 5 displays the prescribed burning accomplishments by district.

Table 5. Prescribed Burning Accomplishments - FY 1991

	Natural Fuels		Brush Disposal	
District	**Target**	**Accomplished**	**Target**	**Accomplished**
Pierce RD	60 ac.	60 ac.	740 ac.	429 ac.
Palouse RD	60 ac.	65 ac.	1,100 ac.	934 ac.
North Fork RD	60 ac.	56 ac.	800 ac.	635 ac.
Lochsa RD	60 ac.	65 ac.	994 ac.	1,111 ac.
Powell RD	60 ac.	48 ac.	600 ac.	280 ac.
Total	300 ac.	294 ac.	4,234 ac.	3,389 ac.

Most of the prescribed burning for fire hazard reduction in timber sale logging units occurred during the spring and early summer months.

A total of 727 acres of prescribed burning was contracted to outside sources.



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 the high quality existing habitat.

Strategy

Provide management direction during the planning and implementation of activities. Identify and implement rehabilitation projects on the Forest. Since 70% of backlog improvement projects for anadromous fish have been completed but only 10% of backlog improvement projects for non-anadromous fish have been completed, primary emphasis in fish habitat improvement will be shifted to non-anadromous projects during the period 1989-1997. The strategy will allocate 60% of the habitat improvement targets to non-anadromous projects. The remaining 40% will be allocated to anadromous fish projects.

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 toward anadromous fish habitat improvement associated with fisheries entities in the Columbia River Basin and the Northwest Power Act. We will develop cost share partners and projects through 1995.

The Forest fisheries biologist will implement the Rise To The Future program by developing district fisheries expertise, emphasizing district fisheries programs and developing sound, high profile projects. Information about the projects and the results will be made available to interested user groups and the general public.

The Forest will continue fisheries/recreation cooperation by identifying, designing and implementing projects that feature cooperative funding and involvement associated with the recreation and special fisheries initiatives.

The Forest will emphasize the implementation of the Tri-Regional Management Policy and Implementation Guide (PIG) for anadromous fish with priorities placed on monitoring, inventory, and NEPA compliance.

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

Monitoring Action - Fisheries

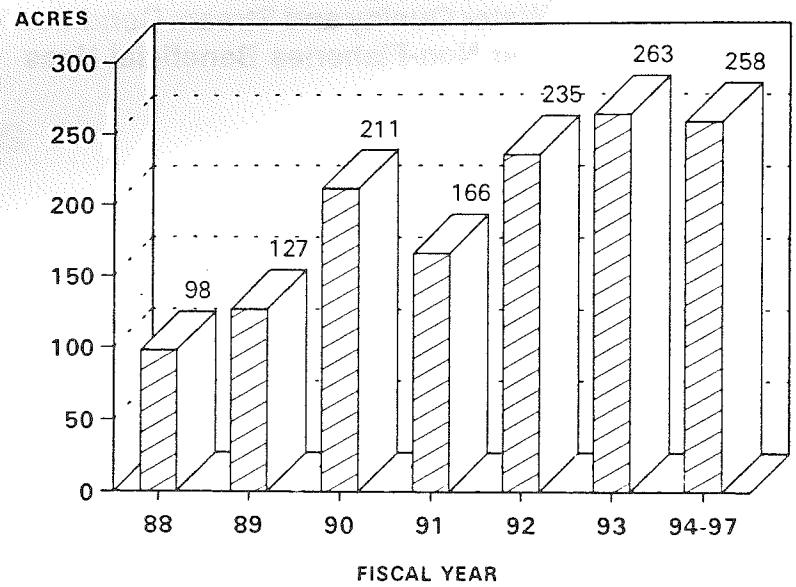
The Forest fisheries biologist will coordinate the monitoring of critical anadromous and resident fish streams to determine habitat conditions and population trends. District field crews will measure key habitat parameters such as cobble embeddedness (the degree to which streambed gravel has been infiltrated by sediment), using direct measure and transect sampling methods. Streams supporting both anadromous and resident fish were monitored during FY 1991.

The program has been expanded and intensified to include more resident fish streams on the North Fork and Palouse Ranger Districts.

Accomplishments/Findings

Management direction was provided for all management activities. Rehabilitation projects are continually being identified. In FY 1991, 166 acres (see Figure 1) and 154 structures of fisheries habitat improvement were accomplished. These accomplishments constituted 71% of the acreage target (235 acres) and 90% of the structural target (172 structures). Of this total, 47% of the acreage and 69% of the structural work were completed in anadromous fish streams. In tracking achievement of Forest Plan targets, the cumulative shortfall after four years is 290 acres, or 33% of the four-year total (892 acres). The Forest's ability to accomplish this work will depend primarily upon funding.

Figure 1. Fish Habitat Improvement Acres



Instream improvement projects were completed in Lolo, Camp, Eldorado, Dollar, Six Bit, Elk, Beaver, Corral, Poorman, Walde, Pete King, and East and West Forks of Potlatch Creeks. Habitat quantity and quality for chinook salmon, steelhead trout, cutthroat trout, brook trout, bull trout, and kokanee salmon were increased with the addition of side channels, log weirs, large woody debris, boulders, and sediment traps.

Two challenge cost share projects were initiated during the fiscal year. These cooperative projects were: East Fork of Potlatch Creek (Palouse Ranger District) and Beaver Creek (North Fork Ranger District). On the East Fork of Potlatch Creek, the Palouse Ranger District and the Latah County Wildlife Club continued to work cooperatively to rehabilitate riparian and in-channel habitats by fencing off an additional 1.4 kilometers (km) of channel from grazing impacts. There are now a total of 1.8 km of riparian exclosure. Additionally, 758 meters (m) of eroding channel banks were stabilized with conifer revetments. In addition, 4,000 conifers and 790 deciduous trees were planted in the riparian zone. A total of 6,000 willow clippings were planted along the stream banks.

A new partnership was formed with Rivermasters Engineering of Pullman, Washington to monitor and evaluate the East Fork Project. This is a long term arrangement in which Rivermasters will monitor habitat and fish population responses in a critical 1.8 km reach over an extended period of time. During the field season of 1991, Rivermasters completely habitat mapped the critical reach and collected baseline information on fish populations. Rivermasters also installed continuous recording flow and temperature gauges. Rehabilitation work will continue in 1992 with additional fencing, revetment, and planting work. Early evaluation of this project indicates that the system is recovering rapidly.

The Palouse Ranger District also fenced off 0.8 km of the West Fork, Potlatch Creek and 0.4 km of East Fork, Corral Creek. In the West Fork of Potlatch Creek, 4,000 coniferous and 250 cottonwood trees were

planted in the riparian zone. The District will monitor these projects with basic habitat surveys and permanent photo points. The District also continued to dredge sediment from Elk Creek. A total of 0.5 km was rehabilitated in FY 1991. This is a long term project with the monitoring of habitat and populations. It is too early to establish trends; however, in the reach below Johnson Creek, key components of summer, winter rearing and spawning habitats may be in an improving trend. Population monitoring of Elk Creek has established that a few Lahontan cutthroat trout *(Oncorhynchus clarki henshawi)*from the reservoir are using the lower reaches of Elk Creek. This could constitute a significant shift in the fish community of Elk Creek -- if the cutthroat survive and do well in the reservoir. In summary, the Palouse Ranger District completed 53 acres and 70 structures for anadromous fish plus 10 acres and 18 structures for inland fish.

The other cost share project was conducted on the North Fork Ranger District. The first of a three year project to improve fish habitat in Beaver Creek was completed during the field season of 1991. This project is a cooperative venture with Potlatch Corporation. A total of 146 structures were constructed over a 3.0 km reach distance. The structures were designed to provide high quality pools, instream cover, bank stabilization, and habitat type diversity. Early evaluation indicates that fish habitat in the improvement reaches now meets Forest Plan objectives for pool quantity. The project has been funded for 1992 and additional reaches will be improved.

Anadromous Fisheries

Habitat Improvement

Two major projects of habitat improvement were completed in the Lolo Creek watershed (Pierce Ranger District). A total of 36 instream structures were installed in Camp Creek (Yoosa drainage) to improve summer and winter rearing habitats for steelhead trout. The improvement extended over a 1 km reach and included large woody debris, rock and log weirs. Ten acres of riparian habitat along Lolo Creek (#103 road) were improved with the interplanting of 4,000 conifer trees. In addition, 4,000 conifers were planted at selected riparian areas along Eldorado Creek. Log weirs in Lolo and Eldorado were evaluated and maintained where necessary. Ten weirs were repaired in Lolo Creek.

Instream sediment removal with suction dredges was conducted in several key anadromous fish streams. Sediment was removed from Chamook and Dollar Creeks (Lolo system) and from 4 instream traps in the Pete King (Lochsa River) system (131 cubic meters).

Habitat Monitoring

Lolo, Eldorado and Yoosa Creeks are designated "Stream Segments of Concern" and contain critical anadromous fish habitat that are monitored as part of the Forest Plan monitoring and evaluation process. In FY 1991, intensive habitat surveys were conducted on 39.2 km of Lolo Creek tributaries - Musselshell, Gold, and Cedar Creeks. A summary of the data indicates that these drainages are well below standard with respect to sediment and habitat diversity components.

Fisheries

In 1990, with the cooperation of the Nez Perce Tribe, the Pierce Ranger District initiated monitoring of water temperatures in key tributaries of the Lolo Creek system. Thermograph data revealed that temperatures in Lolo Creek exceeded the desired criteria (16-17 degrees C) by several degrees and maintained these high temperatures for extended periods of time. Analysis of temperature data collected in Yoosa and Musselshell Creeks indicated that these streams were at or exceeded the desired criteria. Monitoring also indicated that temperature problems could exist in upper Lolo and lower Eldorado Creeks.

During FY 1991, monitoring of winter habitat quality in Lolo Creek was initiated. Optimum winter habitat for salmon and steelhead is clean (low sediment) substrate of cobble and boulders in pool habitat types. The winter habitat sites were constructed in 1988 and 1989 - and displayed a quality index of 100%. In FY 1991, six of the sites were monitored for sediment deposition and displayed a reduction in quality to a mean of 73.1% (range=56% to 89%; standard error=5.8%). Fish populations were sampled at these sites and no definitive relationship in fish density versus habitat quality was observed. In FY 1992, sampling will be intensified.

On the Lochsa District, a total of 113 km of stream habitat was intensively surveyed in the Canyon, Pete King, Glade, Apgar, and Rye Patch drainages. Analysis of the data reveals that in the major developed watersheds of Canyon, Pete King, and Glade Creeks excessive levels of sediment still exist in the spawning, summer rearing and winter rearing habitats. Levels of cobble embeddedness in Canyon, Pete King, and Glade Creeks are 38%, 53%, and 50% respectively. The quality of the rearing habitats in these systems is still below the Forest Plan standards.

Habitat monitoring in the Pete King and Deadman drainages continued in FY 1991. Sediment coring data for the period of 1985 to 1991 is displayed in Figures 2 and 3, respectively. Basically, the same trend is depicted for the streams: recovery to 1988 and then an increase in % fines (degradation) through 1991. Fine sediment in the spawning habitat of both streams remains extremely high (47%). This situation could be attributed to continued development (road construction) and low flow years.

Figure 2. Pete King Creek - % Fines < 6.4 MM

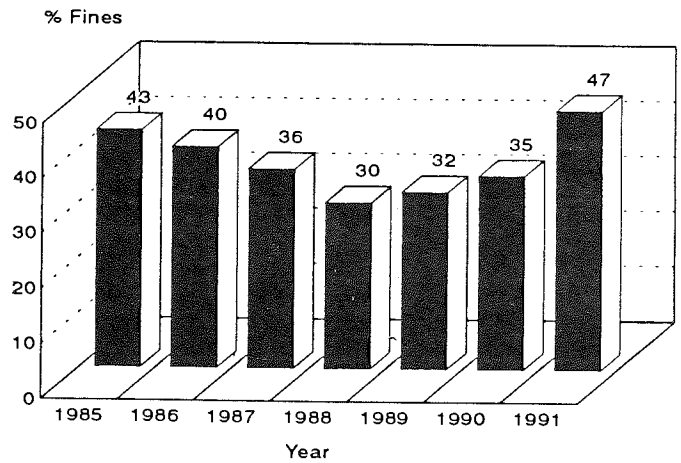
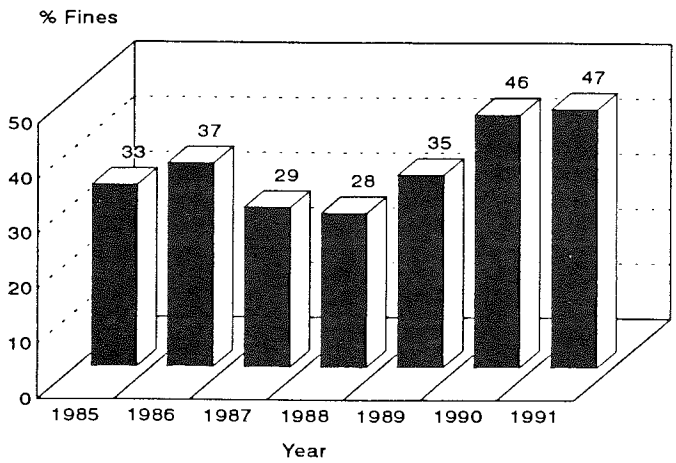


Figure 3. Deadman Creek - % Fines < 6.4 MM



Temperature monitoring in Canyon Creek revealed that late summer temperatures are exceeding the optimum criteria for short (5%) to moderate (31%) periods of time sampled. This indicates that rearing temperatures for cutthroat and steelhead trout are becoming marginal. In the mainstem of Pete King, temperatures exceeded the optimum (16 deg. C) 32% of the time sampled. The highest recorded temperature was 17.8 deg. C. Rearing temperatures in Pete King are sub-optimal for chinook salmon. Late summer temperatures in Deadman and Glade Creeks only exceeded the optimum 3%-4% of the time sampled. However, temperatures are approaching the threshold of adverse effect in these systems.

On the Powell Ranger District, selected tributaries of upper Lochsa River were intensively surveyed (40.0 km). They are WF Squaw, Spring, WF Papoose, Weir, Russian, and Swede Creeks. A summary of this

data indicates that the mainstems of WF Squaw and WF Papoose Creeks have recovered to their Forest Plan standards of 80%+ with levels of cobble embeddedness at 25-30%. However, their respective tributaries (including Spring Creek) are still showing elevated levels of embeddedness (40-45%). Overall rearing conditions for the mainstem channels remain below optimum levels. Weir Creek is a pristine drainage and shows a low (27%) level of cobble embeddedness. Russian and Swede Creeks are steep, second order tributaries of Crooked Fork Creek. Swede Creek displays an elevated sediment condition. Fish were found only in Russian Creek.

Several key streams tributary to Crooked Fork Creek and the upper Lochsa River were monitored for sediment (cobble embeddedness) and fish populations. In Pack Creek, the mean embeddedness increased from 33% in 1989 to 41% in 1991. Variation was considerable across the various habitats for both years (standard deviation=17-19%). The fish community was dominated by cutthroat trout and the densities were relatively low (mean=9/100m2 for all habitat types). Warm Springs Creek, an undeveloped watershed, displayed low levels of embeddedness of 13% (1989) to 16% (1991) across all habitat types and monitoring sites. Fish densities were low and dominated by juvenile steelhead (mean=8.6/100m2 steelhead 1+/2+). In Walton Creek, only two sites were monitored and displayed a decrease in mean embeddedness from 33% in 1989 to 29% in 1991. However, variation from site to site was extreme. Sampling intensity should be increased in this system. Fish densities were extremely low and were dominated by age 0+ trout.

Crooked Fork, a principal tributary of the Lochsa, showed a slight increase in mean embeddedness from 20% in 1989 to 24% in 1991. However, the upstream pool sites (near Boulder and Hopeful Creeks) experienced an increase of 10% to a mean level of 37% in 1991. Overall, cobble embeddedness at these sites remains relatively low. Additional monitoring sites should be established below Shotgun Creek. Densities of chinook salmon and steelhead trout in this critical stream were extremely low and significantly reduced from 1989. In 1989, the mean density of juvenile chinook in pool habitat types was 32/100m2; whereas, in 1991 - it was 2/100m2! A summary of overall salmonid abundance in monitored streams of the Powell Ranger District is presented in Table 1.

Table 1. Overall Salmonid Abundance (#/100 sq m) by Habitat Type. Permanent Fisheries Monitoring Sites - Powell RD

Monitoring Sites	Monitoring Year	Age 0 Trout	SH Age 1 & Older	CT Age 1 & Older	BT Age 1 & Older	CH	All SPP
Crooked Fork							
Pools (n=4)	1989	2.9	2.7	3.7	0.4	32.4	42.1
	1991	7.0	1.4	5.4	0.1	2.0	15.9
Riffles (n=4)	1989	3.1	0.9	1.9	0.2	4.6	10.7
	1991	7.5	0.1	0.1	0.0	0.1	7.8
Runs (n=4)	1989	6.1	1.7	2.5	0.0	23.3	33.6
	1991	4.1	0.8	2.8	0.0	0.5	8.2
Pack Creek							
Pools (n=5)	1989	7.7	6.0	34.6	0.6	0.0	48.9
	1991	3.1	3.1	13.9	0.0	0.0	20.1
Riffles (n=4)	1989	0.0	0.4	9.5	0.0	0.0	9.9
	1991	9.7	0.0	7.5	0.0	0.0	17.2
Runs (n=5)	1989	7.7	0.0	23.2	0.0	0.0	30.9
	1991	33.1	2.1	9.1	0.0	0.0	44.3
Warm Springs Creek							
Pools (n=5)	1989	13.8	9.3	5.3	0.0	0.0	28.4
	1991	3.8	9.5	10.9	0.0	0.3	24.5
Riffles (n=3)	1989	3.8	2.2	2.2	0.0	0.0	8.2
	1991	3.2	4.2	2.5	0.0	0.0	9.9
Runs (n=5)	1989	12.8	7.9	12.0	0.5	0.0	33.2
	1991	2.9	5.2	6.3	0.1	0.1	14.6
Walton Creek							
Pools (n=2)	1989	24.4	3.6	11.9	0.0	0.0	39.9
	1991	7.1	1.6	4.7	0.0	0.0	13.4
Riffles (n=2)	1989	0.0	0.7	3.5	0.0	0.0	4.2
	1991	10.8	0.0	0.0	0.0	0.0	10.8
Runs (n=2)	1989	20.7	5.0	7.5	0.0	0.0	33.2
	1991	39.0	1.6	1.8	0.0	0.0	42.4

Note: SH = rainbow-steelhead; CT = westslope cutthroat; BT = bull trout; CH = chinook.

Fisheries

Population Monitoring

In 1991, population assessments were conducted via snorkel diving to document trends in Lolo Creek. Fifteen transects (ten log weir pools and five control sites) established in 1988 were sampled. Results show a significant increase in the spring chinook densities from 1990. Densities of spring chinook age 0+ juveniles averaged 2.5 times higher than the 1989 levels in the enhanced reaches and 9.5 times higher than the 1989 levels in the unenhanced control transects. Steelhead densities in the enhanced reaches showed over a 66 percent decrease in age 1+ and 2+ juveniles, but a 35 percent increase in age 0+ juveniles in comparison to 1989. Due to inclement weather and time constraints, only nine of the 15 transects scheduled for Eldorado Creek were monitored. During 1991, representative transects were located for each critical watershed reach in Eldorado and Yoosa Creeks. These transects are scheduled for monitoring in FY 1992.

Steelhead spawning surveys were conducted by Forest and District personnel to assess steelhead spawning success in the mainstem Lolo and Eldorado Creeks. Although adult steelhead were observed in upper Lolo Creek and lower Yoosa Creek, no steelhead redds were observed in the 1.5 miles of Camp Creek and 1.8 miles of Lolo Creek that were surveyed on June 13. Spot surveys conducted by the District and Nez Perce Tribal Fisheries personnel in the lower reaches of Eldorado Creek have failed to document naturally-spawning steelhead in 1991. Excess hatchery adults were planted in Eldorado Creek in 1990 at the Dollar Creek Bridge to spawn in the upper reaches. These outplants make it difficult to ascertain if any age 0+ fish observed during snorkeling surveys were from natural production. No adult outplants were made in 1991. Due to incomplete data from previous years and the high probability of inaccurate estimates of spawning success from high and turbid streamflows, annual assessments of the steelhead spawning success in Lolo and Eldorado Creeks are currently being used to support the population trend data from juvenile density estimates. Assuming pre-1988 hatchery supplementation of steelhead in Lolo and Eldorado Creeks had limited effects on current population trends, it was anticipated that the steelhead spawning surveys and/or juvenile population assessments conducted in 1991 would show evidence of the hatchery supplementation efforts. In 1988, over 400,000 steelhead smolts were released in Lolo and Eldorado Creeks. Another 109,000 steelhead smolts were released in Eldorado Creek in 1989. Adult returns from these smolts would be returning in 1990-1992 with the largest returns as two-ocean fish in the spring of 1991. As stated above, no naturally-spawning steelhead were observed in Eldorado Creek in 1991 and population data shows limited spawning success as very few steelhead fry (age 0+ fish) were observed in the lower and mouth critical reaches. Population surveys in 1991 did show numerous hatchery steelhead smolts remaining in Eldorado Creek from the 1991 spring stocking efforts. The final returns are primarily dependent upon the overall smolt-to-adult survival rates which are a function of many variables, such as juvenile survival through the lower Snake and Columbia River subbasins and adult harvest.

Spring chinook spawning ground surveys were conducted on Lolo, Eldorado and Yoosa Creeks in cooperation with the Nez Perce Tribe and Idaho Department of Fish and Game (IDFG). On September 3, personnel from the Nez Perce Tribe's Fisheries Department and District staff surveyed the main spawning reach in Lolo Creek. This stream reach was established as an index area by the IDFG in 1987 to monitor the spring chinook spawning trends in the Lolo Creek drainage. The index area begins at

the first log weir (1.2 kilometers downstream of the confluence of Lolo and Yoosa Creeks) and ends at the first county road bridge (junction of Roads #103 and 5050). The survey found 11 redds in the 7.2 kilometer (km) index area.

