United States
Department of
Agriculture

Forest
Service

Northern
Region

Clearwater National Forest

Monitoring & Evaluation Report

Fiscal Year 1993

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

Date: June 17, 1994

Dear Forest User:

We appreciate your interest in the Clearwater National Forest Plan. This is our sixth Monitoring and Evaluation Report since the Plan's release in September, 1987. At your request, we made it shorter, more concise and "user friendly" than past reports. If you find you need more detail about a particular area, give us a call, and we'll put you in touch with the appropriate specialist.

Monitoring is a key part of Forest Plan implementation. This report highlights Forest Service monitoring activities for Fiscal Year 1993 (October 1, 1992, through September 30, 1993). It presents an evaluation of our management strategies to see if we are meeting the goals set forth in the Forest Plan. The information we gain from monitoring helps us determine what is working and what is not working. In this way we can make adjustments to the Plan when or if necessary.

During a fiscal year, many high priority work assignments rise to the surface and affect the quantity of work we are able to accomplish. So it was in FY 93. The Forest was involved in a lawsuit over certain aspects of the Forest Plan. The Regional Forester evaluated the issues raised in the suit and determined it would be most efficient to attempt to settle out of court. This was done successfully.

We invite you to review and comment on the 1993 Monitoring and Evaluation Report. We also invite you to call, visit or write us anytime.

Sincerely,

JAMES L. CASWELL
Forest Supervisor

Table of Contents

I. Introduction

As we move to implement the Forest Plan, we are continually verifying our data and assumptions through monitoring. After analyzing this year's data and the data of previous years, we will begin the process to revise the Clearwater National Forest Plan.

This report summarizes results of Forest Plan monitoring and evaluation conducted from October 1, 1992, through September 30, 1993, fiscal year 1993 (FY 93). The report 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 seven main sections. Section I, the Introduction, gives an overview. Section II focuses on monitoring requirements by resource. Almost all resource reports contain a goal, strategy, monitoring requirement, monitoring action and accomplishments/findings. The reports are in alphabetical order. Some resource reports contain one or more "item no.'s," which refer to the numbering system (established in the Forest Plan) of items to be monitored. The numbering system is not necessarily in numerical order.

Section III lists unresolved Forest Plan appeals and twelve project level appeals received in FY 93, the status of each and the major issues associated with each. (The term "project" is used throughout this report and refers to any Forest Service activity on Forest land, like campground construction, trail maintenance, timber sales.) Section IV identifies actions which the Forest plans to take in FY 94 and beyond to implement the Plan. As part of a lawsuit settlement over the Forest Plan (September, 1993), the Forest agreed to revise the Plan and has until March, 1995, to file a Notice Of Intent in the Federal Register about so doing. The first step in the Forest Plan revision is to conduct an "Analysis of the Management Situation." This will be followed by writing an environmental impact statement and the Revised Plan.

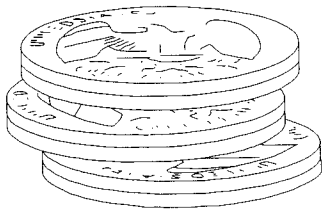
Several factors have led Forest Service Region One and the Clearwater Forest to the decision to revise the Forest Plan. The two major factors are the following.

1) The analysis of this year's monitoring data, in combination with previous years' data. The results of the evaluation of this data have revealed that there are several issues which need a major, in-depth analysis. These issues include those discussed in previous years' annual reports as management of the Forest's unroaded area, water quality and fisheries resources;

2) Settlement of the Forest Plan lawsuit. In February, 1993, the Forest was involved in two lawsuits over appeals of the Forest Plan. In the process of settling these lawsuits, the Regional Forester agreed to begin the process of revising the Forest Plan. This process is to begin in FY 94 in order for the Forest to meet the settlement requirement and to publish a Notice of Intent to revise the Forest Plan in the Federal Register by March, 1995.

As the revision process moves forward, nonsignificant amendments will continue to be made annually to keep our existing Forest Plan current. Some amendments expected to be made in FY 94 are discussed in Section IV, Planned Actions.

II. Monitoring Report



Economics

Item No. 1	Quantitative Estimate of Performance Outputs or Services

Frequency of Measurement: Annual
Reporting Period: Annual

Monitoring Action

Present resource ouputs and activities for FY 93.

Accomplishments/Findings

See table 1, "Comparison of Outputs and Activities With Those Projected in the Forest Plan," for outputs and activities occurring in FY 93, along with the percent achieved compared with Forest Plan projections.

Item No. 17	Document Cost of Implementation Compared With Plan Cost

Frequency of Measurement: Annual
Reporting Period: Annual

Monitoring Action

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

Accomplishments/Findings

See table 2, "Comparison Between Yearly Expenditures and Forest Plan Projections (in 1993 Dollars)," for a display of cost comparison.

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

Output or Activity	Unit of Measure	FY 1989	FY 1990	FY 1991	FY 1992	FY 1993	First Decade Avg. Annual From Plan	Percent of Predicted FY 1993 Achievements
Recreation								
Developed Use	M RVD's	256.9	192.5	256.7	257.8	264.4	201.1	131
Dispersed Use								
Wilderness *	M RVD's	30.6	29.1	30.5	31.0	33.0	121.0	27
Non-Wilderness	M RVD's	462.7	534.5	526.6	610.0	611.9	686.2	89
Wildlife & Fish								
Wildlife Habitat Improvement								
Non-structural**	Acres	513	930	600	858	500	1300	38
Structures	Structures	72	0	0	4	0	NA	NA
Fisheries Habitat Improvement								
Non-structural**	Acres	127	166	211	655.5	115	219	53
Structures	Structures	151	154	186	130	265	NA	NA
T&E Species Habitat Improvement**								
Non-structural**	Acres	0	0	0	0	50	NA	NA
Structures	Structures	0	0	0	5	5	NA	NA
Range								
Grazing Use	M AUM's	13.0	15.0	13.8	10.3	10.1	16.0	63
Range Improvement								
Non-structural***	Acres	2470	3268	2500	3828	2000	7000	29
Structures	Structures	2	1	0	0	1	NA	NA
Noxious Weed Control	Acres	295	150	330	378	210	380	210

* The Forest Plan 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.

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

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

Recreation figures from RIM adjusted by 93 definitions of developed / dispersed.

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

Output or Activity	Unit of Measure	FY 1989	FY 1990	FY 1991	FY 1992	FY 1993	First Decade Avg. Annual From Plan	Percent of Predicted FY 1993 Achievements
Minerals								
Minerals Management	Cases	174	158	178	128	127	265	48
Timber								
Volume Offered	MMBF	104.4	104.9	100.3	13.9	27.7	90	31
Roaded Primary	MMBF	19.4	17.5	15.7	10.6	9.9	10	99
Roaded NICS	MMBF	22.8	3.4	7.9	0	2.6	73	4
Unroaded	MMBF	422.3	371.9	300.1	223.0	1753	NA	NA
Volume Under Contract							14,416	47
Reforestation	Acres	1675	1695	1311	1734	2392	NA	NA
App. Funds	Acres	3254	2896	3440	4066	4444	NA	NA
KV Funds							1928	34
Timber Stand Improvement	Acres	444	583	754	384	472	NA	NA
App. Funds	Acres	473	618	83	75	175	NA	NA
KV Funds								
Fuels Management	Acres	340	309	294	280	790	NA	NA
Natural Fuels Treatment	Acres	3,955	2,733	3,389	3,129	2,366	NA	NA
Brush Disposal								
Facilities								
Trails Construction and Reconstruction	Miles	8.0	13.0	21.6	36.1	17.9	14.0	128
Road Const./Reconst.	Miles	30.5	31.2	26.4	0	3.8	69.0	6
Timber - Construction	Miles	45.5	39.1	44.7	25.4	45.3	NA	NA
Timber - Reconstruction	Miles	.42/2.31	.25/.25	0.0/0.0	.2/2.3	0	NA	NA
Recreation	Miles	0.0/0.9	0.0/0.0	0.0/0.0	0/0	0	NA	NA
Other								

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

Table 2. Comparison Between Yearly Expenditures and Forest Plan Projections (in 1993 Dollars)

Activity Description	FY 1989 Expenditures (Thousand $)	FY 1990 Expenditures (Thousand $)	FY 1991 Expenditures (Thousand $)	FY 1992 Expenditures (Thousand $)	FY 1993 Expenditures (Thousand $)	Forest Plan Projections (Thousand $)	FY 1993 Percent of Projection
General Administration	2,583	2,482	1,776	1,848	1,871	2,882	65
Fire Protection	866	832	644	790	773	1,165	66
Fire Protection (Fuel)	69	66	66	72	103	333	31
Timber Sale Prep./Admin.	4,599	4,419	2,848	2,055	1,298	3,469	37
Timber Resource Plans	287	276	252	149	321	392	82
Timber Silvicultural Exams	1,208	1,382	1,034	516	298	1,150	26
Range	135	130	85	90	71	139	51
Range (Noxious Weeds)	35	34	7	33	39	37	103
Minerals	149	132	95	100	98	224	44
Recreation	1,427	1,139	924	1,047	1,072	1,390	77
Wildlife and Fish	2,307	2,407	762	972	1,160	1,457	80
Soil and Water	1,179	1,266	480	586	564	524	107
Maintenance of Facilities	454	436	234	341	288	644	45
Special Uses	122	117	35	66	82	120	68
Geometronics	NA	64	NA	NA	NA	NA	NA
Land Exchange	115	110	50	26	13	176	7

Table 2. (Continued) Comparison Between Yearly Expenditures and Forest Plan Projections (in 1993 Dollars)

Activity Description	FY 1989 Expenditures (Thousand $)	FY 1990 Expenditures (Thousand $)	FY 1991 Expenditures (Thousand $)	FY 1992 Expenditures (Thousand $)	FY 1993 Expenditures (Thousand $)	Forest Plan Projections (Thousand $)	FY 1993 Percent of Projection
Landline Location	477	458	331	250	277	468	59
Road Maintenance	1,108	1,065	774	931	621	1,092	57
Trail Maintenance	575	442	501	480	488	577	85
Co-op Law Enforcement	69	66	71	85	91	89	102
Reforestation-Appropriated	2,793	1,327	843	765	733	2,342	31
TSI-Appropriated*	461	226	160	73	109	546	20
Tree Improvement*	169	392	254	**104	***384	79	486
KV-Reforestation	2,532	2,322	1,953	2,209	2,504	3,619	69
TSI-KV	195	188	57	22	41	112	36
Other-KV	626	604	488	669	598	778	77
Other-CWFS (Trust Fund)	727	698	424	665	1,042	885	118
Timber Salvage Sales (Perm. Fund)	420	403	1,208	1,288	1,725	395	436
Brush Disposal (Perm. Fund)	1,432	1,376	1,342	676	654	2,157	30
Range Betterment	9	8	2	4	2	10	19
Construction (Recreation Facilities)	471	221	245	230	549	112	486

* The 1992 funds for these activities were in error and have been adjusted.
**Includes development of the Lenore Seed Orchard, which was not accounted for in the Forest Plan.
***Includes Lenore Seed Orchard and Regional genetic tree improvement program funds.

Table 2. (Continued) Comparison Between Yearly Expenditures and Forest Plan Projections (in 1993 Dollars)

Activity Description	FY 1989 Expenditures (Thousand $)	FY 1990 Expenditures (Thousand $)	FY 1991 Expenditures (Thousand $)	FY 1992 Expenditures (Thousand $)	FY 1993 Expenditures (Thousand $)	Forest Plan Projections (Thousand $)	FY 1993 Percent of Projection
Facility Construction	707	880	992	506	63	750	8
Engineering Constr. Support	2,268	2,179	1,385	960	856	2,220	39
Construction-Capital Investment	2,877	2,765	151	1,546	359	3,353	11
Trail Construction/ Reconstruction	558	259	207	496	400	389	103
Timber Purchaser Road Const./Reconst.	3,198	3,073	21	0	263	5,942	4
Land Acquisition	362	0	20	71	75	84	89
Insect/Disease Support	NA	NA	NA	NA	12	NA	NA
Economic Recovery	NA	NA	NA	NA	172	NA	NA
Total	37,587	34,063	20,038	20,740	20,069	40,121	50

Effects

Public Needs and Perceptions

Public perceptions and concerns regarding the Clearwater National Forest were heightened by a procession of media activity which focused on the Forest and questioned its credibility in FY 93. It was a banner year for public scrutiny of Forest activities. Town meetings were held, organizers urging a "call to action" and the return of the public forests to the people. The print and television media "blitzed" the public with analytical and investigative reportage. Topics included dwindling timber supply, overharvest, fisheries and water quality degradation, suppression of internal specialist data, a significant lawsuit and "clandestine" settlement regarding Forest Plan revision and a major regional print series featuring the theme, "Our Failing Forests."

The results were effective, depending on who you were and what you represented. Some people in local communities dependent on timber supply seemed to feel that an "outside public" was controlling their destinies and carried an agenda aimed at eliminating their lifestyle. Environmentalists were branded as unreasonable preservationists, while the timber industry and the Forest Service shared the limelight for criticism, cast as managers who fostered destructive practices.

While the public-at-large appeared confused about what to believe, comments and letters illustrated their continuing faith in the ability of the Forest Service to manage wisely. For its critics, the Forest Service "set the record straight" whenever possible.

Major Events and Their Results

- The television and print barrage on water quality and the deterioration of Clearwater streams pitted specialists and their data against one another, confusing an already bewildered public-at-large. The "limelight" and "skewed" reportage sent many specialists and management staff into retreat, avoiding interview attention. The paramount concern among the long line of employees involved was their fear of being targeted as "media pawns" to feed the agendas of industry and environmental groups for the moment.

- An NBC news telecast featured video footage of a pool of dead fish, supposedly illustrating the effects of excessive timber harvest on Clearwater Forest streams. The telecast prompted a rash of inquiries. Phone callers and letter writers insisted on knowing where and how NBC got its facts. The result was a letter from the Forest Public Affairs office explaining the facts, written to "set the record straight." The letter was widely circulated in the nation by the timber industry. Its contents were also used as factual evidence in a potential lawsuit threat waged against NBC by the timber industry. The letter, among others from industry, local, State and Federal congressional offices, pressured NBC's evening anchor, Tom Brokaw, to issue an on-the-air apology, nationally, albeit unacceptable to the injured parties. The Clearwater was thanked by industry and the communities it served for helping "set the record straight."

- Settlement of the Forest lawsuit regarding Forest Plan revision resulted in a rash of letters from the timber industry, a congressional inquiry and media articles suggesting the Forest settled in favor of environmentalists "behind closed doors." The rationale of the settlement positioned the Forest Plan as the "guiding document" for Clearwater Forest management until completion of the Forest Plan revision. The settlement's four "interim measures," or exceptions, featured the following: (1) to offer no more than 80 million board feet (MMBF) of timber per year; (2) to prepare an environmental impact statement for proposed timber harvest or road construction affecting old-growth stands over 100 acres; (3) to reject any timber sale or road construction project in any Idaho Wilderness proposal by any Idaho delegate; and (4) to proceed only with projects that result in no measurable increase in sediment in drainages currently not meeting Forest Plan standards. For more detailed information about the lawsuit settlement, refer to chapter V, Implemented Changes.

- The Spokesman Review, a Spokane, Washington, newspaper, featured an investigative series entitled "Our Failing Forests." The series included an attack on the credibility of the Clearwater's water quality data and watershed management. The Forest responded immediately, with a paid "advertorial" written to clear the misunderstanding. While several editorials and one letter complained of the Forest's "advertisement," many more letters to the editor and guest columns followed, supporting the Forest's print response. A positive by-product of the Forest effort evolved in the form of a major timber industry print series entitled "Forestry 2000." The series was marketed as an insert in several area Sunday newspapers.

Transitioning Ahead

In sum, the intense public scrutiny and media campaigns asked the Forest to redefine itself among its local communities. Under the leadership of new Forest Supervisor James Caswell and his Forest Leadership Team, the Clearwater responded with several proactive, two-way communication efforts. Those efforts led to the following: (1) introducing Forest personnel (whose work includes public involvement responsibilities) to strategies and skills aimed at implementing effective collaborative planning efforts with local communities and governments; (2) promoting a series of town meetings involving all communities served by the Forest; and (3) developing a Forest vision statement.

Fire

Goal

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

Strategy

Prepare and implement a Fire Management Action Plan (FMAP) annually to provide direction for accomplishing fire management objectives outlined in the Forest Plan. Manage all fires, management-ignited, prescribed natural and wildfires, according to that plan. Implement ecosystem management concepts into fire management programs and examine fire's role in sustaining ecosystems.

Accomplishments/Findings

The FMAP was revised and implemented, and the Forest successfully met the fire suppression objectives outlined therein. The Forest implemented the Minimum Impact Suppression Tactics (MIST) guidelines for all lands protected by the Clearwater National Forest. MIST guidelines are designed specifically to protect resource values within Wilderness, Research Natural Areas, cultural sites and any other sensitive areas from fire suppression impacts. The Forest coordinated efforts with the Bitterroot and Nez Perce National Forests to implement the Selway-Bitterroot Wilderness Prescribed Natural Fire program.

Fire Suppression

The Clearwater Forest is responsible for protection of approximately 1,705,000 acres of land. The State of Idaho and the Clearwater-Potlatch Timber Protective Association are responsible for protecting approximately 176,243 acres of Clearwater National Forest land.

The Forest met the intent of the Forest Plan standards and guidelines by implementing appropriate suppression strategies on wildfires. Each fire was assessed for its potential and location. The suppression strategy that best fit each fire situation was then assigned.

Control Suppression Strategy: To complete a control line around a fire, any spot fires and any interior unburned islands to be saved; to burn out any unburned 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 33 fires. Resulting direct suppression expenditures were $54,400. Acres burned: 20

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. Strategy selected for one fire. Acres burned: 0.1

Confine Suppression Strategy: To limit fire spread within a predetermined area principally by use of natural or preconstructed barriers or environmental conditions. Suppression action may be minimal and limited to surveillance under appropriate conditions. Selected for 10 fires. Acres burned: 16

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.
Selected for one fire. Acres burned: 0.1

Table 1. Fire Expenditure Savings in 1993 in Dollars

Strategy	Projected Expenditures*	Actual Expenditures	Savings
Containment Strategy	$500	$100	$400
Confinement Strategy	$33,500	$800	$32,700
Prescribed Natural	$500	0	$500
Total	$34,500	$900	$33,600

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

During the 1993 fire season, 36 acres burned in wildfires on the Forest and 0.1 acre burned under prescribed natural fire status in the Selway-Bitterroot Wilderness. The 10-year (1983-1992) average annual acres burned on the Clearwater National Forest is 1,233 acres, of which 852 are wildfire acres and 381 are Prescribed Natural Fire acres.

