United States
Department of
Agriculture

Forest Service
Northern Region

Clearwater National Forest

Annual Monitoring & Evaluation Report

Fiscal Year 2007

Clearwater National Forest

FYs 2007 Monitoring and Evaluation Report

Responsible Agency: USDA Forest Service

Responsible Official: Tom Reilly, Forest Supervisor
Clearwater National Forest
12730 Highway 12
Orofino, ID 83544

For Further Information: Marty Gardner
12730 Highway 12
Orofino, ID 83544
(208) 476-8219

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, DC 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Table of Contents

Section 1 – Introduction **1**

Section 2 – Monitoring Report **2**

Economics **2**

Item No. 1 - Quantitative Estimate of Performance Output or Services 2

Item No. 17 - Document Cost of Implementation Compared with Plan Cost 2

Effects **5**

Item No. 22 - Effects of National Forest Management on Adjacent Land and Communities 5

Item No. 23 – Effects of Other Agencies on National Forests 10

Fire **12**

Fisheries **19**

Item No. 8 - Water Quality and Stream Condition for Fisheries and Non-Fisheries Beneficial Uses 20

Item No. 31 - Anadromous Fisheries 23

Item No. 32 - Inland Fisheries 42

Heritage Program **48**

Item No. 4 - Protection and Condition of Heritage Resource Sites 48

Lands **50**

Item No. 12 - Land Ownership Adjustments 50

Minerals **51**

Item No. 15 - Minerals Prospecting and Development 51

Item No. 36 - Minerals Resource Availability 52

Range **53**

Item No. 6 - Livestock Forage Available, Range in Good Condition Per Established Allotments 53

Recreation **55**

Item No 2 - Wide Spectrum of Recreation Opportunities 55

Item No. 14 - Off Highway Vehicle Use Impacts 59

Research Natural Areas **62**

Research Needs **63**

Item No. 24 - Research Needs 63

Riparian Areas **64**

Item No. 10 - Riparian Area Condition 64

Road Decommissioning Program **74**

Roads **84**

Item No. 13 - Miles of Road Open/Restricted 84

Scenic Resources **84**

Scenic Resources **85**

Item No. 3 - Visual Quality Objectives 85

Water Quality (formerly "Soil and Water") **86**

Item No. 8 - Water Quality and Stream Condition for Fisheries and Non-Fisheries Beneficial Uses 86

Item No. 9 - Best Management Practice (BMP) Applications 92

Item No. 11 – Site Productivity 95

Timber **96**

Item No. 18 - Harvested Land Restocked Within Five Years 98

Item No. 19 – Unsuited Timberlands Examined to Determine if They Have Become Suitable 99

Item No. 20 – Validate Maximum Size Limits for Harvest Areas 99

Item No. 21 – Insect and Disease Status as a Result of Activities 100

Trails **101**

Item No. 16 - Trail Management 101

Wild and Scenic Rivers **103**

Wilderness **105**

Item No. 5 - Wilderness 105

Wildlife **112**

Item No. 7 - Provision for Plant and Animal Diversity 112

Item No. 25 - Big-Game Habitat Improvement 113

Item No. 26-35 - Population Trends of Management Indicator, Threatened and Endangered Species 113

Section 3 - Appeals and Litigation **117**

Section 4 – Implemented Changes **118**

Section 5 – Planned Actions **119**

Section 6 – List of Contributors & Consultants **120**

Section 7 – Forest Supervisor Approval **121**

SECTION 1 – INTRODUCTION

The ***Clearwater National Forest Monitoring and Evaluation Report, Fiscal Year 2007*** summarizes the results of Forest Plan monitoring and evaluation activities during Fiscal Year 2007. The fiscal year begins on October 1 and ends on September 30.

Verifying data and assumptions through monitoring is a continuous process; analysis of this and prior year data helps us prepare to revise the Clearwater National Forest Plan**.** Until the Forest Plan revision is complete, the current Forest Plan will remain the guiding document for management decisions on the Clearwater National Forest. Updates to the current Forest Plan will continue to be done using amendments. Any anticipated amendments are described in Section 4; amendments implemented during FY07 are summarized in Section 5.

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

1. **Introduction** – provides an overview of the report.
2. **Monitoring Report** – focuses on monitoring requirements by resource, in alphabetical order. Some resource reports contain more than one "Item No." that refers to the numbering system established in the Forest Plan for items to be monitored.
3. **Appeals** – lists unresolved Forest Plan appeals and project level appeals received in FY07, the status of each and the major issues associated with each. (The term "project" is used throughout this report and refers to any Forest Service activity on National Forest Land such as campground construction, trail maintenance and timber sales.)
4. **Planned Action** – identifies actions the Forest plans to take in FY08 – and beyond – to implement the Forest Plan.
5. **Implemented Changes** – discusses agreements and actions concerning ecosystem management, the Forest Plan and amendments to the Forest Plan.
6. **List of Forest Contacts** – includes acknowledgment of people who contributed to the development of this report.
7. **Forest Supervisor Approval** – signature by the Forest Supervisor.

ECONOMICS

Item No. 1 - Quantitative Estimate of Performance Output or Services

Frequency of Measurement: Annual
Reporting Period: Annual

MONITORING ACTION

Present resource outputs and activities for FY07.

ACCOMPLISHMENTS/FINDINGS

See **Table 1: Comparison of Outputs and Activities with those Projected in the Forest Plan** for outputs and activities occurring in FY07, along with the percent achieved compared with Forest Plan projections. It is becoming increasingly difficult to make a direct comparison of outputs and activities described in the Forest Plan to present day activities due to changes in operational and accounting methods.

Item No. 17 - Document Cost of Implementation Compared with Plan Cost

Frequency of Measurement: Annual
Reporting Period: Annual

MONITORING ACTION

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

ACCOMPLISHMENTS/FINDINGS

See **Table 2: Comparison Between Yearly Expenditures (in thousands $) and Forest Plan Projections (in 2007 $)** for a display of cost comparison. It is becoming increasingly difficult to make direct comparisons of yearly expenditures described in the Forest Plan to present day expenditures due to changes in operational and accounting methods.