Other areas surveyed by the District and Tribe during the September 3, 6, 10, and 20th survey period were: the lower Yoosa Creek reach (2.8 km), Lolo Creek from the index area downstream to Utah Creek (3.0 km), Lolo Creek from the confluence of Yoosa Creek to the index area (1.2 km) and Eldorado Creek from Linda Creek to mouth (4.7 km). No redds were observed in these surveyed reaches.

On September 13, Forest and District personnel resurveyed the index area and walked other segments of Lolo Creek. In the index area, the survey found no new redds for a total of 11 redds. Two redds were observed in the White Creek Bridge to Utah Creek stream reach. One redd was observed about one mile upstream in Yoosa Creek. No redds were observed in the five reaches surveyed in Eldorado Creek.

A total of 14 spring chinook redds were observed in the Lolo Creek drainage in 1991. Comparison of spawning surveys in the Lolo Creek index area from 1987-1990 indicates a moderate decrease from 1990 (25 redds), and less than 50% of the 31 redds observed in 1987 and 1988. The decrease is consistent with the 1991 escapement in other Clearwater streams as counts were down throughout the subbasin.

Spring chinook spawning surveys and/or juvenile population assessments in 1991 may finally show evidence of the hatchery supplementation efforts, especially in the Eldorado Creek drainage. In 1989, about 210,000 spring chinook smolts and 182,678 fingerlings were released in Eldorado Creek at the Dollar Creek bridge. Lolo Creek received about 94,000 fingerlings in 1989. Another 257,000 smolts were released in 1990 at the Dollar Creek bridge and the mouth of Eldorado Creek. In 1991, about 199,000 spring chinook smolts were outplanted in Eldorado Creek at the Dollar Creek site. Adult returns from the smolts would be returning in 1990-1995. The final returns are primarily dependent upon the overall smolt-to-adult survival rates which are a function of many complex variables.

Population monitoring was conducted in selected tributaries of the lower Lochsa River: Fish, Hungery, Pete King, and Deadman Creeks. Juvenile steelhead populations increased by 88% (over a 14-year running mean) in lower Fish Creek and 30% in lower Hungery Creek in 1991 (15-year running mean). A 14-15 year summary of steelhead population data is presented in Figures 4-5 for Lower Fish and Hungery Creeks. The trend of declination since 1986 in these drainages was overturned in 1991 with the substantial increases. Despite low escapement during some years, densities of juvenile steelhead in these pristine drainages have remained relatively high.

In Pete King and Deadman Creeks, densities of juvenile steelhead also increased over a 10-year running mean by 102% and 21% respectively. A 10-year summary of data for these streams is displayed in Figures 6-7. Population densities in these heavily developed watersheds are considerably lower than those in the pristine systems of Fish and Hungery Creeks. Similar densities of young-of-the-year steelhead in all 4 streams over the same time period weakens the argument that differential escapement is the causative factor.

Figure 4. Juvenile Steelhead Population Summary - Lower Fish Creek

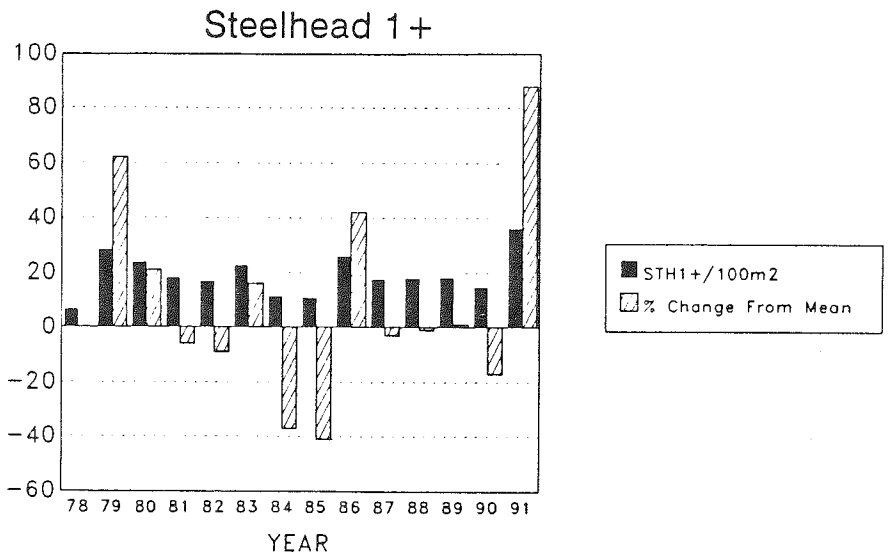


Figure 5. Juvenile Steelhead Population Summary - Lower Hungery Creek

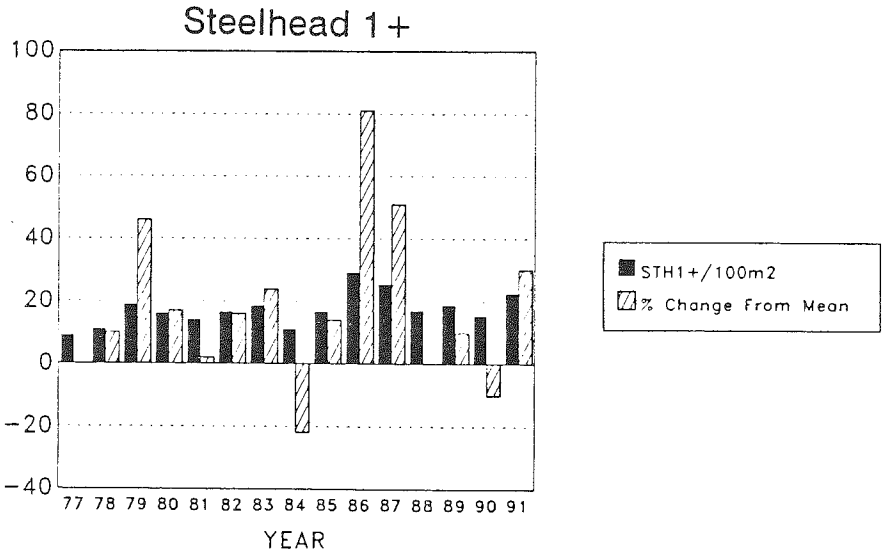


Figure 6. Juvenile Steelhead Population Summary - Pete King Creek

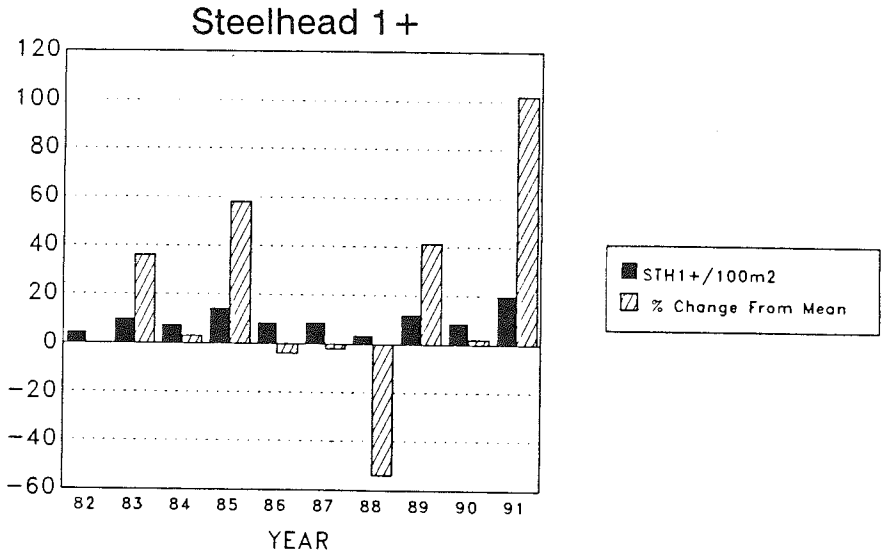
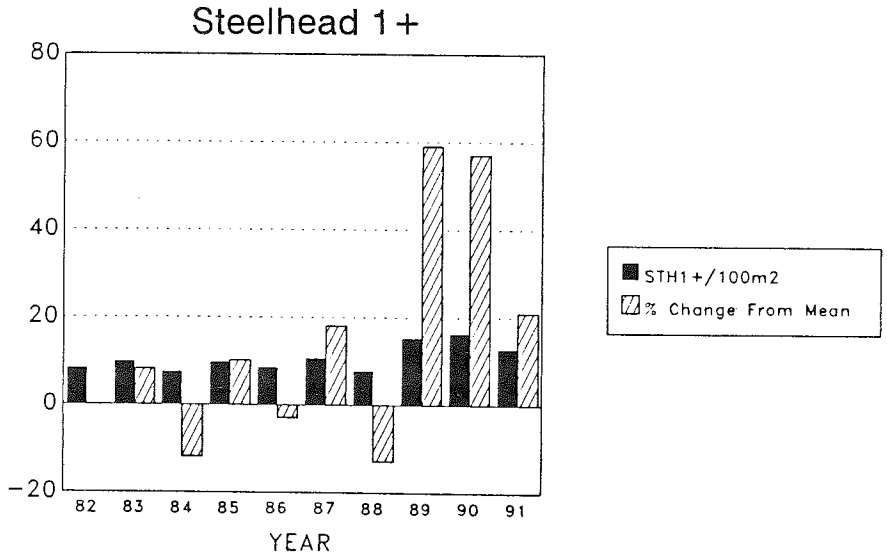


Figure 7. Juvenile Steelhead Population Summary - Deadman Creek



Fisheries

Inland Fisheries

Habitat Monitoring

Intensive habitat surveys were conducted on 125 km of inland fish streams in the Potlatch, Pot Mountain, Orogrande, and Weitas areas. A summary analysis of that data reveals that the tributary streams of Potlatch Creek are heavily degraded and well below Forest Plan standards for habitat quality. Undeveloped drainages of the Pot Mountain area are still recovering from past catastrophic fires as evidenced by levels of high accumulated sediment and lack of riparian structure. Orogrande and Hemlock Creeks both meet the Forest Plan standards for cobble embeddedness (24-26%) but lack the habitat diversity dependent upon riparian structure.

Two streams, tributary to the North Fork Clearwater River, were intensively evaluated in 1991, Bingo and Quartz Creeks. Bingo Creek's habitat was improved in 1988. Evaluation of habitat and fish responses was initiated in 1991. Post-project analysis has documented improvements in pool quantity (20%), instream cover, bank cover and stability. However, cobble embeddedness remains quite high (72%). No significant change in densities of larger fish was observed in response to habitat improvement. The project will be evaluated for an additional 4 years.

Intensive baseline data on the habitat of Quartz Creek was collected by an independent contractor. A two mile critical reach including developed and undeveloped sections was habitat mapped in detail. Preliminary results indicate that differences in habitat diversity were considerable with the developed reach much less diverse. Habitat and fish populations in this reach will be intensively monitored over time.

Problem areas associated with impacts to fish habitat in 1991 involved road construction with the lower Leuty Timber Sale, trespass harvest of riparian trees in Rock Creek, and retention of riparian trees for headwater streams of Sneak and Leuty Creeks. The Leuty #6061 road generated a high level of sediment that was delivered to the channel before the sources were abated. Impacts to fish habitat were also observed on the Palouse Ranger District - Porcupine Timber Sale.

Population Monitoring

Fish populations of several resident fish streams were monitored on the North Fork and Palouse Ranger Districts. Baseline data collected on Quartz Creek revealed low population densities (0.4 to 6.0 fish/100m2) and a community dominated by rainbow trout. In 1990, the relative abundance was the reverse with cutthroat dominating. Other data collected on the North Fork Ranger District indicated the importance of the smaller streams to the well-being of westslope cutthroat trout. Second and third order tributary streams often contain much higher densities of smaller fish (greater than 12 fish/100m2) than the larger, mainstem streams such as Quartz Creek. In most cases, they are dominated by a single species - cutthroat. These streams not only sustain their own resident populations but provide critical spawning habitats for the larger cutthroat that reside in mainstem streams. This network of tributary production is vitally important to the maintenance of the cutthroat trout's long term viability.

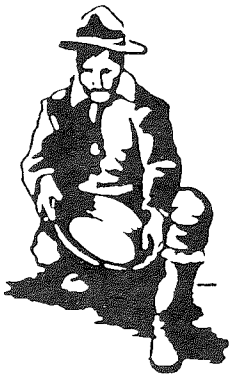
A summary of population data collected in tributaries of the Potlatch and Palouse River drainages showed extremely low fish densities (less than 5/100m2) and communities dominated by brook trout.

Summation

The most significant event relevant to the fish resources of the Forest in 1990-1991 was the drastic decline in escapement of spring chinook to the Clearwater River Basin. This decline was evident from our sampling of parr densities in the summer and adult spawning (redd counts) in the fall. The Clearwater stock is on the threshold of extinction. The spring chinook has been listed as threatened under the Endangered Species Act by The National Marine Fisheries Service.

Some developed watersheds are showing signs of recovery with respect to substrate sediment. The mainstem channels of Orogrande, WF Squaw, and West Fork Papoose Creeks have apparently recovered. However, this may be short term as many of the tributary drainages continue to have high stored sediment loads.

Many other developed watersheds display substrates with excessive sedimentation: Lolo, Eldorado, Canyon, Pete King, and Deadman Creeks to name a few. Conditions in Deadman and Pete King Creeks have worsened in the last few years. This could be attributed to continued development (road contruction) and low flow years. Most of the developed drainages are still below their respective Forest Plan standards.



Minerals

Goal

Encourage and facilitate the orderly exploration, development and production of the energy and mineral resources on the Clearwater National Forest. To 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 done to the specified standards. Maintain close coordination with local mining groups as well as applicable state and federal agencies.

Item No. 15	Minerals Prospecting and Development
Frequency of Measurement:	Annual
Reporting Period:	Five years (1993)

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

Program Funding - Regional FY 1991 allocations for the Forest minerals program totaled $95.4M or 72% of our Forest Plan level. While the total appears to be consistent with the number of cases we processed, it was still only 87% of the base level of $110M which we determined necessary to fund a professional minerals geologist plus the support and District costs for case administration. It was fortunate that our

caseload was down and that we had few significant earth-disturbing operations in progress. We were also fortunate that the Forest minerals geologist was able to work and be funded out of Forest engineering for 12 weeks of the year, making it possible to spread more money to the districts for minerals administration. If future funding levels continue at these low levels, we may have a difficult time meeting Forest Plan compliance standards.

Caseload - A total of 178 minerals cases were processed on the Forest during FY 1991. This was 67 percent of the minerals activity predicted in the Forest Plan. It was slightly higher than the 158 cases processed in FY 1990. This slight increase in minerals activity on the Forest may reflect the status of local employment during the period. The cases reported for both years are significantly lower than the 265 average annual number of cases anticipated in the Forest Plan. Since mineral activities are affected most by factors unrelated to Forest management (metal prices, employment rates, materials demand, etc.), the program tends to be re-active rather than pro-active. The 265 average annual cases anticipated in the Forest Plan appears to be an over-estimate and should be reviewed closely in the next Forest Plan revision.

Locatable Minerals - The only significant locatable mineral mined from the Forest is placer gold. Miners are not required to report their take to the Forest Service. However, the Forest minerals geologist has estimated that approximately 145 ounces of gold were mined from the Forest during FY 1991. The value of this amount of gold would be approximately $52,200 at the 1991 average price of $360/oz. To our knowledge, no other valuable minerals were extracted from the Forest.

Mining Claim Occupancy - The Forest completed action on all unauthorized occupancy of mining cabins on unpatented claims. Unauthorized cabins have either been removed by claimants or quit-claimed to the Government for disposal. All of the known remaining cabin occupancy on the Forest has been determined to be justified for the time being due to the apparent mineral values present on the claims. In 1991, we continued to monitor the use of these cabins to ensure that they were only used for mining purposes.

Mineral Patents - In FY 1991, the Forest received a mineral patent application. The lands included in the application are currently being evaluated for mineral validity.

Common Variety Minerals - The Forest provides mineral materials for road surfacing to county and state agencies, for Forest Service roads and for use in private industry. Engineering records indicate, for FY 1991, that a total of 94,302 cubic years of material were provided from Forest lands. The value of this resource totaled $758,504.

Idaho Initiative - During the summers of 1990 and 1991, the Idaho Geologic Survey, the U.S. Geologic Survey, and the U.S. Bureau of Mines worked together to conduct a mineral resource appraisal of the recommended wilderness areas on the Forest. The Forest worked closely with these agencies to coordinate and facilitate the study. The mineral appraisal publications and maps will be out in the summer of 1992.

Minerals

Monitoring - All active earth-disturbing mining claim activities were monitored for compliance with operating plans and Forest Plan standards. Impacts to the surface resources as a result of mining were mitigated in compliance with Forest Plan standards and guidelines. There were no non-compliance notices issued. No impacts on mining activities from other resources were identified.

Item No. 36	**Minerals Resource Availability**
Frequency of Measurement:	Annual
Reporting Period:	Five years (1993)

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 and kept on file by the Forest geologist.

Accomplishments/Findings

The Clearwater National Forest consists of a total of 1,812,700 acres. Of these acres, 259,167 (approximately 15 percent) are located in the Clearwater portion of the Selway-Bitterroot Wilderness and are therefore withdrawn from mineral entry under the 1964 Wilderness Act.

In addition to the wilderness withdrawal, there were originally 105 sites, covering 8,900 acres, withdrawn from mineral entry. A review of all of these individual sites has been completed. Of the 105 sites reviewed, 53 have been revoked from withdrawn status; the other 52 were retained. Many of the cultural sites and historical trails on the Forest have not been reviewed for mineral withdrawal recommendations.

Land Exchange Reviews - Mineral potential reports were completed for two land exchange proposals on the Forest.

Range

Goal

To 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. Monitor the condition of range allotments annually.

Item No. 6	Livestock Forage Available, Range in Good Condition per Established Allotments
Frequency of Measurement:	Annual
Reporting Period:	Five years (1993)

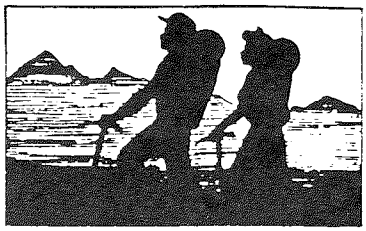
Monitoring Action

District range personnel 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.

Accomplishments/Findings

No new allotment management plans were prepared or updated in FY 1991. Range allotments were monitored for use, possible resource damage, and maintenance needs. Range conditions overall are good. Some minor permit modifications were necessary during FY 1991 to protect range resources. There are currently 65 permittees using the available range on the Forest. There were 2,500 cattle and 2,100 horses permitted to graze on the Forest. This amounted to 13,000 Animal Unit Months (AUM's).

The Palouse Ranger District accomplished 300 acres of noxious weed control with its eradication project targeting creeping mat grass.



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 over a broad spectrum of dispersed activities and developed facilities.

Strategy

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

Identify recreation opportunity areas to provide a balance of opportunities. Seven recreation opportunities and a mission statement have been identified in consultation with user groups. One aspect of forest plan monitoring is to determine if the current opportunities meet the original objectives and if the program balance across the Forest still exists.

Reconstruct existing facilities to meet standards appropriate for the opportunity class. For example, the Highway 12 corridor is heavily used by RV recreationists and represents the highest level of campground development on the Forest. Facilities within the corridor would be reconstructed to a higher level of public services, while more rustic facilities would be expected in the North Fork Clearwater River corridor. Facilities at all sites will be reconstructed to meet the needs of people with physical disabilities where topography allows.

Construct new facilities to complement existing facilities. Examples would include interpretive trails near picnic areas. The scale of development should match the opportunity class of the area in which the base facility is located. For example, a paved interpretive trail with high tech signs next to sites on a gravel road in the backcountry would be inappropriate. Facilities at all sites will be constructed to meet the needs of people with physical disabilities where topography allows.

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 (1993)

Monitoring Action

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

> Compare recreation use types occurring on the Forest with the broad range of opportunities that could occur and that are supported in the Forest Plan.
>
> Identify changes in existing recreation use patterns occurring on the Forest and determine if these changes are adversely affecting recreationists. Determine if Forest management actions are creating adverse changes and, if so, what corrective action can be taken.

Accomplishments/Findings

Recreation Funding - Funding continues to be significantly below the level anticipated in the Forest Plan (see Table 1). This was especially true for on-the-ground operation and maintenance of recreation facilities and administration of recreation use, after costs for a base recreation organization, associated expenses, and timber support were subtracted from the Regional allocation.

We estimated that funding for developed site operation was approximately 35% of Forest Plan needs. Campgrounds were kept open to the public through a variety of reduced service level strategies. Older American programs and volunteers supplied much of the labor to do the daily maintenance work required. Even so, we were unable to keep up with routine maintenance needs and the backlog of this work continued to increase.

We estimated that we were losing a significant (up to $30,000/year) amount of user fees due to our inability to provide adequate compliance checks and/or visitors services at our sites.

In response to a request for information from the General Accounting Office, the Forest evaluated the cost to manage recreation sites to levels associated with Forest Plan standards. The cost to operate and maintain all recreation sites to standard was $872,000. Actual expenditures in FY 1991 for the same items was $304,000. The GAO report information does not include money spent in backcountry recreation such as dispersed campsites along roads, nor does it include support work on other programs such as interdiciplinary team work on timber sales, fish and wildlife habitat work, roads, cultural resources, and the landscape management.