Funding

A National Fire Management Analysis System was used to look at 10 years of Clearwater National Forest fire history, thereby determining the most cost-efficient funding level for FY 93. The Forest was funded at about 68% of the most cost-efficient level. This meant that the Forest could fund approximately that level of fire-fighting forces needed to meet Forest Plan standards and protect the Forest.

Fire severity funds were provided by the Washington, D.C., Forest Service office during the fire season to provide fire protection at a level higher than originally funded. This brought the Forest up to 82% of the most cost-efficient level and enabled the Forest to afford a helicopter and support people for the season. However, because of the wet fire season, the Forest did not have to use helicopter contract services and saved $60,000 in FY 93.

The fire season was less severe than the ten-year historical average. The 1993 summer fire season did not see any days above the 10-year average for dryness although the fall season had several high fire danger days. Forest

Fire

Plan fire protection standards were successfully met in 1993 even though funding was 82% of the most cost-efficient level. Following are statistics for costs, acres burned and resources lost.

Table 2. Projections vs. Actual Outcome

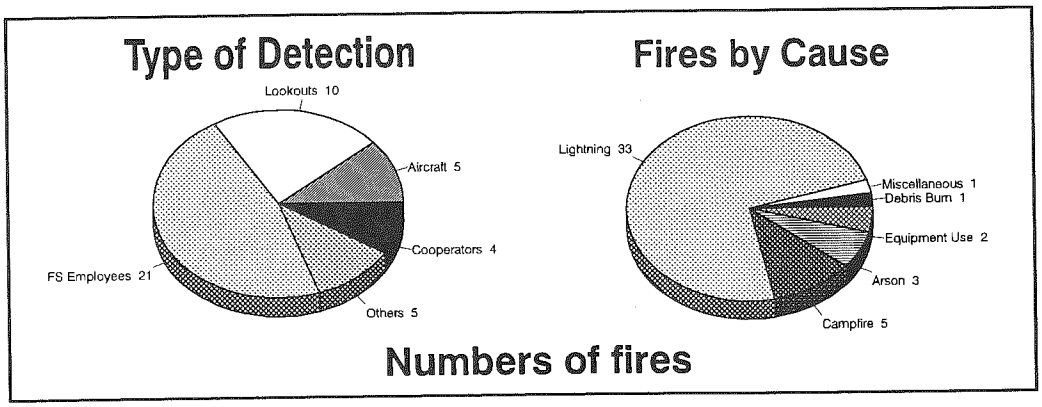
	FY 93 Projections at 82% Level	FY 93 Actual Outcome
Wildfire Acres	1,100 acres	36 acres
Expenditures: Suppression	$1,900,000	$ 55,300
: Resource Loss	$ 200,000	Minimal
: Fire Severity	Not Projected	$ 192,000
: Fire Protection	$ 907,000	$ 803,000
: Total	$3,007,000	$1,050,300

Wildfire Detection

The Forest used both the automated lightning activity detection system, where lightning strikes are recorded on a map, and the global positioning system, a means of locating fires from the aircraft, to pinpoint fires. Both systems utilize latitude and longitude coordinates to help aerial observers spot fires and ground crews locate them.

There were 45 fires during the 1993 fire season. The 10-year (1983-1992) average of fires per year is 156.

Figure 1. How Fires Were Detected; Causes of Fires



In addition to fighting fires on the Clearwater National Forest, personnel can be sent to other parts of the nation on fire-fighting assignment. In 1993, 256 person days were spent on assignment off Forest.

The Clearwater Forest did not utilize smokejumpers, helitack or retardant aircraft for any initial attack support on wildfires during the 1993 fire season.

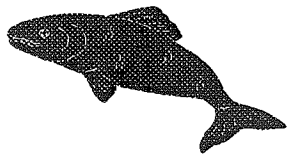
Prescribed Fire

Prescribed fire (management-ignited) was used to reduce hazardous fuels and also prepare 3,156 acres for tree planting. Smoke restrictions were not a significant problem during 1993 prescribed burns. Most of the burning occurred during May, September and October under ideal conditions.

Table 3. Prescribed Burning Accomplishments in Acres

Ranger District	Natural Fuels Target	Natural Fuels Accomplished	Brush Disposal Target	Brush Disposal Accomplished
Pierce	0	0	700	861
Palouse	100	102	600	298
North Fork	200	200	500	510
Lochsa	0	0	500	697
Powell	500	488	0	0
Total	800	790	2,300	2,366

Fisheries



Goal

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

Strategy

Provide management direction during the planning and implementation of activities. Identify and implement rehabilitation projects on the Forest. Since 75% of backlog improvement projects for anadromous fish (ocean fish that return to streams to spawn) has been completed but only 15% of backlog improvement projects for inland (non-anadromous) fish has been completed, primary emphasis in fish habitat improvement shifted to inland projects for the period 1989-97. The strategy allocates 60% of the habitat improvement targets to inland projects. The remaining 40% is 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 on anadromous fish habitat improvement associated with fisheries in the Columbia River Basin and the direction of the Northwest Power Act. The Forest will develop cost-share partners and projects through 1995.

The Forest fisheries biologist will direct development of fisheries expertise on Ranger Districts. Information about the District projects and their results are available for anyone interested.

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

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

Frequency of Measurement: Annual
Reporting Period: Annual

Monitoring Action

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

Streams supporting both anadromous and inland fish were monitored during FY 93. Dependent upon funding, the monitoring program will be expanded and intensified in FY 94 to include more inland fish streams on the North Fork and Palouse Ranger Districts.

Accomplishments/Findings

Forest Overview

Stream Inventory Targets: The Forest inventoried 1,079 acres of anadromous streams, 181% of the annual target. The Forest inventories for inland streams totalled 324 acres, 127% of the annual target. (The Forest Service Northern Regional Office sets the targets.)

Improvement Targets: In FY 93, 115 acres and 265 structures of fisheries habitat improvement were completed. The structure and acres project targets for anadromous as well as inland fish were exceeded in FY 93. In tracking achievement of Forest Plan targets, the cumulative shortfall after six years is 369 acres, or 28% of the six-year total. (Rehabilitation projects are identified as their need becomes apparent. The Forest's ability to accomplish this work in the future will depend primarily upon funding.)

Instream improvement projects were completed on 16 streams and ten small tributaries throughout the Forest. Riparian vegetation was planted and eroding sites within riparian zones rehabilitated, especially sites that were directly putting sediment in streams. Building side channels and log weirs; adding large woody debris, boulders and sediment traps increased summer- and winter-rearing habitat for chinook salmon, steelhead trout, cutthroat trout, brook trout, bull trout and kokanee salmon.

Anadromous Fisheries

Endangered Species Act (ESA)

The Forest chose to evaluate all FY 93 projects within the natural range of the spring/summer chinook and fall chinook salmon to meet consultation requirements of the National Marine Fisheries Service (NMFS). However, no critical habitat was designated within the Clearwater River Subbasin of the Columbia River Basin, and chinook populations were not listed as a threatened species under the ESA in the Clearwater River system.

Although no critical habitat for fall chinook salmon occurs within the Clearwater National Forest, provisions of the ESA still require the Forest Service to assess cumulative impacts of Forest projects on fall chinook populations of the lower Clearwater River. Four watersheds have been designated for analysis: Potlatch River, Orofino Creek, Lolo Creek and the Lochsa River. (A watershed is that area which drains into a stream system.)

Assessment of all ongoing and proposed projects for the Lolo Creek drainage and the Middle Fork Clearwater/Lochsa River drainage was completed in FY 92. In FY 93, the Forest completed an analysis for the Lochsa River watershed. The determination was "not likely to adversely affect" fall chinook salmon in the mainstem Clearwater River. The analysis was submitted to NMFS for consultation as required by the ESA. Watershed analyses for the Potlatch River and Lolo Creek watersheds are planned for completion in the autumn or winter of 1994. Analysis of the Orofino Creek watershed will be done when the Forest proposes a major project that warrants consultation.

Fisheries

Potlatch River Subbasin

Habitat Improvement: Palouse Ranger District personnel restored several stream channels altered by railroad logging earlier in the century. Total stream length was increased by nearly a quarter of a mile. The long-term objective of the project is to stabilize the streams, raise the water tables in the meadows and return the streams to perennial status, thereby increasing water quality and potential fish-rearing habitat.

Two cattle crossings on the West Fork Potlatch River were retrofitted and fencing installed to ensure that cattle would be kept out of the riparian areas.

Habitat Monitoring: The Potlatch River is designated a "stream segment of concern," a stream designated by the State of Idaho as a stream of special emphasis. The drainage contains anadromous fish habitat (steelhead trout) that is monitored as part of the Forest Plan monitoring and evaluation process. In FY 93, habitat surveys were conducted on 51 miles of eight Potlatch River tributaries plus the mainstem Potlatch River.

For one of the tributaries, Schwartz Creek, data was collected in October, 1991; May, 1992; October, 1992; and April, 1993. From October, 1991, to October, 1992, there was a decline in habitat due to increased sediment possibly because of road building and heavy rain. There was improvement the next year. Other tributaries have been surveyed; analyses of data have not been completed.

Water Temperature Monitoring: In FY 93, maximum summer temperatures within the Potlatch River system were measured. Water temperatures must be at 22 degrees C. or less with a maximum daily average of no greater than 19 degrees C. for optimum habitat.

The Potlatch watershed did not fall within the desired range and will be monitored in FY 94 to determine "weak links" within the stream's temperature system.

Fisheries Population Monitoring: The number of steelhead trout spawning sites in the East Fork Potlatch Creek rehabilitation area were counted twice in FY 93. Five sites were found. The area will be monitored in FY 94.

Lolo Creek Watershed

Habitat Improvement: Habitat improvement in the Lolo Creek watershed (Pierce Ranger District) included 135 new instream structures and repairs of seven existing structures on 13 streams. The structures improved summer- and winter-rearing habitat for spring chinook salmon, steelhead trout and westslope cutthroat trout and were constructed of large woody debris, rock and log weirs, boulder clusters and sediment traps.

Sediment was removed from five streams with suction dredges, improving 14 acres of stream habitat. Another two acres of anadromous habitat were improved by fencing around a riparian area, keeping down erosion and resultant sediment.

Habitat Monitoring: Lolo, Eldorado and Yoosa Creeks are designated "stream segments of concern." They contain critical anadromous fish habitat that is monitored as part of the Forest Plan monitoring and evaluation process. In FY 93, a habitat survey was conducted on the mainstem of Lolo Creek and data compared with 1988

data. Although some habitat conditions have improved slightly (i.e., rearing habitat), most conditions still remain well below desired conditions -- too much sediment and too little habitat diversity.

Water Temperature Monitoring: A cooperative arrangement to monitor selected key tributaries within the Lolo Creek system was initiated in 1990 between the Nez Perce Tribe and the Pierce Ranger District and continued through FY 93. Temperatures in Lolo and Musselshell Creeks exceeded the desired criteria (16-17 degrees C.) by several degrees and maintained these high temperatures for extended periods of time. Data shows that the number of days in which these systems exceeded the standard has decreased since 1990. All other stream segments were within desired conditions for the Forest Plan standard of "high fishable" during FY 93.

Fisheries Population Monitoring: In FY 93, snorkel divers counted fish in Lolo Creek. Results show an increase in steelhead and spring chinook densities from 1992 for all age categories. Densities of steelhead age 0+ and age 1+ juveniles were 5.2 times and 2.3 times greater in FY 93 than in FY 92. Densities of spring chinook salmon (age 0+ -- the progeny of fall, 1992, spawning) were 4.7 times greater in FY 93 compared with FY 92. The increase in numbers may be the result of increased flows and cooler stream temperatures.

Eight spring chinook spawning surveys were conducted in the Lolo Creek drainage in FY 93 by Nez Perce Tribe and Forest Service fisheries biologists. On Lolo Creek, Tribal biologists found 23 spawning sites, 20 adults and ten carcasses on one reach of the creek. Forest Service biologists found no fish on one reach and 14 spawning sites on another.

On Eldorado Creek, Tribal biologists counted no chinook in the survey area although they found one adult outside the survey area. Forest biologists found no fish on the stream reach they surveyed. On Yoosa Creek, Forest biologists found one spawning site. They counted one adult pair on Musselshell Creek in the summer but none in the autumn.

Table 1. Total spring chinook spawning site counts in the Lolo Creek drainage for the past six years.

1987	1988	1989	1990	1991	1992	1993
31	31	24	25	14	19	24

Table 2. Steelhead trout and spring chinook salmon densities in Lolo Creek. Number of fish per 100 square meters.

Fish Size	1988	1989	1990	1991	1992	1993
steelhead (under 2.5")	21.1	11.2	15.1	20.3	2.1	10.9
steelhead (3-5")	6.7	6.6	3.0	4.8	0.8	1.9
steelhead (5-8")	2.5	1.1	0.5	1.0	0.1	2.2
chinook salmon (3-5")	61.9	30.2	9.3	29.0	2.8	13.0

Fisheries

Lochsa River Watershed

Habitat Improvement: Five creeks in the Lochsa River watershed were targeted for habitat improvement in FY 93. Twenty-eight riparian acres were planted with conifer and deciduous trees. In addition, nine fish habitat structures were installed to enhance rearing habitat, and three existing log weir structures were improved.

A total of 200 cubic yards of sediment was removed from the Pete King drainage.

Fisheries Habitat Monitoring: In the Lochsa River watershed, 22 miles of stream habitat were surveyed in the Bimerick Creek, Boulder Creek and Deadman Creek drainages. Percent fines (sand -- i.e., "rock" 6.4 millimeters or less in diameter) in spawning gravels was measured at critical reaches in Pete King Creek and Deadman Creek. In Deadman Creek, spawning gravel sediments decreased 4% from FY 92. In Pete King Creek, fines decreased 7% from FY 92, the second year of a downward trend following a three-year upward trend. The decreases may be a result of four instream sediment traps and watershed rehabilitation efforts in the Pete King Creek drainage.

On the Powell District, a total of 26 miles of stream habitat was surveyed in the Brushy Fork Creek, Walton Creek, Papoose Creek and Cliff Creek drainages in FY 93. Five long-term monitoring streams were surveyed in July and August, 1993, to evaluate cobble embeddedness and fish distribution trends and possible relationships between sediment levels and fish populations.

Each monitored stream contained five stations. Each station contained a representative habitat type: pool, riffle (an area of shallow turbulent flow) and run (an area of deep, swiftly flowing water). Both fish population and embeddedness data are collected from the same site.

Water Temperature Monitoring: Stream temperatures were monitored at 27 sites in the lower Lochsa River watershed during FY 93. Cooler-than-normal air temperatures during July and August probably had a significant effect on instream temperatures. Findings follow.

> Instream temperatures at the mouth of Pete King Creek exceeded the desired conditions for the Forest Plan standard of "high fishable" 35% of the time.
>
> In the Fish Creek drainage, stream temperatures exceeded the desired conditions for 38% of the period sampled at the mouth of Fish Creek, 27% at the mouth of Hungery Creek and 44% at Fish Creek above Hungery Creek.
>
> Boulder Creek temperatures exceeded the desired conditions during 36% of the sampled time.
>
> Instream temperatures in Bimerick Creek exceeded the desired conditions 18% of the sample period.

In FY 93, water temperature monitoring was conducted at 12 streams in the upper Lochsa River watershed. Nez Perce Tribe and Powell District personnel as well as U.S. Fish and Wildlife Service personnel gathered temperature data, which they will share.

Fisheries Population Monitoring: In FY 93, fish population monitoring continued in the Lochsa River drainage. Fish species present in some or all of the study streams included chinook salmon, steelhead/rainbow

trout, westslope cutthroat trout, bull trout, mountain whitefish and sculpin.

Population monitoring was conducted in selected tributaries of the lower Lochsa River. Juvenile steelhead populations increased by 26% (over a 16-year running mean) in lower Fish Creek but decreased 11% (over a five-year running mean) in middle Fish Creek. The lower Hungery Creek juvenile steelhead population decreased 10% (17-year running mean). Compared with 1990 data, the upper Fish Creek juvenile population decreased 10%, while the upper Hungery Creek population increased by 217%.

In Pete King Creek, juvenile steelhead densities decreased 4% while densities in Deadman Creek increased 54% (over a 12-year running mean).

Inland Fisheries

North Fork Clearwater River Watershed

Habitat Improvement: Stream improvement projects involved instream sediment removal and headwater stream stability maintenance. Three sediment traps that were constructed in FY 92 were cleaned out within the Elk Creek drainage.

A three-year fish habitat improvement project was completed in Beaver Creek. In addition, 120 instream structures were installed over a three-mile reach in the mainstem of Orogrande Creek to improve summer- and winter-rearing habitat for resident fisheries.

Large organic debris (LOD) was added to several headwater streams, a total length of two and one-half miles in the Johnson Creek Timber Sale area of the Elk Creek drainage. LOD consists of root wads, logs and debris jams. Approximately 150 pieces of LOD were installed. LOD adds structure, dissipates stream energy, stores fine organic matter and slows the routing of fine sediment to downstream fish-bearing streams.

Several fisheries enhancement projects were completed within the Orogrande Creek drainage. Five thousand conifers were planted along four and one-half miles of three streams. Summer- and winter-rearing habitat for westslope cutthroat trout were improved in a three-quarter mile section of Sylvan Creek, and 15 structures were placed in this reach of the creek.

Habitat Monitoring: Habitat surveys were conducted on 30 miles of inland fish streams in the North Fork Clearwater River drainage. Surveys were also completed on seven miles of three other streams. The upper North Fork Clearwater River drainage is considered the stronghold for bull trout on the North Fork District. The surveys indicate that the streams within this area are very suitable for bull trout because of cold stream temperatures and clean substrates (rock on stream channel bottom). However, the surveys also indicate that rearing habitat (pool quality and quantity) is the major limiting factor to bull trout and westslope cutthroat trout production. Spawning habitat may also be limited in some of the streams.

Water Temperature Monitoring: Stream temperature monitoring began in Tamarack and Sylvan Creeks within the Orogrande Creek drainage in 1990-91. Stream temperatures continue to stay within the Forest Plan's "high fishable" standard (14-16 degrees C.). Stream temperatures at the mouth of Orogrande Creek slightly exceeded the desired conditions (18-20 degrees C.) for the Forest Plan's "low fishable" standard.