Table 1: Comparison of Outputs and Activities with those Projected in the Clearwater National Forest Plan

Output Or Activity	Unit of Measure	FY03	FY04	FY05	FY06	FY07	First Decade Average Annual from Forest Plan	FY07% of Forest Plan predicted
RECREATION[1]								
Developed/Dispersed Use	MRVD's	483	**	**	**	**	201	NA
WILDIFE & FISH								
Wildlife Habitat Improvement	Acres	5,000[2]	3,000	1,742	4,500	1,120	1,300	346%
Fish Habitat Improvement	Acres	41	36	51	55	50	219	23%
T&E Habitat Improvement	Acres	0	0	0	0	0	NA	NA
RANGE								
Grazing Use	MAUM's	8.0	8.1	7.5	6.1	5.1	16.0	32%
Range Improvement Structures	Str.	0	2	0	1	2	NA	NA
Noxious Weed Control[3]	Acres	1,950	960	1,468	1,800	1,419	380	373%
MINERALS								
Minerals Management	Cases	102	107	104	106	103	265	NA[4]
TIMBER								
Volume Offered								
Roaded Primary	MMBF	29.6	30.0	28.7	10.8	19.8	90	22%
Roaded NICS	MMBF	0	0	0	0	0	10	0
Unroaded	MMBF	0	0	0	0	0	73	0
Volume Under Contract	MMBF	36.6	30.8	31.2	31.3	26.9	NA	NA
Reforestation							14,416	--
Appropriated Funds	Acres	1193	327	356	726	456	NA	NA
KV Funds	Acres	951	475	813	1035	659	NA	NA
Timber Stand Improvement							1,928	--
Appropriated Funds	Acres	765	0	0	0	268	NA	NA
KV Funds	Acres	109	14	122	92	0	NA	NA
FUELS MANAGEMENT								
Natural Fuels Treatment	Acres	3,083	6,638	10,694	8,639	10,947	NA	NA
Brush Disposal	Acres	504	905	788	1,625	519	NA	NA
Wildland Fire Benefit	Acres	7,544	65	3,027	10,741	11,613	NA	NA
FACILITIES								
Trail Construction/Reconst.	Miles	5.2	22.0	24.0	23.0	20.2	14.0	144%
Road								
Construction	Miles	0	2.1	5.6	6.3	5.9	69.0	95
Reconstruction	Miles	0.5	13.3	5.2	9.7	7.5	NA	NA
Obliteration	Miles	24.5	24.9	22.0	43.3	5.1	NA	NA

NA = The Forest Plan did not project an average annual output for this output or activity, or it is no longer comparable.

** = MRVD data is no longer collected; visitor use in the future will be collected through the National Visitor Use Management (NVUM) system.

[1] Updated monitoring standards and policy indicate there is not sufficient accuracy in recreation estimates to reporting a separate figure for developed and dispersed.

[2] Includes 2000 acres treated with cooperative funding.

[3] FY02 monitoring report figure was in error; it is corrected here.

[4] Due to the changes in FY96 of definitions of accomplishment, case numbers cannot be directly compared to Forest Plan estimates.

Table 2: Comparison between Yearly Expenditures (in thousand $) and Forest Plan Projections (in FY07 $)

Activity Description	FY03	FY04	FY05	FY06	FY07	Forest Plan	FY06 % of Forest Plan Predicted
General Administration	NA	NA	NA	NA	NA	3658	NA
Fire Protection	3381	3322	2057	1948	2280	1479	132%
Fire Protection Fuel	458	1065	650	1032	1052	424	243%
Timber Sale Plan/Prep/Admin	505	772	788	1871	1543	4402	43%
Timber Resource Plans	0	0	0	0	0	497	0%
Timber Silvicultural Exams	0	0	0	0	0	1459	0%
Range	113	99	78	56	68	177	31%
Range Noxious Weeds	159	169	191	134	126	49	275%
Minerals	378	175	114	122	164	286	43%
Recreation	1514	1830	1139	1335	1105	1765	76%
Wildlife and Fish	988	1182	943	710	659	1849	38%
Soil and Water	550	399	301	244	260	666	37%
Maintenance of Facilities	389	433	321	282	298	819	34%
Special Uses	48	52	115	105	52	153	34%
Land Ownership Exchange	17	31	47	23	21	224	9%
Land Line Location	146	111	104	130	62	595	10%
Road Maintenance	1226	1388	1211	1149	904	1386	83%
Trail Maintenance	973	604	391	393	299	733	54%
Co-op Law Enforcement	0	0	0	0	0	114	0%
Reforestation Appropriated	590	624	367	375	453	2972	13%
TSI Appropriated	292	12	25	7	65	697	1%
Tree Improvement[5]	177	177	129	114	142	101	114%
KV Reforestation	847	716	703	909	932	4592	20%
TSI KV	42	14	75	161	9	143	112%
Other KV	0	0	16	6	0	988	1%
Other CWFS Trust Fund	1967	1930	454	605	664	1123	54%
Timber Salvage Sales	1713	1353	1272	588	786	502	117%
Brush Disposal	384	313	267	288	199	2738	11%
Range Betterment	3	4	1	1	4	13	10%
Construction Recreation Facilities	398	277	42	346	150	143	242%
Facility Construction	59	0	0	0	0	952	0%
Engineering Construction Supp	0	0	0	0	0	2818	0%
Construction Capital Investment	136	245	0	0	0	4254	0%
Trail Construction/Reconstruction	360	201	281	248	267	494	50%
Timber Purchase Road C/R	0	0	0	0	0	7540	0%
Land Acquisition	701	127	47	27	46	107	25%
Insect/Disease Sup	195	220	0	0	118	0	NA
Economic Recovery	118	53	0	0	0	0	NA
Appeals/Litigation	0	170	0	0	0	0	NA
Ecosystem Management	996	1038	157	234	177	0	NA
TOTAL	19244	18529	11915	13040	12735	50913	26%

NA = Not originally planned

EFFECTS

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

Frequency of Measurement: Annual
Reporting Period: Annual

MONITORING ACTION

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

ACCOMPLISHMENTS/FINDINGS

ISSUES AND CONCERNS: Primary concerns during FY07 included the following.