Recreation

Table 1. Recreation Use and Funding

	Forest Plan based on 1980	1989	1990	1991
Funding (M $)	1,100	NA	527	674
Recreation Use(M visitor days)	522	794	756	935
Fees collected	NA	36,256	48,089	50,661

Recreation Use - Recreation use in FY 1991 was similar to the previous year (see Table 1 above). Use estimations were 935,000 visitor days, a significant increase from 756,000 in 1990. The recreation use number reflects total use of the Forest, not just campgrounds. The art of estimating people in all the backcountry roadless areas, in all the roaded areas, and in the Wilderness, continues to be a significant challenge. With the limited budget over the last ten or more years, little time or attention was spent to attempt to attain any degree of reliability in use estimations. Most observers felt that recreation use in FY 1991 was similar to the previous year and that the increase in use is more of an error in estimating the use rather than a change in actual use. This theory is supported by the fact that one district made extra effort to obtain measurements to support use estimates for the 1991 Recreation Use Report. Nearly all the increased use for FY 1991 was associated with that district. Therefore, the increase is most likely due to an adjustment of measuring systems rather than an increase in actual use.

Recreation Planning - Plans for the reconstruction of existing campgrounds along the Highway 12 corridor continued. The Forest Plan directed that campgrounds be upgraded to meet requirements of modern RV's and to repair deteriorating facilities before building new campgrounds. The 5-year Capital Investment Plan calls for road work in all campgrounds in the Highway 12 corridor, reconstruction or replacement of all toilets to remove odor problems, improved access for disabled persons, improved informational and interpretive signing, and replacement of many camping facilities such as fire rings and tables. Coordination is taking place with the Lolo National Forest for the portion of highway in Montana and with the Nez Perce National Forest for the Selway River area. The plans incorporate Watchable Wildlife opportunities and coordination with other agencies such as the Idaho Department of Transportation.

The need for a rest stop to accommodate large trucks and non-recreational travelers on Highway 12 became more evident during the year. The travel distance from Lewiston, Idaho to Missoula, Montana is about five hours. Most travelers eat at one of these two locations and then travel for two to three hours before they need to make a rest stop. For both west bound and east bound travelers, this two to three hour time period occurs in the same section of the Highway 12 corridor from mile post 110 (Split Creek Pack bridge) to mile post 150 (Jerry Johnson Campground). Several sites were suggested for a rest stop. These sites are near Wilderness Gateway Campground, Bald Mountain Highway Maintenance Station, Ninemile, near Saddle Camp road #107 (MP 140), or Colgate Licks. Further study in cooperation with the Idaho Department of Transportation is needed.

Special Projects/Events - A large number of volunteers, organized by the Clearwater Resource Coalition, constructed a 40 x 80 foot outdoor activity pavilion in June at Wilderness Gateway Campground. The Forest Service provided the concrete slab and the roof joists. The volunteers provided the heavy timber columns, knee braces, roof decking and shakes. The total value of the completed project was $125,000, of which the Forest Service provided $62,400.

The Forest Service Centennial was marked by a number of events on the Clearwater National Forest. "Free Camping Day" was offered by the Forest, in June, in conjunction with the Idaho Department of Fish and Game's "Free Fishing Day". Together they were dubbed as "Idaho Outdoors Day."

In July, a living history day was held at Lochsa Historic Ranger Station. As part of the festivities, the Lochsa River Historic Trail was opened and designated as a National Recreation Trail. The Forest also participated in "Old Fashioned Sunday in the Park" in Orofino.

The dedication of the Nee Mee Poo National Historic Trail was held at Lolo Pass in July. This trail is the route Chief Joseph and the non-treaty band of Nez Perces took while in flight of General Howard's troops during the War of 1877.

The annual Take Pride in America project at Weitas Meadows continued work on the Nee Mee Poo and Lewis and Clark National Historic Trails. Most work included drainage construction on opened trails but other work such as brushing and clearing vistas from the Lolo Motorway occurred. Other volunteer projects on the Forest included the construction of a bridge over Snowshoe Creek on the Lochsa River National Recreation Trail constructed by the Backcountry Horsemen of North Central Idaho.

Recreation Construction - Little Boulder and Laird Park Campgrounds were reconstructed. The work included widening roads and camping spurs to accommodate today's modern recreation vehicle, replacement of deteriorated facilities, the addition of 10 units at Little Boulder campground, and the construction of facilities for physically disabled individuals at both campgrounds.

Campground Use Limits - As reported in 1990, several campgrounds exceeded the limits of use designated by the Forest Plan. The greatest need was on the western edge of the Forest along the Highway 12 corridor. These areas had a shortage of level land which limited opportunities to construct new sites. Two alternatives were pursued to meet this identified public need:

1. Work with the Nez Perce National Forest to find ways of diverting some use up the lower reaches of the Selway River, and
2. Encourage private landowners along the Middle Fork of the Clearwater River to meet these needs. The potential for conflict with the Wild and Scenic River Easements exists. Since the River designation is recreational in this section, public recreation developments, in most cases, would be in conformance with the Wild and Scenic Rivers Act.

Lolo Pass - Information continued to be provided to the public, however the restroom and other public use facilities continue to be less than desirable. (Planning for improvements at this site continues). As winter use at the pass continues to increase, especially from snowmobiles, the Powell Ranger District

has worked with interested groups to attempt to find solutions to the winter cross country ski track setting needs.

Lolo Pass is recognized for its premier cross country skiing opportunities in the winter. Skiing was accommodated by the sale of Idaho State Park and Ski passes which partially paid for snow plowing of the parking lot and trail grooming. The receipts never equalled the cost of the program and the public was seldom satisfied with the quality of the grooming. The Forest is searching for alternate ways to provide this public need.

The problems at Lolo Pass were compounded by several factors. First, the Forest Plan designated only the immediate site around the buildings for recreation and did not give clear direction as to what kind and amount of public services should be offered; and second, the checkerboard ownership pattern in which every other square mile is privately owned, severely limited the opportunities and alternatives the Forest Service could provide at Lolo Pass. A complete revisit of the management direction for the site is needed and land exchanges need to be further explored.

Trails in Roaded Areas - There was an increased demand for trails in the roaded areas around Lolo Pass for both winter and summer trailed opportunities. This demand was most noticeable during the winter season due to the discovery by Spokane, Washington area snowmobilers as well as the western Montana groups. The Forest is exploring opportunities with several groups to tie trails from Lolo Hot Springs into a system of trails that could tie Lochsa Lodge and the Lolo Motorway together.

The summer demand came from weekend or short duration stay horse groups who sought a group of trails from a single campground. Until recently, Wilderness Gateway met this need. However, it is now often filled to capacity. A site often suggested is near White Sand Campground near Powell Ranger District. Four different trails radiate from there including the Lewis and Clark and the mainline trail up Colt Killed Creek (formerly White Sand Creek) which enters the Wilderness. The site provides early and late season trail opportunites when the high country is closed by snow.

Elk River - This area of the Palouse Ranger District received a variety of use from recreationists. Some of this was day use from the Lewiston/Clarkston, Moscow/Pullman and Spokane areas. However, much of the use was from individuals who stayed overnight in the campgrounds around the lake maintained by the city of Elk River, who stayed in the resort facilities in town, or who used dispersed camping sites in the upper Elk Creek basin. At present, the only full service National Forest facility is the picnic area and National Recreation Trail to Elk Creek Falls. The trails are becoming worn, badly eroded, and need reconstruction to safely handle present use. Two other sites in the upper Elk Creek basin are in various stages of planning for reconstruction. The proposed projects include a parking lot, toilet and trail to the Idaho state champion Western Red Cedar tree, and a parking lot, toilet, and interpretive trail to the Morris Creek Giant Cedar Grove. When these day use facilities are completed, there will likely be an increased demand for camping opportunities in the area. National Forest land near the edge of the city of Elk River would make a suitable campground. Alternatives for this site could include issuance of a special use permit for construction and operation of a campground, construction of a campground with National Forest construction funds with operation by a concessionaire, construction and operation of the camp-

ground by cooperative efforts of the community, or construction and operation by the Forest Service. Further planning is necessary.

Jerry Johnson and Wier Hot Springs - Jerry Johnson Hot Springs was closed to overnight camping in 1990. The closure was necessary due to the high number of unlawful and unacceptable incidents occurring at the site, predominately by overnight users. The number of incidents has dropped significantly due to the combined closure and increased enforcement by Forest Service and cooperative law enforcement agencies. Consequently, the closure will remain in place indefinitely. Wier Creek and Stanley Hot Springs were monitored to ensure that the problems solved at Jerry Johnson were not being transferred to these sites. An increase of incidents at Wier was observed.

Interpretive Signs - Signs along the Highway 12 and North Fork corridors were deteriorating and in need of replacement. Corridor interpretive plans need to be developed to coordinate themes and location of interpretive facilities.

Elk Summit - Increased use brought about by the road and recreation facilities improvements in this area have the potential to increase effects on a portion of the adjacent Selway-Bitterroot Wilderness (see accomplishments section above and the Wilderness section). The effects could increase if further planned road improvements occur. The abundance of moose in the area drew many observers. These observers were concerned about moose-human encounters and public safety. Multiple resource guidelines for the area need to be developed.

North Fork of the Clearwater River - The Idaho State Outfitter and Guide Licensing Board and the Forest Service received requests to open the North Fork to commercial rafting. This proposal is being studied, but no decisions have been made.

Item No. 14	**Off Road Vehicle Use Impacts**
Frequency of Measurement:	Annual
Reporting Period:	Five years (1993)

Monitoring Action

The Forest recreation specialist will prepare a report displaying the effects of ORV's (off-road vehicles) and off-highway vehicles on Clearwater National Forest resources. Recreation staff will monitor 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.

Recreation

The monitoring effort will be supplemented by working with wildlife and watershed groups to identify conflicts and resource damage. Measurement techniques such as establishing sample plots or transects and using counters on trails will help provide the appropriate data.

Accomplishments/Findings

Most trails in areas recommended for inclusion in the Wilderness system and roadless areas (B2 and C6 respectively) are open for motorized use. The number and significance of complaints regarding conflicts increased sharply in FY 1991 compared to previous years. The majority of comments centered on three areas. They were the Windy Ridge - Cook Mtn. Trail east of Weitas Creek, the Five Lakes Butte area, and the Fish Lake area in the Upper North Fork Clearwater River. There was one report of an injury accident caused by the unexpected meeting of horse riders and motorcycle riders.

Forest direction is to close all newly reconstructed trails to motorized use for a few years to allow the new tread to harden. To this end, the Windy Ridge - Cook Mountain trails, which are in the reconstruction process, were signed with the intention of closure. This generated a great deal of attention from the motorized interests in the areas of Pierce, Weippe and Clearwater County. The Pierce and North Fork Ranger Districts held several meetings with these groups.

The presence of motorized use in a proposed wilderness area is unlikely to cause damage that is serious enough to compromise wilderness character. If, however, motorized use becomes established in an area that later becomes wilderness it could be significantly more difficult to stop that non-conforming use. District Rangers are evaluating the need for additional closures on a case by case basis. Complete closure of the trails is expected when a wilderness bill is passed by Congress. The extent of trail closures on trails leading to these areas will require further evaluation depending on the location of final wilderness boundaries established by Congress.

During the past year, all road, trail and area closures on the Forest were reviewed. In the past, many closures were implemented as part of another project. For example, many roads were closed in conjunction with or subsequent to timber sale activities to protect elk habitat or to reduce soil erosion. The review found a discrepancy between adjacent roads closures pertaining to timing and purpose of closures. Often the timing was a matter of 15 days (i.e. Sept. 15 or 30) for a road to be closed each year. These changes were considered a matter of administrative nature and were adjusted to provide a common date throughout areas.

Research Natural Areas

Goal

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

Strategy

Establish a sufficient number of research natural areas that would include at least two or three examples of each major habitat and at least one example of a minor habitat on the Forest.

Accomplishments/Findings

There are a total of twelve Research Natural Areas identified in the Forest Plan on the Clearwater Forest. Seven of them have been officially designated. They are Bull Run Creek, Lochsa River, Sneakfoot Meadows, Steep Lakes, Bald Mountain, Chateau Falls, and Four-bit Creek.

During FY 1991, establishment reports were completed. Aquarius, Dutch Creek, and Grave Peak were officially approved.

Designation of the final two, Fenn Mountain and Rhodes Peak, is pending final field reviews and preparation of the establishment reports.

Research Needs

Item No. 24	Research Needs
Frequency of Measurement:	Annual
Reporting Period:	Five years (1993)

Monitoring Action

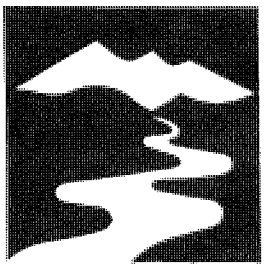
The Forest planning staff will maintain a list of research needs. The initial list of approved research needs appears in the Forest Plan (pages II-15,16). As additional research needs are identified, they will be added to this list.

Findings

Additional research needs that were identified are:

- Identification of alternate methods of slash disposal due to smoke management and air quality requirements. (FY 1990)

- Long term monitoring. Are the fisheries habitat structures and sediment removal measures achieving desired objectives? (FY 1991)



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 (1993)

Monitoring Action

A report detailing the monitoring results will be prepared by the Forest hydrologist at five to ten-year intervals. Riparian monitoring stations have been established to determine baseline or current riparian conditions and also to determine the effects of logging, removal of project and woody debris, and site preparation on stream channel condition.

Accomplishments/Findings

Baseline or current riparian conditions, including channel characteristics, were monitored on many of the major streams on the Forest between 1988 and 1990. Permanent channel cross sections were established at the mouths of 146 streams. Gradient, channel substrate composition, and photo points were established. Channel type was determined for each of the streams. The Forest plans to selectively monitor these 146 streams on a five to ten-year interval to determine trends in channel stability. An attempt will be made to associate cause with effect.

Riparian Areas

Two of these streams are analyzed here, Death Creek and Little Washington Creek, both on the North Fork Ranger District. Channel characteristics were monitored at Death Creek and Little Washington Creek to determine channel stability and validate the Forest cumulative watershed impacts model, WATBAL. Death Creek is an undeveloped granitic watershed and Little Washington Creek is a developed granitic watershed. Based on landtype classification, both watersheds have similar geomorphic thresholds. A percent distribution of substrate particle size for each watershed is shown in Figures 1 and 2. Granitic watersheds have a naturally high percentage of fine particles (2mm or less) in their riffle substrate as seen in Figure 1 for Death Creek (13%). However, comparing the developed watershed, Little Washington Creek, we observed 36% fines in the riffle substrate (see Figure 2). The Forest hydrologist believes that much of the fine particulate substrate in Little Washington Creek is eroded material from roads in the watershed.

By computing a riffle armor stability index for Death Creek, we determined that this stream will move rocks up to 146 mm at bankfull flows, or approximately 50% of the substrate material. In Little Washington Creek, rocks up to 218 mm move during bankfull flows, which computes to approximately 82% of the substrate material. Death Creek, moving 50% of its substrate at bankfull is considered stable, while Little Washington Creek, moving 82% of its substrate at bankfull is considered unstable and is approaching its geomorphic equalibrium (Riffle Armor Stability Index, G. Kappesser, Forest Hydrologist, Idaho Panhandle National Forest). WATBAL estimates that there are approximately 3,150 tons of sediment stored in Little Washington Creek per mile of stream from past road construction and logging. Our measurements of instream conditions seem to verify modeled results. Road construction in the watershed occurred from 1955 to 1980, yet the sediment impacts to the channel have still not recovered.

The Forest completed half of a watershed improvement needs inventory on Little Washington Creek. No improvements were funded to this date, nor is it likely that funding will occur in the immediate future. The inventory should be completed and all major erosion sources should be treated to eliminate erosion problems. In addition, in both Little Washington and Death Creeks, as well as other granitic watersheds, high levels of mitigation should be applied to new road construction to avoid surface erosion and the previous described problems.

Channel characteristics were monitored in a headwater stream tributary to Minnesaka Creek from 1989 to 1991. The Forest hydrologist determined that debris removal and fire line construction in this second order tributary of Minnesaka Creek, North Fork Ranger District scoured the stream channel and delivered sediment downstream. (Stream order is a designation of the relative position of stream segments in a drainage basin network. The smallest, unbranched tributaries, terminating at an outer point, are designated order one; the junction of two first-order steams produces a stream segment of order two; the junction of two second-order streams produces a stream segment of order 3, etc.) Three permanent cross sections were established in an attempt to measure channel scour. Stream gradient, channel substrate composition, and photo points were also established.

Figure 1. Percent Distribution of Substrate Partical Size
Death Creek

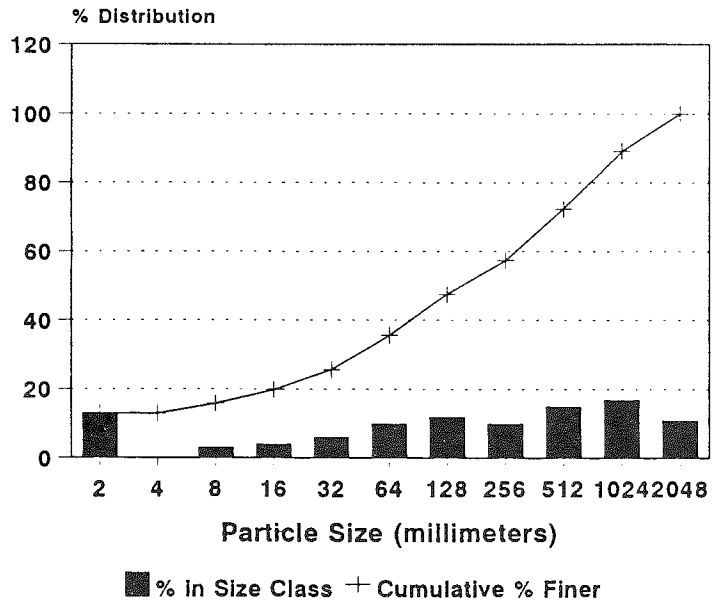
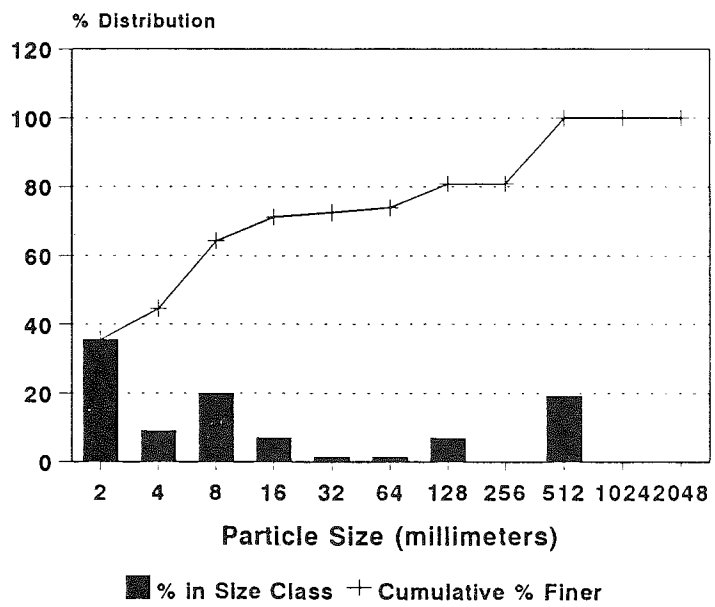


Figure 2. Percent Distribution of Substrate Partical Size
Little Washington Creek



Where the gradient is very steep, over 20% at T1, the channel has scoured below bankfull by five and one-half inches (see Figure 3). Where the gradient is less steep, under 20% at T3, sediment accumulated in what used to be the thalwag (see Figure 4). The thalwag is the deepest portion of the channel where water is found during low flow. This accumulation of sediment may lead to erosion of the adjacent stream banks. Rough calculations indicate that perhaps 30 tons of sediment were scoured from this channel and carried downstream by the described activities. In comparison, WATBAL only predicted one half ton of sediment coming from the unit. To eliminate destabilization of stream banks in the future, the Forest increased the Stream Protection Zone on these Class II streams from 5 to 25 feet and eliminated the practice of constructing firelines in stream channel bottoms. Monitoring of this tributary to Minnesaka Creek will continue in 1993 to determine if additional scour or bank erosion is occurring. It is believed by the Forest Hydrologist that streams of this nature will additionally require the input of large organic debris over time to maintain their stability and prevent channel scour.

To provide management guidance, the Forest developed riparian management direction to apply Forest Plan standards on fish-bearing streams. This direction includes an analyses flow diagram, a desired future condition analysis process, and a key to address wildlife concerns. It will be used to aid the analysis process and should be tempered with sound reasoning based on experience and professional judgment. The direction was developed to deal with problems identified during previous analyses of management activities.