Fisheries

Fisheries Population Monitoring: Population data indicated that westslope cutthroat trout were the primary species in the upper North Fork Clearwater River and tributaries (eight streams). Bull trout were also present in all eight streams but at lower densities. No brook trout were observed in any of the eight streams.

Palouse River Basin

Habitat Improvement: In the Palouse River drainage, the Palouse District installed 20 instream structures and seven sediment traps in Mannering Creek. Instream sediment was removed from 100 locations.

LOD was added to several headwater streams in the Benchmark Timber Sale area (North Fork Palouse drainage). One hundred pieces of LOD were installed.

The Palouse watershed fell well within the ideal temperature range for fisheries habitat.

Challenge Cost-Share Projects

Two challenge cost-share projects initiated in FY 91 continued in FY 93: East Fork Potlatch Creek (Palouse Ranger District) and Beaver Creek (North Fork Ranger District).

The Potlatch Ranger District formed a partnership with River Masters Engineering, Inc., of Pullman, Washington, to monitor habitat and fish populations in a critical reach of the East Fork of Potlatch Creek. River Masters personnel mapped the habitat of the critical reach and collected baseline information on fish populations then installed continuous recording flow and temperature gauges. The District stabilized stream banks at nine sites and planted 18 riparian acres with 18,000 conifers along the East and West Forks of the Potlatch River. Early evaluation of this project indicates that the ecosystem is recovering rapidly.

FY 93 was the last year of a North Fork Ranger District three-year project to improve fish habitat in Beaver Creek in cooperation with Potlatch Corporation. Fifty-nine structures were constructed, 37 on Forest land and 22 on Potlatch land. The structures were designed to provide high quality pools and instream cover, stabilize banks and provide for habitat diversity. Early evaluation indicates that fish habitat in the stream reaches now meets Forest Plan objectives for pool quantity.

Heritage Program

Goal

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

Strategy

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

Item No. 4	Protection and Condition of Heritage Resource Sites

Frequency of Measurement: Annual
Reporting Period: Annual

Accomplishments/Findings

Of the 42 new heritage resource sites recorded in FY 93, 13 were historic while 29 were prehistoric (pre-European, North American continent).

Twelve projects were monitored in FY 93. Five of these involved recreation facilities construction while projects were in progress. The remaining seven were monitored after project completion.

The Forest continues to notify the Tribe of any effects to Nez Perce prehistoric/historic sites. The sites in which the Nez Perce Tribe has indicated an interest are monitored annually for vandalism, ongoing use and weathering.

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

Table 1. Heritage Resource Surveys

Year	Projects Tested*	Projects Surveyed	Acres Surveyed	Sites Identified
1988	4	27	9,435	36
1989	1	16	4,246	26
1990	0	30	2,747	21
1991	5	85	5,227	20
1992	14	62	6,496	19
1993	7	39	1,839	42

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

The following are events and activities that promote and enhance heritage resources. They are sponsored by the Ranger Districts.

Pierce Ranger District

A pack bridge was installed on the Nee-Me-Poo Trail at Musselshell Meadows. Residents of the Northwest Children's Home of Lewiston continue to volunteer to help maintain a two-mile section of the Lewis and Clark Trail in addition to stabilizing one-quarter of a mile of the Lewis and Clark Trail and three-quarters of a mile of the Nee-Me-Poo Trail. Through the "Take Pride In America" program, Forest Service employees and volunteers continue to stabilize various segments of the Lolo Trail System, painting signs and cleaning up litter. Two hundred sixty-two Appaloosa horses plus riders spent two days on the Forest retracing a segment of the 1877 route of Chief Joseph and the Nez Perce.

Palouse Ranger District

The Palouse District invited officials from affected Tribes to visit a site in Oviatt Meadows where Forest Heritage Resource staff were testing to determine if prehistoric artifacts observed in historic logging railroad fill were disturbed there or hauled in from another area. Tribal representatives shared information which gave the Heritage Resource staff valuable insight into protecting traditional-use sites. In addition, the Heritage Resource staff showed Tribal officials several areas identified as traditional camas-gathering areas.

The District archaeologist gave slide-show presentations to local interest groups about the history of the Palouse Ranger District.

Lochsa Ranger District

The Student Conservation Association assisted the District in a project for Wilderness restoration. The project consisted of two crews made up of seven members each. Part of the students' orientation and training included recognizing and protecting heritage resources. Students had an opportunity to apply these skills while working in an area where heritage sites exist. They worked alongside a professional archaeologist while monitoring a project.

The Lochsa Historical Ranger Station, located along U.S. Highway 12, is open annually from Memorial Day weekend through Labor Day and is staffed by Forest Service personnel and volunteers.

The District hosted a "Passport In Time" (PIT) project at Tukaytesp'e, a prehistoric area believed to have been occupied by the ancestors of today's Nez Perce people. This was the third time excavations occurred at this site, with an ongoing agreement involving the Nez Perce Tribe, the Clearwater National Forest and the Laboratory of Anthropology at the University of Idaho. This year's PIT volunteer project was held in conjunction with a University Of Idaho archaeology field school. The excavation documented the presence of several house pits which contained numerous stone artifacts. These artifacts consisted of a variety of stone tools (projectile points, knives, scrapers, gravers, mortars and pestles). All of these types of artifacts are commonly observed at campsite locations. Occupation of this site seems to have occurred from about 3,800 years ago up to recent times. Further excavations are not planned, as development of facilities has been completed at this recreational site. However, most of the small river terrace, where this intriguing site is located, has been preserved, leaving its remaining artifacts and other features a mystery.

Powell Ranger District

The stabilization project at Elk Summit Guard Station begun in 1992 was completed. The Forest Service Regional Historic Preservation Team worked at Fish Lake to restore and stabilize the cabin and outbuilding. The cabin is eligible for the National Register of Historic Places. In addition, Graves Peak and McConnell Mountain Lookouts were inspected to determine need for stabilization projects. Both are eligible for the National Register of Historic Places.

A local historian presented a historical program on General Howard's soldiers during the 1877 Nez Perce War at one of the weekly campfire programs at Powell Campground.

The annual Nee-Me-Poo Trail Ride was sponsored by the Clearwater National Forest, the Lolo National Forest, the Nez Perce Tribe and the Confederated Salish Kootenai Tribe. Representatives from Plum Creek Manufacturing L.P., Champion Timberlands, the Lewis and Clark Trail Heritage Foundation and the Nez Perce National Historic Trail Foundation participated. The focus was on trail management along all sections of the Trail, including all landowners or land management agency representatives.

Customer Services

In response to an increasing interest in American heritage and a demand to understand and experience the human past, the Forest Service has developed several programs through which the American public and foreign visitors can learn about American history and prehistory. The "Windows on the Past" program provides interpretation,

historical information, videos, slide shows, archaeological excavations, presentations and lectures for the public. Also, through volunteering, the PIT program allows interested individuals an opportunity to be involved with the Forest Service and universities in inventorying, researching, excavating, restoring and reconstructing heritage properties on Forest lands.

Volunteer Services and Cost-Share Partnerships

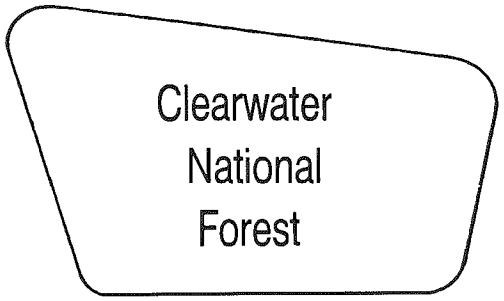
Last summer the Forest hosted a PIT project called "Lolo Trail Adventure, 1993." Many participants came to experience the Lolo Trail, in groups, with a partner or spouse. The project consisted of a systematic inventory of the Lolo Trail located on the North Fork, Lochsa and Powell Districts of the Clearwater National Forest. This inventory surveyed approximately the middle third of the Lolo Trail System, covering nearly 55 miles. The total included 27.5 miles along the Lolo Motorway, 6.4 miles along the survey line of the proposed cross-Forest segment of the Lolo Trail and 20.9 miles outside the main Trail corridor.

The project documented a large number of locations where historic human evidence was found. A total of 150 locations where cultural materials were observed was recorded (including 35 previously recorded sites). Of these, the vast majority are historical in nature, while 21 are prehistoric. Sixteen sites contain both prehistoric and historic components. Twenty peeled-tree locations and seven trail-tread locations were also noted. The historic components consist of blazed trees, marten sets, trash dumps, telephone wire and insulators and small packer/hunter camps. The prehistoric sites are made up of lithic scatters (stone tool workshop areas), rock cairns (stone piles of unknown significance) and probable campsite locations.

The Forest also initiated dendrochronology analysis (an analysis of tree growth rings) on several of the peeled-tree areas. (Bark was peeled from trees for use as food or medicine for people or stock animals). Tom Geouge, Pierce resource assistant, cored a live scarred tree. By his calculations, the tree was scarred in 1831. This is the same year in which John Work led a group over the Lolo Trail. This group is reportedly the second party of Euro-Americans to cross the Lolo Trail.

The 1993 survey was very exciting and rewarding in a number of ways. Perhaps the greatest benefit from participating in the inventory was the experience of following in the footsteps of Lewis and Clark in 1805-06 and the Nez Perce on their flight in 1877. By participating in this project, a greater awareness of the everyday trail experience of those who passed this way in historic and prehistoric times was felt.

Lands



Item No. 12	Land Ownership Adjustments

Frequency of Measurement: Annual
Reporting Period: Annual

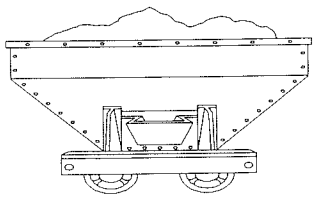
Monitoring Action

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

Accomplishments/Findings

During FY 93 the Clearwater National Forest did not complete a land exchange.

The Forest acquired two scenic easements along the Middle Fork of the Clearwater River.



Minerals

Goal

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

Strategy

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

Item No. 15	Minerals Prospecting and Development

Frequency of Measurement : Annual
Reporting Period: Five years

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

Caseload: A total of 127 minerals cases was processed on the Forest during FY 93, up from 128 the previous year. The total represents 48% of the annual minerals activity (265 cases) predicted in the Forest Plan.
Program Funding: Regional FY 93 allocations for the Forest Minerals program totaled $100,000 or 69% of the Forest Plan level for the year. This funding level was 91% of the base level of $110,000 necessary for funding a professional minerals geologist plus the support and District costs needed for adequate case administration. Fortunately, all of the earth-disturbing activities on the Forest in FY 93 were operated in compliance with their operating plans and State and Federal regulations.
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 100 ounces of gold were mined from the Forest during FY 93. The value of this amount of gold would be approximately $36,000 at the FY 93 average price of $360/oz.

The Forest received three applications to prospect for minerals (garnets) on acquired lands in FY 93.

Common Variety Minerals: The Forest uses mineral materials for road surfacing and provides these materials for County and State road surfacing projects as well as private industry projects on Forest land. Forest records show that 102,000 cubic yards of material were produced from Forest lands in FY 93, with an estimated value of $730,885. The estimated value is based on surfacing material in a stockpile and includes royalties, crushing costs and any other related costs.
Monitoring: All active earth-disturbing mining claim activities were monitored for compliance with operating plans and Forest Plan standards and State and Federal regulations. There were no violations found in FY 93.

Impacts to all surface resources as a result of mining were mitigated in compliance with Forest Plan standards and guidelines; no violation notices were 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

Monitoring Action

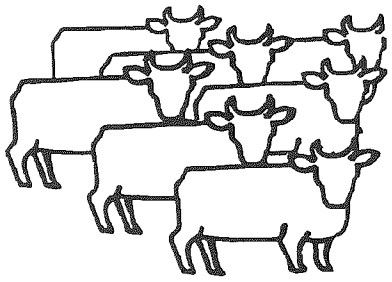
The Forest geologist will prepare a report on the probable effect of renewable resource prescriptions and management direction on mineral resources and activities, including exploration and development. Denial of proposed mineral activities and changes in land status affecting mineral availability will 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 contains 1,812,700 acres. Of these acres 259,167 (approximately 15 %) are in the Clearwater portion of the Selway-Bitterroot Wilderness and are withdrawn from mineral entry. In addition to Wilderness, the Forest currently has 52 individual sites withdrawn from mineral entry. This figure is unchanged from FY 92.

Mineral potential reports were completed for three scenic easements along the Lochsa River, a land exchange proposal totaling 6,500 acres and a land exchange proposal totaling 730 acres. The 6,500-acre land exchange included the Oviatt Creek fossil site. This site was Federally owned and was proposed to be exchanged to Potlatch Corporation as a part of the Johnson Creek-McGary Butte land exchange. The recommendation of the mineral report was for the Forest to retain management of the fossil resources at the site, and this was agreed to by Potlatch. Recommendations were to otherwise proceed with the proposed easements and exchanges. A mineral potential report was also completed for the Wild and Scenic River proposal for the North Fork of the Clearwater River, Cayuse and Kelly Creeks. The conclusions of the report were that any designation along Cayuse Creek would have minimal effect on the known mineral resources, while a designation along the North Fork of the Clearwater River or Kelly Creek could preclude or place restrictions on mineral activities.

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. (An allotment is an area of land where one or more individuals graze their livestock.) 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

Monitoring Action

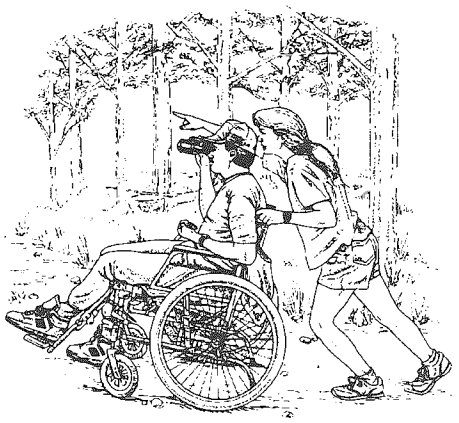
District range personnel annually monitor each grazing allotment for use, condition of range, forage availability and protection of other resources. The Forest biologist coordinates these reports through the Range Management Information System, generating one source of information about range on the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

Accomplishments/Findings

No new allotment management plans were prepared or updated in FY 93. 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 93 to protect range resources. There are currently 50 permittees using the available range on the Forest. There were 1,595 cattle and 2,665 horses permitted to graze on the Forest. This amounted to 10,859 animal unit months (AUM) in FY 93. An AUM is the amount of forage needed to sustain one cow, five sheep or five goats for a month.

The Palouse Ranger District with its eradication project targeting creeping matgrass controlled the noxious weed on 210 acres. No other noxious weed control projects were scheduled in FY 93.

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 opportunity for a broad spectrum of dispersed activities with sufficient area to maintain a low user density compatible with public expectations.

Strategy

For Recreation program purposes, the Forest has been divided into six areas of similar recreation opportunities, use patterns and user needs. Forest Plan implementation strategy for these areas focuses on providing a range of recreation opportunities within constraints set by the land base and other uses by identifying who uses the areas, what forms of recreation they choose and what potential uses exist.

Reconstruct, upgrade and maintain developed campgrounds to meet the needs of user groups: tent campers, RV campers (recreation vehicle travelers), campers with physical disabilities, stock users. Provide for development or maintenance of dispersed sites outside developed campgrounds to meet the needs of users, for example, put-in/take-out sites for rafters, to include toilets, picnic tables and drive-through access.

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

Item No. 2	Wide Spectrum of Recreation Opportunities

Frequency of Measurement: Annual
Reporting Period: Five years

Monitoring Action

Compare recreation use on the Forest with the broad range of opportunities that could occur and are supported in the Forest Plan. Identify changes or conflicts in existing recreation use; identify directions for changes and alternatives for conflict resolution.

Accomplishments

Recreation funding is below the level anticipated in the Forest Plan (see table 1). In FY 93, older American program employees and volunteers supplied much of the labor for daily maintenance work at campgrounds.

Still, staffing was below a level needed to keep up with routine maintenance needs. A backlog of this work continues to increase.

Recreation use in FY 93 was up significantly on the Palouse District but down or showing little change on other Districts (see table 1; one visitor day equals one person visiting the Forest 12 hours). Fees were raised on the Palouse District campgrounds (from $5 to $6) and on the North Fork District campgrounds (from $4 to $5), resulting in increased campground receipts (deposited in the Federal Government General Fund, not used at the local level).

Table 1. Funding and Recreation Use

	1989	1990	1991	1992	1993
Funding		$527,000	$674,000	$578,000	$582,000
Recreation Use*	794,000	756,000	814,000	899,000	1,056,000
Fees Collected	$36,256	$48,089	$50,661	$51,773	$56,840

*Measured in visitor days. One visitor day = one person visiting the Forest 12 hours.

Reconstruction of existing campgrounds along the U.S. Highway 12 corridor continued. Road and facility reconstruction in Wilderness Gateway Campground was not completed in FY 93 because of the wet weather. Worn facilities are being upgraded and parking spurs made wider and longer for RV's. Design of facilities reconstructed focused on ease of access for older and disabled persons.

Planning and design for Powell Campground to be constructed in FY 94 and Wendover and Whitehouse Campgrounds in FY's 95-96 were completed.

Reconstruction of interpretive and sanitation facilities at Colgate Licks National Recreation Trail and DeVoto Memorial Grove began during the summer and should be completed in FY 94.

The water system at Kelly Forks Campground was replaced.

Campsite and picnic site improvements began in Wild Goose and Apgar Campgrounds, Three Devils and Major Fenn picnic areas. Improvements will be completed in FY 94.

Special Volunteer Projects/Events: American people continue to volunteer to work on public lands. Projects in FY 93 included the following.

The annual "Take Pride In America" project on the Lolo Trail brought together more than 100 volunteers, who completed trail work and other projects for a seventh successful year.

Members of Clearwater Resource Coalition (CRC), Backcountry Horsemen and other volunteers continued

to construct facilities associated with the Group Shelter and other miscellaneous campground improvements at Wilderness Gateway Campground. This was the third year of intensive volunteer participation in improving facilities at the campground.

At Fish Lake near Hoodoo Pass, CRC and the Clearwater Road and Trail Committee contributed work and materials valued in excess of $5,300. They completed projects varying from trail work to sign and facilities painting.

Panhandle Off-Road Vehicle Association members opened 40 miles of mainline trail on the Palouse District.