OFF-HIGHWAY VEHICLE POLICY

The Forest Service adopted a national rule regarding OHVs in FY06. The OHV Rule requires each National Forest to formally designate those roads, trails, and areas where motorized travel is permitted and to show them on a Motor Vehicle Use Map (MVUM). Implementing the OHV rule on the Clearwater NF began in FY06 with a travel planning effort to identify a motorized system. The Palouse Ranger District completed identifying the district's motorized system in FY06. The Forest continued to work on its travel plan during 2007 and will continue thru 2008.

LYNX FOREST PLAN AMENDMENT

The Draft Environmental Statement was released in FY04. The Record of Decision was signed in March 2007 with the effective date of lynx management direction beginning May 21, 2007.

CLEARWATER ELK HABITAT INITIATIVE

Senator Mike Crapo chartered the "Elk Collaborative" in 2003. The goal was to bring various interests together and to identify actions they could all support that would benefit elk in the Clearwater basin. The collaborative group provided a list of consensus recommendations to Senator Crapo, and the Forest described how they would be addressed in a report to the senator in 2005. Many of the recommendations addressed ongoing activities in the areas of vegetation and habitat management. These included the manipulation of vegetation by using wildland fire, prescribed fire, and timber harvest, and by controlling noxious weeds.

In 2005 the Clearwater National Forest and Rocky Mountain Elk Foundation (RMEF) signed a formal Memorandum of Understanding to establish a framework that would promote cooperative management actions and habitat improvement to maintain and enhance elk and other wildlife populations and habitat in northern Idaho. RMEF continues to be an important partner, providing both funding and public education for actions that improve elk habitat, such as prescribed fire and wildland fire use.

Many of the collaborative recommendations regarding vegetation already were, or have since become, standard procedured in designing projects or managing wildland fires. For example, in fire management areas where it is permitted, Wildland Fire Use (WFU) is now considered the default action when fires are discovered. WFU is the management of fires for resource benefit. Management instead of suppression is the course of action that is chosen, unless the fire's location or burning conditions warrant suppression.

Vegetation changes that will occur on a scale large enough to produce elk population responses will primarily come from large fire events. These may include fires that will be formally managed for a beneficial effect (WFU), as well as fires that will be suppressed. Some suppressed fires will burn large areas. This may be due to burning conditions, or may result from modified suppression efforts intended to reduce suppression costs. Modified suppression efforts may be warranted when the value of the resources that may be lost is small compared to the costs of full suppression, or where full suppression is a practical impossibility given the burning conditions. The Bridge Fire on the Powell RD in 2007 is an example of a modified suppression response fire. See the Fire section for information about wildland fires and WFU in 2007.

Prescribed fire continues to be an important complement to wildland fire. It has considerable value, even though it generally occurs on a smaller scale than wildland fires because specific areas can be targeted for ignition under a pre-determined range of burning conditions. The Forest will continue with an aggressive prescribed burning program that will normally begin in August to take advantage of better burning conditions. See the Fire section for a summary of prescribed fires.

Noxious weeds can displace native vegetation and degrade elk habitat. The Forest has now completed NEPA analyses that allow a full range of weed treatments in all areas except the Selway Bitterroot Wilderness. The Selway Bitterroot Noxious Weeds analysis is currently in progress. A variety of partners are engaged in weed treatment efforts which leverages the available funding. See the Recreation section for a more complete discussion of weed treatment efforts.

POWELL LAND EXCHANGE

In April 2006, Regional Foresters from Regions 1 and 4 discussed a potential land exchange with Tim Blixseth of Western Pacific Timber LLC (WPT), which included the potential federal acquisition of approximately 40,000 acres of checkerboard land in the upper Lochsa River drainage near Powell, Idaho and intermingled with the Clearwater National Forest.

The upper Lochsa River drainage has been identified as a critical area for protection, and is a regional priority area to acquire non-federal lands when they become available. The upper Lochsa River drainage provides some of the highest value habitat for aquatic and terrestrial species in the Clearwater National Forest and the entire Columbia River drainage. The cultural resources in the area are significant with regard to the Lewis and Clark Corridor and Nez Perce Tribe treaty area.

The region is conducting a feasibility analysis of the proposal, which includes a number of scatted National Forest System (NFS) parcels located on the Idaho Panhandle, Clearwater and Nez Perce national forests consisting up to 30,000 acres. The Bureau of Land Management (BLM) is currently participating in developing an exchange proposal; however, there are no BLM lands currently included in the federal land configuration. It is anticipated that about 20,000 acres of federal land will be needed for an equal valued land exchange.

The estimated completion date for the feasibility analysis is May 2008. The current goal is to process the exchange administratively in 3 years. WPT has agreed to pay for much of the processing costs (contractors and agency costs). WPT has expressed an interested in pursuing a legislated exchange.

SPECIAL PROJECTS AND PROGRAMS

RURAL COMMUNITY ASSISTANCE PROGRAM

Although the Farm Bill's Rural Community Assistance program has been unfunded since 2004, the Forest continues to work with local communities to implement projects previously funded. Projects still in the implementation stages include:

- City of Potlatch: $20,000 for a Historic Depot Restoration Project
- City of Kendrick: $20,000 for the Depot Renovation/Historical Museum.
- Nez Perce County: $11,200 for the Lenore Community Center Renovation

RECEIPTS TO COUNTIES

Through FY00, 25 percent of money received from the sale and use of a variety of national forest products and services was returned to the county on which the National Forest land was located. Those funds were dedicated to the upkeep and maintenance of roads and schools.

Due to changing programs, particularly a decline in federal timber sales, county receipts have been plummeting. This decline led Congress to pass the *Secure Rural Schools and Community Self-Determination Act of 2000* (Public Law 106-393) to provide the opportunity for an increased, stable payment to local counties. The act gave counties the option of remaining with the current system or electing a payment based on an average of the state's three highest payments between 1986 and 1999. All counties represented on the Clearwater National Forest elected a payment based on the new formula.

Counties electing to receive full payment based on the new formula were required to reserve 15-20 percent of their funds for forest restoration, maintenance or stewardship if their payment exceeded $100,000. By law, they were also required to form consensus-based Resource Advisory Committees (RAC) to recommend the special projects funded with this money. Public Law 106-393 and thus the RAC expired September 2006, but was extended through September 2007. This provided county and RAC funding to select projects to be inplemented in FY2008.