Figure 3. Minnesaka Creek T1 Channel Profile

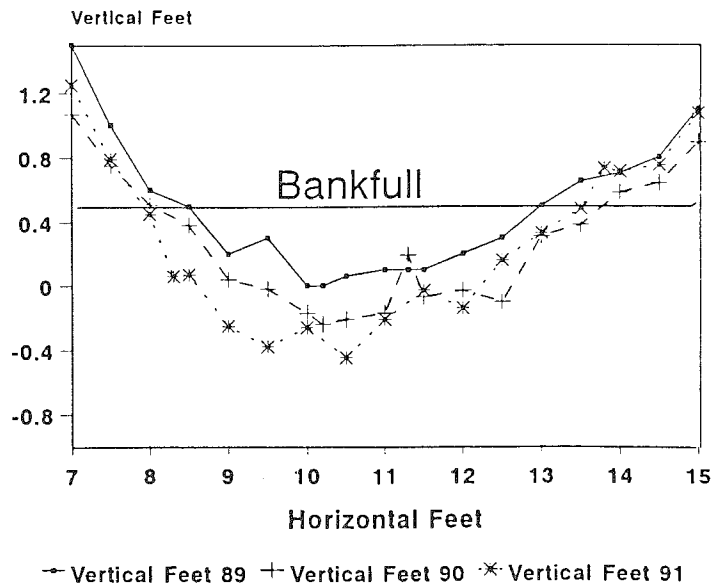
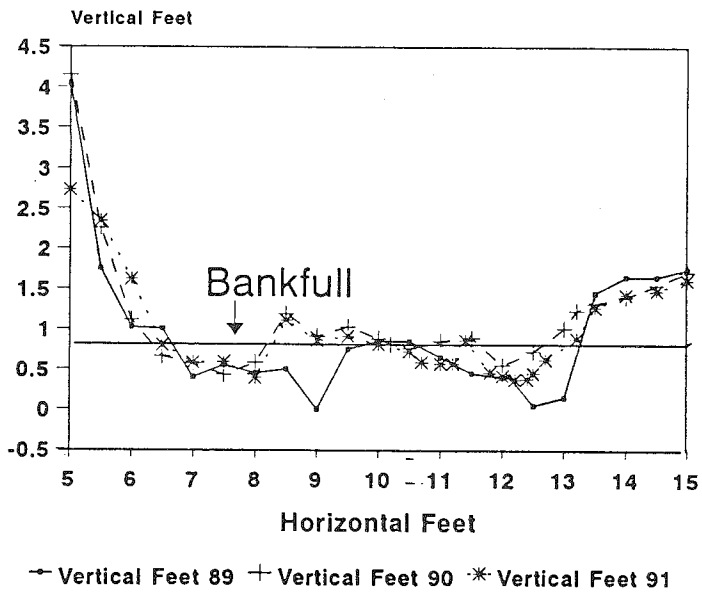
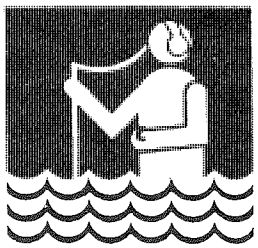


Figure 4. Minnesaka Creek T3 Channel Profile



Soil and Water



Goal

Manage watersheds and soil resources to maintain Forest Plan water quality standards which 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 (BMP's) 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

Monitoring Action - Non-Fisheries

The Forest hydrologist will coordinate with District personnel to establish water quality monitoring stations. These stations will monitor suspended and bedload sediment and water quantity to determine trends or impacts of past and/or current road construction, timber harvesting, and mining activities. The Forest hydrologist will compile Forest-wide data for inclusion in the monitoring report.

Accomplishments/Findings

The primary emphasis of the Forest water quality monitoring has been to determine the effects of sediment yields associated with timber production and road construction on water quality and the fisheries resource.

Baseline monitoring and project water quality monitoring of streams has been performed in the following manner:

> 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 continuously collect suspended sediment samples. Grab samples (samples taken by hand) of suspended and bedload sediment are periodically collected at many baseline stations.
>
> Project stations have been located downstream from management activities. Control (no activity) stations generally have been established above the activity, in a different but similar watershed, or at the same project station only prior to the activity. Project sampling allows the quantification of site-specific impacts, primarily sediment yield from a given activity. Data are collected at each project station with automatic water samplers or grab samples. Parameters measured are stream flow, suspended sediment, air and water temperature, specific conductivity and instantaneous water level.

Grab samples are collected approximately 14 times during the year at each station. Grab samples are scheduled to concentrate collection during the peak discharge period. Water level recorders and automatic water samplers are normally in operation from March through September.

Table 1 shows the Forest's water monitoring network by district. Years of record, type of monitoring station, parameters collected, and instrumentation at each station are presented.

Table 1. Water Quality Monitoring Network

Watershed	Station Established	Years of Record	Collected Data	Station Type	Remarks
Pierce RD					
Camp Creek	1974	9	*	P	Restart of Station
Cedar Creek	1984	8	*	P	Active Timber Sale
Dollar Creek	1984	8	*	P	Active Timber Sale
Eldorado Creek	1984	8	*Rec. WS SS	B	Sales on Eldorado Creek
Lolo Cr. @ Sec. #6	1980	11	Rec. WS SS	B	Mining and Timber Sales
Musselshell Creek	1991	1	*	P	Coop monitoring with State of Idaho DEQ
Yoosa Creek	1982	4	*	P	Project Study with N.P Tribe
Palouse RD					
Blakes Fork	1981	11	*	P	Past and Active Timber Sales
Elk Cr abv Elk R	1981	11	Rec. SS	B	Proposed Hydro and Timber Sales
Little Sand	1981	11	*	P	Past & Active Timber Sales
No. Fork Palouse	1981	11	*	P	Proposed & Active Timber Sales
Palouse abv L Sand	1981	9	*Rec.	B	Baseline-Mixed Ownership
North Fork RD					
Cold Spring Creek	1981	10	*Rec.	B	Reference Station
Fern Creek	1990	2	*WS	P	Proposed Timber Sale
Isabella Creek	1980	9	*Rec.	B	Reference to Salmon Stations
Osier Creek	1981	10	*	B	Mining
Quartz Creek	1981	11	Rec. WS SS	B	Past and Proposed Timber Sales
Salmon Cr. upper	1986	4	WS SS	P	Control Above Activities
Salmon Cr. lower	1986	6	WS SS	P	Station Below Activities
So. Fork Beaver	1981	11	Rec. WS SS	B	Past and Active Sales
Swamp abv Osier	1980	12	Rec. WS SS	B	Timber Sales
Wolf Creek	1974	16	*	P	Proposed Timber Sale

Table 1. Water Quality Monitoring Network (continued)

Watershed	Station Established	Years of Record	Collected Data	Station Type	Remarks
Lochsa RD					
Bullock Creek	1988	4	WS Tur	P	Domestic Water Supply
Cougar Cr (Lowell)	1986	5	WS Tur	P	Domestic Water Supply
Deadman Cr at mouth	1980	12	*Rec. WS	B	Began Rec., WS, in 1989
Fish Creek @ mouth	1980	11	Rec.	B	Long-term Baseline
Glade Creek	1980	12	*	P	
Little Smith	1980	12	*	P	Past and Active Sales
Pete King	1976	16	*Rec. WS	B	Long-term Baseline
So. Fk Canyon	1979	13	*	P	
Powell RD					
Crooked Fork at mouth	1980	12	*Rec. WS	B	
Crooked Fork abv Brushy	1986	5	Rec. WS	P	Mixed Ownership
Doe Creek @ mouth	1981	11	*	P	
Parachute Creek (Lower)	1991	1	Rec. WS SS	P	Landslide Study Two WS's
Parachute Creek (Upper)	1991	1	SS	P	Upstream Control
Squaw abv Doe	1981	11	*	P	Began Rec. WS in 1988
White Sand at mouth	1980	11	*Rec. WS SS	B	WS data from 82-86

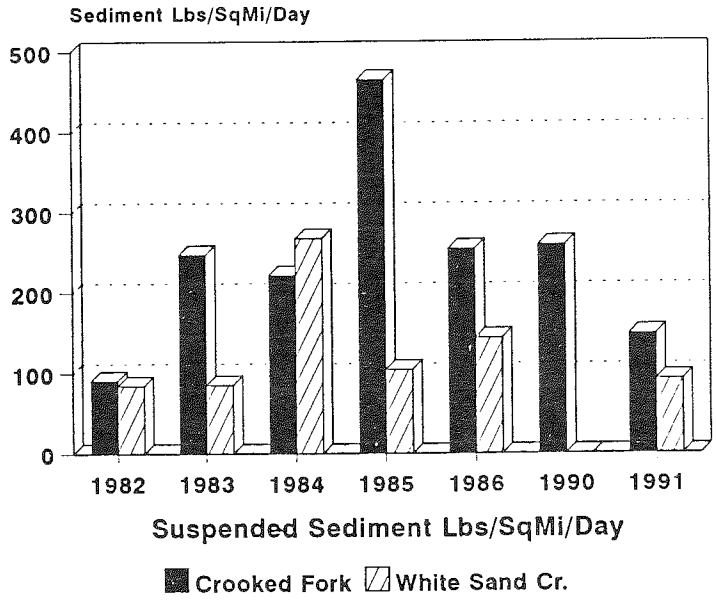
* - Data Collected: Stream discharge, suspended sediment, bedload sediment, air and water temperature, specific conductivity, staff gauge (water level reading).

Rec.	Water level recorder
WS	Water sampler
SS	Suspended sediment
Tur	Turbidity
USGS	U.S. Geological Survey
B	Baseline
P	Project

The Forest processed approximately 3,500 suspended sediment and 300 bedload samples in FY 1991. Bedload sediment was sieved to measure particle size and weight. The sediment data was combined with stream flow information using watershed computer programs to calculate total sediment loading. This data is available from the Forest Hydrologist at the Supervisor's Office. A sample of the results is presented in Figure 1, Crooked Fork @ Mouth vs. White Sand @ Mouth.

Monitoring results from Crooked Fork and White Sand Creeks on the Powell Ranger District show higher concentrations of suspended sediment in Crooked Fork, which is a residual breakland watershed. The mean suspended sediment in Crooked Fork for the period of record is 241.2 Lbs/Mi²/Day as compared to 129.7 Lbs/Mi²/Day for White Sand Creek. The Crooked Fork watershed is also in mixed ownership and has received heavy impacts from logging and roads on private and Forest Service lands. Highway 12 has also increased sediment inputs to the channel. In contrast, White Sand Creek is a relatively undisturbed glaciated watershed. The natural level of suspended sediment in Crooked Fork should be somewhat higher than White Sand Creek because residual breaklands are inherently more unstable than glaciated watersheds. However, development on these breaklands is undoubtedly accelerating sediment concentration in Crooked Fork. Monitoring of both Crooked Fork and White Sand Creek will continue in 1992.

Figure 1. Sample of Total Sediment Load Comparison
Crooked Fork @ Mouth vs. White Sand @ Mouth



*Data not available in White Sand Creek in 1990.

Generally, monitoring of suspended sediment has shown a recovery trend in this parameter Forest-wide from past management activities. Suspended sediment concentrations tended to be less in the late 1980's than in the early 1980's. Some of this may be due to the drought conditions in the late 1980's. However, we believe that much of the recovery is the result of applying Best Management Practices (BMP's), including better road location and design.

Monitoring results from Bullock Creek at Syringa, on the Lochsa Ranger District, indicate that turbidity increased below a clearcut unit following timber harvest and site preparation activities in 1989 (see Table 2). We believe the sediment was generated from fireline construction within the Stream Protection Zone (SPZ) upstream from the monitoring site and adjacent to Bullock Creek. Some stream bank erosion and active headcut migration of the channel was observed. The study indicated that the erosion of the stream channel generated turbid water to domestic users downstream. However, in FY 1991 the channel appeared to have recovered from the impacts of 1989-1990, indicating turbidity caused by fireline construction and broadcast burning in or near the channel may be short lived.

Table 2. Bullock Creek at Syringa Monitoring Results

Water Year	Turbidity NTUs*
1988	6.1
1989	7.0
1990	20.4
1991	9.0

*Nephlometric turbity units - measure of relative water clarity (the higher the number the higher the turbity).

Recommendations to prevent this problem in the future include leaving a buffer of trees, avoiding fireline construction near stream channels, and avoiding site preparation activites (including broadcast burning) within the SPZ. With the measured improving trend we have discontinued monitoring this stream.

Although the monitoring of suspended sediment data shows an improving trend for most watersheds, measurements of cobble embeddedness indicate that recovery of stream substrate from past activities are going to take longer than predicted. Increased cobble embeddedness reduces available gravel for spawning beds, reduces primary production (vegetation) and lowers aquatic insect numbers and species diversity. This reduces fisheries habitat quality and results in lower reproductive rates and fewer fish. Observations indicate that some low gradient streams will require decades to recover. Even higher gradient streams are taking longer than expected to recover. Data from Death Creek and Little Washington Creek presented in Monitoring Item No. 10, Riparian Area Condition, seem to validate this statement for the granitic watersheds.

An additional water quality study, an acid deposition survey of lakes in the Selway-Bitterroot Wilderness, occurred in FY 1991. The results of this survey are available upon request from the Forest hydrologist.

Item No. 9	Best Management Practice (BMP) Applications
Frequency of Measurement:	Annual
Reporting Period:	Five years (1993)

Monitoring Action

The Forest hydrologist will coordinate with Forest Service employees, including timber sale administrators, engineering representatives, contracting officer's representatives, the soil scientist and fire management officers, to monitor all projects for compliance with Best Management Practices (BMP's). Best Management Practices are actions taken to minimize the negative, detrimental or undesirable effects which may result from implementation of management activities. The primary objective is the maintenance of water quality. Examples of BMP's 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 harvest prescriptions for canopy retention.

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

Accomplishments/Findings

A total of 381 BMP's were audited from 19 timber sale units on the Clearwater National Forest in FY 1991. Units were prioritized for selection if they were within a stream segment of concern (SSOC) and if they were adjacent to a Class I or II stream. Units were located on each of the five ranger districts. The BMP rate of compliance was 95% and the effectiveness rate was 94%. Sediment was delivered to stream channels or draws in 24 of the 381 observations.

The practices were further analyzed by method of application: aerial harvest systems (cable, helicopter), tractor harvest, and temporary and system road design, construction, and maintenance. The audit included 167 checks of BMP's where aerial systems were applied. The implementation and effectiveness rate was 97.0% and 98.6% respectively. For tractor logging, 68 checks of the BMP's occurred. The implementation and effectiveness rate was 91.2% and 83.8% respectively. For roading, including planning, construction, and maintenance of both system and temporary roads, 146 checks of the BMP's occurred. The implementation and effectiveness rate was 94.5% and 93.8% respectively. The results of the audit are summarized in Table 3. It was concluded that implementation and effectiveness of BMP's

for (1) aerial logging systems was excellent; (2) tractor logging needs improvement; (3) system road planning, construction, and maintenance was good; and (4) temporary road planning, construction, and maintenance needs improvement, however they were better than the 1990 audit.

Table 3. BMP Implementation and Effectiveness - Aerial, Tractor, and Roads

Activity	# of BMP checks	BMP's Imple-mented	% Imple-mented	BMP's Effective	% Effective
Aerial Systems	167	162	97.0%	163	98.6%
Tractor Logging	68	62	91.2%	57	83.8%
Roads	146	138	94.5%	137	93.8%
Total	381	362	95.0%	357	93.7%

The recommendations generated from results of the audit were:

- Tractor logging is generally more erosive then aerial logging systems. Carefully evaluate options to choose aerial logging systems over tractor systems, considering sediment reduction opportunities, other mitigation needs, and economics.

- Construction and maintenance of temporary roads is still a problem and a sediment producer. When possible, use designed and constructed system roads and eliminate the use of temporary roads. Make sure when erosion control measures are installed on temporary roads they are not removed during site preparation and reforestation activities. Return temporary roads to production as soon as possible.

- Construct the minimum size landing and skid trail necessary to accomplish the job safely and reduce erosion.

- Continue using the minimum 25 foot SPZ for Class II streams until additional direction is provided. Consider increasing this width to buffer excavated landings and skid trails. In no case should landings and skid trails be located closer than 25 feet to a Class II stream unless a variance is authorized.

BMP monitoring in 1992 will again concentrate on watersheds containing SSOC's and on areas where units are located adjacent to Class I or II streams. In addition, we will concentrate the timber harvest BMP audit on tractor logging units and we intend to select at least one small sale from each district to be included in the audit.

Table 4 lists the Stream Segments of Concern by district. There were no deletions or additions to the list. Additional SSOC's were proposed on the Palouse Ranger District, however these were not final as of the publishing of this document.

Table 4. Stream Segments of Concern

District	Watershed	Stream Segments of Concern
Pierce	North Fork Clearwater	Weitas Creek
	Clearwater River	Lolo Creek
	Clearwater River	Eldorado Creek
	Clearwater River	Yoosa Creek
	Clearwater River	Camp Creek
North Fork	North Fork Clearwater	Quartz Creek
	North Fork Clearwater	Meadow Creek
	North Fork Clearwater	Skull Creek
Lochsa	Lochsa River	Fish Creek
	Lochsa River	Hungery Creek
Powell	North Fork Clearwater	Gravey Creek
	Lochsa River	Walton Creek
	Lochsa River	White Sand Creek
	Lochsa River	Crooked Fork
	Lochsa River	Spruce Creek
	Lochsa River	Brushy Fork
	Lochsa River	Boulder Creek

Monitoring of Newly Constructed Roads

The application and effectiveness of erosion control measures were evaluated on approximately 80 miles of new road construction in 1988, 1989, and 1990. Fifty-five miles of road constructed in 1989 and 1990 were evaluated in FY 1991. Road construction and quality standards have steadily improved over the past several years. Roads were built as designed, and all required erosion control measures were applied.

The generally applied objective of reducing sediment production by 80% for the first two years after construction was being met on approximately 70% of the new road construction. Success of various

mitigation measures was largely dependent on landform and soil type. The sediment reduction objective was not met on the remaining 30% of new road construction. Numerous design problems and possible improvements were noted in field notes available from the Forest soil scientist.

Areas of concern highlighted by FY 1990 and FY 1991 monitoring:

Road designs need to better reflect soil characteristics and limitation. Guidelines were implemented to better reflect soil strength in cutbank design and surfacing requirements.

More uniform control of grass seeding and fertilizing. Highly variable success was observed on seeding projects of similar roads over same soil types. A recommendation to prevent this problem is to separate the erosion control/vegetation establishment from the road construction contract. This would allow the use of experienced specialty contractors. Vegetation establishment levels could also be made part of the contract.

Improve coordination between timber sale administration and engineering. A better understanding of both watershed and road design objectives is necessary for a successful project. Significant progress was made in this area during FY 1991.

Watershed risks need to be better identified and addressed in the NEPA analysis and documentation stage of project planning. For example, very stringent erosion control measures were applied to a low risk situation in one project while the usual (more moderate) mitigation measures were applied to a high risk situation in another project. A cost effective mitigation model is being developed that will aid in solving this problem. Significant progress was made in this area in FY 1991.

Broadcast burning of cutting units below roads after erosion control measures on the road were applied is a very serious and difficult problem. This is a continuing problem that needs to be addressed.

More timely road closures to prevent damage during wet periods continues to be a problem.

Only two mass failures (rotational fill slumps) were observed in FY 1990 and one in FY 1991. Reduction of mass failures has been a major Forest accomplishment. Fifteen years ago we could have expected dozens of major failures occurring on this amount of construction. This needs to be reflected in the new WATSED cumulative effects model. To accomplish this, fill failures and major cutbank failures need to be separated from fill sloughing in landtype interpretation coefficients. Forest Science Lab personnel at Moscow expressed a willingness to assist in the development of these interpretations. This project will be incorporated into the FY 1992 monitoring. Total volumes of cutbank slough material were measured by landtype on two major maintenance projects. Measurement of fill slough material by landtype is being expanded to various roads throughout the Forest in FY 1992.

The Forest worked closely with the Intermountain Research Station and the Idaho Panhandle National Forest (IPNF) in updating the WATBAL sediment model. The updated model is called WATSED. The IPNF WATSED model is operational and incorporates monitoring results from the Forest. Personnel on the Forest are in the process of adopting the WATSED model to the Clearwater.

Item No. 11	**Site Productivity**
Frequency of Measurement:	Annual
Reporting Period:	Five years (1993)

Tractor Skidding

Tractor skidded units completed in FY 1991 were aerial photographed with a hand-held 35 mm camera in late October. All districts were photographed with the exception of the Powell Ranger District. Photographs of 59 units were of high enough quality to obtain reasonable estimates of skid road densities using a dot grid.

Clearwater National Forest Plan standards state that no more than 15% of a harvest unit will have significant soil displacement or bulk densities increases to greater than .9 Gr. per cc. Units with soil compaction and displacement in excess of 15% will be treated with a ripper.

In FY 1990, only the Palouse District had an adequate sample to estimate skid road density and soil displacement. The average density of skid roads likely to have soil disturbance or compaction, in excess of Forest Plan standards, was 17.1%, with a low of 11% and a high 22.4%. In FY 1991, the Forest-wide average of 59 tractor-skidded units was 20% and ranged from a low 12.1% to a high of 30.3%. District averages were: 20.6% - Pierce Ranger District; 21.5% - Palouse Ranger District; 20.5% - North Fork Ranger District; and 26.8% - Lochsa Ranger District. The majority of Lochsa Ranger District units were previously entered, and present sales used existing skid trails.

Several Forests in Regions 1 and 6 use 20% as a standard for maximum skid road and soil displacement densities. Sale administrators on the Forest are making a conscious effort to minimize skid road densities. Improvement of skid road layout is possible but may take more time than is presently available with current workloads.

The Palouse Ranger District was the only district that accomplished any skid trail rehabilitation in FY 1991. The Forest owns two Forest Cultivators which have proven both effective and economical in rehabilitating non-constructed skid roads. It is recommended that this method of skid trail rehabilitation be evaluated for all final removal tractor units.

Feller Buncher Harvesting

Soil bulk density increases were estimated on three units harvested with a feller buncher. Estimates were obtained using resistance to penetration of a tile spade and soil structure changes. Results showed significant soil bulk density increases on 46 to 48% of the area of the units transected. The most severe compaction occurred on skid roads which accounted for 26% of the area of the units. Less severe bulk density increases associated with fell buncher operation occurred on 22% of the units transected. The most severe soil displacement and bulk density increases occurred on slopes steeper than 20%. Feller buncher operators were relatively inexperienced in the use of the machines, and disturbance levels may decrease as we gain experience in operating these harvesters.

Prescribed Burning

Numerous walk through exams were performed to evaluate the severity of prescribed burns. Again, as in 1990, less than 10% of any burn unit met Neihoff's Idaho Panhandle National Forest severe burn classification. No severe surface erosion was observed. No sediment production resulting from the surface erosion was observed.

Prescribed Natural Fires

A follow-up walk-through was made on the Wind Lake prescribed natural fire area. No surface erosion or sediment delivery was observed. Total duff removal occurred on less than 5% of the burned area.