The Latah County Snowdrifters group groomed 100 miles of snowmobile trails on National Forest lands and 50 miles on other lands around the North-South Ski Bowl.

Members of the Benewah-Palouse Trails Coalition brushed and cleared several trails on the Palouse District.

North Idaho Correctional Institution inmates completed opening maintenance of Lochsa River campgrounds.

Numerous individuals served as Campgrounds Hosts, their work worth thousands of dollars.

Findings

Any discussion of recreation trends must take into account the geographic area, its special features and the kinds of experiences people are seeking there. Following are findings organized by recreation zone.

1. The Palouse area includes the Palouse Ranger District, with its mix of private and public lands and small towns. The area is crossed with several year-round State highways. The community of Elk River is at the eastern edge of the area and is a hub of recreation activity year-round. The Palouse area draws heavy use from residents of Lewiston, Idaho, and Clarkston, Washington, along with people from eastern Washington (including Spokane) and from the university communities at Moscow, Idaho, and Pullman, Washington. The typical visit is on a weekend, with most visitors returning several times each year. Autumn, spring and winter use is significant.

-80 % of the recreation use occurs on weekends.
-Little Boulder Campground was renovated in FY 92, nearly doubling the number of campsites. Use prior to renovation was 30%. Use in FY 93 was also 30%, heavy on weekends and light during the week.
-Use of dispersed camping sites is up significantly, perhaps due to crowded campgrounds on weekends.
-There are more, larger and better equipped RV's in use at National Forest facilities and dispersed sites.
-Mountain bicycling is increasing. There are three local organized groups using the area, as well as many individuals in small groups. These groups are seeking longer and better trails.

2. The North Fork of the Clearwater River area is reached from Pierce, Idaho, or by driving through the once bustling Potlatch Corporation town of Headquarters, Idaho, and from Superior, Montana. Travel times are long, gravel roads generally dusty, services few and encounters with other visitors infrequent. Many Clearwater County residents visit the area on weekends. Most visitors stay three days or longer.

-More users are coming specifically to visit the North Fork area, seeking its special features. They are seeking a wide range of activities in a generally unconstrained setting: fishing, hiking, viewing scenery and wildlife, riding mountain bikes or motorcycles or all-terrain vehicles (ATV's), relaxing.
-There is an increase in out-of-state visitors driving significant distances.
-More retired people are spending extended periods of time.
-Visitors are bringing bigger RV's and are not deterred by the dusty gravel roads or the campgrounds built in the 1960s and designed for tents and pickup campers.
-Kelly Creek is a blue-ribbon trout stream that has received some national attention and has drawn some visitors as a result.
-There is more use by ATV's. "Four wheelers," more common than motorcyclists, want a trail system to accommodate their use. Trails not designed for their use are being used and impacted by this activity.
-Significant camping is occurring at the Kelly Creek trail head, with resultant impact on the site, including litter and unsanitary disposal. Many campers bring their stock, for which there are no facilities.

3. The Lolo Trail System is a historic route across the Forest from Lolo Pass to Musselshell Meadows. The route was used for centuries by the first Americans before the first white visitors, Lewis and Clark, passed through. The trail was first built in 1866 and followed by the non-treaty Nez Perce in their flight from General Howard's troops in 1877. In 1907 the Forest Service made the trail a mainline pack trail until the Lolo Motorway was constructed in 1935. This 100-mile corridor provides many miles of trail, historic sites and primitive road.

-During FY 93 several studies on historic sites and events continued. Two possible errors in the accepted route of Lewis and Clark have been identified and will be discussed in professional journals by the investigator.
-Studies were initiated on recreation use amounts and patterns.
-Work started on a new interpretive map and signs.
-Update of Lolo Trail System guidelines will occur during the Forest Plan revision.

4. U.S. Highway 12 follows the Middle Fork Clearwater River to Lowell and then is adjacent to the Lochsa River until a few miles west of Lolo Pass. This constitutes a 100-mile long recreation area in a Wild and Scenic River corridor. Recreation facilities are centered in three areas: (1) Middle Fork/Lower Lochsa near Lowell, (2) Wilderness Gateway Campground-Lochsa Historical Ranger Station and (3) the Powell area complex of campgrounds and resort. Side trips include the Lolo Trail System and the Elk Summit recreation area.

There are three distinctly different user groups in this corridor.

Highway-based travelers: The typical visit is one to two days. Out-of-state travelers passing through Idaho going to or from Yellowstone and Glacier National Parks make up a significant number of summer visitors. North-Central Idaho, eastern Washington and Bitterroot Valley, Montana, residents are weekend users.

Whitewater river users: This group is typically young (18-35), floating the whitewater sections of the Lochsa River, mostly between mileposts 129 and 108. Most visit during the day although a moderate percentage do camp. Many raft users are customers of commercial raft companies, while most kayak users own their own craft and utilize the Lochsa River with its easy highway access for whitewater practice.

Recreationists attracted to Lochsa River, related ecosystem: This group is attracted to the aesthetics of the corridor, the wilderness "feel." They typically stay from three days to a week. About half live within four hours' distance and come from Montana, Washington, Oregon or Idaho. Among these visitors are hunters in the spring

and autumn.

-River use by floaters and kayakers continues to increase.
-Campground reconstruction continues at Wilderness Gateway, Apgar, Wild Goose Campgrounds and Three Devils, Major Fenn picnic areas.
-There is increased use at all three hot springs in the corridor: Stanley, Weir and Jerry Johnson. Administration of day use only at Jerry Johnson has resulted in a return of family and similar user types.

5. Roaded dispersed lands north of the Lochsa River and east of Headquarters make up one of the Forest's recreation zones. Much of the Forest has roads which were constructed for timber and other Forest management activities. These roads are used by recreationists seeking unconfined experiences: camping at a "favorite spot," hiking, fishing, hunting, nature study, firewood cutting, berry and mushroom picking, mountain bicycling and driving for pleasure in highway vehicles and off-highway vehicles (OHV's) like motorcycles and quad-runners. In the winter, snowmobilers and cross-country skiers use the roads. Some roads are closed at times during the year to protect special resource values, like wildlife in traditional calving areas or streams subject to sediment.

-The elk vunerability study conducted by the Idaho Fish and Game Department in cooperation with the Clearwater National Forest continued in sections of Pierce and Lochsa Ranger Districts. Many roads in the area are closed during hunting season.
-With more strict enforcement of the 14-day camping limit, there were fewer complaints of campsite "homesteaders" in FY 93 than in FY 92.
-A newly organized Clearwater County snowmobile group groomed roads for snowmobile use south of Pierce over Hemlock Butte.
-There were more snowmobile trips from Pierce, Idaho, to Lolo Pass along the Lolo Trail in FY 93.

6. There are significant unroaded lands east of Headquarters and north of the Lochsa River which make up another Forest recreation zone. There are four blocks of land in this zone. Each has two distinct user groups: summer users seeking solitude, fishing or backcountry experiences; and autumn hunters.

The Great Burn area on the border with Montana south of Hoodoo Pass and including the Kelly Creek drainage, bounded on the southwest by Toboggan Hill Road.
Cook-Cayuse area north of the Lolo Motorway.
Mallard-Larkins area straddling the St. Joe Divide.
Upper Fish Creek-Hungery Creek area north of the Lochsa Historical Ranger Station.

-There has been an increase in extended hiking and horseback trips. Most of the trails were built for fighting fires before 1940 and do not connect with other trails. Trails often end at Forest, District or State boundaries.
-There has been an increase in conflicts between outfitted and non-outfitted recreationists.
-There are increased overhead, planning and administrative costs associated with scrutiny of management activities in proposed Wilderness lands, as requested by the public.

Item No. 14	Off-Highway Vehicle Use Impacts

Frequency of Measurement: Annual
Reporting Period: Five years

Monitoring Action

The Forest recreation specialist will prepare a report displaying the effects of off-highway vehicles (OHV's) 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. OHV use on proposed Wilderness and non-Wilderness lands will be monitored.

Accomplishments/Findings

OHV use is occurring throughout the Forest, but the following areas receive much of the use:

-Upper Potlatch River area for motorcycles and ATV's.
-Elk River area for snowmobiles.
-Lower sections of the North Fork Clearwater River area for motorcycles and ATV's.
-Cook Mountain-Windy Ridge area for motorcycles.
-Fish Lake for ATV's and motorcycles.
-Lolo Pass for snowmobiles.
-To some degree, the entire road system, for motorcycles and ATV's.

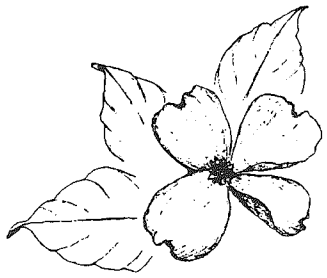
The Forest Plan did not designate areas specifically for OHV's. OHV recreationists are requesting access, and they are willing to pay for it through the State OHV funds. While the Forest Plan allows OHV use, the physical limitations of the trails normally prevent their use. Reconstruction of trails to meet modern OHV needs does not seem prudent if an area should become closed to OHV use, either through Wilderness designation, salmon needs, elk security, water quality or for other reasons.

The number and significance of complaints of conflicts increased sharply in FY 91 and have continued at about the same level since then. For the last few years the majority of comments centered on three areas: Windy Ridge-Cook Mountain Trail, Five Lakes Butte area and Fish Lake area in the upper North Fork Clearwater River country. These areas are either proposed for Wilderness in the Forest Plan or immediately adjacent to proposed Wilderness. All of the Forest Plan proposed Wilderness areas were included in Wilderness legislation in 1993.

Monitoring OHV impacts in FY 93 did not turn up any irreversible damage being caused by OHV's that might prevent an area from being considered for Wilderness. However, the presence of OHV's in many areas destroyed the "primitive" experience desired by some visitors.

The mountain bicyclist does not fit neatly into any category. Some areas, especially on the Palouse District near Giant White Pine, are experiencing an increase in this form of recreation. Concerns about mountain bicycles come from those who have been startled by the speed and silence of the bicycle. As with each type of trail use, bicycles add their own form of erosion by cutting into trails, causing water to stay on rather than run off a trail.

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

Accomplishments/Findings

There are twelve Research Natural Areas identified in the Forest Plan on the Clearwater Forest. One was officially designated before the Plan was released in September, 1987, the Lochsa River RNA. Nine additional RNA's have been designated since the Plan's release: Aquarius, Bald Mountain, Bull Run Creek, Chateau Falls, Dutch Creek, Four-Bit Creek, Grave Peak, Sneakfoot Meadows and Steep Lakes.

The final two, Fenn Mountain and Rhodes Peak, are in application process for official designation. Official designation can occur when an "Establishment Report," a complete botanical flora and fauna report, is finished for the proposed RNA. Funding for staff to gather the data has been limited.

Research Needs

Item No. 24	Research Needs

Frequency of Measurement: Annual
Reporting Period: Five years

Monitoring Action

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

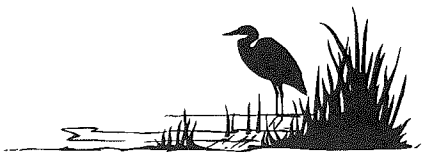
Findings

The following research needs have been consolidated from resource sections of this report.

Determine what constitutes "a sufficient number of standing trees" to be retained in "streamside protection zones." (See Riparian report.)

Determine what changes are necessary to lower stream temperatures for fish habitat. (See Fisheries report.)

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

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, site preparation and removal of project-generated and woody debris on stream channel condition.

Accomplishments/Findings

Instream Channel Stability: Introduction

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 (transects) were established at the mouths of 146 streams. Gradient (channel slope), instream sediment concentrations, channel substrate (rock size) composition and photo points were established. Channel type and stability were determined for each of the streams. The Forest plans to selectively monitor many of these streams at five- to ten-year intervals to determine trends in channel stability and instream sediment. An attempt will be made to associate cause with effect.

In FY 93, the Forest analyzed cross sections from one stream channel, a tributary to Minnesaka Creek. Instream sediment was analyzed using the Wolman pebble count technique. (A Wolman pebble count classifies size of stream substrate.) Channel cross sections were measured to determine changes in deposition (sediment deposit) or scour (removal of fine substrate -- rock less than two millimeters in diameter -- from channel) over time.

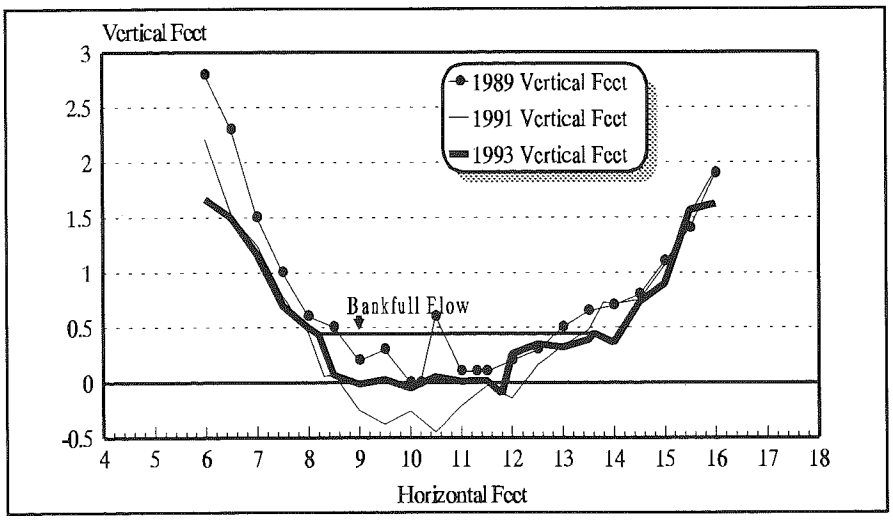
Minnesaka Creek

Before the early 1980s, it was common practice on the Clearwater National Forest to use small streams on the edge of timber harvest units as firelines when doing broadcast burning in clearcuts. Broadcast burning is a technique used to prepare land for tree planting. In 1989, as part of the Minnesaka Timber Sale, several headwater streams on the edge of clearcut harvest units were cleaned of all project-generated and natural woody debris to prevent the spread of fire into the adjacent stands during broadcast burning. Headwater streams generally do not have fish. By so doing, the natural woody debris which would have trapped sediment, keeping it from getting into fishery streams, was removed. The woody debris also provides stream channel stability.

The Forest no longer uses this method of fire control. Harvest practices are monitored to determine the effect of woody debris removal on small headwater streams. Surveyed channel cross sections and Wolman pebble counts have been used to detect changes in channel stability and instream sediment storage. Three permanent cross sections on tributaries of Minnesaka Creek allow for remeasuring in order to detect changes in channel stability and instream sediment storage.

Debris removal and fireline construction in streams have caused scour, deposition and changes in stream width/depth ratios as channels have adjusted to the removal of woody debris. Most adjustments occurred from 1989-91 although they continued into 1993. Vegetative growth in channel bottoms and the rolling of unstable wood back into channels appear to be trapping sediment, causing deposition and refilling of monitored cross sections.

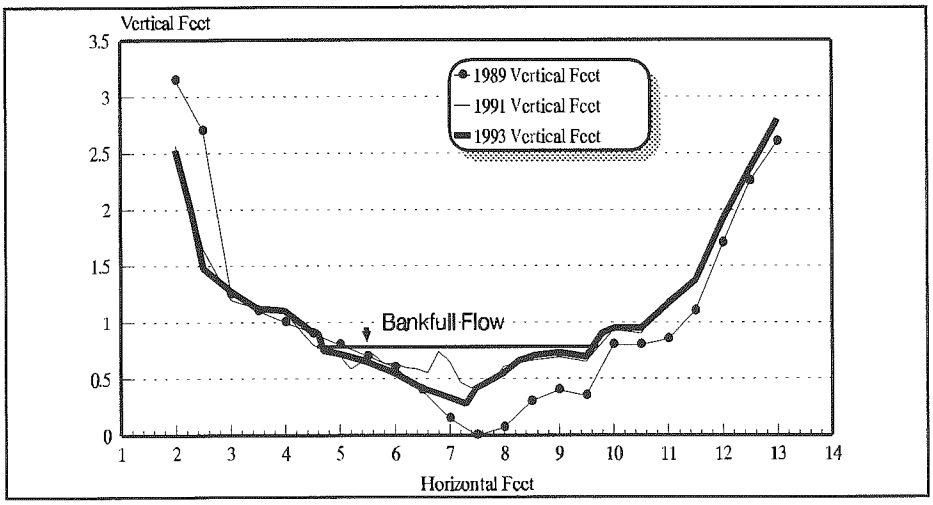
Figure 1. Upper Transect - Channel Cross Section



Some recovery appeared to occur by 1993 at Cross Section One. Between 1989 and 1991, the channel downcut there. However, between 1991 and 1993, material was deposited at this transect, replacing more than half of what had been removed and reversing much of the scour that had occurred from 1989-91. (Figure 1).

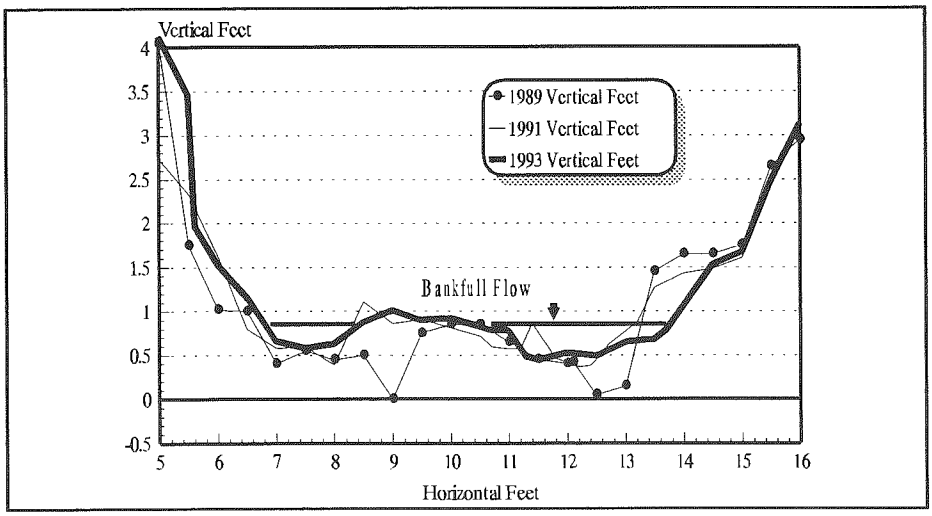
At Cross Section Two, there was very little change from 1991 to 1993. (Figure 2). Although the channel did scour in 1990 (data not presented), that trend reversed in 1991.