The counties and Forest Service both recruit applicants for the RACs. RACs consist of 15 members, five of whom represent each of the three membership categories: industry/commercial, environmental/historical, and elected officials/at-large interests. RAC members serve 3-year terms.

Table 1. 2007 North Central Idaho Resource Advisory Committee Members

Category A: Labor and Industry	Category B: Environmental and Dispersed Recreation	Category C: Elected Officials, Education, Tribal, Citizens
Paul Bartlett	Dennis Baird	Fred Trevey
Ronald Hartig	Harlan Opdahl	Susan Borowicz
Don Heckman	Kent Henderson	John Nelson
William Mulligan	Robert Hafer	Don Ebert
Brett Bennett	Donald McPherson	Emmit Taylor, Jr.
David Bodine, Jr. (RM)	Robert Abbott (RM)	Randy Doman (RM)

RM = replacement member

The RAC recommends public lands projects to the Secretary of Agriculture. The public may suggest these to the RAC. For a project to be recommended by the entire group, it must be approved by three of the five representatives in each membership category.

Projects identified for implementation on federal lands must comply with all federal laws and Forest Service land management plans. RAC meetings will be publicized and open to the public. The Forest continues to work with area counties and members of the RAC as this legislation is implemented.

Table 2. Projects approved in FY 2005

Project Name	Amount Funded
Palouse noxious weed partnership	$ 18,000
Deer Creek Highway District weed control	6,696
Idaho County weed control	50,000
Weitas Creek Campground	26,460
Rehabilitation of Seven Devils Road	30,000
Elk City Wagon Road enhancement	54,000
Idaho/Clearwater County fuels reduction	55,000
Nez Perce NF and Hells Canyon NRA projects with Northwest Youth Corps	87,480
Clean Slate restoration	172,800
Hells Canyon NRA deferred trail maintenance	51,885
East Fork Emerald Creek enhancement	13,500
Cherry Dinner TS p-line survey and heritage inventory	28,000
Hells Canyon NRA noxious weed treatment	20,000
Wilderness airstrip weed treatment	15,120
Bryan Mountain loop trail signs	734
Clearwater 2005 mark and cruise	45,360
Palouse Campground hazard tree removal	17,000
Powell contract stand exams	45,144
Clearwater Youth Conservation Crew	12,000
North Fork noxious weed treatment	10,500
Middle Black shrub cutting and weed treatment	47,500
Clarke Mountain OHV Trail	42,000
Cherry Dinner TS and Gold Bug TS p-line survey and road design	53,000
Mocus Point Suspension Bridge repair	25,920
Colt Killed Creek Bridge	12,500
Gezel TS mark and cruise	17,280
Lochsa weed control – goat grazing	21,797
Crooked River instream survey and design	32,400

Table 3. Projects approved in FY 2006 included:

Project Name	Amount Funded
Palouse noxious weed partnership	$ 18,000
Deer Creek Highway District weeds	6,912
Wilderness airstrip weeds	7,500
Hells Canyon NRA weed treatment	27,000
Northwest Youth Corps with Nez Perce NF and Hells Canyon NRA	76,195
False Creek in-channel rehabilitation	75,000
Sediment monitoring main stem South Fork Clearwater River	41,830
North Fork Clearwater noxious weed treatment/habitat improvement	50,000
Idaho County management of invasive weeds	50,000
Little Slate stand exams	32,400
Red River Youth Conservation Corps	5,400
Selway Crossing improvement design	54,000
Clearwater mark and cruise	6,480
Selway Road resurfacing	64,800
Road-to-trail conversion (Road 9301	16,200
Leave-no-trace stock master training scholarships	3,780
White Pine pruning Clearwater NF	65,000
Pre-commercial thinning (Clearwater NF)	124,076
Timber/vegetation inventory computer program update	32,400
McConnell Mountain area trail clearing	16,524
Warm Springs Trail erosion control	14,040
Center Ridge stand exams	6,480
Palouse RD stand exams	19,440
Elk River kiosk	50,000
Upper Lolo Lidar mapping	30,240
Highway 12 vegetation management plan	32,400
Clearwater NF Youth Conservation Corps	16,200
Selway-Bitterroot Wilderness weeds NEPA writer/editor	21,600
Idaho Project Learning Tree	16,120
Potlatch Canyon Trail fence and cattle guard	13,176
Kelly Campground toilet vault replacement	21,600
Clean Slate/Buck Shot restoration	175,000

Table 4. Projects approved in FY 2007 included:

Project Name	Amount Funded
CLW NF Stand Examinations for Timber Sale Planning	$110,400.00
Camp 60/Sheep Mtn OHV Trail	$50,000.00
2007 Clearwater Mark & Cruise	$75,000.00
Colt Killed Creek Bridge Replacement	$59,400.00
Pre-commercial Thinning	$100,000.00
Bridge Creek Bridge	$97,000.00
CLW NF Intergrated Weed Management & Inventory	$100,000.00
Relief Creek Culverts and Crossing Improvements	$266,000.00

South Fork Clearwater River Mainstem Monitoring	$42,000.00
Crooked River 5 Mile to Orogrande	$200,000.00
Management of Invasive Weeds - Idaho County	$100,000.00
NP NF Pre-commercial Thinning	$79,000.00
Clear Creek Timber Stand Exams	$45,000.00
Red River Campground Water System	$60,000.00

Item No. 23 – Effects of Other Agencies on National Forests

Frequency of Measurement: Annual
Reporting Period: Five Years

MONITORING ACTION

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

ACCOMPLISHMENTS/FINDINGS

The Clearwater National Forest believes in the value of coordination, cooperation, and collaboration. Forest employees routinely work with many agencies through formal and informal processes. Key contacts include (but are not limited to):

Nez Perce Tribe ◆ The Forest has a unique government-to-government relationship with the Nez Perce Tribe. The Forest communicates and consults directly with the Tribe regarding proposed projects and activities. The Forest and Tribe also partner based on an active road obliteration and monitoring program.