Timber

Goal

Provide a sustained yield of timber and other forest products at a level which will help support the economic structure of local communities, provide for regional and national needs, and be cost effective. Progress toward achieving the desired future condition identified in the Forest Plan.

Strategy

We believe that we must manage the forest to achieve the goals and objectives of the Forest Plan. To accomplish this we must strive to better understand and expand our resource management options.

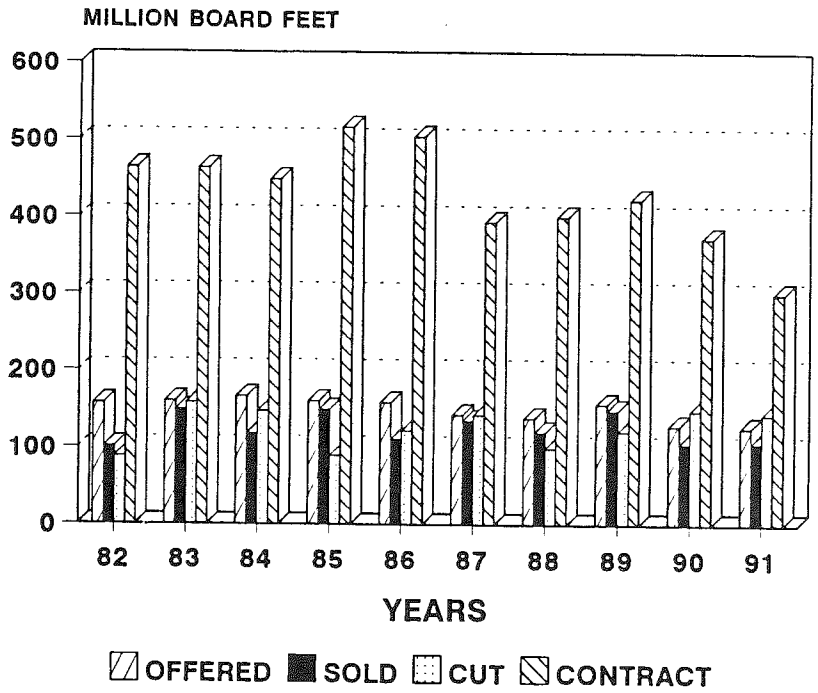
We will continue to manage the timber program to provide for the long term health, diversity, and productivity of the Forest. Complete site-specific analysis of the land base will be used to design the timber sale program. Silvicultural systems will be selected to build biological diversity and ecological 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.

We will work to better understand the relationships between people and the Forest. The timber management program will address social and economic issues such as community stability, customer satisfaction, diverse user values, and the influence of urban culture on resource management. We must make every effort to respond to the needs of the local communities that depend upon the the forest for their economic survival. To meet their needs the Forest must continue to pursue and develop new timber sale opportunities. We must remember that the economy and the environment can not be separated and actions that harm one will also harm the other.

Forest Product Sales and ASQ

In fiscal year 1991, the Forest offered a variety of products which included sawlogs, pulp, cedar products, fuelwood, Christmas trees, fence posts, and bear grass. These products were sold through 44 timber sales and 1,512 miscellaneous collection permits. A total volume of 105.6 MMBF was sold. Approximately 29 MMBF (27%) of this volume was in sales of less than 5 MMBF. The annual volumes offered, sold, harvested, and under contract over the past ten years are shown in Figure 1 on the following page.

Figure 1. Annual Timber Volume in Past Decade Offered, Sold, Cut and Under Contract



There are four elements in Figure 1: the timber volume that was offered for sale (OFFERED), the volume that was sold (SOLD), the volume that was cut (CUT), and the uncut volume under contract (CONTRACT). The uncut volume under contract has continued the decrease that began in 1987 and has reached it's lowest level in over a decade. The decline in volume under contract has resulted in increased competition for the timber offered for sale and increased stumpage prices. This is the second consecutive year in which the volume offered has been less then the volume cut.

The Clearwater Forest Record of Decision states that the average annual allowable sale quantity (ASQ) that can be sold will be 173 MMBF. Up to 100 MMBF of the total ASQ is to come from the roaded component of the Forest. This 100 MMBF includes 10 MMBF of non-interchangeable (NIC) species and size classes, mostly pulpwood, that are subject to fluctuating markets. The remaining 73 MMBF was to be harvested from the unroaded component.

Table 1 displays total volume sold on the roaded and unroaded portions of the Forest since FY 1988, the first year of Forest Plan implementation, through FY 1991. The volume sold on the roaded portion of the Forest is further divided into the primary, the standing sawtimber component; and non-interchangeable component (NIC) based upon species and product. Table 1 also displays projected future sales for FY 1992 through FY 1997. These projections are based on the volumes we plan to offer for sale. The volume actually sold could differ from these projections.

Table 1. Volume of Timber Sales Sold for the Roaded and Unroaded Components of the Forest, 1988 through 1997

Year	Primary MMBF	NIC MMBF	Roaded Total MMBF	Unroaded Total MMBF	Forest Total MMBF
1988	90	13	103	13	116
1989	102	19	121	23	144
1990	81	18	99	4	103
*1991	80	16	96	8	104
**1992	94	17	111	8	***119
**1993	44	8	52	12	64
**1994	34	6	40	31	71
**1995	27	5	32	53	85
**1996	28	5	33	62	95
**1997	49	9	58	50	108
Total	629	116	745	264	1,009

* The FY 1991 volume has been revised from last year's monitoring report to account for volume that was offered in FY 1991 but sold in FY 1992.
** Projections - subject to site specific analysis.
*** The FY 1992 volume includes 44 MMBF of the FY 1991 target that was sold in October 1991.

Two important conclusions can be drawn from Table 1. First, the Forest will fall short of producing the ASQ planned for first decade; most of the short fall will be in the unroaded component. Second, the projected sell in the roaded component applied toward ASQ will be 729 MMBF (remember that only 100 MMBF of the NIC will be applied to meeting the first decade ASQ, 100 plus 629 is 729 MMBF). This represents a 27 percent short fall in the roaded component.

The reasons for these projected shortfalls differ for the unroaded and roaded components of the Forest. The unroaded component has become critically important to some of the people we serve. These individuals and groups have requested that the unroaded areas receive special consideration and analysis before management activities are performed. Despite our best efforts to respond to their concerns in FY 1991, these parties filed four appeals on one timber sale planned in the unroaded component.

Three factors - special analysis, appeals, and the need to design and construct new roads - have resulted in a significant increase in the amount of time and effort needed to plan sales in the unroaded component.

The roaded component presents its own challenges. Project opportunities are based on site-specific analysis of what can actually be achieved on a given piece of land. Spatial concerns such as canopy

opening size and species diversity have had an important effect on project opportunities. This is of special concern in areas where private holdings lie adjacent to Forest lands.

Appeals have also had an effect on the sales offered in the roaded component. In FY 1991, there were four appeals filled on two timber sales planned for this component.

We have met Forest Plan standards and guidelines for water quality by using great care in road building and other activities that might adversely affect water quality. Projects have been altered or eliminated in response to water quality concerns. As our knowledge of erosional processes on the different soils found on the Forest increases, management opportunities may also increase.

The 1989 Monitoring and Evaluation Report identified the need to compare the number of acres and timber volumes sold annually by management area with the acres and volume estimates used to derive the ASQ. Those comparisons are provided in Table 2.

Table 2. Comparison of Forest Plan Projections With Timber Sales, 1988-1991

	Forest Plan Projections		Timber Sales, 1988-1991	
Management Area Emphasis	Acres / Year	Volume MMBF	Average Acres	Volume MMBF
Timber production (E1/E3)	3561	81.2	5570	92.7
Road/trail corridors (A4/A6)	125	.8	46	.3
Big game summer range (C8S)	3099	62.5	92	2.7
Big game winter range (C4)	1007	23.6	694	17.9
Riparian areas (M2)	3516	5.2	310	5.7

Table 2 shows that the major deviation between projected ASQ volume and the average annual volume sold over the first four years of the Plan is in the big game summer range management area. Almost all big game summer range is located in the unroaded portion of the Forest.

Timber Stand Improvement and Reforestation of Nonstocked Lands

Over the first four years of the Forest Plan, timber stand improvement projects were completed on an annual average of 913 acres. This is approximately 50 percent of acreage projected in the Plan. During the same period, a total of 17,521 acres have been reforested. The Forest Plan projected, in addition to regeneration after harvest, an average annual reforestation of 3,223 acres of non-stocked lands. These are lands that were left nonstocked as the result of fire or early forest management practices. Only a small part of this has been accomplished.

Timber

Forest Genetic Tree Improvement

The Clearwater National Forest participates in many Region One selective breeding projects such as selecting plus trees and making cone collections, establishing and maintaining progeny and performance test plantations, installing and managing a seed orchard, and making controlled crosses for advance generation breeding.

In November 1990, the Forest selected 21 pacific yew trees as part of a study of taxol, a substance found in pacific yew bark that appears to be effective in treating certain types of cancer. Bark and branch samples from these trees were sent to the National Cancer Institute to be analyzed for taxol content. Other branch cuttings were sent to the Forest Service Nursery for propagation as rooted cuttings for further research.

In the spring of 1991, an early selection trial was established with approximately 12,500 ponderosa pine seedlings at the Lenore Tree Improvement site. A survival check and baseline height measurement will be conducted in FY 1992. Early selection trials are intensively managed to provide a relatively stress free environment in order to gather accurate data on the genetics of height growth.

In addition, six long-term performance test plantations were established on field sites in various locations across the Forest. One test was established by transplanting approximately 450 five-year-old western white pine seedlings to a forest site. The other five tests were established with a total of 5,800 Douglas-fir rooted cuttings, as well as 1,500 Douglas-fir seedlings, to provide a comparison of the performance of rooted cuttings and trees grown from seed. Long-term tests are established on typical forest sites in order to evaluate responses to all environmental influences that occur in the forest over time. All six tests will have a first year survival check in FY 1992.

In the fall of 1991, western larch trees exhibiting superior growth and form were selected across the forest. Open pollinated cones were collected from 28 western larch trees for future genetic testing.

Item No. 18	Harvested Land Restocked Within Five Years
Frequency of Measurement:	Annual
Reporting Period:	Five year intervals (1993)

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 harvested 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 lands within five years after final harvest. Reforestation records pertaining to regeneration harvests which occurred in 1986 were compiled and the required percentages calculated. The data presented in the table on the following page is based on the status of regeneration at the end of 1991. The time elapsed since harvest is five years.

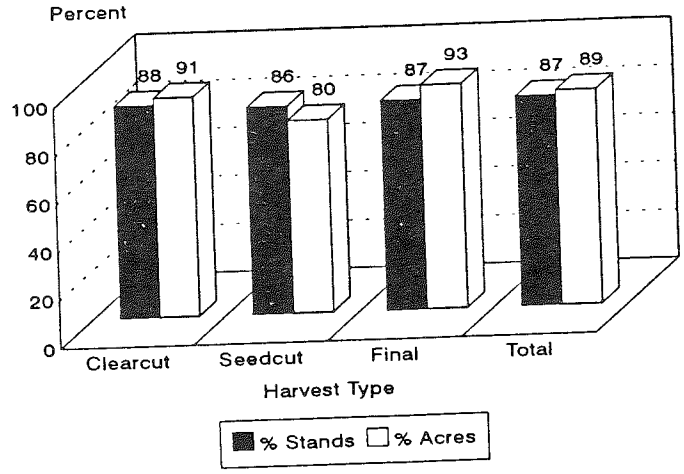
During 1986, clearcut harvest was conducted on 74 stands for 1,408 acres. The final removal harvest, using the seed tree and shelterwood harvest methods, was accomplished on 30 stands for 1014 acres. The seed step harvest (initial cutting) of the seed tree and shelterwood method occurred on 21 stands for 724 acres.

Of the 125 stands that received regeneration harvesting in 1986, the following numbers of stands have failed to attain adequate regeneration after five years: nine clearcuts, three seedcuts, and four final removals. These stands are currently being retreated for reforestation. During the first four years under the Forest Plan, adequate regeneration after five years has been achieved on 89% of the clearcut, 86% of the seed step, and 94% of the final removal stands.

Timber

Regeneration success measured five years following the 1986 harvests is displayed in Figure 2.

Figure 2. 1986 Regeneration Harvests Adequately Restocked In 5 Years



Item No. 19	Unsuited Timberlands Examined to Determine if They Have Become Suitable
Frequency of Measurement:	Annual
Reporting Period:	Ten year intervals

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

Unsuitable timberlands are currently being inventoried as part of the Forest's 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.

The compartment inventory program, initiated in 1985, will produce a new comprehensive inventory and data base representing all timber stands on the Forest. This inventory program has three phases. The first phase is aerial photography interpretation and stand delineation. At the conclusion of phase one, all stands on the Forest will be mapped and identified as to suitability and management area. The second phase is field stand examination of a randomly selected subset of stands. The third phase is data compilation and extrapolation to unsampled stands.

At the close of 1991, phase one had been accomplished on approximately 1,548,500 acres, or about 85% of the Forest. Phase one has not been completed in wilderness areas. It is hoped that phase one will be completed during 1993. In phase two, approximately 77% of the Forest compartments have field stand examinations. Phase three will be completed in time to serve as guidance during preparation of the ten year review of the Forest Plan.

Item No. 20	**Validate Maximum Size Limits for Harvest Areas**
Frequency of Measurement:	Annual
Reporting Period:	Annually

Monitoring Action

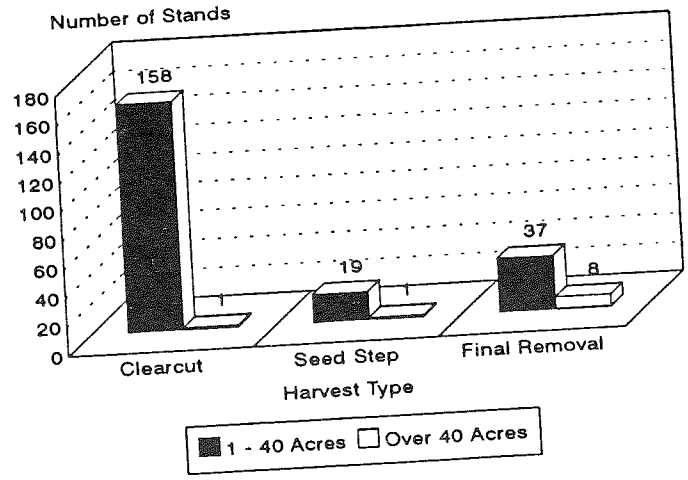
The Forest silviculturist will prepare a table displaying the number of stands harvested, by harvest type, meeting the 40 acre maximum harvest size standard compared to the number of stands exceeding this standard.

Accomplishments/Findings

The maximum size of harvest openings created by even-aged regeneration harvesting should normally be 40 acres. Harvest opening size may exceed 40 acres when certain exceptional conditions apply such as insect outbreaks which threaten surrounding stands, catastrophic blowdown, or for final removal cuttings in order to protect established regeneration in existing shelterwood and seed tree areas.

The average size of regeneration harvest units cut in FY 1991 was 22.2 acres. There were a total of 4,719 acres harvested in 213 units. One hundred fifty-seven of these units, totaling 2,929 acres, were clearcut. Ten of the 1991 harvest units exceeded 40 acres in size; one clearcut, one seedcut and 8 final removals. The number of regeneration cutting units exceeding 40 acres is compared to those which are 40 acres or smaller in Figure 3 on the following page.

Figure 3. Cutting Unit Size of 1991 Regeneration Harvests



Item No. 21	Insect and Disease Status as a Result of Activities
Frequency of Measurement:	Annual
Reporting Period:	Five year intervals (1993)

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

The Douglas-fir bark beetle outbreak appears to be continuing to decline. Aerial surveys of the infested area indicate that tree mortality has decreased from about 900 acres last year to approximately 700 acres in FY 1991. There is a corresponding decline in the area infested with the fir engraver bark beetle. Both of these bark beetles are probably responding to improved tree vigor brought on by a generally favorable change in precipitation and soil moisture. Also, salvage/sanitation cuttings in bark beetle mortality areas have both directly and indirectly reduced bark beetle populations.

Balsam woolly aphid damage was observed on approximately 2,000 acres of subalpine fir stands on the Forest in FY 1991. This is the same level of infestation that was detected last year. However field monitoring indicates that the aphid populations have all but disappeared. Cold temperatures over the winter of 1990-1991 are believed to be the cause of population decline. This aphid is an introduced pest, and its potential for killing trees in the Northern Rocky Mountains is not known from experience. Monitoring of the infestation and damage will continue.

There have been reports of increased root disease infection in stands of managed natural advance regeneration when conducting precommercial thinnings. Late successional species tend to be more susceptible to root diseases. Whether thinning in immature stands or conducting partial cuttings in overmature stands, research indicates these partial cuts tend to improve habitat conditions for root diseases and certain defoliating insects.

Trails

Goal

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

Strategy

Inventory trail conditions and maintain a record system. The Forest goal is to conduct a log and prescription survey over 25% of the 1,500 mile trail system each year. The survey provides information about trail conditions. Heavy maintenance or light reconstruction contracts can be prepared from these surveys. Information about each trail will be maintained in a trail data base.

Trail drainage structures are key to maintaining the basic trail structure and preventing resource damage. Existing drainage must be maintained and new structures built where they have been lost or were never built.

Maintain safe bridges by frequent inspections and replace native wooden (log) bridge stringers with longer lasting materials to significantly increase structure life. The policy is to build trail bridges only when a ford is impassable or unsafe during half or more of the heavy use season.

Reconstruct trails to a standard that can be easily maintained. Generally this means that most grades should be at 10% or less. It is impossible to maintain drainage structures and prevent erosion on most grades steeper than 10%.

Select high value recreation trails for reconstruction. Place high priority and high design standards on trails that will provide loop opportunities, high visual experiences and other recreational attributes.

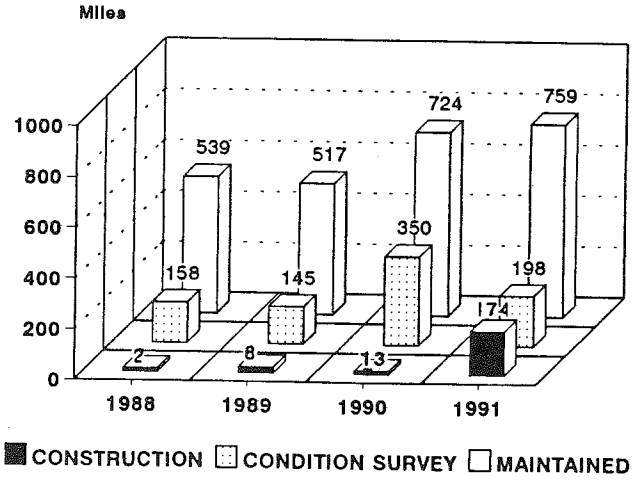
Item No. 16	Trail Management
Frequency of Measurement:	Annual
Reporting Period:	Five years (1993)

Monitoring Action

The Forest recreation specialist will prepare a report to determine if Forest trail mileage is changing significantly in the various Recreation Opportunity Spectrum (ROS) categories, if use of the trail system use patterns are changing significantly, or if physical conditions of the Forest trail system are changing significantly. Information from the Recreation Information Management (RIM) system will be used to monitor changes in trail mileage and use. An annual survey will be conducted on 25% of the trail system to determine trends in the physical condition of the trail system.

Accomplishments/Findings

Figure 1. Trail Accomplishments for 1988 - 1991



Trail Reconstruction/Maintenance Backlog

During 1989, the Government Accounting Office (GAO) conducted a nationwide review of the backlog of maintenance and construction needs on National Forest System Trails (GAO Report B-209917, dated 9/22/89). The Clearwater National Forest had the second highest ($13 million) backlog of work in the country. This backlog was caused by inadequate funding, lack of trail drainage structures, erosive soils coupled with high incidence of horse use, and old trails with overly-steepened grades improperly located on the land. During Forest Plan preparation, the magnitude of maintenance and reconstruction needs were underestimated. We are in the process of collecting more accurate information on our system needs through updating our log and prescription surveys.

Trails

Trail Maintenance

Table 1 provides information on accomplishments by trail maintenance levels.The miles of maintenance accomplished does not effectively describe the "logging out" dilemma faced by trail managers. As the snow melts in the spring and early summer our crews and contractors "log out" the trails to allow passage. This spring opening is of prime concern to trail users eager to get out after a winter's inactivity. Unfortunately, the majority of the trail mileage on the Clearwater is without adequate drainage. This allows significant erosion to occur and leads to the loss of the entire trail as a useful and practical travel route. In an attempt to deal with the needed drainage work, the Forest attempted to divert crews from doing the quick logging out that opens a trail, into a program where the crews spent more time dealing with erosion problems. Travel time was a significant portion of the trail crew's time, therefore it was most efficient to complete all needed work done while the crew was on the site. This was very difficult to accomplish because of the high demand to open the trails and frequent complaints from users when a trail was not opened shortly after becoming snowfree.

Table 1. Accomplishment by Trail Maintenance Levels

Maintenance Level	Description	FY 1991 Accomplishment
Level 0	Useable but not maintained this year.	Unknown
Level I	Minimal amount of clearing. No tread work and usually no drainage work. ("Cut and Run" Logging out)	448 miles
Level II	Some structure and tread repair as well as significant brushing & clearing. Intermediated level between I & III	106 miles
Level III	Significant heavy clearing, tread repair, construction of drainage structures and cribbing.	205 miles

Most of the trail maintenance was done on trails which lacked adequate drainage (Level I). The bid price for contracting Level I trail maintenance ranged from $65 to $150 per mile. There were additional costs for contract preparation and administration as well as overhead for administrative services. Unfortunately, Level I maintenance did not construct waterbars where waterbars and other drainage structures did not exist. Maintenance contractors could only maintain existing drainage structures, thus structures could only be built by a construction contract or by Forest Service trail crews. A program that utilized contracts to do routine trail opening and drainage maintenance while Forest Service trail crews did the Level II and III work could provide the best overall program for maintaining existing trail systems. Table 2 provides information on work completed on the trail system in FY 1991.