Figure 2. Middle Transect - Channel Cross Section



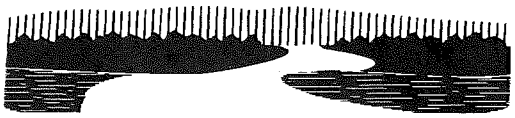
As shown in figure 3, there is a mid-channel bar at Cross Section Three. Measured data indicates that the bar increased in 1991 and 1993. Width-to-depth ratio is also increasing. Mid-channel bars and increasing width-to-depth ratio in very steep gradient channels are indicators of channel instability and ongoing adjustment processes.

Figure 3. Lower Transect - Channel Cross Section



Two conclusions have resulted from the monitoring efforts on the Minnesaka headwater streams. First, during broadcast burning and the construction of firelines, the instream, large organic debris must be maintained. Second, a sufficient number of standing trees should be retained in the Streamside Protection Zone (from 25' to 100' on either side of a stream) to provide for future large organic debris needs.

Roads



Item No. 13	Miles of Road Open/Restricted

Frequency of Measurement: Annual
Reporting Period: Five years

Each year the Forest Technical Services staff reviews the Forest road system and displays data showing miles of open roads and miles of restricted roads. The restricted road information is further broken down to show road miles that are closed yearlong to all vehicle traffic and roads that are restricted for some part of the year. Following is a table displaying that information.

Table 1. Miles of Restricted and Open Roads.

Restricted			Method of Closure				Open
District	Yearlong (miles)	Seasonal (miles)	Gates	Guardrail	Earthern Barrier	Posted: Sign Only	Year-round, weather permitting
Pierce	254	250	145	66	45	37	627
Palouse	230	232	74	41	71	34	731
No. Fork	422	234	67	42	135	24	614
Lochsa	135	209	80	53	45	18	127
Powell	368	185	44	48	129	17	393
Total	**1,409**	**1,110**	**410**	**250**	**425**	**130**	**2,492**

Accomplishments/Findings

The Clearwater National Forest road system is made up of roads that vary from narrow single-lane unsurfaced to double-lane asphalted roads. This system of approximately 5,011 miles provides access to all of the Forest's major areas. Road restrictions are a major tool used in resource protection. Miles of road restricted changes frequently and is driven by resource needs, including habitat needs of big game and water quality. At the end of

calendar year 1993 there were approximately the same total miles restricted as in 1992.

Road Obliteration

Goal

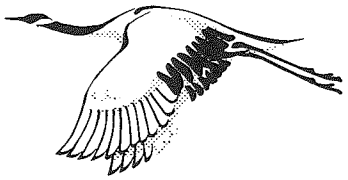
The primary objective of road obliteration/reclamation is to reduce watershed degradation. Roads determined to be unnecessary as part of the Forest's road system and which are contributing to watershed degradation are reclaimed.

Accomplishments/Findings

The purpose of road obliteration/reclamation is to eliminate or reduce sediment sources. Road obliteration techniques include (1) removing drainage structures like culverts; (2) removing embankments and opening up stream channels to approximate original contours; (3) flattening fill slopes (created by moving earth from a roadbed during construction) in order to stabilize and revegetate them and pulling up fill material which has sloughed or may slough or where a fill is poorly vegetated; (4) flattening or pulling down cut slopes (created during construction by cutting into a slope to construct a roadbed) too steep or poorly vegetated; (5) outsloping a roadway and constructing waterbars to prevent concentration of runoff; and (6) laying selected sections of a road back to original contours where the road is poorly vegetated or unstable. In each case the benefits of obliteration must be weighed against the impact on the resource to determine how much of the road to obliterate and which techniques to use.

Road obliteration/reclamation occurs when roads needing treatment are identified and when funds are available. In FY's 92 and 93, 8.5 miles of road were obliterated at a cost of $8,600 per mile. These costs include equipment, materials, labor and project administration.

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 collect data so as to monitor water quality to determine trends or impacts of past and/or current road construction, timber harvesting and mining activities. The Forest hydrologist will compile Forestwide data for inclusion in the monitoring report.

Accomplishments/Findings

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

Baseline monitoring and project water quality monitoring of streams has occurred in the following way.

Baseline stations have been located at the mouths of large drainages, generally larger than five square miles. Water level recorders and automatic water samplers have been installed for continuous collection of information. Water level recorders track seasonal fluctuation of stream water levels. This information is calibrated to determine stream discharge. Automatic water samplers have been installed at most baseline stations to collect suspended sediment samples continuously.

Project stations have been located downstream from management activities. Control stations (no activity) generally have been established upstream from activities, in a different but similar watershed, or at the same project station but prior to the activity. Project sampling allows the quantification of site-specific impacts, primarily sediment yield from a given activity. Data is collected at each project station with automatic water samplers. Elements measured are stream flow, suspended sediment and water level. Water level recorders and automatic water samplers are normally in operation from March through September.

The Forest also initiated a new method of instream monitoring in FY 92: the Riffle Stability Index (RSI). RSI is used as a measure of stream channel stability. The method consists of comparing the distribution of particle sizes in a riffle cross section (an area of shallow turbulent flow) with the size of the largest particles that are moving at bankfull flows. A complete description of this methodology is described in a paper entitled "Riffle Stability Index " by Gary Kappesser, Forest hydrologist, Idaho Panhandle National Forests (May, 1993).

Table 1 shows the Forest's sediment/discharge monitoring network by District. Years of record, type of monitoring station, data collected and instrumentation at each station are presented. Many additional water temperature, RSI, precipitation and snow survey stations are in place. Contact the Forest hydrologist for information on these stations.

Table 1. Water Quality Monitoring Network

District	Watershed	Yrs. of Record	Data Type* - Remarks
Pierce	Lolo Creek at mouth	3	1* - cumulative effects
	Lolo Creek (section 6)	14	2* - timber sales
	Eldorado Creek (below Linda)	3	1* - timber sales
Palouse	Elk Creek (above Elk River)	13	1* - timber sales
	Palouse River (above Lower Sand)	13	1* - timber sales, mixed ownership
North Fork	Fern Creek	4	4* - proposed timber sale
	Isabella Creek	14	3* - streamflow reference station
	Quartz Creek	13	1* - timber sales
	Salmon Creek (upper)	8	4* - control, above activities
	Salmon Creek (lower)	8	1* - station below timber sale
	Swamp Creek (above Osier)	13	1* - timber sales
Lochsa	Cougar Creek (Lowell)	8	5* - domestic water supply
	Pete King Creek	18	1* - long-term baseline
	Deadman Creek	14	1* - timber sales
	Fish Creek	2	2* - long-term baseline
	Canyon Creek	2	2* - timber sales
Powell	Crooked Fork Creek	14	1* - timber sales
	White Sand Creek	14	1* - timber sales
	Walton Creek	2	6* - road construction, timber sales
	Parachute Creek (upper)	3	4* - upstream control
	Parachute Creek (lower)	3	1* - landslide study

***1** - Stream Discharge, Water Level Recorder, Field-Measured (Depth Integrated) Suspended Sediment, Automatic Daily Suspended Sediment Samples. ***2** - Stream Discharge, Water Level Recorder, Depth Integrated Suspended Sediment, Automatic Daily Suspended Sediment Samples, Bedload Sediment. ***3** - Stream Discharge, Water Level Recorder. ***4** - Depth Integrated Suspended Sediment, Automatic Daily Suspended Sediment Samples. ***5** - Automatic Daily Turbidity (water clarity) Samples, Fecal Coliform. ***6** - Stream Discharge, Water Level Recorder, Depth Integrated Suspended Sediment, Automatic Daily Suspended Sediment Samples, Automatic Hourly Storm Suspended Sediment (sediment in streams resulting from summer thunderstorms).

The Forest processed approximately 4,000 suspended sediment and 34 bedload samples in FY 93. (Suspended sediment "hangs" in the water; bedload sediment moves along the stream bottom.) 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, or how much sediment is in a stream. This data is available from the Forest hydrologist at the Supervisor's Office.

Information from some of these and other monitoring stations is summarized below. Data is collected at many stations; it is analyzed as the need arises.

Bonanza Creek

In FY 89, approximately 1,800 feet of the Bonanza Creek riparian zone was clearcut (riparian zone for Bonanza Creek is the area within 100 feet of the stream). The Forest has been monitoring the effects of clearcutting on stream temperature since that time.

A control thermograph (a self-recording thermometer which measures variations in heat) was placed upstream of the clearcut section, and a second thermograph was placed directly downstream of the clearcut. Differences in stream temperature were recorded. In July, 1990, temperature differences of 4.5 degrees C. were noted between the two stations. Data from July, 1993, indicates water temperature has recovered to within 1 degree C. of the upstream control station.

Since 1990, dense alder has covered the stream, and this appears to be moderating the temperature differences between the upstream and downstream sites. The Forest is no longer clearcutting along Class I (fish-bearing) streams and has been aggressively applying more stringent riparian protection measures on all streams.

Fish Creek

Fish Creek is a 55,680-acre drainage or watershed located in the Idaho Batholith. (A watershed's size is measured in acres from creek bottom to ridge top.) Fish Creek's bankfull flow is estimated at 946 cubic feet per second. The drainage is relatively undisturbed except for approximately 2,000 acres of logging and slightly over 50 miles of road construction which occurred in the headwaters of the drainage in the early 1970s. The Forest intends to use Fish Creek as a baseline or control stream for nearby watersheds which flow through granitic "parent materials." Data results will be compared with data collected in managed watersheds.

Intensive streamflow monitoring of suspended and bedload sediment began in 1992. Suspended sediment concentration for 1992 and 1993 was 13.0 tons per square mile of watershed per year (tons/sq. mi./yr.) and 14.8 tons/sq. mi./yr., respectively. The higher sediment rate in 1993 appears to be related to higher discharge rates during that year resulting from snowmelt and rain well into the summer. Bedload sediment was not collected in 1992. In 1993, the total bedload was 2.6 tons/sq. mi./yr., for a total sediment load of 17.4 tons/sq. mi./yr.

Channel stability measurements, including Wolman pebble counts and RSI, were measured at four sites in the watershed from 1988-90. (A Wolman pebble count classifies size of stream substrate, or rock in channel bottom.) This data was analyzed in FY 93. Fine sediment levels appeared to be related to the amount of stream flow and landform. Fine sediment levels (less than 2 mm, millimeters, in size) were higher in the upper stream reaches where flows were less and topography gentler. Lower stream reaches were categorized by high energy flows, large boulder substrate and very little fine sediment. RSI could not be determined for boulder-dominated lower reaches since this method only works for gravel or cobble-bed streams (gravel is 2-64 mm in size; cobble

ranges in size from 64-256 mm).

Results of the data suggest that fine particles comprised 9%, 5% and 1% on transects taken in the lower area, high energy, fast-flow sections of the stream. At Fish Creek above Friday site (located in the upper reaches of Fish Creek), fine particles comprised 44% of the substrate.

RSI numbers were calculated for two of the four measured sites. This measurement establishes how much of the substrate is movable during bankfull flow and is a measure of channel stability. At the mouth of Hungery Creek (a tributary stream which joins Fish Creek in the lower reaches), the RSI indicated that only 15% of the substrate is movable during bankfull flow. At Fish Creek above Friday site, the RSI indicated that 68% of the substrate is movable. Interpretation of these results suggests that the site at Hungery Creek is a stable, large bed element channel (cobble/boulder). Fish Creek above Friday site appears less stable but is still considered to be within dynamic equilibrium according to the RSI method. (Dynamic equilibrium means that a stream is stable with its landscape.)

Canyon Creek

Canyon Creek is a 12,275-acre drainage located on the Idaho Batholith. The watershed has been heavily logged. To date, over 100 miles of roads have been constructed and 7,200 acres of timber harvested. The current road density of the watershed is 5.3 miles of road per square mile. Fifty-nine percent of the drainage has been harvested.

Water monitoring began in Canyon Creek in 1992 with the installation of a stage recorder and automatic sampler. The automatic sampler measured suspended sediment continuously during the months of March through August, 1993. The intent was to measure suspended sediment until base flow was reached in the autumn. Suspended sediment concentration for 1993 was 45.1 tons/sq. mi./yr. (Comparison: Fish Creek mean was 14.8 tons/sq. mi./yr.) Bedload sediment was also collected in 1993 and measured 6.1 tons/sq. mi./yr., giving a total sediment load of 51.2 tons/sq. mi./yr. This level of sediment approaches the estimated threshold for the watershed. The WATBAL (watershed sediment-yield model) predicted 1993 sediment load of 27.2 tons/sq. mi./yr. The actual total sediment load was higher than the WATBAL prediction because surface erosion from roads was higher than anticipated. Only 13.6% of the total sediment measured at the station was bedload.

In every month that measurements were taken, suspended sediment was higher in Canyon Creek than Fish Creek. This was even true in May, when Fish Creek was at its peak flow and Canyon Creek was falling. Sediment concentration in Canyon Creek is currently higher than Fish Creek because of the level of past activities that occurred before BMP's were effectively designed and implemented.

General Comments

Generally, monitoring of suspended sediment from past management activities has shown a recovery trend Forestwide. Suspended sediment concentrations tended to be less in the late 1980s and in the 1990s than in the early 1980s. Some of this may be due to the drought conditions in the late 1980s. However, we believe that much of the recovery is the result of applying BMP's, including better road location and design and an overall decline in road construction.

Although the monitoring of suspended sediment data shows an improving trend for most watersheds, measurements of cobble embeddedness and instream fines indicate that recovery of stream substrate from past

activities is going to take longer than previously thought. Increased cobble embeddedness reduces available gravel for spawning beds, 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. Work to determine natural levels of cobble embeddedness is ongoing.

Item No. 9	Best Management Practice (BMP) Applications

Frequency of Measurement: Annual
Reporting Period: Five years

Monitoring Action

The Forest hydrologist will coordinate with Forest Service employees, including timber sale administrators, engineering representatives, contracting officer's representatives, the Forest ecologist, the soil scientist and fire management officers to monitor all projects for compliance with "best management practices" (BMP's). BMP's are actions taken to minimize the negative, detrimental or undesirable effects which may result from implementation of management activities and are defined in the Idaho Forest Practices Act. The primary objective of BMP's 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 tree harvest methods so as to retain forest canopy.

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

Accomplishments/Findings

A total of 464 BMP's were audited from 21 timber sale units on the Clearwater National Forest in FY 93. Units were prioritized for selection if they were within a "stream segment of concern" (SSOC) or if they were adjacent to a Class I or a Class II stream. However, not all examined units met these criteria. A SSOC is a stream specially designated by the State of Idaho as a stream of special emphasis. These streams are usually designated because of higher resource values. Site-specific BMP's must meet or exceed minimum Idaho Forest Practices Act standards. A local working group made up of appropriate government agencies, affected landowners, representatives of tribal governments, environmental and fish and wildlife groups and others who seek to be represented discuss watershed goals specific to individual SSOC's and identify those actions necessary to achieve required water quality and fishery objectives. The Idaho Department of Lands is responsible to specify, after consultation with the appropriate local working committee, those site-specific BMP's necessary to achieve water quality and fishery objectives. Class I streams are used for domestic water supply or are important for the spawning, rearing or migration of fish. Class II streams are usually headwater streams or minor drainages that are used by only a few, if any, fish; their principle value lies in their influence on water quality or quantity downstream in Class I streams.

Timber sale units were located on each of the five Ranger Districts. Since the Forest has had difficulty meeting BMP's on tractor-logged units (where ground disturbance is greater than on cable-logged units) and small sales units (where water quality assessments are minimal), monitoring efforts included such units on each Ranger District. The rate for both BMP implementation and compliance was 99%. Sediment reached stream channels

or draws in five of the 464 observations. In one case, shade was not sufficiently retained along a Class I stream.

BMP's were further analyzed by method of application: aerial harvest systems (cable, skyline and helicopter); tractor harvest (tractor, log forwarder, fireline construction); and road design (construction and maintenance practices were considered when roads were within or adjacent to the selected harvest units). The following table shows the results of the monitoring efforts.

BMP Implementation and Effectiveness - Aerial, Tractor and Roads

Activity	Number of BMP Checks	BMP's Implemented	Percent Implemented	BMP's Effective	Percent Effective
Aerial Systems	218	218	100.0%	217	99.5%
Tractor Logging	101	99	98.0%	100	99.0%
Roads	145	145	100.0%	141	97.2%
Total	464	462	99.6%	458	98.7%

Impementation of effective BMP's is becoming standard operating procedure on the Forest. Excellent applications were noted on several of the harvest units that were reviewed. On the Lower Hidden Fix Sale an excellent job of fireline construction was noted. On the Little Boulder Sale a log forwarder machine was used instead of traditional tractor logging methods, resulting in reduced ground disturbance. On the South Bend Sale a great job of stream buffer location and protection was noted. Overall the 1993 BMP monitoring results were quite positive. A few problems were noted.

At least two instances were found where a variance was not obtained for activities within the stream management zone. Proper techniques such as over-snow logging were used in these cases, but variance procedures were not followed. Variances should include rehabilitation practices where appropriate. In one instance the proper variance had been obtained, but rehabilitation was not satisfactorily completed following the project.

More stringent BMP's may apply in SSOC's. In one case, equipment was operated in a manner compatible with overall BMP's but in violation of SSOC-BMP's, which required greater shade in the stream management zone than State BMP's. In another case, where a SSOC-BMP had been established for retention of all unmerchantable material along Class II streams, this material was removed. Retention of unmerchantable material along Class II streams is not a State BMP requirement.

Some problems were noted in the area of road maintenance. Partially blocked culverts were noted in several locations and some unstabilized cut slopes were evident during the review. Unconsolidated fills on a temporary road were responsible for one instance of sediment delivery to a Class II stream. The Forest should consider requiring backhoe construction for temporary roads so that roads can be properly compacted.

Three of the fives sites where sediment reached streams were located in mica schist soil types. The Forest may want to consider establishing a 50-foot stream protection zone for streams in mica schist soil types and incorporating additional gravel surfacing when building roads in this soil type.

Timber

Goal

Manage the continual renewal of the forest. Harvest those products that leave the forest in good health and sustain the ecosystem. Provide a yield of timber and other forest products to help support the economic structure of local communities. Continue to work toward achieving the desired future condition identified in the Forest Plan.