Idaho Department of Fish and Game (IDF&G) ◆ IDF&G routinely provides advice regarding projects affecting fish and wildlife resources. Department personnel also enforce IDF&G laws on the Forest.

Idaho State Historic Preservation Office (SHPO) ◆ Clearwater National Forest personnel consult with SHPO regarding the impacts of proposed activities and projects on heritage resources.

Idaho, Latah, and Clearwater County Sheriffs' Departments ◆ Through a cooperative agreement these departments patrol campgrounds and Forest roads and assist Forest Service law enforcement officers. These counties participated in the development of a Lolo Motorway public safety plan.

Natural Resources Conservation Service ◆ This agency monitors precipitation stations on the Forest.

Idaho Department of Lands (IDL) ◆ Forest Service personnel coordinate with IDL when issuing burning permits. In addition, the agencies work together to train firefighters and suppress wildland fires.

National Park Service ◆ The Forest coordinates with the Nez Perce National Historical Park regarding the management of the Lewis and Clark National Historic Trail and the Lolo Trail National Historic Landmark.

Idaho Department of Parks and Recreation ◆ The Forest continues to apply to the Department's grant program and participate in the Park 'n Ski program.

U.S. Army Corps of Engineers ◆ The Forest shares resource management information and expertise with Corps managers. Forest Service offices routinely provide information about Corps recreation sites.

U.S. Fish and Wildlife Service—Dworshak Hatchery ◆ Forest personnel provide visitors with information about what they will find at this site.

NOAA Fisheries Service ◆ The Forest consults with this agency on resource issues that potentially affect listed anadromous fish under the requirements of the Endangered Species Act (ESA).

U.S. Fish And Wildlife Service ◆ The Forest consults with the U.S. Fish and Wildlife Service on resource issues that potentially affect listed fish and wildlife under the requirements of the ESA.

Idaho Transportation Department ◆ The Forest coordinates with the Transportation Department primarily on issues related to U.S. Highway 12 and the Lolo Pass Visitor Center.

FIRE

GOAL

The Clearwater National Forest will implement a safe and efficient fire management program that provides for the three separate but related parts of fire management included in the 1995 and 2001 Federal Wildland Fire Management Policy as well as one that complies with the management goals and objectives outlined in the Forest Land and Resource Management Plan (LMRP).

- Fire protection — The traditional fire prevention, preparedness, detection, dispatching, and implementing the full range of fire suppression strategies.
- Fuel treatment — The manipulation of vegetative material to meet fire and land resource management objectives.
- Fire Use — The use of planned and unplanned ignitions for prescribed fire provided that NEPA, an approved prescribed fire plan, and consultation with the Fish and Wildlife Service and the public are complete.

STRATEGY

- Continue to stress *SAFETY* as the first priority in all fire management activities with special emphasis on the aviation program, firefighting, and recurrent training in *Standards for Survival.*
- Continue the use of appropriate management responses under *Federal Wildland Fire Policy* to meet fire management objectives.
- Integrate *ecosystem management* concepts into fire management programs. Look at ways to utilize and incorporate fire treatment into sustaining healthy ecosystems, concentrating on restoration of fire-adapted ecosystems
- Analyze and display organizational needs using the *National Fire Management Analysis System* to determine the most cost-efficient fire management organization. This tool will help evaluate fire protection boundaries to promote economic and efficient fire suppression through the closest resource concept.
- Continue to use fire to accomplish management objectives for hazardous fuel reduction, site preparation, wildlife habitat improvement, and ecosystem management through prescribed fire and wildland fire use programs. Continue wildland fire use implementation consistent with the Forest Plan and national fire policy.
- Continue cooperation with other fire protection agencies. Evaluate fire protection boundaries to promote economic and efficient fire suppression. Work with communities to increase fire protection capability and support expansion of economic diversity.
- Provide a cadre of specialists with the qualifications necessary to accomplish prescribed fire programs and to participate as members of incident management teams on large complex fires.
- Ensure sufficient funds are collected from timber sales to abate “activity-created” fuel hazards. Manage the trust fund accounts to ensure all work is completed.
- Continue to support and be involved in achieving the goals of habitat improvement and restoration of elk under the Clearwater Elk Initiative.
- Continue to implement the *North Idaho Smoke Management Airshed* guidelines and coordinate prescribed burning and wildfire smoke impacts with this group and adjacent cooperators.

- Implement Fire and Aviation Management activities through the *Fire Management Plan (FMP),* including preparedness staffing, qualifications, initial action, large fire suppression, wildland fire use, and use of *Minimum Impact Suppression Tactics (MIST)* for lands under the protection of the Clearwater

The fire staff will annually prepare a FMP. The purpose of the plan is to implement decisions made in the Land and Resource Management Plan(s) as they relate to wildland fire. It is not a decision making tool, but an implementation guide.

The FMP sets forth the program and guidance to safely and efficiently manage wildland and prescribed fires within the context of the approved LRMP for the Clearwater and Nez Perce National Forests. The FMP incorporates existing interagency plans and assessments and considers the best available science to assess and plan on a landscape scale. It is a tool for fire managers to use in planning and directing wildland fire activities consistent with the goals and objectives identified in the LRMP; it provides the context for understanding strategic decisions, selecting appropriate fire management responses and implementing the supportive tactical actions appropriate for specific lands and identified areas. The FMP is supplemented by operational plans that describe fire preparedness and prevention, aviation management, preplanned dispatch, prescribed fire, cooperative agreements and wildland fire use guides.

Monitoring Action

The LRMP is currently being revised. Fire management is working with the revision team to ensure plan objectives will allow for the appropriate fire management response and fire management tools in order to protect resources from catastrophic wildland fire including human communities, watersheds, and threatened and endangered species habitat; and establish landscape objectives to achieve sustainable ecosystems.

The primary elements used to monitor the fire/fuels program are fire starts, acreage burned, wildland fire use events and acreage burned, hazardous fuels treatment acres, acres burned in riparian areas, and acres affected by high intensity fire, hours flown, and aviation mission type.