Table 2. FY 1991 Trail Maintenance Activities

Activities	Unit of Measure	Total
Force Account Maintenance	Miles	448
Contract Maintenance	Miles	311
TOTAL maintenance accomplished	Miles	759
Percent of total trail system maintained	percent	56%
Total cost of trail maintenance program including planning, management, construction project planning, record keeping and overhead	$	509,000
Cost/Mile maintained	$	671
Log and Prescription Survey accomplished	Miles	198

Volunteer Maintenance

Volunteer work increased 35% over last year to 147 miles this year, approximately 10% of the trail miles on the Forest. The value of this work was $25,000 and costs to attain the maintenance was $16,000. A significant contribution was made by the Boy Scouts of America, Northwest Children's Home, Youth Conservation Corps, Backcountry Horsemen, outfitters, Take Pride in America (TPIA), and others.

Log and Prescription Surveys

One hundred ninety-eight miles of log and prescription survey were completed. These surveys provided a condition log of the trail and were detailed enough to prepare drainage construction contracts on trails where relocation or significant reconstruction aren't needed. Most of these surveys were done under contract at an average cost of $50 per mile. This information increased our basic knowledge of the trail system and provided a shelf stock of projects from which a contract could readily be assembled. It also improved the accuracy of our records, maps, signs and information available to the public.

Trail Construction Planning

Fourteen projects were planned for environmental analyses. One was accomplished. The major delay was completion of cultural resource (CR) surveys and approval of the surveys through the State Historic Preservation Office (SHPO) in Boise. Several of the projects had CR surveys completed, however approval was not received from SHPO before the end of the fiscal year.

Structure Inspections/Maintenance

Trail bridge inspections and maintenance continued in FY 1991. Eight bridges were inspected to insure safety. Three bridges had decks or major support members replaced.

Trails

Challenge Cost-Share - Take Pride In America

The Snowshoe Bridge on the Lochsa Ranger District was built by volunteers working with Clearwater employees using materials purchased by the Forest Service.

The Take Pride In America project was again based at Weitas Meadows and the volunteers completed several miles of drainage work along the Lolo Trail system.

Status of the Trail System

Table 3 summarizes some of the available data for the Forest trail system.

Table 3. FY 1991 Trail Status

Status	Unit of Measure	Total
Total length of Forest trail system	miles	1,615.0
Trails open to all uses	miles	495.7
Closed to motorized (Mt. Bikes OK)	miles	327.4
Closed to over 24 inches (motorcycles OK, but not 3 or 4 wheelers	miles	134.3
Closed to over 50 inches(closed to jeeps but 3 and 4 wheelers are OK)	miles	2.0
Closed to Stock	miles	2.2
Closed to motorized and to mountain bikes	miles	450.6
Closed to stock and to motorized	miles	11.0
Not specified (data base incomplete for some areas)	miles	192.3
Mainline trails	miles	703.5
Construction/Reconstruction Backlog identified (work which has been identified to the detail that costs have been estimated on a project basis)	$	$7,574,000*

* At this time less than one-half of the trail system has been evaluated. This amount could more than double when Log and Prescription Surveys have been completed for the entire trail system.

Trail Construction

Bidding for trail and bridge contracts was spirted and as a result the actual costs of most projects were considerably less than the engineer's estimate. The approved program was for 17.4 miles of construction/ reconstruction. Table 4 lists the miles of accomplishment and the project cost. The savings from low bids allowed additional work to be accomplished. These new projects consisted of the construction of 616 log waterbars and drainage dips. This will help protect the trails from further deterioration, and some healing of the tread will take place. (This will help with the logging out dilemma described earlier, since Level I contracts will now clean the newly installed drainage structure.) The contracts were prepared from the log and prescription surveys completed in previous years. One section of trail, about four miles long with two bridges, remains to be accomplished. This would complete a 50-mile trail loop following Weitas Creek to 12 Mile Saddle on the Lolo Motorway and returning by way of Windy Ridge, Cook Mt. and 4th of July Packbridge.

Table 4. FY 1991 Trail Construction

District	Project	Miles	Contract or F.S.Crews	Cost ($M)
North Fork	St. Joe Divide (FY 1991 1/2)	4.5	Contract	$ 37.8
North Fork	Collins Creek Bridge (includes .2 mi. trail)	0.2	Contract	25.7
*North Fork	Junction Mt Drainage waterbar installation	1.2	Contract	13.7
Lochsa	Snow Shoe Falls (CCS) Bridge Construction	-	FS/ Vols	12.0
*Lochsa	Sherman Creek Drainage construction (FS Trail Plow & contract waterbar installation	1.0	Contract/FS	3.9
Pierce	Windy Ridge	12.7	Contract	62.4
*Pierce	Middle Weitas Ck Reconstruction	2.0	FS crew	16.0
Supervisor's Office	Outyear Survey, Design, Contract Prep. and Administration of Contracts			37.0
Total		21.6		208.5

* Trail Construction completed with savings from low bids.

1992 Trail Construction Program

Planning on the projects listed in Table 5 was completed, contracts were prepared on most, and the work will be contracted in 1992 or later depending on funding.

Table 5. FY 92 Trail Construction Program

Project Name	District	Trail No.	Miles	Bridge Span (feet)	Est Cost (M$)
Middle Weitas Ck	Pierce	174	4.5	-	9
Isabella Ck Bridge	N.Fork	95	-	68	35
St. Joe Divide II	N.Fork	233	4.0	-	36
Lost Ridge	N.Fork	283	9.8	-	98
Down River Bridge	N.Fork	297	-	60	50
Giant White Pine	Palouse	224	0.6	-	9
Elk Ck Falls	Palouse	745	5.0	-	16
Sherman Ck Bridge	Lochsa	2	-	40	20
Louse Lake/Snow Lk	Lochsa	444	3.3	-	105
Maple Lake	Powell	939	8.5	-	114
Total			35.7		492

Visual Resources

Goal

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

Strategy

The Forest landscape architect and the Districts' visual resource paraprofessionals will provide recommendations for management activities which will meet visual quality objectives (VQO's) adopted in the Forest Plan. The management activities will be monitored during implementation and at completion.

The Forest landscape architect and the Districts' visual resource paraprofessionals will:

Become aware of proposed management activities through contact with personnel at the Districts and the Forest Supervisor's Office.

Serve on interdisciplinary teams (IDT's) or provide input when proposed management activities are located in the viewing areas of designated visual travel corridors, recreational sites, wilderness and high use recreational areas and administrative areas.

Provide recommendations for practices which will meet Forest Plan VQO's of proposed management activities.

Be available for public meetings and other agency contacts to explain and display information on how the Forest is meeting Forest Plan VQO's of proposed management activities.

Monitor management activities during implementation for meeting Forest Plan VQO's.

Evaluate management activities for meeting Forest Plan VQO's upon completion of the activities.

Item No. 3	Visual Quality Objectives
Frequency of Measurement:	Annual
Reporting Period:	Annual and a five-year summary

Monitoring Action

The Forest landscape architect, assisted by the Districts' visual resource paraprofessionals, will randomly sample five percent of the current year's completed management activities to determine if they meet Forest Plan Visual Quality Objectives (VQO's). A minimum of one activity per Ranger District will be included in the sample. The present method of monitoring management activities, mostly timber sales, have been to observe activities while traveling about the Forest, through personal contacts with the district personnel regarding visual quality concerns and review of timber sale reports to determine if the completed timber sales have met Forest Plan VQO's.

Accomplishments/Findings

The Forest landscape architect and visual resource paraprofessionals provided input by serving on interdisciplinary teams (IDT) and providing recommendations of practices for meeting VQO's on thirty-five proposed projects. A total of forty timber sales were completed (closed) in fiscal year 1991. These sales met Forest Plan VQO's.

Some cutting units, previous to the 1991 monitoring year, need to be modified to meet Forest Plan VQO's. One cutting unit of the Elmer Timber Sale, at least one unit of East Fork Meadow Creek Timber Sale and three units of Swan Creek Timber Sale need shape alterations. An effort is being made to develop ways to rehabilitate these cutting units to meet Forest Plan VQO's. East Fork Meadow Creek is being analyzed for rehabilitation within the White Pine environmental analysis. The Big Smith Timber Sale environmental analysis proposes a rehabilitation project to reshape the three units of the Swan Creek Timber Sale.

Management activities of timber sales seen from the Lolo Trail Corridor are monitored closely as there is some question as to whether or not management activities are meeting Forest Plan desired VQO's.

Refinement of visual quality objective mapping continues as management activities are proposed.

A number of Forest roads or trails should be considered for inclusion as Forest Plan visual travel corridors due to the amount of recreation traffic on the travelways, and the concern for the visual resource by the recreation travelers.

Visual Resources

The roads and trails identified at present are:

1. Road 250 from Highway 11 fro near Pierce to Bungalow
2. Road 100 within the Forest boundary
3. Road 500 from Road 100 to Dollar Creek Bridge
4. Road 520 from Road 500 to Lewis and Clark Memorial Cedar Grove
5. Trail 319
6. Road 101 from Highway 12 to Road 514
7. Road 514 from Road 101 to the Forest boundary
8. Road 360 from Road 111 to Elk Summit

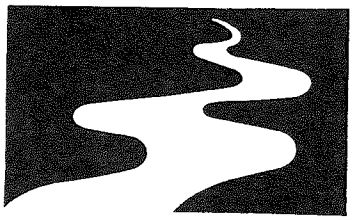
There is a need to define the desired landscape character we want to achieve along each visual travel corridor of the Forest. This character could then be incorporated into a viewshed plan for each visual travel corridor. This plan would provide a more consistent approach to meeting Forest visual resource objectives rather than the project-by-project approach currently being used on the Forest.

Slash, logging debris and burn piles need to be cleaned up along some visual travel corridors to improve foreground viewing. Districts need to strengthen sale administration to achieve cleanup standards or schedule the unfunded work with KV funds.

There is more focus on the total landscape as the result of the emphasis on New Perspectives in Forestry. Aerial views from aerial travel routes may become more of a visual quality concern in the future.

Clearcuts are appearing in the seen areas of some visual travel corridors that don't have the characteristic form, line, color and texture of the natural appearing landscape. This could be the result of harvest prescriptions changing, for various reasons, before or during harvest. This situation indicates that we need to intensify our monitoring efforts in this area and do some follow-up training of District personnel charged with project implementation.

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.

Strategy

Monitor ongoing projects for adherence to established protection measures. Continue to acquire private land easement and manage existing easements to standards defined in the Forest Plan. Improve access to rivers, facilities along their banks, and availability of interpretive information.

Accomplishments/Findings

During FY 1991, construction of the Tukaytes'pe Picnic Area, located on U.S Highway 12, two miles east of Kooskia, was completed. Following a partial excavation of an important Nez Perce cultural resource site, thought to be a pit house, the site was opened to the public. The picnic area's name is a Nez Perce phrase for "place for skipping stones" and is the first developed recreation site on the Clearwater National Forest to use a Nez Perce place name. Excavation of a small part of the cultural site is planned for 1992. It will be a cooperative effort involving the Forest Service, Nez Perce Tribe, University of Idaho, and local schools. Plans also call for on-site interpretation of the site's previous historical and prehistoric uses.

The sixteen-mile-long Lochsa River Historic Trail was designated as a National Recreation Trail and was dedicated and opened to public use in July 1991 as part of the North-South Idaho Centennial Trail system during a living history day hosted by the Forest at Lochsa Historical Ranger Station. This event also celebrated the National Forest centennial, as part of a nationwide effort. In the spring of 1991, Forest Service crews relocated two miles of the trail that was cut during U.S. Highway 12 construction. The North Central Idaho chapter of the Backcountry Horsemen of America constructed a 34-foot-long steel stringer trail bridge along the trail route in May of 1991.

During May of 1991, a large outdoor activity pavilion at Wilderness Gateway campground along the Lochsa River was completed as a recreation challenge cost-share project sponsored by the Clearwater Resource Coalition, other citizens groups and the Forest. Over 200 volunteers worked on the project, which will greatly enhance the outdoor recreational experiences of groups such as square dance clubs, music enthusiasts, and other groups using the campground.

Wild and Scenic Rivers

During the whitewater floating season on the Lochsa River (May through June) a river ranger patrolled the river on weekends, communicating with river users about proper safety and resource stewardship techniques.

An annual meeting was held with floating outfitters to discuss river management issues. River use continued to increase, with kyaking and specialty boating increasing more rapidly than rafting use.

Completion of an integrated river plan update for the Middle Fork of the Clearwater Wild & Scenic River system (Lochsa, Selway, & Middle Fork of the Clearwater rivers) involving the Clearwater, Bitterroot, and Nez Perce was postponed until at least FY 1993 due to lack of funding.

Powell Ranger District completed an environmental assessment for curve widening and slow vehicle turnout construction proposals on U.S. Highway 12 that were proposed by the Idaho Department of Transportation during 1990. A request by the Transportation Department to construct a temporary low water bridge across the Lochsa river and re-enter the Sherman Creek aggregate borrow area was not approved because of concerns over the protection of Wild and Scenic River environmental values. Because of the controversial nature of some of the previously proposed highway re-construction and borrow source development proposals put forth by the Transportation Department, the Forest will be working with the Department during 1992 to develop a long-term highway management strategy in the Wild & Scenic river corridor that is compatible with such values.

The Lochsa Ranger District continued its administration of scenic conservation easements on 135 tracts of private land along the Middle Fork of the Clearwater River. Five new administrative plans were completed and landowner proposals including structure construction, road construction, commercial timber harvest, satellite TV dish installation, power line location, and tram installation were reviewed and monitored. The District also continued to work with local realtors on prospective purchases of properties encumbered by scenic easements.

Funding for scenic easement administration continued to be inadequate to accomplish a proactive management program with regularly scheduled monitoring of affected tracts. Negotiations for the acquistion of two high priority additional scenic easements in the Syringa and Lowell areas along the Middle Fork of the Clearwater were started during FY 1991.

Kelly Creek, Cayuse Creek, Hungery Creek, Lower Fish Creek, White Sand Creek, Weitas Creek, and a portion of the North Fork of the Clearwater river have been identified as potential candidates on the Forest for inclusion into the Wild & Scenic River system. Studies have not been completed for these potential river segments due to lack of funding.

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.

The Forest Plan set goals for the Selway-Bitterroot Wilderness and for proposed wilderness areas which include the Great Burn, Mallard-Larkins and additions to the Selway-Bitterroot Wilderness. Each of these area is considered separately below.

Strategy

Selway-Bitterroot Wilderness

Utilize the Limits of Acceptable Change (LAC) process to develop a management plan for the Selway-Bitterroot Wilderness. The opportunity classes identified in the LAC process will define management direction. Utilize the public task force and the LAC processes with three forests (Clearwater, Nez Perce, and Bitterroot) to define common approaches to management issues and methods in the Selway-Bitterroot Wilderness.

Reinstate the prescribed natural fire program in the Selway-Bitterroot Wilderness.

Work within a multi-forest coordinating system to ensure commonality of management approach across Forest and District boundaries.

Forest Plan Proposed Wilderness

Monitor to determine if off-road vehicle (ORV) use or other activities are jeopardizing the wilderness character.

Coordinate with the Lolo and Idaho Panhandle National Forests to provide a common management approach until Congress officially classifies the areas and delineates area boundaries.

Wilderness

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

Monitoring Action

The Forest recreation staff will determine if changes are occurring within declared and recommended wilderness areas (Management Areas B1 and B2, respectively) which could affect the wilderness character.

Utilize the LAC (Limits of Acceptable Change) concept to identify adverse changes and recommend management practices that could correct identified changes.

Accomplishments/Findings

Annually the Selway-Bitterroot Wilderness Coordinator prepares a "State of the Wilderness Report" for the lands within the Selway-Bitterroot Wilderness on four National Forests and seven Ranger Districts. A summary of information from that report pertaining to the Clearwater National Forest portion of the Wilderness is presented below. Interested persons are urged to request the full "State of the Wilderness Report" from the Forest Supervisor.

Areas That Do Not Meet Forest Plan Standards

The Forest has implemented the Limits of Acceptable Change process of identifying areas that do not meet standards for the Selway-Bitterroot Wilderness. Areas not meeting standards can be broken into two groups - camping areas and non-system trails.

Camping areas are usually located at lakes, meadows, trail junctions or other areas to which people are drawn for overnight camping. Often there will be several individual campsites in an area. The standards that aren't met include bare ground from human and stock use, damage to trees from stock use and firewood cutting, and social impacts such as number of parties in view or encountered.

Nineteen areas were identified on the Powell Ranger District and eight on the Lochsa Ranger District. The Powell Ranger District identified and inventoried eleven additional sites since the 1990 report. These sites have existed for some time, but monitoring work had not identified them. The exact location and nature of each area is identified in the "State of the Wilderness Report".

The next step is to prepare a management plan to deal with these areas. Initial planning started on the Lochsa Ranger District for the following three areas:

Seven Lakes/Maud & Lottie Lakes - This area is Opportunity Class 3 and is improving. Standards exceeded include number of sites and size and impacts to vegetation. Encounter levels are increasing but do not exceed the standard. This area was selected for a restoration project in FY 1992, pending completion of the environmental analyses and receipt of funding. Reducing impact levels will involve restoring existing tree damage and preventing further damage to trees and shrubs from stock, concentrating use in existing sites and increasing Forest Service presence in the area.

Horse Camp - This area is an Opportunity Class 4 area and is improving. The primary impact has been from the Forest Service Administrative use and from several camp sites in the area. Some of the sites received little or no use in recent years and are revegetating. This recovery process was accelerated in FY 1991 by removing and naturalizing some sites or portions of sites. The District is preparing a plan to reduce impacts at the administrative site and to adjacent sites. The environmental analyses should be completed in FY 1992.

Stanley Hot Springs and Huckleberry Flat - This area is an Opportunity Class 4 area that exceeds standards but is improving. Visitor use at the hot springs has been increasing and is expected to exceed the encounter standard due to word of mouth advertising, publicity in host springs books, ease of access, and year around use. The District held a field review and drafted actions for restoring one site and lowering impacts at other sites. Environmental analysis is scheduled to be completed in FY 1992.

Non-System Trails That Do Not Meet Standards

Generally, inventory work of non-system trails which exceed standards is incomplete. Powell Ranger District identified 10 trails, an increase of four from last year. Four of these were new trails and impacts increased. Lochsa Ranger District identified 13 trails, the same as last year. Some restoration work was completed on one of those trails.

Summary of Management Accomplishments

Wildlife and Fish

This was the last year of the five-year Grizzly Bear habitat suitability study to determine whether or not the Selway-Bitterroot Wilderness and surrounding areas should be recommended as a Grizzly Bear Recovery Area.

A lakes survey was conducted cooperatively by the Idaho Fish and Game Department and the Clearwater National Forest. A report will be available in FY 1992 describing findings related to water quality, fish species present, size of fish, whether spawning is occurring, and populations of invertebrates, benthos, zooplankton.

A stream survey of some streams on the Lochsa Ranger District included some Wilderness streams. The results are shown in the fisheries monitoring section of this report.

Wilderness

Recreation

The Limits of Acceptable Change (LAC) process for the Selway-Bitterroot Wilderness should be completed in FY 1992. The Forest Plan will be amended to adopt this process. (The amendment to the Forest Plan was completed in February 1992 and is available upon request.)

The Selway-Bitterroot Wilderness Coordinator verified site inventory work completed by Wilderness Rangers on both Lochsa and Powell Ranger Districts. The results verified the accuracy of the inventory procedures being used.

Lochsa Ranger District held a field review to develop alternatives for improving conditions in three areas not meeting standards.

Table 1 displays Wilderness recreation accomplishments for FY 1991.

Table 1. Wilderness Recreation Accomplishments by District

Item	Powell	Lochsa
Number of sites inventoried out of total on district	53/140	27
Number of sites inventoried cumulative out of total on district	84/140	90/115
Number of sites partially naturalized (normal cleanup of fire rings, structures, and etc.	60	32
Number of sites fully naturalized in effort to eliminate site (such as eliminating site fire rings in new lightly impacted sites	50	11
Number of District employees who routinely kept up the visitor contact records in the field versus the total number of field-going employees.	2/8	2/3
Portion of District trails/destinations covered by Wilderness Ranger patrols	90%	80%
FY 1991 Wilderness Budget	$34,500	$42,100
Number of Wilderness Rangers/months total in the Wilderness	2/8	2/5
Number of other Wilderness personnel	6	3
Trail miles receiving partial maintenance/ total miles in Wilderness	0/350	63/67
Trail miles receiving complete maintenance/ total miles in Wilderness	280/350	8/67
Trail maintenance funds spend in Wilderness	$71,000	$36,000

Wilderness Education

In January 1991, a task force of private citizens and Forest Service wilderness education managers met at Lolo Hot Springs. The objective of the meeting was to chart new management direction for the

Selway-Bitterroot Wilderness education program. The participants identified wilderness problems and the source(s) of those problems. For example, both organized groups and unaffiliated stock users were identified as sources of stock damage, the number one problem. The meeting participants also defined solutions for identified problems to provide input into the Wilderness Education Plan. This plan will provide specific direction on how to direct the Wilderness Education Program to work with targeted groups. The target groups include: stock users, hunters, agency personnel, floaters, outfitters, pilots, front liners, and backpackers.

Prescribed Natural Fire

FY 1991 was the second year for the Prescribed Natural Fire (PNF) program following the pause for review after the 1988 season. Only the Selway-Bitterroot Wilderness has an approved Prescribed Natural Fire program at this time. Listed below are some of the numerical results of the 1991 season.