Strategy

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

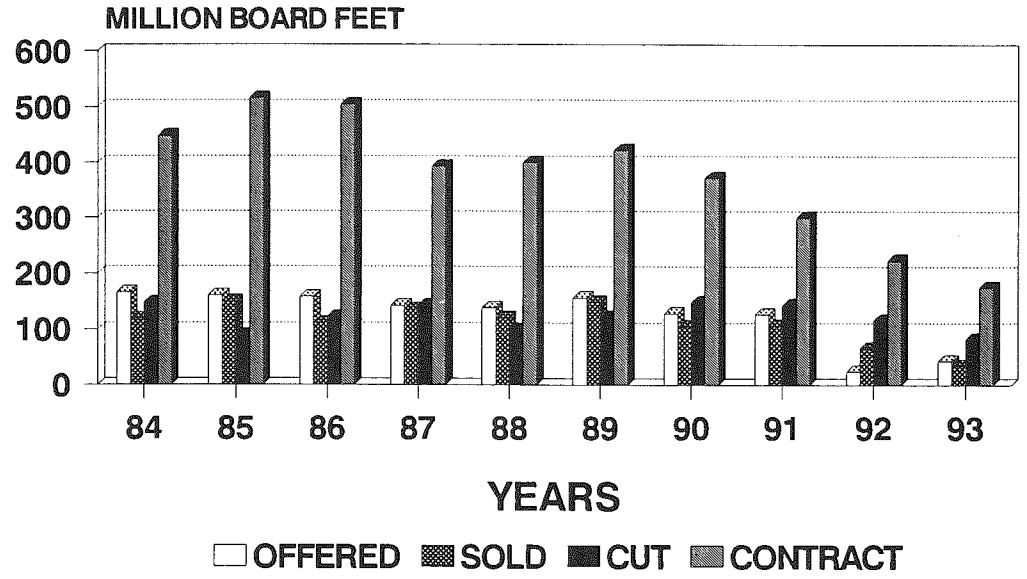
Timber Stand Inventory

The compartment inventory program, initiated in FY 85, will produce a comprehensive inventory and data base representing all timber stands on the Forest. The compartment inventory looks at a geographic unit (average unit size is 10,000 acres) in three phases. In the first phase aerial photographs are examined to identify areas that are relatively alike in size, tree density and species. Phase one has been completed; all stands on the Forest have been mapped and identified for suitability and management area. The second phase involves field stand examination of randomly selected stands. Phase two has been completed on approximately 80% of the 173 Forest compartments. The third phase involves data compilation then application of the data to unsampled stands. The introduction in FY 93 of the Most Similar Neighbor Estimation Procedure will allow the Forest to complete phase three in FY 94. This procedure matches sampled stands to unsampled stands using photo-interpreted and physical characteristics of the stands. It will make timely, statistically unbiased estimates of the important characteristics for every stand on the Forest.

Forest Product Sales and ASQ

In FY 93, the Forest offered a variety of products, including sawlogs, pulp, cedar products, firewood, Christmas trees, fence posts and bear grass. These products were sold through 25 timber sales and 1,744 miscellaneous collection permits. A total volume of 34.7 million board feet (MMBF) was sold. Approximately 23.4 MMBF (67%) 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.

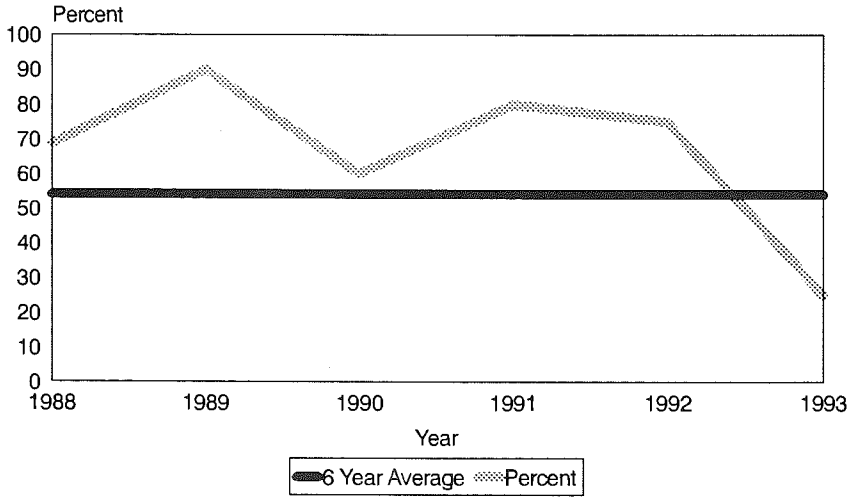
Figure 1. Annual Timber Volume in Past Decade, Offered, Sold, Cut and Under Contract



The 1991 Federal Appropriations Act required National Forests to reduce clearcuts to 25% of the FY 89 levels by FY 95. Because the total level of harvesting has decreased since 1989, the 25% clearcut reduction was achieved solely through cutbacks in production. Figure 2 shows how clearcutting has also decreased as a percentage of total acres harvested.

Figure 2.

Percentage of Acres Harvested That Were Clearcut



The Forest Plan breaks the allowable sale quantity (ASQ) into two parts, timber volume taken from the roaded portion of the Forest and that taken from unroaded. ASQ is the maximum volume of timber that can be harvested in a decade, expressed in an annual quanitity. In table 1, the volume sold on the roaded part of the Forest is divided into the standing sawtimber component and non-interchangeable component (NIC). The NIC is that portion of the ASQ that represents non-sawtimber products like cedar products, posts, pulpwood and firewood.

Table 1. Volume of Timber Sales Sold for the Roaded and Unroaded Components of the Forest

Year	Roaded Sawtimber MMBF	NIC MMBF (Roaded)	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	53	12	65	0	65
1993	21	9	30	3	33
Total	427	87	514	51	565

Table 2 compares the acres and volume estimates used to derive the annual ASQ with the number of acres and timber volumes sold annually by management area (defined in the Forest Plan).

Table 2. Comparison of Forest Plan Annual Projections With Timber Sales, 1988-1993

	Forest Plan Projections		Timber Sold, 1988-1993	
Management Emphasis Area	Projected Acres/Year	Projected Volume/Year MMBF	Average Acres/Year	Average Volume/Year MMBF
Timber Production E1, E3	3,561	81.2	3,850	62.5
Road/Trail Corridor A4, A6	125	0.8	25	0.5
Big-Game Summer Range C8S	3,099	62.5	60	1.9
Big-Game Winter Range C4	1,007	23.6	615	14.6
Riparian Areas M2	3,516	5.2	165	3.2

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

Item No. 18	Harvested Land Restocked Within Five Years

Frequency of Measurement: Annual
Reporting Period: Five-years

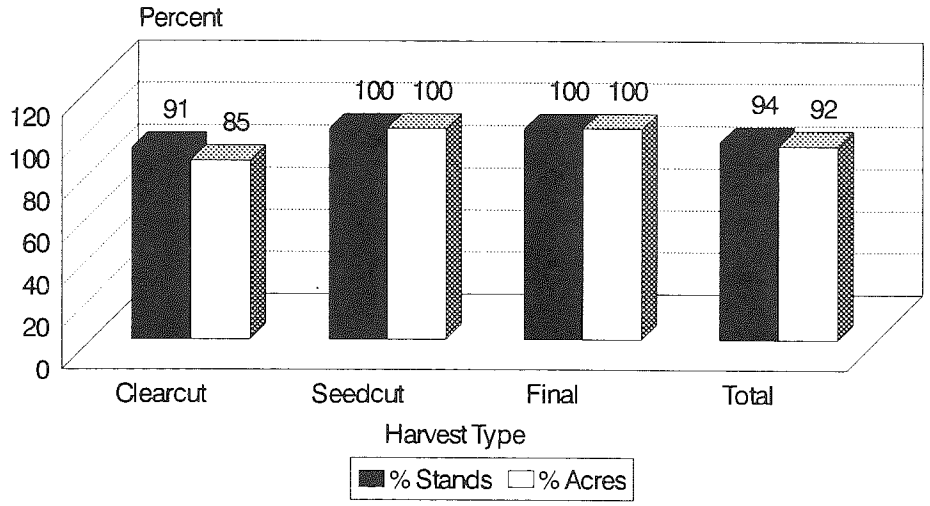
Monitoring Action

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

Accomplishments/Findings

The National Forest Management Act of 1976 requires that when trees are cut in a regeneration harvest to achieve timber production objectives, the cuttings shall be done according to existing technology and knowledge which will ensure adequate restocking (planting) of the lands within five years after final harvest. Even though not required by law, the Clearwater National Forest tracks regeneration from the time of the seed-step harvest rather than wait until the final removal of the overstory. A seed-step harvest is a method that leaves a few trees uncut to reseed an area. Regeneration success measured five years following the FY 88 harvests is displayed in figure 3. The purpose of the regeneration harvest method is to remove the old crop and plant seedlings to produce a new crop.

Figure 3. 1988 Regeneration Harvests Adequately Restocked in 5 Years



During FY 88, clearcut harvest was conducted on 86 stands for a total of 1,697 acres. The final removal harvest, using seed-tree and shelterwood harvest methods, was accomplished on 21 stands for a total of 890 acres. The initial cutting using seed-tree and shelterwood methods occurred on 35 stands for a total of 794 acres. A shelterwood harvest leaves trees to protect seedlings as they grow. Both seed-step and shelterwood harvest methods involve additional harvests until such time as all original canopy is removed, the "final removal harvest."

Of the 142 stands that were planted in FY 88, eight clearcuts have failed to attain adequate regeneration after five years. These stands will be replanted. All final removal harvests are now adequately stocked.

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

Frequency of Measurement: Annual
Reporting Period: Ten years

Monitoring Action

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

Accomplishments/Findings

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.

Item No. 20	Validate Maximum Size Limits for Harvest Areas

Frequency of Measurement: Annual
Reporting Period: Annual

Monitoring Action

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

Timber

Accomplishments/Findings

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

The average size of regeneration harvest units cut in FY 93 was 18.9 acres. There were a total of 2,623 acres harvested in 139 units. One hundred eighteen of these units, totaling 2,060 acres, were clearcut. Three of the FY 93 harvest units exceeded 40 acres in size; all were final removals of shelterwood trees. The number of regeneration cutting units exceeding 40 acres is compared to those which are 40 acres or smaller.

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

Frequency of Measurement: Annual
Reporting Period: Five years

Monitoring Action

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

Findings

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

A wetter and cooler than average spring and summer resulted in a lessening of the insect and disease outbreaks reported in FY 92. Aerial detection surveys in FY 93 found only 100 acres of Douglas-fir bark beetle infestation. This represents a significant decrease from the 1,900 acres reported in FY 92. There is a corresponding decrease in the area infested with the fir engraver bark beetle. The infested area of both of these bark beetles is mostly on the Palouse, Lochsa and Powell Districts. Management efforts, primarily salvage/sanitation cuttings in bark beetle mortality areas, have both directly and indirectly reduced bark beetle populations.

The western balsam bark beetle was reported on over 500 acres. This is virtually no change from the acres reported in FY 92, the first recent survey that found this insect in significant numbers. We will continue monitoring to determine if this increase signals a significant building infestation in subalpine fir forests.

Balsam woolly aphid damage was reported on only 550 acres of subalpine fir stands on the Forest in FY 93. This is 20 percent of the level of infestation that was detected in FY 92. This aphid is an introduced pest. Its potential for killing trees in the Northern Rocky Mountains is not known. Monitoring of the infestation and damage will continue.

A fungal disease, Lophodermella concolor, has again been reported throughout the range of lodgepole pine on the Clearwater National Forest. The disease attacks last year's needles in the spring of the year. It is the cause of many of the red-and-brown lodgepole pines seen in the spring of 1993. This disease does not normally result in tree mortality. However, it can slow growth and leave the infected tree susceptible to attack from other, more serious pests.

Root disease infection has been seen in managed stands with advanced natural regeneration. Late successional species, particularly grand fir and western redcedar, tend to be more susceptible to root diseases. Research indicates that partial cuts, both thinning in immature stands and partial cuttings in overmature stands, tend to improve habitat conditions for root diseases and some defoliating insects.

Changes in species composition, stand density, vigor and size structure resulting from fire suppression and insufficient Forest management (decreased harvesting, planting, thinning, etc.) may create favorable conditions for certain diseases and insect pests. For example, dead and dying diseased trees are natural "targets" for fire. When fire is suppressed, disease can spread. The Region One Pest Management Group has ongoing studies to provide further data and advice to Forest managers. The Forest will implement the Group's recommendations as they become available.

Trails

Goal

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

Strategy

Inventory trail conditions and maintain record (Trail Resource Information System - TRIS). The Forest goal is to complete log and prescription surveys on all trails. A trail log records a trail's distance, condition and features. A prescription is a plan to bring a trail to design standard. A contract for maintenance or reconstruction without trail relocation can be prepared from this information. Thereafter, routine condition surveys provide the information for developing maintenance schedules.

Manage an effective trail maintenance program. High priority will be placed on a maintenance program that stresses drainage. Resource damage occurs when trails are poorly designed or the drainage structures are not maintained. Eliminate trails no longer needed.

Maintain safe bridges. Inspect bridges at least once every two years. Replace native wooden (log) bridge stringers with longer-lasting materials. Build trail bridges only when a ford is impassable or unsafe during most of the heavy-use season.

Manage an effective trail construction/reconstruction program. Follow two principles.

Design and reconstruct trails to minimize maintenance costs. Trails relocated will have a maximum of a 10% sustained grade, with grade reversals to provide maintenance-free drainage and prevent erosion. Reconstructed sections will include installation of adequate drainage.

Public safety, use and resource considerations will be used to set trail work priorities. Provide for day-use trail opportunities from campgrounds, picnic areas and at other locations where they will complement a high-use recreation attraction.

Item No. 16	Trail Management

Frequency of Measurement: Annual
Reporting Period: Five years

Monitoring Action

The Forest Trails Coordinator will prepare an annual report that focuses on the status of the trail system, trail bridges and the trail construction/reconstruction program. Reports from the TRIS data base will be reviewed to

ensure that this information is current.

Accomplishments/Findings

Table 1. Forest Trail System Summary by District.

Status	Pierce RD	Palouse RD	No. Fork RD	Lochsa RD	Powell RD	Total
System Length	309 mi.	85 mi.	382 mi.	393 mi.	455 mi.	1,625 mi.
Wilderness	0 mi.	0 mi.	0 mi.	140 mi.	295 mi.	335 mi.
Mainline Trails*	108 mi.	47 mi.	161 mi.	137 mi.	310 mi.	762 mi.
Bridges	12 total	1 total	19 total	12 total	24 total	68 total
Puncheon**	1,413 ft.	194 ft.	0 ft.	150 ft.	1,511 ft.	3,268 ft.
Motorcycles okay	98 mi.	81 mi.	319 mi.	149 mi.	0 mi.	647 mi.
Mt. Bikes okay	309 mi.	81 mi.	382 mi.	253 mi.	39 mi.	1,046 mi.
Stock okay	309 mi.	84 mi.	382 mi.	393 mi.	452 mi.	1,620 mi.

*Mainline trails are generally maintained annually.
**Puncheon = wooden deck over wet area.

Trail Log and Prescription Surveys

Sixty-five miles of trail log and prescription surveys were completed in FY 93. This is down 29% from FY 92. As more surveys are completed and data compiled on high-use and problem trails, work priority and funds are shifted to maintenance.

Trail Maintenance

Table 2 provides information on accomplishments by trail maintenance levels. Note the reduced miles of maintenance on Level I and Level II trails. As the Forest gains on the backlog of maintenance and reconstruction, more maintenance is being shifted to Level III.

Level I maintenance involves minimal clearing only. Level II maintenance additionally includes some tread work and some brushing. Level III maintenance is heavy clearing, tread repair and the construction of drainage structures.

Volunteer Assistance

Volunteer work decreased this year, possibly due to the wet spring and summer. However, significant contributions were made by members of the Boy Scouts of America, residents of the Northwest Children's Home (Lewiston, Idaho), enrollees in the Student Conservation Association, Backcountry Horsemen members,

outfitters, Take-Pride-In-America (TPIA) volunteers, Clearwater County Road and Trail Committee members, Panhandle Off-Road Vehicle Association (PORVA) members, members of Latah-Benewah Trail Coalition and members of the Clearwater Resource Coalition (CRC).

Pierce District again hosted the TPIA project on the Lewis and Clark Trail. Volunteers completed several miles of drainage and tread work on the trail.

For the second year, CRC and Clearwater County Road and Trail Committee members worked on the Fish Lake Trail. The estimated value of their volunteer labor and materials delivery is $5,300.

Again this year, PORVA and the Latah-Benewah Trail Coalition performed Level I maintenance on 70 miles of trail on the Palouse Ranger District.

Table 2. Trail Accomplishments by Maintenance Levels, 1989-1993.

	1989	1990	1991	1992	1993	% Change
***Maintenance funds (M $)**	**385**	**389**	**513**	**479**	**474**	**-1**
**Maintenance Level I			448	473	336	-8
**Maintenance Level II			106	114	83	-27
**Maintenance Level III			205	187	229	+22
**Forest Crew Maintenance			448	262	169	-35
**Volunteer Maintenance			147	178	141	-21
**Contract Maintenance			311	334	344	+3
**Total Maintenance	517	724	759	774	654	-16
**Log and Prescription Survey	145	350	198	92	65	-29
***Construction funds (M $)**	**185**	**250**	**212**	**503**	**382**	**-24**
**Construction	4	13	21.6	36.1	17.9	-50

*Funds in Thousand Dollars (M).
**Accomplishments in Miles.

Bridge Inspections and Maintenance

The current inventory lists 68 trail bridges on the Forest. Ten were inspected to ensure safety. Decks or major support members were replaced on several bridges in FY 93.

Two steel-stringered timber bridges were built at shallow stream fords. One deteriorated wood bridge was replaced with a treated timber bridge. Steel bridges have a life expectancy of 50 years + compared with 20 years for most native-timber bridges.

Trail Construction and Reconstruction

Four major trail contracts were awarded for a total of 17.9 miles. Two are barrier-free paved trails. The Giant Redcedar Trail is a half-mile paved trail that provides barrier-free access to the largest tree in Idaho. The other barrier-free paved trail is .2 miles long and is at DeVoto Memorial Grove along U.S. Highway 12. In addition to trail construction, other construction is in process at DeVoto Grove, including installation of interpretive signs, a comfort station and picnic sites. A companion project is the North DeVoto Trail and Colgate Licks Trail, with interpretive facilities, also along Highway 12.

The Meadow Creek II trail project began as four small projects combined to create an attractive project for professional trail contractors to bid in FY 93.