Wildland Fire Management Options

APPROPRIATE MANAGEMENT RESPONSE is required on every wildland fire that is not a prescribed fire. The term appropriate management response (AMR) is defined as the specific actions taken in response to a wildland fire to implement protection and/or fire use objectives. The AMR is guided by the strategies and objectives outlined in the development of the LRMP, reflecting land and resource values and services. This FMP outlines fire management activities and procedures to accomplish those objectives. The objective of a wildland fire use project is to obtain resource benefits whereas a wildfire is to be extinguished at minimum cost. As conditions change, the particular response can change to accomplish the same objective.

The appropriate management response is not a replacement term for prescribed natural fire, or the suppression strategies of control, contain, confine, limited or modified, but it is a concept that offers managers a full spectrum of responses. It is based on objectives, environmental and fuel conditions, constraints, safety, and ability to accomplish objectives. It includes wildland fire suppression at all levels, including aggressive initial attack. Use of this concept dispels the interpretation that there is only one way to respond to each set of circumstances

The purpose of giving management the ability to select the appropriate management response on every wildland fire is to provide the greatest flexibility possible and to achieve greater balance in the program.

2007 Season Summary

The winter of 2006-2007 had relatively normal precipitation and snow pack. A short, low elevation burning window prior to green-up in early April on the Salmon River breaks set the stage for a successful zone

prescribed burning program. The first higher elevation window in late April on the Clearwater allowed broadcast burning within harvest areas.

The 2007 fire season was very active and large fire growth was seen early on Forest Service and Idaho Department of Lands and fires. A dramatic drying trend in June quickly produced record ERC's (energy release components) by early July.

The number of fires for the 2007 season on the Zone were interesting in that fire starts were down 2/3rd of average and the acres burned were 11 times greater then average on the Nez Perce Forest and 6 times greater on the Clearwater Forest.

On the Clearwater the season kicked off when numerous fires were ignited by lightning in mid July. The combination of record ERC's and lightning quickly committed most zone resources to either initial or extended attack. Implementation of the Region One AMR Strategy began with building Long Term Assessment Plans for the large complex fires on the zone including Rattlesnake, Poe Cabin, Bridge and Boundary Junction fires. The Zone hosted 1 Type 1 Incident Management Team (IMT), 6 Type 2 IMT's and 2 Type 3 IMT's (with rotating personnel) during the course of the season. The Bridge and Boundary fires were the most notable fires on the Clearwater in 2007. Both fires were managed successfully by Type 3 IMT's with limited resources using a limited and/or modified suppression strategy at a significant cost saving compared to full suppression.

Again in 2007 a large summer prescribed burning program began with ignitions in early September. During this time period the Zone was actively suppressing large wildfires, managing three large modified suppression fires, along with 46 Wildland Fire Use fires. Large prescribed projects designed to restore elk winter range and reduce fuel accumulations included Middle Black, Toboggan, and Guard Station. These burns were very successful and resulted in meeting the fuels target for the zone including 2,000 acres of additional target for the Region.

FIRE ORGANIZATION

The Nez Perce and Clearwater National Forests implemented a Fire Management Zone organization in 1995. The Zone has fire protection responsibilities for approximately 4 million acres, 2.2 on the Nez Perce and 1.8 million on the Clearwater. The purpose of creating the Zone was to improve utilization of resources across the two forests and increase effectiveness and efficiency in the fire management organization.

The Clear/Nez Fire Zone receives nearly 30% of the fire starts in the Northern Region. Ninety percent of these fires are lightning ignitions; the remaining 10% are from a variety of human causes. Despite the heavy fire occurrences on those that require suppression action 97% of fires are successfully initial attacked. This includes use of appropriate management response and wildland fire use. To meet fire protection objectives there is a significant dependence on aviation resources to support initial attack. The Zone consistently has the highest utilization of smokejumpers, helicopters, air attack, and retardant for initial attack in the Region.

The Clear/Nez Fire Zone is made up of a shared fire staff officer, one deputy fire staff, one fire planner, one fuels specialist, a zone aviation officer. The Zone is part of the Grangeville Interagency Dispatch Center. This center pulled all initial attack dispatching responsibilities into one central location in partnership with the Idaho Department of Lands, Clearwater-Potlatch Timber Protective Association, Bureau of Land Management, and the Nez Perce Tribe. The two Forests share the funding for the dispatch coordinator and the assistant coordinator positions. The other partners contribute funding and positions commensurate with their workload.

There are eight ranger districts in the fire zone, four on the Clearwater and four on the Nez Perce. District fire management organizations are responsible for the planning and implementation of fire-related activities on their respective units. The Zone is host to two Type III helicopters with supporting personnel modules, a smokejumper program, and a full service retardant base housed at the Grangeville Air Center. In addition there is a tri-region agreement in place that includes the Umatilla, Payette, and Wallowa-Whitman National Forests.

A complete description of roles and responsibilities of personnel/positions involved in the Clear/Nez Fire Zone management operations can be found in the annual FMP.

Cooperators play a vital role in fire management on the zone. Their programs and resources complement and augment those of the zone; their input and advice provide an additional forum for considering both public and other agency concerns and accounting for them, and their participation enhances the efficiency and effectiveness of fire management on the Clear/Nez Zone. Several interagency and cooperative agreements are currently in place and include those with the Idaho Department of Lands, Bureau of Land Management, Nez Perce Tribe, Clearwater Potlatch Timber Protection Association, and several Rural Fire Departments. The zone has an agreement in place to mutually share available resources with the Umatilla NF, and is also a participant in the Tri-Region Agreement with the Payette NF and Wallowa-Whitman NF. County Wildland Fire Mitigation Plan updates have been completed for all counties within the Clearwater and Nez Perce Forests. State, local and federal agencies participated jointly to complete these plans; and are currently working with counties to complete their Multi-hazard mitigation plans.

PRESUPPRESSION / PREPAREDNESS

The Forest continued successful implementation of the Federal Wildland and Prescribed Fire Management Policy. This policy was adopted nationally in 1998 and updated in 2001. In summary, federal fire management activities and programs are to provide for firefighter and public safety, protect and enhance land management objectives and human welfare, integrate programs and disciplines, require interagency collaboration, emphasize the natural ecological role of fire, and contribute to ecosystem sustainability.