Table 2. Prescribed Natural Fire

Information	Number
Number of fire starts	25
Number of opportunities for PNF	23
Number of human caused fires	2
Number of fires in PNF status	10
Numbers of acres burned in PNF status	2,968
Number of fires immediately declared wildfires	15
Acres burned as wildlfires	6
Cost of wildfire suppression	$26,500
Special costs of managing PNFs	$17,887

Table 3. Reasons for Declaring Lightning Caused Fires as Wildfires

Reason	Number
Threat to Wilderness boundary	7
Resources not available to manage PNF	5
Air quality unacceptable	2
Forest Supervisor or designated acting approval not given	1

Wilderness

Law Enforcement Incidents

A 40-hour Level II Law Enforcement training session was held and attended by all Clearwater Forest Wilderness Rangers.

No citations were issued during the year but eight incident reports of violations were completed. Several of these were for improper disposal of garbage and human waste, several for destruction of vegetation by fire and one chain saw use incident.

Minimum Tool Use Report

Management direction for the Selway-Bitterroot Wilderness includes the application of the "Minimum Tool Principle". This can be defined as follows:

> The minimum management actions necessary to correct a given problem will be identified. These will be implemented using the methods and equipment which accomplishes the objective with the least impact on the physical, biological, and social characteristics of wilderness.

The Powell Ranger District trail crew was successful in applying the "Minimum Tool Principle". The crew logged and cleared damage on 149 miles of wilderness trails using crosscut saws, shovels, and pulaskis. This required sawing 2,693 logs in five weeks. (On one three mile stretch two men sawed 961 logs.)

Fire Management activities require considerable application of the "Minimum Tool Principle". Application examples include the use of crosscut saws rather than chain saws and cold trail actions rather than cutting fireline. For a complete discussion of fire management activities see the Summary of Management Accomplishments in the "State of the Wilderness Report".

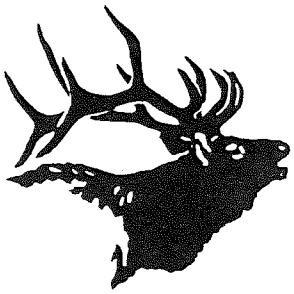
Emerging Issues Affecting the Selway-Bitterroot Wilderness

Outfitter - Guide in Elk Summit Area - The Special Use Permit and the State license for Outfitting/Guiding in the Elk Summit area was terminated. The Powell Ranger District chose to analyze the alternatives through an environmental analyses before issuing a new permit. Elk Summit is one of the premier summer trailheads in the Selway-Bitterroots. An analysis of pubic needs for guided trips will guide future commercial activities from this area.

Future Restoration in the Powell Area - The highest priority for wilderness restoration work will be in the Big Sand Lake, Hidden Lake, and Wind Lakes areas. Planning will begin for some of these sites in FY 1992.

Stanley Hot Springs - Use patterns show a steady increase. Use is year around, and most visitors report learning of the area from a new guide book. Most visitors are from the Pullman/Moscow area.

Decreased fall use as a result of game regulation changes.



Wildlife

Goal

Manage and provide habitat that will support viable populations of all local 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, endangered, and sensitive species identified 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 the Forest activities relative to the preservation and enhancement of biological diversity and develop quantitative measures for diversity. Provide biological input to proposed management activities. Annually improve approximately 1,300 acres of winter big-game habitat using a variety of methods such as prescribed fire, fertilization, slashing and seeding. Annually improve an additional 1,000 acres of big-game habitat by logging. Implement a variety of management prescriptions that include use of road closures and modification of timber sale design, layout and scheduling to maintain or enhance elk summer habitat objectives. Review, coordinate and consult with the U.S. Fish and Wildlife Service on all projects that involve threatened or endangered species. Conduct biological evaluations for all projects where threatened, endangered and sensitive species may occur and recommend practices that would mitigate or ensure viable populations of sensitive species. Continue to inform and provide the public with current information on the programs and status of wildlife habitat management on the Forest. A report focusing on the population trends and effects of management will be prepared annually.

Item No. 7	**Provision for Plant and Animal Diversity**
Frequency of Measurement:	Annual
Reporting Period:	Five years (1993)

Wildlife

Monitoring Action

To monitor the effects of Forest activities relative to maintenance and enhancement of plant and animal diversity. A wide variety of plant and animal habitats currently exist and are well represented on the Clearwater National Forest. The exception is old-growth habitat. A special assessment which specifically addresses old-growth habitat will be prepared and updated annually.

Accomplishments/Findings

During FY 1991, the Forest developed a team of resource specialists that would interact with a Regional office team to coordinate and develop systematic and consistent methods and techniques to collect information on biodiversity. The Forest was an active participant in a number of Regional data gathering projects that were started. However, actual data collection has not yet started on biodiversity on the Clearwater.

A preliminary assessment of the overall situation indicates that the greatest impediment to maintaining biological diversity on the Forest, at this time, is the removal of old-growth habitat. During FY 1991, field data on old-growth habitat was gathered and methods to determine the amount on the Forest were tested. (A detailed and comprehensive assessment of the amount and distribution of old-growth habitat on the Forest was completed in March 1992 and is currently available upon request.)

Item No. 25	Big Game Habitat Improvement
Frequency of Measurement:	Annual
Reporting Period:	Annual

Monitoring Action

The Forest wildlife biologist will coordinate a report detailing quality response on winter range acreage receiving rehabilitation treatment. All acres being treated under big game winter range rehabilitation plans will receive annual field inspections for quality response. Treatment acreage will be recorded on U.S. Geological Service quadrangle maps. These will be maintained at Ranger District offices.

Accomplishments/Findings

Winter Range

During FY 1991, approximately 800 acres of timbered winter range were logged to provide forage for big game. No other treatments, such as prescribed burning, slashing, seeding, or fertilization were

conducted on winter range . Results and observations continued to reveal that it will be very difficult to meet the Forest Plan goals and objectives for winter big-game habitat. Prescribed fire and smoke management policies will hinder our ability to accomplish habitat improvement objectives. Current research on elk in the Lochsa drainage indicates that the Forest Plan model assumptions and outputs for winter habitat need to be updated and revised. The elk population on the Forest is at a high level. The winter habitat is presently in excellent condition. Winter mortality was below normal during the past five years.

During FY 1991, the Forest coordinated and cooperated with the Idaho Fish and Game Department and the Regional Office to implement a bull elk/road closure vulnerability study. The study began during the 1991 hunting season on portions of both winter and summer elk habitat on the Lochsa and Pierce Ranger Districts. It was determined through discussions with Idaho Fish and Game Department officials that funding for the study should be given high priority since it could have greater benefit to improving elk habitat conditions than other types of treatment. The only source of readily available funding from the Forest Service was money that had been allocated to accomplish other types of elk habitat improvements. The joint recommendation was to use the available funding to accomplish the objectives of the research project. During the five years of the study, the Forest could achieve a number of habitat improvement targets. An amendment to the Forest Plan will be prepared in FY 1992 to reflect the change in elk habitat improvements.

Summer Range

During FY 1991, methodologies and techniques that were developed for testing the assumptions of various summer range management prescriptions were further evaluated and analyzed. It was determined that in order to obtain an adequate sample size to draw significant conclusions, a significant amount of wildlife monitoring funds would be needed. Funds for this type of effort are currently not available. It was therefore determined that the data being collected by Idaho Fish and Game through population and sightability estimates would be a sufficient data base to monitor the elk population on the Forest.

The elk population on the Forest has stabilized at approximately 20,000. Record numbers of bull elk have been harvested from hunting units on the Clearwater (see Table 1). Additional information on the elk resource can be found in Monitoring Item 26.

Table 1. Current Deer, Moose, and Elk Harvest on National Forest Lands - 1991

Units	Deer	Elk	Moose
8	400	267	0
8A	600	431	0
9A	70	154	2
10	1629	1270	11
10A	168	50	8
12	70	274	25
Total	2937	2446	44

Item No.'s 26-35	Population Trends of Indicator, Threatened, Endangered, and Sensitive Species
Frequency of Measurement:	Annual
Reporting Period:	Five years (1993)

Accomplishments/Findings

Indicator Species

The following species were selected in the Forest Plan as indicator species: elk, moose, white-tailed deer, pileated woodpecker, goshawk, pine marten, kingfisher, and all indigenous threatened, endangered and sensitive plant and animal species.

Kingfisher - The kingfisher, a fish eating bird living near most streams and creeks, was thought to be a good indicator species for monitoring riparian habitat. Additional information now suggests that an alternative indicator should be developed. A Forest Plan amendment will be prepared to address revisions to the management indicator species list in FY 1992.

Elk - The elk population on the Clearwater National Forest is estimated at 20,000. Bull/cow ratios average 25/100. A downward trend in this ratio is anticipated due to bull elk vulnerability during the hunting season. Implementing road closures during hunting season can slow the downward trend. To better quantify the benefits of road closures, a cooperative study was implemented with the Idaho Department of Fish & Game. The study closes a significant amount of access during the hunting season to determine

the effects on bull elk harvest. Copies of the research proposal and preliminary results are available upon request.

Deer - Approximately 6,000 white-tailed deer inhabit the Forest. Annual harvest remained stable. Recent mild winter conditions significantly reduced mortality and the population is increasing. Implementation of management practices to mitigate impacts for elk, riparian, and old-growth dependent species will also benefit overlapping white-tailed deer habitat. The white-tailed deer population will be monitored using harvest data from the Idaho Department of Fish and Game surveys.

Moose - Approximately 1,500 moose inhabit the Clearwater Forest. Harvest was slightly down from previous years in 1991. Mild winters during the past five years contributed to a slight increase in the population. The Powell Ranger District continues to support habitat for approximately 1000 moose. Moose populations are extremely sensitive to excessive hunter harvest and loss of winter habitat (i.e. multi-storied timber stands). Coordination and biological input must be maintained for all projects planned in moose habitat.

Pileated Woodpecker, Goshawk, and Pine Marten - These three species were selected as indicator species for monitoring old-growth habitat. Permanent transects were established on portions of the Pierce and Lochsa Ranger Districts in the Upper Deadman, Canyon, and Eldorado creek areas. Data on neo-tropical birds, small mammals, reptiles, and amphibians were collected within old-growth habitat. These transects will be revisited and data collected annually. Vegetative plots using a combination of stand exams and ecodata methods were also established for each transect. As funding becomes available this type of monitoring will be implemented on additional portions of the Forest.

Grey Wolf (Endangered) - No confirmed sightings of wolves were made on the Clearwater in the past year. A number of potential sightings were reported near the Powell Ranger Station. In an attempt to confirm these reports, infrared cameras were installed over scent or bait stations. However, no wolves were photographed.

Forest personnel remained active on the Central Idaho Wolf Recovery Team and technical subcommittee during FY 1991. The Forest continues to coordinate the use of the wolf educational kits (K-12). These educational materials were used by approximately 1500 students throughout north central Idaho. Approximately 15 presentations on wolf recovery on the Clearwater were given to a wide variety of institutions, organizations, and groups throughout north central Idaho.

Bald Eagle (Endangered) - The bald eagle occurs only as a winter resident on the Clearwater. Approximately 50 bald eagles winter in the Clearwater basin and its tributaries. Biologists from the Forest cooperate with the National Wildlife Federation's annual Bald Eagle Survey each January. Observations will continue to be made during the spring and summer season to document any nesting activity. Most of the bald eagle habitat is found along major watercourses. No Forest activities are proposed that would impact eagle habitat or potential nesting sites. The biggest threat to bald eagles appears to be poaching or indiscriminate shooting.

Wildlife

Grizzly Bear (Threatened) - For the past five years, the Clearwater was the lead Forest in cooperation with the University of Idaho, Idaho Department of Fish & Game, U.S. Fish & Wildlife Service, and adjacent national forests, in conducting a habitat analysis for the Bitterroot Grizzly Bear Evaluation Area. This project involves an extensive evaluation and ground truthing analysis of the habitat using the latest Landsat technology. Approximately 3.5 million acres of north central Idaho is being analyzed for its suitability to recover a viable population of grizzly bears. A final report was prepared and delivered to the U.S. Fish and Wildlife Service during 1991. The report summarizes the findings of the habitat evaluation and makes recommendation concerning potential recovery efforts in north central Idaho.

During FY 1991, a partnership project was developed with the Idaho Department of Fish & Game to use infrared cameras in an attempt to document the presence of grizzly bears on the Forest. No grizzly bears were photographed. A copy of the project findings is available upon request.

Sensitive Species

Presently there are 9 animal and 21 plant species that are listed as sensitive. During FY 1991, most of the work conducted on sensitive species was accomplished through a partnership agreement with the Idaho Conservation Data Center. The focus of the work was to conduct basic surveys and inventories. A strategic management plan was updated for all sensitive plant species and priorities were assigned. Only species with a high priority were surveyed due to limited funding.

Animals

Wolverine - The Clearwater Forest is on the periphery of wolverine habitat. A number of valid observations were made on the Forest and a small remnant population is thought to inhabit the Clearwater Forest. No surveys were conducted for wolverines in FY 1991. A conservation plan is currently being written for the species in partnership with other agencies.

Western Big-Eared Bat - The western big-eared bat is a cave dwelling bat that is suspected to occur on the Forest. No observations have ever been made of the species. Preliminary sampling has not documented the presence of this species. A general survey of suitable habitat on the Clearwater finds cave and other suitable habitat to be extremely limiting, if nonexistent. Continued surveys are necessary before further recommendations will be made concerning the existence of this species on the Forest.

Harlequin Ducks - For the past 4 years, surveys have been conducted for harlequin ducks on the Forest in cooperation with the Idaho Conservation Data Center. Harlequins have been observed on the North Fork of the Clearwater and Lochsa Rivers. Numbers appear to be fairly low and very limited reproduction has been documented. Sufficient data has now been collected so that a conservation plan will be written in 1992.

Boreal Owl - Boreal owl surveys were conducted during the past five seasons. Boreal owls occur throughout the Forest in high elevation spruce fir habitat. In cooperation with the University of Idaho and as part of the mitigation for a timber sale in boreal habitat, an administrative study and monitoring project using nest boxes is being conducted. Five hundred nest boxes were installed and checked. No boreal

owls have nested in the boxes to date. Some boxes contained nesting flying squirrels. A conservation plan will be written during 1992.

Coeur D'Alene Salamander - Coeur d'Alene salamander surveys were completed for the Clearwater Forest. They indicate that the species is much more widely distributed than previously thought. It is a nocturnal species that is very difficult to observe and is usually associated with a rocky waterfall/steep cliff type habitat. A conservation plan was written for the species and is available upon request.

Black-Backed Woodpecker, Flammulated Owl, Lynx, and Fisher - These four species were listed as sensitive species for the Clearwater Forest during FY 1991. We are in the process of conducting an extensive literature search for information on the management of these species. No surveys have been conducted for them on the Forest.

Plants

A high priority during FY 1991 was to conduct surveys and inventories for listed sensitive plants in proposed timber sale areas and establish monitoring transects for species that would be affected. Approximately 30 some projects received sensitive plant coordination in some form or another. In addition, a number of partnership projects with the Idaho Conservation Data Center were conducted. Reports are available upon request concerning two projects: Initiation of Long-Term Population Monitoring of Pacific Dogwood, *Cornus nuttallii*, on the Clearwater and Nez Perce National Forest, and Community and Population Monitoring in Aquarius Research Natural Area, Clearwater National Forest.

Table 2 lists the sensitive plant species currently known to exist on the Forest and the status of each.

Table 2. Sensitive Plants of the Clearwater National Forest

Common Name	Scientific Name	Current Data/Status	Priority Level *
oregon bentgrass	(Agrostis oregonensis)	Distribution and population status unknown.	2
candystick	(Allotropa virgata)	Distribution and population status unknown.	1
maidenhair spleenwort	(Asplenium trichomanes)	Field surveys have been conducted. Unable to locate on Forest.	3

Table 2. Sensitive Plants of the Clearwater National Forest (continued)

Common Name	Scientific Name	Current Data/Status	Priority Level *
deerfern	(Blechnum spicant)	Distribution and population status unknown.	1
broad-fruit mariposa	(Calochortus nitidus)	Surveys & inventories completed. No suitable habitat on Forest.	1
Constance's bittercress	(Cardamine constancei)	Distribution and population status unknown.	4
California sedge	(Carex californica)	Distribution and population status unknown.	3
Pacific dogwood	(Cornus nuttallii)	Ninety-eight percent mortality of existing plants. Develop conservation strategy.	1
clustered lady's slipper	(Cyprepedium fasciculatum)	Permanent monitoring plots have been established. Additional surveys needed.	3
dasynotus	(Dasynotus daubenmirei	Surveys completed. Conservation plan needed.	4
soft rush	(Juncus effusus)	Preliminary surveys completed. Further inventorys needed to complete conservation plan.	3
Oregon bluebell	(Mertensia bella)	Distribution and Population status unknown.	4
bank monkeyflower	(Mimulus clivicola)	Surveys and inventories complete. Establish permanent monitoring plots and develop conservation plan.	1

Table 2. Sensitive Plants of the Clearwater National Forest (continued)

Common Name	Scientific Name	Current Data/Status	Priority Level *
Sierra woodfern	(Thelyptersis nevadensis)	Extremely rare. Only 1 location in Idaho. Surveys and inventories needed.	1
sticky tofieldia	(Tofieldia glutinosa)	Distribution and population status unknown.	1
western starflower	(Trientalis latifolia)	Distribution and population status unknown.	4
fescue-grass	(Festuca subuliflora)	Distribution and population status unknown.	2
sedge	(Carex hendersonii)	Distribution and population status unknown.	2
licorice	(Polypodium glycyrrhiza)	Distribution and population status unknown.	3
rattlesnake-root	(Prenanthes alata)	Distribution and population status unknown.	2
sedge	(Carex leptalea)	Distribution and population status unknown.	2

*** Priority Levels**

Level 1 — This list includes species that appear to warrant the most attention. Some of these species are listed as Category 1 or 2 candidates. Others are in imminent threat of extinction in Region 1. Still others lack sufficient distribution or taxonomic data to permit assessment of their conservation status.

Level 2 — This category consists mostly of species that lack sufficient distribution data to permit assessment of their status in Region 1. Also included in this list are species that exhibit a limited distribution within the Region and, therefore, warrant management consideration. All of these taxa exhibit a distribution that extends into other forests, principally the Nez Perce and Idaho Panhandle National Forests. Cooperative work between forests is necessary.

Level 3 Most of the species within this category have recently been investigated. Although most of these taxa exhibit fairly restricted distribution in Region 1, no further surveys specifically directed at these species are recommended at present. Clearance surveys, however, should be conducted for activities within suitable habitat.

Level 4 Species that fall into this category are those that exhibit a fairly well-documented distribution and appear to be healthy with few threats. Most of these taxa appear to be tolerate and possibly benefit from slight to moderate disturbance.

III. Appeals

This section contains a list of the appeals received by the Forest. There are two parts to this section. The first is a listing and status of appeals of the Forest Plan, and the second details the appeals and status of individual projects on the Forest.

We received 28 appeals to the Clearwater National Forest Plan. After meeting with all appellants, this number was decreased to 15 as appeals were either consolidated or withdrawn. There are currently ten unresolved appeals. The following table summarizes the progress made and the status of the ten appeals.

Forest Plan Appeal Issues

Appellant	Status	Issues
#2155 St. Joe Valley Association #2161 Associated Logging Contractors (Consolidated)	Responsive statement sent to the Washington Office. Awaiting Chief's decision on the appeal.	1. Public participation requirements in the development and use of minimum management requirements and other constraints. 2. NEPA (National Environmental Policy Act) and NFMA regulations on "current direction" (no action) alternative. 3. NEPA regulations requiring "plain language." 4. Community stability. 5. Inventory data and information collection, economic values, cost-efficiency, suitable lands, and timber volume calculations. 6. FORPLAN computer model. 7. Comply with Resource Policy Act in setting an ASQ. 8. Preventing potentially damaging increases in forest pest organisms. 9. Annual allowable sale quantity schedule. 10. Adequate range of alternatives. 11. Mallard-Larkins wilderness recommendations and roadless management areas reduce suitable lands for timber harvest.

Forest Plan Appeal Issues (continued)

Appellant	Status	Issues
#2163 George Wuerthner	Responsive statement sent to the Washington Office. Awaiting Chief's decision on the appeal.	1. Cumulative impacts. 2. Old growth. 3. Fire suppression. 4. Rare and sensitive plants and wildlife. 5. Anadromous fish. 6. Wilderness recreation. 7. Roads. 8. Insect and disease. 9. Noxious weeds. 10. Wilderness and roadless values. 11. Wild and Scenic rivers.
#2172 Wilderness Society, et al.	Responsive statement . sent to the Washington Office. Awaiting Chief's decision on the appeal.	1. Development and analysis of alternatives and selection of preferred alternative. 2. Increase timber harvest after the first decade of Forest Plan implementation. 3. Water quality and fisheries. 4. Evaluation and consideration of roadless areas for recommendations as potential wilderness. 5. Timberland suitability and restocking. 6. Non-declining even-flow constraint. 7. Harvest of timber stands before the stand has reached the culmination of mean annual increment of growth. 8. Protecting the endangered gray wolf. 9. Determination of ASQ.
#2185 Columbia River Intertribal Fish Commission	Negotiations progressing.	1. Protection of Indian treaty rights. 2. Cumulative impacts of roaded development on fisheries. 3. NEPA site-specificity requirements. 4. NFMA mitigation and monitoring requirements. 5. Clean Water Act requirements.