The Walton Lake Trail reconstruction project was started ahead of schedule to allow for use of power tools in the proposed Wilderness area since neither motorized nor mechanized equipment is allowed in Wilderness. Wilderness trail work requires labor-intensive handwork. Money saved by using power tools on the Walton Lake project was used for other trail work.

The Seven Lakes Trail relocation was completed in the Selway-Bitterroot Wilderness. A half-mile section of this trail with grades up to 45% was relocated, with a new grade of 10%.

A section of the Nee-Me-Poo Trail from Dutchman Creek to Lolo Creek was reconstructed by the Pierce District trail crew. Work included the construction of a 30-foot puncheon bridge over Dutchman Creek.

Table 3. FY 93 Trail Construction Program

Project Name	District	Trail No.	Miles	Bridge Span (feet)	Estimated Cost (M $)	Actual Cost
Giant Redcedar	Palouse	748	.5		62	57
Colgate Devoto	Powell	601	1.2		20	20
Meadow Creek II	Palouse	224	.7		46	35
Seven Lakes	Lochsa	220	.5		15	15
Walton Lakes	Powell	79	8.5		107	93
Nee-Me-Poo	Pierce	40	4.0		20	20
Storm Creek Bridge	Powell	50	0	70	51	58
Musselshell Bridge	Pierce	40	0	26	19	18
Survey/Design					23	23
Total			15.4	96	363	339*

*Cost included construction and contract administration.

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, high-use recreational areas and administrative areas.

Strategy

The Forest landscape architect and the Districts' visual resource paraprofessionals will keep abreast of proposed management activities; provide input when proposed management activities are located in the viewing areas of designated visual travel corridors, recreational sites, Wilderness, high-use recreational areas and administrative areas; recommend practices which will meet Forest Plan visual quality objectives (VQO's) for proposed management activities; monitor management activities during implementation for compliance with VQO's; evaluate management activities for success in meeting VQO's.

Item No. 3	Visual Quality Objectives

Frequency of Measurement: Annual
Reporting Period: Annual and five years

Monitoring Action

The Forest landscape architect, assisted by District visual resource paraprofessionals, will randomly sample five percent of the current year's completed management activities to determine if VQO's have been met. A minimum of one activity per Ranger District will be included in the sample. Monitoring of management activities, primarily timber sales, will include observation of activities and a review of timber sale or other project reports.

Accomplishments/Findings

A site visit was made to the Lower Salmon Timber Sale on the North Fork Ranger District. Harvesting of the cutting units was in progress. A site visit was also made to the Post Office Timber Sale on the Powell Ranger District, a good example of VQO's achieved for a timber sale.

The Idaho Department of Transportation constructed a passing lane adjacent to a helicopter landing area for the Post Office Timber Sale, thereby exposing the landing area and creating a visual impact that doesn't meet "retention in foreground" viewing of Highway 12. Planting trees and shrubs above the highway cutbank and the landing area will reduce the visual impact that has been created.

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 all activities within the Wild and Scenic River corridor for adherence to established standards. Continue to acquire private land easements and manage existing easements to standards defined in the Forest Plan.

Accomplishments/Findings

Floating activity on the Lochsa River continued to increase and reached capacity at a number of sites. The public and Forest Service personnel have voiced concerns about highway safety, limited parking, limited size and number of viewing sites, improper disposal of human waste, conflicts between users and limited capacity at launch and pull-out sites.

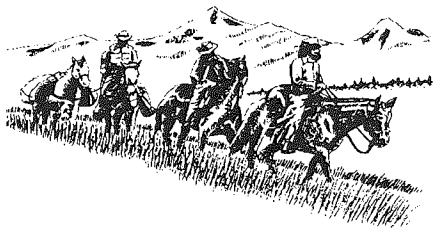
Wild and Scenic River management plans for the Middle Fork Clearwater and Lochsa Rivers are out of date. Planning began in 1993 to make revisions. The revised plans should be completed by the summer of 1994.

A working group comprised of personnel from the Clearwater National Forest and the Idaho Department of Transportation developed guidelines which established a procedure for working together on facility development coordination and maintenance along U.S. Highway 12. Work will be completed within standards that protect the Wild and Scenic River values of the Lochsa.

Wild and Scenic River suitability studies began for what the Forest Plan called "study rivers," or rivers with potential for inclusion in the Wild and Scenic Rivers system: the North Fork Clearwater River system (including Kelly and Cayuse Creeks), White Sand (named "Colt killed Creek" by Lewis and Clark) and the upper end of the Lochsa River (a section 1/4-1/2 mile long). The studies will provide data from which to write a report to Congress on the suitability of the rivers for Wild and Scenic designation . Work should be completed by the winter of 1994.

Two private land easements were acquired in FY 93. Existing easements met Forest Plan standards.

Wilderness



Item No. 5	Wilderness

Frequency of Measurement: Annual
Reporting Period: Annual

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.

Strategy, Proposed Wilderness

Monitor off-highway vehicle (OHV) use and other activities to determine if they are jeopardizing the Wilderness character. Coordinate management of proposed Wilderness areas with the National Forests that share common boundaries.

Strategy, Selway-Bitterroot Wilderness

Coordinate management of the Wilderness with the three National Forests that share Selway-Bitterroot Wilderness (SBW) lands to ensure a common approach that oversees management of the whole. Monitor Prescribed Natural Fire program.

Monitoring Action

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

Accomplishments/Findings

Each year an extensive report titled "State of the Wilderness" (SOW), which discusses the activities, management actions and monitoring in the whole of the Selway-Bitterroot Wilderness, is published. Additional information about the accomplishments/findings discussed in this monitoring report can be found in the SOW.

Powell District continues to find and inventory recreation sites that exceed Forest Plan standards for campsite impact levels and density. The known total is 24. Lochsa District completed a similar inventory in 1992.

The condition of Stanley Hot Springs is in decline because of heavy use and poor camper practices. Forest Service presence was increased in FY 93 when the Horse Camp Wilderness Ranger adjusted her work schedule to spend more time in the area. Campsite monitoring showed that all six of the sites now rate heavy use, primarily due to tree damage from collection of wood for campfires, stock, unburied human waste, shortcut trails and exposed mineral soil (raw soil that cannot recover in a year).

Work at the Seven Lakes Restoration Area continues, year two of an estimated three-year project. Personnel from the Aldo Leopold Wilderness Research Institute were on site in FY 93 to begin a study of the long-term consequences and effectiveness of restoration. They will also study the effectiveness of designating campsites for campers with stock.

Student crews worked on the Seven Lakes restoration. They closed ten campsites to decrease campsite density. They stabilized eroded trails and rerouted one-half mile of Trail 220 between Mud and Maud/Lottie Lakes. They transplanted trees, forbs and shrubs selected from the surrounding area. Seeds were collected in the restoration area, and the University of Idaho greenhouse will raise 1,000 seedlings for future planting.

No Yellow Starthistle was found at Boulder Creek above Horse Camp. This is the first year that the noxious weed was absent from the area. In previous years the weeds were hand-pulled from this area, a method that proved effective to stop the weed's spread in a small area. A new plant was found at a campsite near Pass Creek. It was pulled.

Unusually heavy grazing and stock impacts occurred at two sites in the Lottie Creek area, just outside the Seven Lakes Restoration Area. Grazing is prohibited in the Seven Lakes area, and many stock users have put their stock out in the adjacent Lottie Creek sites. Overuse at these sites is becoming a problem. Monitoring will continue.

Non-system trails are trails used by hikers and stock but not listed on the Forest Service trails inventory. Such cross-country travel is an accepted practice allowed by the SBW management plan as long as the trails appear to the casual visitor to be game trails and impacts to them recover within one season. Thirteen non-system trails totaling 30 miles fail to meet Forest Plan standards.

Campsites at many mountain lakes are not up to the standards outlined in the Forest Plan because of severe impacts from past use. Revegetation in the subalpine environment takes time, and ground cover, like heather, is easily damaged.

The Wilderness Implementation Schedule was completed in FY 93. This is a schedule of management activities needed to meet the goals identified in the Selway-Bitterroot General Management Direction, which identifies and describes management activities, who is responsible for making sure the job gets done and how much the activities will cost.

Groups and individuals concerned about management direction in proposed Wilderness areas voiced their

concerns in discussions with Forest Service management personnel this past year. One concern is about the use of OHV's. Forest Service personnel from National Forests that share boundaries of proposed Wilderness met to coordinate management of the areas. The emphasis was to avoid actions which could eliminate future management options in the areas. Management of these lands remains unsettled until Congress decides a bill defining Idaho's Wilderness.

Prescribed Natural Fire

A prescribed natural fire is a lightning-caused fire allowed to play its role in the life cycle of the Forest as long as it meets "prescription." This prescription is a specific plan developed for a particular fire to meet management goals, like allowing fires to burn where they emulate fire's role before people began putting out fires decades ago.

Due to the wet summer, there were just two fires in FY 93, a man-caused fire and a natural (lightning) fire. The man-caused fire burned 15 acres, and the natural start burned .1 acre.

The Prescribed Natural Fire plan contains monitoring requirements and asks a number of specific questions. These questions are answered in the full SOW, but excerpts are quoted here.

Are fire-dependent forest ecosystems within the SBW being perpetuated? Of the nine different fire regimes identified within the SBW, total fire activity has paralleled historical patterns in all but two. In the Douglas fir/ponderosa pine and lodgepole pine/subalpine fir regimes, the two largest fire regimes in the SBW, only about 50% of the historical average has burned. In addition, a shift in the intensity of the fires has also been noted. A higher percentage of fires is now burning as crown fires and lethal underburns, where more frequent, non-lethal underburns have occurred in the past.

Is there a continuation of a natural mosaic of vegetation? Yes, but not on a naturally occurring scale. By deciding when and where fire is allowed, vegetative mosaics are being altered.

Are adjustments needed in the plans, policies or procedures governing the Prescribed Natural Fire program? As agency policy is revised and refined, there is a tendency to add requirements, in some cases compounding the complexity of implementing the Prescribed Natural Fire program. As the complexity of implementation increases, it becomes easier to default to the path of least resistance, a wildfire control mode. The decision to implement a wildfire control strategy requires little or no documented analysis, yet may result in high costs in terms of dollars and Wilderness resource damages.

Funding for the Prescribed Natural Fire program continues to be a problem. There are no provisions within the Forest or Forest Service Regional budgets to identify or fund the cost of managing a Prescribed Natural Fire program. Program planning and administration, except for the specific implementation costs associated with managing a particular prescribed natural fire, are generally paid for with funds that are designated for fire protection, not prescribed natural fire.

Risk associated with prescribed natural fire remains a major concern. In fire-dependent ecosystems, fire cannot be excluded. Cost limitations, fire-fighter safety, weather, fuels and topography all make the exclusion of fire

through fire suppression an impossibility. The use of prescribed natural fire must be the calculated use of a Wilderness management tool.

Administrative Structures

Fish Lake Cabin located on the Powell Ranger District in Wilderness was restored and refurbished by volunteers and Forest Service personnel in the summer of 1993, with help from the Regional Historic Buildings Preservation Team from Missoula, Montana. The cabin floor was replaced, weathered wood shakes and two rotten wall logs replaced and the area around the cabin cleaned up. All of the work was completed without motorized or mechanized equipment.

The Powell District Ranger made the decision to stabilize Grave Peak Lookout, an old cupola-style lookout built from lumber made at a water-powered mill at Elk Summit. The lookout is one of three remaining cupola-style lookouts in Region One of the Forest Service.

Horse Camp Cabin was vandalized in May, 1993. Lochsa District personnel repaired the damage.

Law Enforcement

Forest Service law enforcement officers can (1) issue a Notice of Violation (a ticket) to a violator present or known or (2) fill out an incident report if the violator is unknown.

In FY 93 two violation notices were issued, one for human waste and one for leaving a fire unattended. Ten incident reports were filed and included fires left unattended, human waste not buried, breaking and entering a Forest Service building, trees damaged and stock grazed where grazing prohibited.

Wildlife

Goal

Manage and provide habitat that will support viable populations of all resident wildlife species. Maintain and enhance big-game winter and summer habitat to support a huntable population of elk, deer and moose. Manage habitat to contribute to the recovery of each threatened, endangered and sensitive (TES) 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 Forest activities on preservation and enhancement of biological diversity. Develop quantitative measures to define diversity. Provide biological input to proposed management activities.

Each year improve approximately 1,300 acres of winter big-game habitat using a variety of methods such as prescribed fire, fertilization, slashing and seeding. Each year improve an additional 1,000 acres of big-game habitat by logging. (These methods of improvement provide the environment for growth of forage.) Use road closures and modification of timber sale design, layout and scheduling to maintain or enhance elk summer habitat.

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

Continue to inform and provide the public with current information on the programs and status of wildlife habitat management on the Forest. Information on the population trends and effects of management will be available for anyone interested.

Item No. 7	Provision for Plant and Animal Diversity

Frequency of Measurement: Annual
Reporting Period: Five years

Monitoring Action

Monitor the effects of Forest activities to maintain and enhance plant and animal diversity. A wide variety of plant and animal habitats exist and are well represented on the Clearwater National Forest. The exception is old-growth habitat. Information is available concerning the amount and distribution of old-growth habitat.

Accomplishments/Findings

During FY 93, the Forest developed interim direction and guidelines for old-growth management, to be followed until the Forest Plan is revised. Tentatively identified old-growth habitat (Forest status report, March, 1992) continues to be verified on the ground through site-specific National Environmental Policy Act (NEPA) analysis and evaluations at the District project level. Stands that have been verified as existing old-growth habitat through the NEPA process will be officially designated as such in the timber stand data base, and specific information for individual stands that have been designated is available upon request. It is estimated that there are 37,500 acres of old-growth habitat in the Clearwater's poriton of the Selway-Bitterroot Wilderness. This estimate was developed in cooperation with the Idaho Department of Fish and Game based upon ground checks of aerial photo and landsat (satellite imagery) data.

During FY 93, a draft conservation strategy was developed in cooperation with the Idaho Department of Fish and Game Conservation Data Center (CDC) for the management of coastal disjunct plant communities on the North Fork of the Clearwater River, the Lochsa and Selway Rivers. These plant communities are very rare and represent a unique vegetative community in the Clearwater ecosystem. The purpose of the conservation strategy is to guide future management activities to preserve and maintain this rare and unique vegetative community. Final strategy document should be available in June, 1994.

Item No. 25	Big-Game Habitat Improvement

Frequency of Measurement: Annual
Reporting Period: Annual

Monitoring Action

The Forest wildlife biologist will coordinate information concerning vegetative response on winter-range acreage receiving rehabilitation treatment. All acres being treated under big-game winter range rehabilitation plans will be inspected annually. Treatment acreage will be recorded on U.S. Geological Survey quadrangle maps. These will be maintained at Ranger District offices.

Accomplishments/Findings

Winter and Summer Range

During FY 93, approximately 351 acres of timbered winter range were logged to provide forage for big game in accordance with the Forest Plan goals and objectives. No other treatments (like prescribed burning, slashing, seeding or fertilization) were done to enhance winter range.

Monitoring results indicate 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 the Forest's 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, reevaluated and revised. These assumptions and outputs will be updated

during the Forest Plan revision.

During FY 93, the Idaho Department of Fish and Game (IF&G) and the Clearwater National Forest worked together to continue a bull elk/road closure vulnerability study, a five-year study which began during the 1991 hunting season on portions of the Lochsa and Pierce Ranger Districts.

The elk population on the Forest has stabilized at about 20,000, a relatively high level. According to current harvest figures from IF&G, record numbers of bull elk have been taken from hunting units on the Clearwater National Forest.

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

Frequency of Measurement: Annual
Reporting Period: Five years

Accomplishments/Findings

Indicator Species

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

Kingfisher. The kingfisher, a fish-eating bird that lives near most streams and creeks, was thought to be a good indicator species for monitoring riparian habitat. Consultation with Dr. Jeff Yeo, wildlife biology professor at the University of Idaho, indicates that an alternative indicator species for riparian habitat should be developed. This will be done during the Forest Plan revision.

Elk. The elk population on the Clearwater National Forest is estimated at 20,000. Bull/cow ratios average 15/100. A downward trend in this ratio is anticipated due to bull elk vulnerability during the hunting season. Implementing road closures during hunting season may slow this downward trend. To better quantify the benefits of road closures, a cooperative study was begun in 1991 with the IF&G on portions of the Pierce and Lochsa Ranger Districts. The study will continue through 1996. Biologists are gathering data to compare bull elk harvest in an open-road area compared to that in a closed-road area.

Deer. Approximately 6,000 white-tailed deer inhabit the Forest. Annual harvest remained stable in FY 93. Recent mild winters significantly reduced mortality, and the population is increasing. Implementation of management practices to mitigate impacts on elk, riparian areas and old-growth habitat will also benefit overlapping white-tailed deer habitat.

Moose. Approximately 1,500 moose inhabit the Clearwater Forest. Harvest remained stable in FY 93. Recent winters contributed to a slight increase in the population. The Powell Ranger District continues to support habitat for approximately 75% of the Forest moose population. Moose populations are sensitive to excessive hunter harvest and loss of winter habitat -- timber stands with trees of varying heights and ages. 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 a variety of old-growth habitats across the Forest. During FY 93, data was collected from permanent transects (sample areas) established in FY 91 on portions of the Pierce and Lochsa Ranger Districts in the Upper Deadman, Canyon and Eldorado Creek areas. Approximately 400 miles of road were driven and additional surveys conducted for nesting goshawks. No goshawks or nests were located. Two nests were located by stand exam field crews in adjacent areas and were documented. Two previously located goshawk nests were revisited and found to be inactive in FY 93. Pileated woodpeckers were commonly located across the Forest. Overall the species appears to be maintaining. Pine martens are very common in higher elevations and continued to be extensively trapped with no limits or harvest restrictions being considered by IF&G.

Gray Wolf (Endangered). During FY 93, a male wolf that had been radio-collared near Glacier National Park in 1991 was discovered in the Kelly Creek area. He was monitored until September, 1993, when the batteries went dead and the collar no longer transmitted a signal. USFWS officials decided not to recollar this wolf. A report documenting the movements of the wolf and the monitoring effort is in progress.

The Forest received 20 new reports of possible wolf sightings. None could be confirmed. Data on all wolf sightings is now being stored at CDC in Boise.

Forest personnel continued to be active participants on the Central Idaho Wolf Recovery Team and technical subcommittee during FY 93. The Forest continues to coordinate use of wolf educational kits in community public schools (K-12). These educational materials were used by 1,500 students throughout North-Central Idaho. Ten 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 work on the National Wildlife Federation's annual bald eagle survey each January. Observations will continue to be made during the spring and summer seasons 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.