National Fire Management Analysis(NFMAS) was last certified in 1997, establishing the most cost effective level (MEL) for the Clearwater Forest. NFMAS helps determine the Fire Fighting Protection Capability (FFPC) by cost unit for each district and the Fire Zone This analysis is based on fire history, fire weather, and past organizational levels. It then establishes the most cost-efficient mix of personnel, equipment, and budget needed to provide fire-fighting resources to meet land management objectives.

Phase I of Fire Planning Analysis (FPA), which is replacing the National Fire Management Analysis System (NFMAS), was completed by an joint effort with the following agencies: Idaho Panhandle National Forests (IPNF), Idaho State Department of Lands, Coeur d'Alene and Cottonwood Field Offices (BLM), Coeur d'Alene and Nez Perce Tribes (BIA), and to a lesser extent: Nez Perce Historical Site (NPS) and Kootenai National Wildlife Refuge (FWS). The intent of FPA is to improve the planning and budgeting for wildland fire by working jointly with adjacent Federal, State and Local fire resources at a landscape, rather than unit, level.

The Forest received a budget of $2,569,800 for fire presuppression in FY07 and was directed to staff at 90% of the most efficient level. In an effort to meet FFPC the forest as in years past was asked to assume a certain amount of calculated risk in estimating p-code saving and using the saving to fund seasonal employees. This proved to be successful and the forest was not overspent in WFPR by year's end.

The Forest staffed a 10-person helitack crew and Type III exclusive use helicopter at Musselshell Work Center in 2006. An additional 10-person helitack crew and Type III exclusive use helicopter was stationed at Grangeville Air Center generally for use on the Nez Perce side of the Zone. Two 800 gallon single-engine air tankers under contract to the Idaho Department of Lands (IDL) were again stationed in Grangeville in 2007. This cooperative agreement with IDL continues to increase our capability and provide a cost-effective initial attack fire-fighting tool across the federal, state, and public lands of the Clearwater region.

WILDFIRE DETECTION

Wildfire detection on the Clearwater is primarily provided by staffed lookouts and fixed-wing detection flights.

Staffed lookouts during the 2007 fire seasons included Bear Mountain, Hemlock Butte, Rocky Point, Walde, Black Mountain, and Coolwater .

The type of detection, number of fires located and percentage of the total number of fires detected are displayed below. Orofino Aviation provided 2 exclusive use and optional use single-engine light fixed-wing aircraft for fire detection, recon, relief air attack, fire mapping, and point-to-point passenger service for the Clearwater-Nez Perce Zone.

Clearwater National Forest Fire Detection 2007

Detector	Number of Fires 2007	Percent
Lookout	22	25
FS Aircraft	34	39
Other Aircraft	10	11
FS Employee	15	17
Other	4	5
FS Patrol	2	3
TOTAL	87	100

STATISTICAL CAUSE

In 2007 the Clearwater Forest suppressed 7 person-caused fires that burned .70 acres. Of the 80 lightning fires on the Forest, 63 were managed by suppression strategy while the other 17 were put under wildland fire use status. Wildland fire use fires accounted for 3,206.6 total acres.

Clearwater National Forest Statistical Cause 2007

Cause	# Fires	Percent	Acres
Lightning	80	92	50,431.03
Equipment			
Smoking			
Campfire	6	7	.60
Power Line			
Debris Burning			
Miscellaneous	1	1	.10
TOTAL	87	100	50,431.73

WILDLAND FIRE

The Clearwater National Forest is responsible for the protection of approximately 1,715,726 acres of land. The Idaho Department of Lands and Clearwater-Potlatch Timber Protective Association protect about 146,136 acres of national forest lands.

Wildfires were attacked and suppressed in accordance with the ***Fire Management Action Plan***. The intent of the Clearwater National Forest Plan standards and guidelines were met by implementing an array of suppression strategies. Each fire was assessed for its fire potential and location within each land allocation. A suppression strategy was assigned to best fit each fire situation.

The 2007 fire season was below the ten year average in regard to the number of fire starts and well above average in acres burned .The 10 year average on the Clearwater NF (1997-2006) for number of fires is 109.9 and 8,164 for acres burned.

In 2007, the Forest had 87 fires that burned a total of **50,432** acres.

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

AVIATION

The Grangeville retardant base is designated as a Single-Engine Air tanker Base. The cooperative agreement with Idaho Department of Lands to station their two contracted single-engine tankers at Grangeville was implemented again for 2007 fire season. Two Air Tractor 802s, with an operational capacity of 700+ gallons each, operated out of Grangeville from mid-July through mid-September.

The retardant base delivered 396,112 gallons of retardant in 2007 (a new record), which amounts to approximately 565 Single Engine Air tanker loads of retardant. The Clearwater NF received 28,087 of those gallons.

The helitack program of the Clear/Nez Zone provides initial attack, passenger and cargo transport, extended attack support, bucket work, and project support across the Zone. The Clear/Nez exclusive use helicopter contract was renewed with Hillcrest Aircraft Company for the 2007 fire season. Two Bell 206 L-4 Type III helicopters were provided. Helicopter N767H was based at the Musselshell Work Center, while the second helicopter (N662H) was based at Grangeville Air Center

During the 2007 fire season, the two helicopters amassed 427.2 exclusive-use flight hours. The exclusive-use helicopters transported 1184 passengers, 188,227 pounds of cargo, and delivered 112,737 gallons of water during the 2007 fire season.

The Zone hosted the only exclusive use air tactical group supervisor platform and full-time air attack in Region One in 2007. Ponderosa Aviation supplied a turbo-charged Aero Commander aircraft under a 100-day commitment.

The Grangeville smokejumper program provides a professional, efficient, and safety-oriented workforce that is capable of meeting fire and land management needs on a national basis. The greatest utilization of the smokejumper resource will continue to be initial attack fire suppression. However, the jump program will continue to provide personnel for support and leadership on large suppression fires, on wildland use fires, to the Zone aviation program and to other project areas when needed to help meet resource objectives.

Grangeville employed 29 smokejumpers and a detailer for the 2007 fire season.

The Grangeville smokejumper base staffed 72 fires with 309 smokejumpers dispatched from the air center. Thirty eight of these fires were staffed with 197 jumpers via aerial delivery. The first jump of the fire season occurred on June 30th.