Forest Plan Appeal Issues (continued)

Appellant	Status	Issues
#2186 Richard and Lana Schumacker	Responsive statement sent to the Washington Office. Awaiting Chief's decision on the appeal.	1. Violation of laws by establishing an ASQ that is not a measure of the Forest capabilities and is based on net selling volume, not growth. 2. Whether the Plan and EIS estimate and display the effects of implementation on income and employment in affected communities.
#2190 International Woodworkers of America	Responsive statement sent to the Washington Office. Awaiting Chief's decision on the appeal.	1. Local timber supplies and mill capacities were not considered in developing the Plan's ASQ. 2. Forest Plan does not adequately address the impacts of the preferred alternative on timber-dependent economies.
#2191 Idaho Women in Timber	Responsive statement sent to the Washington Office. Awaiting Chief's decision on the appeal.	1. Adequate assessment of social, economic, and community impacts of the timber program. 2. Whether the Plan's timber harvest program meets the demand of the forest products industry. 3. Forest Service failed to recognize, assess, and protect the cultural resources found in dependent communities.

Forest Plan Appeal Issues (continued)

Appellant	Status	Issues
#2199 Intermountain Forest Industry Association	Responsive statement sent to the Washington Office. Awaiting Chief's decision on the appeal.	1. Sufficiency of the Record of Decision. 2. Alternatives must meet the requirements of NFMA, NEPA, MUSYA, and Organic Act. 3. Disclosure of analysis process used to develop planning documents. 4. Sufficient public participation. 5. Forest Plan direction developed using adequate analysis. 6. EIS contains all components and is readable. 7. Effective monitoring program to ensure implementation. 8. Allocation of roadless, semi-primitive recreation management areas. 9. Protection from insects and disease.
#2131 Bradley Chinn	Responsive Statement sent to the Washington Office. Awaiting Chief's decision on the appeal.	1. Assessment of roadless areas. 2. Protection of the water resource. 3. Requirements of the Wild and Scenic Rivers Act. 4. Determination of the allowable sale quantity (ASQ). 5. Identification of potential impacts to wilderness areas from development on adjacent lands. 6. Whether the EIS meets the requirements of NEPA and NFMA in determining environmental impact significance.

The Forest received fifteen new project appeals during 1991. Eight of the appeals focused on timber management, three focused on vegetative management, an additional three focused on the development of a road, and one focused on prospecting applications. The following table presents the status of these appeals.

Project Level Appeal Issues

Appellant	Status	Project Appealed /Issues
Nez Perce Tribe	Decision remanded to Pierce Ranger District	**Lolo Yoosa Timber Sale** 1. Fish habitat capability 2. "No effect" threshold 3. Use of FISHSED and WATBAL models 4. Recovery rate of substrate conditions 5. Rehabilitation projects 6. Stream temperatures 7. Cumulative effects
Lolo-Clearwater Forest Defense	Decision upheld by Regional Forester	**Brushy Creek Timber Sale** 1. Old growth 2. Regeneration 3. Size of openings 4. Sensitive species 5. Water quality 6. Recreation
Clearwater Forest Watch	Decision upheld by Regional Forester	**Brushy Creek Timber Sale** 1. Old growth 2. Management indicator species 3. Water quality 4. Threatened endangered, or sensitive species 5. Significance
John Swanson	Dismissed	**Lolo Yoosa Timber Sale**
Idaho Transportation Department	Decision withdrawn by Forest Supervisor	**Vegetative Management, Highway 12** 1. Consistency with the Wild and Scenic Rivers Act 2. Effectiveness of mechanical control 3. Effects to threatened, endangered, or sensitive species 4. Risks to human health and safety 5. Potential for weed dissemination 6. Biological contamination by alien weed species

Project Level Appeal Issues (continued)

Appellant	Status	Project Appealed /Issues
Idaho Department of Agriculture	Decision withdrawn by Forest Supervisor	**Vegetative Management, Highway 12** 1. Consistency with NFMA and Integrated Pest Management 2. Achievement of management objectives 3. Efficiency of manual removal
Idaho County Farm Bureau	Decision withdrawn by Forest Supervisor	**Vegetative Management, Highway 12** 1. Consistency with Federal Noxious Weed Law of 1974 2. Disregard of Executive Order 12630 3. Consistency with Idaho Noxious Weed Law 4. Transport of weed seeds 5. Effects to water quality and aquatic life 6. Social concerns associated with herbicide use or noxious weeds 7. Deterioration of vegetative component, scenic values and wildlife habitat 8. Beneficial effects of noxious weed control
Lolo-Clearwater Forest Defense	Decision remanded to North Fork Ranger District	**Steep Creek Timber Sale** 1. Significance 2. Soils 3. Regeneration 4. Cumulative effects 5. Roadless 6. Management indicator species 7. Sensitive species 8. Diversity
Lolo-Clearwater Forest Defense	Decision remanded to North Fork Ranger District	**Steep Creek Timber Sale** 1. Soils 2. Water quality 3. Fish habitat 4. Management indicator species 5. Significance 6. Cumulative effects 7. Old growth 8. Sensitive species

Project Level Appeal Issues (continued)

Appellant	Status	Project Appealed /Issues
Friends of the Clearwater and Clearwater Forest Watch	Decision remanded to North Fork Ranger District	**Steep Creek Timber Sale** 1. Roadless 2. Elk habitat 3. Sensitive species 4. Old growth 5. Significance
John Swanson	Dismissed	**Steep Creek Timber Sale**
John Swanson	Dismissed	**Prospecting Applications**
Alliance for the Wild Rockies	Decision upheld by Forest Supervisor	**Hornet Peak Easement** 1. Cumulative effects 2. Disclosure 3. Soil stability and water quality 4. Wilderness/non-wilderness recommendation 5. Biological corridors 6. Old growth 7. Management indicator species 8. Biological and ecosystem diversity 9. Range of alternatives 10. Threatened and endangered species 11. Significance
John Swanson	Dismissed	**Hornet Peak Easement**
Wilderness Society	Appeal withdrawn by Appellant	**Hornet Peak Easement** 1. Water quality 2. Fish habitat 3. Stream Segment of Concern 4. Monitoring 5. Sensitive species 6. Road closures

IV. Planned Actions

Introduction

One Forest Plan amendment was made in 1992. We anticipate that in 1992, additional amendments to the Forest Plan will be made with regard to proposed changes and other management actions identified in this section. Amendments will be implemented following appropriate public notification and satisfactory completion of NEPA (National Environmental Policy Act) procedures.

A. Clarification of Goals, Objectives, and Standards

The following is a proposed change to the Forest Plan. This change will help clarify the goals, objectives, and standards. The analysis of this proposal has not yet been initiated. The analysis, when initiated, will follow appropriate NEPA procedures.

Page II-29, Forest Standard 8.h., Forest Plan

> Change to read as follows: *Where Forest Plan water quality standards are demonstrably not being met, no National Forest activities shall be initiated that would likely result in further degradation in excess of the standards unless the state finds, pursuant to State laws and procedures, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located.*

B. Revision of General Standard 1.c. on pages II-20, 21, Forest Plan

Review and revise based on the Forest Service Chief's position as detailed in the Idaho Panhandle National Forests roadless decision.

C. Revision of Appendix B, page B-12, Forest Plan

Change definition for the non-interchangeable component to read as follows: *This is consistent with the definition in the Record of Decision, page 7.*

D. Appendix P

Remove publication 8, *Clearwater National Forest Best Management Practices.*

E. Monitoring Requirements

The Forest will also review monitoring requirements.

F. Appendix C

As we continue to implement the Forest Plan, we find that we are continually updating costs to comply with strategies outlined in Chapter II of this document. Each autumn we update the dollars needed to implement these strategies. This updated information is submitted to the Forest Service Region 1 office, and it contributes to the basis for the Forest Service's budget request to Congress.

Instead of changing the Plan we feel it is more important to inform you about the adjustments we make during this process. Each year we will report our revised request in the Monitoring and Evaluation Report, adjusted for inflation.

The table found on the following three pages displays the Forest Plan budget adjusted for inflation.

Revised Forest Plan Budget Cost Required to Implement Forest Plan by Activity Decade 1 (thousands of dollars)

Funding Item	Budget Activity	Budget From Forest Plan In 1989 Dollars	Revised Forest Plan Budget FY 88	Revised Forest Plan Budget FY 89	Revised Forest Plan Budget FY 90	Revised Forest Plan Budget FY 91
00	General Administration	2,589	2,508	2,335	2,245	1,679
01	Fire Protection	1,047	759	783	753	609
02	Fire (Fuels)	300	209	62	60	63
03	Sale Preparation and Administration	3,116	3,395	4,156	3,996	2,692
04	Timber Planning	352	293	260	250	239
05	Silvicultural Exams	1,033	910	1,092	1,250	978
06	Range	125	108	123	118	81
07	Range (Noxious Weeds)	35	34	32	31	7
08	Minerals	202	162	135	120	90
09	Recreation	1,249	1,145	1,290	1,030	874
10	Wildlife/Fisheries	1,309	1,163	2,085	2,177	721
11	Soil/Water	472	599	1,066	1,145	454
12	Facilities Maintenance	580	426	411	395	222
13	Special Uses	108	103	110	106	34
14	Geometronics	0	0	0	58	0
15	Landownership Exchange	159	168	104	100	48
16	Land line Location	421	351	432	415	313
17	Road Maintenance	981	949	1,002	963	732

Revised Forest Plan Budget Cost Required to Implement Forest Plan by Activity Decade 1 (thousands of dollars) (continued)

Funding Item	Budget Activity	Budget From Forest Plan In 1989 Dollars	Revised Forest Plan Budget FY 88	Revised Forest Plan Budget FY 89	Revised Forest Plan Budget FY 90	Revised Forest Plan Budget FY 91
18	Trail Maintenance	519	642	520	400	474
19	Co-op Law Enforcement	81	66	62	60	68
20	Reforestation - Appropriated	2,104	2,460	2,524	1,200	797
21	TSI - Appropriated	493	407	417	205	152
23	Tree Improvement	71	159	153	355	241
26	KV - Reforestation	3,251	4,408	2,288	2,100	1,846
27	KV - TSI	101	160	177	170	54
28	KV - Other	699	556	566	547	462
29	Other CWFS (Trust Fund)	795	653	657	632	401
30	Timber Salvage Sales	355	345	380	365	1,142
31	Brush Disposal	1,938	1,597	1,295	1,245	1,269
32	Range Betterment	9	9	8	8	2
33	Construction - Recreation Facilities	101	152	426	200	232
34	Facility Construction - FA&O	674	634	640	615	276
35	Engineering Construction Support	1,995	1,833	2,050	1,971	1,310

Revised Forest Plan Budget Cost Required to Implement Forest Plan by Activity Decade 1 (thousands of dollars) (continued)

Funding Item	Budget Activity	Budget From Forest Plan in 1989 Dollars	Revised Forest Plan Budget FY 88	Revised Forest Plan Budget FY 89	Revised Forest Plan Budget FY 90	Revised Forest Plan Budget FY 91
36	Construction - Capital Investment	3,011	2,682	2,600	2,500	143
37	Trail Construction and Reconstruction	350	349	504	235	196
38	Timber Purchaser Road Construction/ Reconstruction	5,337	3,103	2,890	2,779	20
43	Land Acquisition	76	592	328	0	19
	Total	36,040	34,090	33,966	30,799	18,940

G. Implemented Change

One of the purposes of the monitoring process is to identify how well we are implementing the Forest Plan. In other words, are we doing what we said we were going to do. Sometimes our initial monitoring uncovers the need for more intense monitoring to verify results and puts us in a position of asking why.

The following areas were identified as needing assessment in the 1990 Monitoring Report. The following changes were implemented:

Integrated Resource Analysis (IRA): In the course of assessing our progress and success in implementing the Forest Plan and conducting site specific analyses for projects, we observed a number of inefficiencies. These inefficiencies led us to design an integrated resource analysis process for the Forest. The IRA process was designed to provide a stronger link between the desired future condition (DFC) identified in the Forest Plan and the decisions of site-specific projects needed to implement the Forest Plan.

The Forest is currently utilizing this process on a district by district basis. The process is enabling us to identify and discover activities and practices that are reasonable and probable in the context of the Forest Plan. It is also enabling us to start the NEPA process on a much more solid and reasonable foundation because the proper focus and scope are established from the beginning.

Ground Truthing: As we move from the programmatic Forest Plan document to the site-specific NEPA decisions, we are finding that we do not currently have the information to compare the estimates made at the Forest Plan level with those realized at the site-specific level. This is particularly true in timber management. Therefore, the Forest identified and collected information comparing Forest Plan data with site-specific information for timber in a ground truthing exercise. The focus of the first step was to determine the existing condition of the Forest, visually display that condition, and track the decisions made since the Forest Plan was signed. The second step was to evaluate that information. This evaluation is being completed by the Forest Plan Review Team. The findings of this team will be reported in future Monitoring and Evaluation Reports.

Watershed Restoration: The conditions of watersheds on the Forest continue to be a major concern. Forest Plan standards with regard to water quality and fisheries direct us to improve the condition of these watersheds. The Forest will continue to emphasize watershed restoration in the year 1992. This will include working with the Nez Perce Tribe, timber industry, wildlife and fisheries interests, conservationists, local communities and others. Through this combined effort, watershed improvement needs can be identified, watershed restoration plans can be made, improvements completed, and results monitored.

Stream Protection Zone: The Forest will continue to utilize the 25 foot Stream Protection Zone (SPZ) on Class II streams. The effectiveness of the 25 foot SPZ will be reported in the 1992 Monitoring Report.

Planned Actions

Improvements Needed: The monitoring of road construction by the Forest soil scientist identified areas of concern highlighted by 1990 and 1991 monitoring. The areas of concern and a solution or recommendend solution for each is listed below.

Road designs need to reflect soil characteristics and limitations. Guidelines were implemented to better reflect soil strength in cutbank design and surfacing requirments.

Uniform control of grass seeding and fertilizing of temporary roads. A recommendation to prevent this problem is to separate the erosion control/vegetation establishment from the road construction contract. This would allow the use of experience specialty contractors. Vegetation establishment level could also be made part of the contract.

Improved coordination between timber sale administration and the engineering section. A better understanding of both watershed and road design objectives is necessary for a successful project.

Watershed risks need to be better identified and addressed in the Environmental Assessment (EA) stage of timber sale planning. A cost effective mitigation model is being developed that will aid in solving this problem.

Means of retaining effective erosion control measures need to be developed. This is a continuing problem that needs to be addressed.

More rapid road closure during wet periods. This is a continuing problem that needs to be addressed.

The Forest will review these items and changes will be made as needed. All items will be reported in the Monitoring Report for 1992.

H. Effect of Proposed Changes

None of the proposed changes affect the decisions made in the Forest Plan including ASQ and timber suitability. They do not change any of the estimated management practices, outputs, or effects in the Forest Plan.

I. Amendments

One Forest Plan Amendment was made in 1991. This amendment was a result of negotiations with American Rivers, an appellant of the Clearwater National Forest Plan (see page 125). The amendment modifies the standards in Chapter II (Forestwide Management Direction) and Appendix M (Potential Wild and Scenic Rivers).

Clearwater National Forest
Land and Resource Management Plan

AMENDMENT NO. 1
June 1990

Page II-3, Forest Goal 11, Forest Plan

Change to read as follows:

Provide for access to and exploration, development and production of minerals and energy resources while meeting Forest Plan direction.

Page II-7, Forest Objective 11.b., Forest Plan

Change to read as follows:

Meet demand for common variety minerals consistent with the management of the surface resources.

Page II-24, Forest Standard 5.f., Forest Plan

Change to read as follows:

In compliance with subsection 7(a)(2) of the Endangered Species Act a biological evaluation will be prepared (as directed in FSM 2672.42) for all proposed management activities.

Page II-24, Forest Standard 5.i., Forest Plan

Delete last sentence which reads:

This is required in the absence of the formal recovery plan.

Page II-30, Forest Standard 9.i., Forest Plan

Change to read as follows:

Approximately 85 percent of the Clearwater National Forest is open to mineral entry under the general mining laws with no restriction other than valid existing rights and such resource protection measures as may be required under 36 CFR 228.

Provide for reasonable access for mineral prospecting, exploration, development, and production and uses reasonably incident thereto. (16 USC 478), (36 CFR 252)

Page III-45, Management Area Standard Item 8.a., Forest Plan

Change to read as follows:

Close roads to public motorized use when conflicts with big game use could occur.

Page III-71, Management Area Goal Item 6, Forest Plan

Change to read as follows:

Locate production facilities outside the management area whenever reasonably possible to avoid impacts on riparian values.

END OF AMENDMENT NO. 1

Clearwater National Forest
Land and Resource Management Plan

AMENDMENT NO. 2
October 1990

Page II-36, Forest Standard 17, Paragraph 1, Forest Plan

Change to read as follows:

This Forest Plan identifies seven streams and rivers, Kelly Creek, Cayuse Creek, the North Fork of the Clearwater River, the Little North Fork, Fish Creek, Hungery Creek and White Sand Creek, as candidates for study for potential inclusion in the National Wild and Scenic Rivers System. The river or stream area is generally defined as the river or stream segment extending the length of the river segment and one-quarter mile in width from each bank of the the river. Boundaries may include adjacent areas needed to protect the resources or facilitate management of the river corridor, and will be identified in site specific analyses. All of the potential candidates within the Forest are currently located within Management Areas A4, visual resource areas, and M2, riparian areas. The standards and guidelines provided below are intended to supplement the standards and guidelines found in those management areas and are designed specifically to protect wild and scenic river characteristics. In case of conflict the more restrictive standards and guidelines will apply. In-depth studies of each selected stream or river will be done in the future to determine whether the stream or river should be included in the System.

Page II-39, Forest Standard 17.d.(1)(a), Paragraph 2, Forest Plan

Change to read as follows:

Permit new transmission corridors only if there are no other feasible alternatives available and adverse effects on management area objectives and wild and scenic river potential can be mitigated.

Page II-39, Forest Standard 17.d.(1)(a), Forest Plan

Add the following standard:

Streams shall be administered to protect and enhance the values which caused them to be included (or studied for inclusion) in the system. Hydroelectric facilities will be prohibited to the extent of Forest Service authority.

Planned Actions

Page II-39, Forest Standard 17.e.(1), Forest Plan

Add the following standard:

In the potential wild, scenic, or recreational proposed corridors, a no-surface occupancy stipulation will be required in energy mineral leases.

Page II-40, Forest Standard 17.g.(1)(b), Paragraph 2, Forest Plan

Change to read as follows:

Pending studies to determine classification into the National Wild and Scenic River System, new road construction and significant realignment will generally not take place within the scenic river corridors. Roads may occasionally bridge the river area and short stretches of conspicuous or longer stretches of inconspicuous and well screened roads could be allowed.

Page M-1, Appendix M, Table M-1, Forest Plan

Table M-1.

Wild and Scenic Rivers Highest
Potential Classification and Highest Value
by Segment for the Clearwater National Forest

River/Stream	Segment/Location	Potential Classification	Highest Value
Kelly Creek	1. Mouth to FR #581 bridge 2. FR #581 bridge to source	Recreation Wild	Recreation Recreation
Cayuse	1. Mouth to Silver Creek Jct	Scenic	Fish
North Fork of the Clearwater	1. Dworshak high pool to FR #255 bridge	Recreation	Recreation
Little North Fork	1. Clearwater River portion	Based on bordering IPNF Forest Plan	Recreation
Fish Creek	1. Mouth to Hungery Creek	Recreation	Fish
Hungery Creek	1. Entire Length	Wild	Fish
White Sand Creek	1. Mouth to Wilderness Border	Recreation	Fish

END OF AMENDMENT NO. 2

V. List of Forest Contacts

The following people contributed to the development of the Monitoring and Evaluation Report for the Clearwater National Forest for Fiscal Year 1991.

Name	Telephone	Resource Area
John Bledsoe	926-4275	District Ranger, Lochsa Ranger District
Byron Bonney	476-4541	Staff Officer - Fire
Bob Boston	"	Staff Officer - Recreation/Minerals
Art Bourassa	476-3775	District Ranger, North Fork Ranger District
John Case	476-4541	Forester
Juanita Cooper	476-4541	Staff Officer - Administration
Randy Curtis	"	Engineer - Road Management
Dan Davis	"	Acting Staff Officer - Wildlife/Fish/Watershed/Range
Randy Doman	"	Forestry Technician - Fire
Dallas Emch	935-2513	District Ranger, Pierce Ranger District
Al Espinosa	476-4541	Fisheries Biologist
Jeff Fee	476-4541	Archaeologist
Mary Ann Gerrish	"	Budget and Finance Officer
Doug Gochnour	"	Acting Staff Officer - Planning
Margaret Gorski	942-3113	District Ranger, Powell Ranger District
Win Green	476-4541	Forest Supervisor
Dick Hodge	875-1131	District Ranger, Palouse Ranger District
Bill Jones	476-4541	Forester - Lands
Richard Jones	"	Hydrologist
Ted King	"	Operations Research Analyst
Donna Kinzer	935-2513	Report Preparer/Computer Assistant
Bert Kulesza	476-4541	Deputy Forest Supervisor
Bob Littlejohn	"	Staff Officer - Engineering/Lands
Irvin Michael	"	Landscape Architect
Terri Ott	"	Timber Assistant
Steve Petro	"	Acting Staff Officer - Timber
Chuck Raddon	"	Recreation and Wilderness Specialist
Cecilia Seesholtz	"	Report Preparer/Forester
Pam Stotts	"	Geologist
Susan White	476-3775	Report Preparer/Forestry Technician
Dale Wilson	476-4541	Soil Scientist
William Wulf	"	Silviculturist

Cover illustration by Valeria Yost.

VI. Forest Supervisor Approval

APPROVAL

I have reviewed the annual Forest Plan Monitoring and Evaluation Report for Fiscal Year 1991 for the Clearwater National Forest. I am satisfied that the Monitoring and Evaluation effort meets the intent of the Forest Plan (Chapter V) and 36 CFR 219. I have also considered the recommendations of my staff on proposed changes to the Forest Plan and will process the necessary amendments after appropriate public notification.

This report is approved:

Win Green

WIN GREEN
Forest Supervisor

Date May 5, 1992