Grizzly Bear (Threatened). For the past five years, the Clearwater Forest took the lead, in cooperation with the University of Idaho, IF&G, USFWS and adjacent National Forests, in conducting a habitat analysis for the Bitterroot Grizzly Bear Evaluation Area. This project involved an extensive evaluation and analysis of habitat, using the latest technology. Approximately 3.5 million acres of North-Central Idaho were analyzed for suitability to the recovery of a viable population of grizzly bears. A report of the findings was completed in FY 93 and delivered to the USFWS. The agency can be contacted for information.

Sensitive Species

Presently there are nine animal and 21 plant species that are listed as sensitive. During FY 93, most of the work conducted on sensitive species was accomplished through a partnership agreement with CDC. The focus of the work was to conduct basic surveys and inventories. Funding for monitoring during FY 93 was limited.

Animals

Wolverine. The Clearwater Forest is on the periphery of wolverine habitat. A small number of confirmed

observations continue to be reported on the Forest each year. It is believed that a small remnant population still exists in remote portions of the Clearwater Forest. Only indirect surveys were conducted for wolverines in FY 93. A conservation plan for the species is in process.

Western Big-Eared Bat. The western big-eared bat is a cave-dwelling bat that was suspected to occur on the Forest. To date, no observations of the species have been made. Suitable habitat for this species on the Clearwater Forest is extremely limited, perhaps nonexistent.

Harlequin Ducks. Incidental surveys for harlequin duck presence were conducted in FY 93. Harlequins have been observed on the North Fork of the Clearwater River and on the Lochsa River. Numbers appear to be low, and very limited reproduction has been documented. An interagency conservation plan is now being developed for this species. Agencies involved include the Forest Service, Bureau of Land Management (BLM), USFWS and IF&G.

Boreal Owl. No new surveys to locate boreal owls on the Clearwater Forest were conducted in FY 93. Boreal owls occur throughout the Forest in high elevation spruce, fir and lodgepole pine habitats. The Forest, in cooperation with the University of Idaho, installed and checked 500 nest boxes. The nest boxes were also installed to mitigate the impact of a timber sale in boreal habitat. To date, no boreal owls have nested in the boxes. Some boxes have contained nesting flying squirrels. An interagency conservation plan for boreal owls is being developed by the Forest Service, BLM, USFWS and IF&G.

Coeur d'Alene Salamander. Coeur d'Alene salamander surveys for the Clearwater Forest indicate that the species is much more widely distributed than previously believed. As a nocturnal species that is very difficult to observe, it is usually associated with a rocky waterfall, steep cliff habitat. A conservation plan for this species is being developed.

Black-Backed Woodpecker, Flammulated Owl, Lynx and Fisher. Funding was not available in FY 93 to conduct field surveys for these species. However, biologists are researching how the species can be successfully managed.

Plants

Collecting information on sensitive plant species through field surveys and inventories is a critical part of the Clearwater's TES species program. Approximately 35 projects were examined for their effects on sensitive plants. In addition, a number of partnership projects with CDC were conducted. These included the establishment of permanently located monitoring plots in the Steep Creek Timber Sale, monitoring of Pacific dogwood on the Clearwater and Nez Perce National Forests, gathering data for community and population monitoring in Aquarius Research Natural Area and the development of a conservation strategy for coastal disjunct plant species.

During FY 93, there were no changes in the listing of TES species for the Clearwater National Forest. A list of TES species found on the Forest is available upon request.

III. Appeals

This section contains a list of appeals received by the Forest. It is divided into two parts: 1) appeals of the Forest Plan, which the Chief of the Forest Service is to review and on which he will issue decisions; 2) appeals of projects on the Forest, which the Forest Supervisor and the Regional Forester will review and then issue decisions.

Forest Plan Appeals

The Forest Plan was signed in 1987. The Forest subsequently received 28 appeals. After meeting with appellants, this number was decreased to 15 as appeals were either consolidated or withdrawn. Between 1987 and the beginning of FY 93, the Chief issued decisions on all but four of these appeals. During FY 93, appeal decisions were issued on three appeals, leaving but one unresolved. The following table summarizes the progress made and the status of these four appeals.

Appellant	Status	Issues
#2163 George Wuerthner	Decision letter issued 6/14/93. Forest Plan upheld by Chief.	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.
#2185 Columbia River Intertribal Fish Commission	Negotiations progressing.	1. Protection of Indian treaty rights. 2 Cumulative impacts of roaded development on fisheries. 3. National Environmental Protection Act (NEPA) site-specificity requirements. 4. National Forest Management Act (NFMA) mitigation and monitoring requirements. 5. Clean Water Act requirements.

Appeals

Appellant	Status	Issues
#2172 Wilderness Society et al.	Decision letter issued 6/14/93. Forest Plan upheld by Chief.	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 recommendation 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 the allowable sales quantity (ASQ).
#2131 Bradley Chinn	Decision letter issued 6/14/93. Forest Plan upheld by Chief.	1. Assessment of roadless areas. 2. Protection of the water resource. 3. Requirements of the Wild and Scenic Rivers Act. 4. Determination of ASQ. 5. Identification of potential impacts to Wilderness areas from development on adjacent lands. 6. Whether the Environemntal Impact Statement (EIS) meets the requirements of NEPA and NFMA in determining environmental impact significance.

The Forest received 12 new project appeals during FY 93. The following table presents information on these appeals.

Project Level Appeals

Appellant	Status	Project Appealed/Issues
Resource Organization on Timber Supply	Decision upheld by Regional Forester.	Forest Plan Amendment No. 5 1. Need for amendment. 2. Uneven-aged management. 3. Significance of amendment.
Wolf Action Group	Decision remanded to Pierce District Ranger.	Orogrande Timber Sale 1. Effect on wolves. 2. Effect on management indicator species.
Alliance for the Wild Rockies	Decision remanded to Pierce District Ranger.	Orogrande Timber Sale 1. Cumulative effects. 2. Water quality. 3. Fisheries. 4. Visual quality. 5. Failure to consult on "No Effect" fnding.
Ecology Center	Decision upheld by Forest Supervisor.	French Creek Right-Of-Way 1. Cumulative effects. 2. Road densities. 3. Effect on wolves.
Ecology Center	Decision upheld by Regional Forester.	Cedar Face Cost Share 1. Cumulative effects. 2. "No Effect" on chinook salmon. 3. Inadequate scoping.
Wilderness Watch	Decision upheld by Forest Supervisor.	Gold Creek Bridge Replacement 1. Necessity of bridge. 2. Not following Selway-Bitterroot General Management Direction.

Appeals

Appellant	Status	Project Appealed/Issues
Ecology Center	Decision remanded to Powell District Ranger.	Crooked Fork Analysis 1. Water quality. 2. Old growth. 3. Reforestation. 4. Monitoring. 5. Protection of spring chinook salmon. 6. Sensitive plants. 7. Threatened, endangered, sensitive animals. 8. Biological Evaluation does not meet Forest Service standard.
American Wildlands	Decision remanded to Powell District Ranger.	Crooked Fork Analysis 1. Range of alternatives. 2. Failed to prepare an EIS. 3. Accuracy of information. 4. Stream protection. 5. Openings over 40 acres. 6. Sensitive plants. 7. Water quality. 8. Wolf recovery. 9. Chinook salmon survival.
Resource Organization on Timber Supply	Decision remanded to Powell District Ranger.	Crooked Fork Analysis 1. Application of Forest Plan standards. 2. Inaccurate description of affected environment.
Clearwater Valley Outfitters and Guides Association	Dismissed.	Outfitted Floating North Fork of Clearwater River
Ecology Center	Decision upheld by Regional Forester.	Too Square Timber Sale 1. Openings greater than 40 acres. 2. Cumulative effects to sensitive species. 3. Mitigation measures.
Ecology Center	Decision withdrawn by District Ranger.	North Fork Small Sales Program

IV. Planned Actions

Introduction

This section identifies actions slated for FY 94 and beyond. First is a discussion of the Forest Plan lawsuit settlement and revision. Then comes a discussion of items the Forest will be considering for amendment in the coming year to keep the Plan current, followed by a list of other planned activities for FY 94.

Forest Plan Revision

As part of the Forest Plan lawsuit settlement, the Forest Service agreed to revise the Clearwater's Forest Plan. Under the terms of the lawsuit settlement, the Forest has until March, 1995, to file a Notice of Intent in the Federal Register to revise the Forest Plan.

The first step the Forest needs to take to begin its trip down the road to a Revised Forest Plan is to conduct an Analysis of the Management Situation (AMS). The AMS will examine the current condition of the Forest and the surrounding area, or "area of influence." This examination will include a look at the social environment, the economy and individual natural resources on the Forest. Once the AMS is completed, the Forest will begin the task of writing an environmental impact statement (EIS) and a Revised Plan.

Once the revision process begins, the Forest will ask for significant public involvement as well as consultation with the Nez Perce Tribe, local governments, individuals, groups and various State and Federal agencies. The Forest Plan will be revised through a process of open participation and collaborative planning.

Proposed Forest Plan Clarifications

Many clarifications needed in the Forest Plan will be made during the revision process. However, some issues will need to be addressed before the revision is completed. Several amendments, which will keep the Plan current during the revision process, are expected to be made annually. Following are proposed Forest Plan amendments expected in FY 94.

Potlatch River Canyon Amendment, Palouse Ranger District. Environmental assessment (EA) completed and Decision Notice signed in July, 1992. Changes trail corridors in Potlatch River Canyon to Forest Plan A4 management area and designates the visual quality objective for the area seen from the trails.

Oviatt Creek Fossil Beds Amendment, Palouse Ranger District. To be analyzed in the McGary Butte/Johnson Creek Land Exchange EA. The fossil beds would become the property of Potlatch Corporation, in exchange for lands currently in Potlatch Corporation ownership if the land exchange were to occur. However, the Forest Service would retain management through an easement with Potlatch Corporation.

Bim and Bear Creek Amendment, North Fork Ranger District. Update of the water quality objective for these

streams. Analysis to be completed in the Mid-Skull Upper Bear EIS.

Road 252 Amendment, North Fork Ranger District. Update the visual quality objective of this travel corridor. Analysis to be completed in the Mid-Skull Upper Bear EIS.

Elk Creek Falls Amendment, Palouse District. Writing of the EA is underway. The amendment will refine the standards and goals for the Elk Creek Falls Recreation Area, management area A2. The actual contents of the amendment will depend on the results of the assessment.

Throughout FY 94, several other project-specific amendments are expected to be identified as analysis continues on active projects or is initiated on new projects.

Forest Plan Appendix C: Projected Budget

As we continue to implement the Forest Plan, we find that we are continually updating costs to comply with strategies outlined in chapter II. Each autumn we update the dollars needed to implement these strategies. This updated information is submitted to the Regional Office, and it becomes part of the basis for the Forest Service's budget request to Congress.

Instead of changing the projected budget information in the Plan, we feel it is more important to inform you about the adjustments we make during this process. Each year we report our actual expenditures compared with Forest Plan projections (adjusted for inflation) in the annual Monitoring and Evaluation Report. A chart displaying this data may be found in the "Economics" section of this report.

Other Planned Activities

The Appaloosa Horse Club based at Moscow, Idaho, will host their annual Appaloosa trail ride in July, 1994. They will ride about 100 miles of the Nez Perce Trail from Musselshell Meadows to Powell.

Pierce Ranger District will host the eighth year of the "Take Pride In America" project along the Lolo Trail in the summer of 1994.

V. Implemented Changes

Forest Plan Lawsuit

In February, 1993, two lawsuits were filed against the Forest Service alleging violations of the National Forest Management Act, National Environmental Policy Act and the Administrative Procedures Act. The lead plaintiffs were the Sierra Club and the Wilderness Society, representing nine co-plaintiffs. The complaints focused on the Clearwater Forest Plan (released in 1987). Major issues in the lawsuits include the following:

- unrealistic (high) timber harvest projections (allowable sale quantity, ASQ);
- uncertainties in the Forest's sediment yield model and its effect on water quality;
- incomplete water quality standards;
- the suitability of lands allocated to timber management;
- unrealistic budget expectations to implement the Forest Plan;
- failure of the Forest Service to act upon the plaintiffs' original appeal of the Forest Plan.

In March, the Forest Service made the decision to attempt settlement negotiations with the plaintiffs to avoid a long and costly court battle. The U.S. Department of Justice represented the agency in the negotiation process. The settlement was signed by all parties September 13, 1993. The Federal court has issued a court order directing the settlement's implementation.

Facts Behind the Logic and Rationale of the Settlement

Revision: The Forest Service Regional Forester agreed to revise the Clearwater Forest Plan and concurrently announced his intention to begin the process of amending or revising all Forest Plans in the Northern Region (Northern Idaho, Montana, North Dakota and northwest South Dakota National Forests). The Clearwater will begin the revision process in FY 94. The Regional Forester has determined that all Forests in Region One will undergo significant Forest Plan changes following further ecosystem management assessments.

Until the revision is completed, the current Forest Plan remains the guiding document for the Clearwater Forest, with the following four "interim measures" or exceptions. (See Effects report for details.)

1. Timber Program

The Forest Service agreed to an annual timber offer not to exceed 80 million board feet (MMBF) per year. This timber offer was developed for the following reasons.

a. The Region's forecast of timber offers through FY 97 supports our previous discussions with the timber

industry, forecasting the Clearwater's share of the Region's total to be funded for approximately 60-70 MMBF.
b. We are building a workforce organization to support 70 MMBF.
The settlement document clearly states that the annual timber offer of 80 MMBF is a scheduling limit only and should not be interpreted as a new ASQ figure. The Forest Plan ASQ remains unchanged.

2. Old Growth

The agreement commits the Forest Service to prepare Environmental Impact Statements (EIS's) for new roads and timber sale projects which directly affect field-verified old-growth stands 100 acres or larger.

Some old-growth stands which exceed 100 acres occur in roadless areas where EIS's are already required.

The EIS requirement applies only to new road and timber sale projects. It does not apply to recreation developments, roads, fuels management projects and timber sales affecting stands less than 100 acres.

3. Wilderness Areas

The Forest Service agreed not to approve any final road or timber sale decisions in Congressman Larry LaRocco's proposed Wilderness areas (HR 1570) or in any area included in any Idaho Wilderness proposal introduced by any Idaho delegate until the Forest Plan revision is completed. The Forest's evaluation of its five-year timber sale program at the time of settlement indicates that the proposed Wilderness areas involve only two or three proposed sales and pose a partial conflict with two other sales. However, the anticipated reduction in timber offer and funding will only delay the start of several of those projects prior to completion of the revision. Therefore, the stipulation has no significant effect.

The stipulation does not affect other roadless areas. As funding allows, the Forest can move forward with decisions on those projects. In general, most of the high priority roadless EIS projects were not affected by the settlement.

4. Water Quality

The Clearwater Forest is committed to the goal of improving and maintaining water quality on stream segments of concern and all Forest watersheds. The Forest Service agrees to proceed only with those projects that would result in no measurable increase in sediment production in drainages currently not meeting Forest Plan standards. The Forest Service also agrees, as budgets permit, to repair or correct known sediment sources on Forest Service system lands within these drainages if technically possible.

The water quality interim measure does not prohibit the Forest from developing projects in below-standard watersheds. It does commit the Forest to avoid aggravating the current situation and requires that the Forest Service perform both pre- and post-decisional project analysis (monitoring), which is "business as usual."

Settlement fees: The Forest agreed to pay "reasonable" attorneys' fees to the plaintiffs. While final amount has not been settled, it is believed that the figure will represent an appreciable savings to the public when compared

with the cost of a lawsuit.

A law called the "Equal Access to Justice Act" allows plaintiffs to collect fees when they sue the Federal government. Advice from Department of Justice attorneys indicates that paying fees is relatively common in settlements and fighting it is clearly not worth losing the opportunity to settle.

The following discussion addresses other aspects of the settlement.

Public involvement: Settlement negotiations in a lawsuit, by their very nature, involve only the parties to the lawsuit. However, the public was generally informed of settlement discussions by various newspaper articles. The Forest Service has been specifically criticized for not keeping the timber industry involved during the litigation process. The Forest Service did notify industry at the outset that settlement discussions would ensue. The timber industry chose not to attempt to intervene in the lawsuit until very late in the settlement process. When the timber industry did file to be an intervenor, they were denied the motion by a Federal judge.

Effects of litigation on the Forest: Litigation is not a pleasant undertaking. Our Forest personnel were severely taxed, and important project work was curtailed or delayed during the proceedings. The Forest spent about $70,000 in preparing its case, hoping to avoid a courtroom battle, which could have cost an estimated $500,000 or more. Avoiding court also eliminated potential injunctions which could have shut down all or part of the Forest's planned timber program. With or without a court case, the Forest would still face the need to begin the revision of its Forest Plan.

In sum, the Forest Service represented its public-at-large in a noteworthy and responsible manner, facilitating wise use of the public's money.

The future: While the Clearwater National Forest recognizes the frustration this crisis precipitated, we believe that the Forest represented all sides with an optimistic settlement. Settlement enables the Forest to concentrate on developing a sustainable timber offer program and to concentrate on Forest Plan revision. Our employees are dedicated to that accomplishment.

The Regional Forester's direction to revise the Clearwater's Forest Plan strongly emphasizes the need for the collaborative involvement of local governments, tribes and interested citizens during the revision process. This Forest pledges to focus on strengthening those relationships and ensure that all interests have an opportunity to play an active role in the Forest Plan revision process.

Other Changes

Amendments: There were no Forest Plan Amendments signed in FY 93.

Forest facilities and recreation sites will be modified to meet the standards established in the Americans With Disabilities Act. A Forestwide inventory has been completed to determine what construction is needed. Conversions are ongoing. Reconstruction of recreation sites and facilities on the Palouse Ranger District has been completed.

VI. List of Forest Contacts

The following people contributed to the development of the Monitoring and Evaluation Report for the Clearwater National Forest for FY 93.

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Dallas Emch	"	Staff Officer - Ecosystem Management
Jeff Fee	"	Heritage Program, Archaeologist
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VII. Forest Supervisor Approval

APPROVAL

I have reviewed this annual Forest Plan Monitoring and Evaluation Report for Fiscal Year 1993. This report 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. Amendments needed to keep the Forest Plan current will be implemented only after appropriate public participation and analysis.

This report is approved.

JAMES L. CASWELL
Forest Supervisor

Date June 16, 1994