Grangeville employed 29 smokejumpers and two detailers for the **2006 fire season**. The Grangeville smokejumper base staffed 106 fires with 414 smokejumpers dispatched from the air center. Sixty of these fires were staffed with 293 jumpers via aerial delivery. This is the most smokejumpers dropped out of Grangeville since the 1994 fire season. The first jump of the fire season occurred on June 28. There was a 15-day period between July 6 and September 11 when Grangeville could not staff a fire due to the lack of available smokejumpers.

WILDLAND FIRE USE

This part of the FMP manages naturally ignited wildland fires to accomplish specific prestated resource management objectives in predefined geographic areas outlined in fire management plans. Each fire use event meets strict prescription criteria prior to line officer approval, and a site-specific ***Wildland Fire Implementation Plan*** is developed.

This management option was selected for **17** fire starts on the Clearwater Forest in 2007. These fires burned a total of **3,207** acres.

FUELS REDUCTION

Brush disposal trust funds were used to treat 519 acres of timber harvest-related fuels in fiscal year 2007.

The 2007 hazardous fuels budget for the Clearwater was $1,240,000. The Forest accomplished 10,855 acres of treatments with these funds. Of these acres 1,052 were within the wildland urban interface and 2,437 where secondary fuels treatments or FN-OTHER.

FISHERIES

GOAL

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

STRATEGY

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

Emphasis in habitat improvement will be directed toward the Endangered Species Act (ESA) threatened species of bull trout and steelhead trout, and sensitive species of westslope cutthroat trout, spring Chinook salmon, redband trout and Pacific lamprey.

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

The Forest fisheries biologist will direct development of fisheries expertise and monitoring across the Forest. Information regarding restoration and monitoring projects and the results are available for anyone interested.

Ensure Forest activities meet the Forest Plan standards, especially PACFISH and INFISH standards that were included in a Forest Plan amendment.

Ensure Forest activities meet the terms and conditions as defined in the steelhead trout and bull trout biological opinions and project ESA consultations.

ACCOMPLISHMENTS/FINDINGS

PACFISH

No formal review by the PACFISH Implementation Review Team was conducted on the Forest in 2007. Since 1995, the Forest has been conducting the PACFISH/INFISH monitoring programs in conjunction with the annual Best Management Practices (BMP) reviews to determine project implementation compliance and effectiveness of resource protection measures on selected projects. In 2007, the Forest conducted reviews of two projects to determine compliance with Forest Plan direction as amended by PACFISH: Beaver Triangle Timber Sale and Abes Animal Timber Sale. The review of timber harvest unit (#10 – NEPA unit #15) under the Beaver Triangle Timber Sale showed that the unit had default PACFISH riparian buffers and no observable impacts (i.e. sediment etc) to aquatic resources. The review of the culvert removals (3) on perennial streams and the associated storage of USFS road 5688 showed good vegetative recovery on the road surface and good channel stability at the three culvert removal sites. This project met PACFISH standards and guidelines and did not retard the attainment of the Riparian Management Objectives (RMO's).

The review of timber harvest unit (#13) and associated roads on Abes Animals Timber Sale within the Potlatch River drainage found no problems with the commercial thin harvest unit and the road decommissioning of USFS road 377 and road construction of USFS road 3321. This project met PACFISH standards and guidelines and did not retard the attainment of the Riparian Management Objectives (RMO's).

In 2007, the Forest conducted a review of one timber harvest unit (#29) under the White Pine Timber Sale within the Palouse River drainage to determine compliance with Forest Plan direction as amended by INFISH. The review noted one incident involving the placement of burn piles in a dry draw (outside designated riparian areas) that may lead to surface erosion dependent upon burning conditions. The review re-emphasized the need to have slash piles located outside draws and any area prone to erosion. Overall, the review found that the project met INFISH standards and guidelines and did not retard the attainment of the Riparian Management Objectives (RMO's).

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

Frequency of Measurement: Annual
Reporting Period: Annual

Information for Non-Fisheries is included in the section entitled ***Soil and Water*** for water quality and stream condition for nonfisheries beneficial uses.

MONITORING ACTION

The Forest fisheries biologist will coordinate the monitoring of critical anadromous and inland fish streams to determine habitat conditions and population trends. Forest 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 2007. During 1998, the 1997 monitoring program was expanded and intensified to include more monitoring of anadromous and inland fish streams that were impacted as a result of the high flows, flooding and landslides within the Palouse River, Lochsa River and the North Fork Clearwater River drainages. In 1999, this intensity was maintained or expanded in most drainages. However, budget constraints during the past eight years (including 2007) have reduced monitoring efforts across the Forest.

ACCOMPLISHMENTS/FINDINGS

Stream Inventory (Physical): As in the past seven years, budget constraints limited the amount of stream surveys and associated monitoring as no seasonal personnel were employed during the field season. No stream inventories and stream habitat surveys were completed by the Forest in 2007. However, the Forest did establish aquatic monitoring sites on five of the 12 streams selected for future Forest Plan monitoring. This information will supplement the monitoring the PACFISH/INFISH Biological Opinion Effectiveness Monitoring Program (PIBO) has been conducting on the Forest since 2001. Forest personnel also completed substrate monitoring on selected streams; see the riparian section for more information.

Stream Inventory (Biotic): The Forest completed fish population surveys via snorkeling and spawning ground surveys on approximately 22.6 miles of stream.

Lake Inventory (Biotic): Through a partnership with the Idaho Department of Fish and Game, the Forest contributed fisheries funds to assist IDFG personnel in the re-survey of a five high mountain lakes (Storm,

Siah, Ranger, Section 27 and Northeast Ranger lakes) within the Selway Bitterroot Wilderness Area; approximately 37 acres of lakes were surveyed.

Lake Restoration: Through the same partnership with IDFG, the Forest contributed fisheries fund to assist IDFG personnel in the removal of non-native brook trout in three high mountain lakes in the upper North Fork Clearwater River drainage. Approximately 10 acres of lake were affected by the project.

Stream Improvement: Project targets in 2007 focused on riparian restoration, watershed restoration and fish passage improvement projects. Approximately 8.7 miles of stream were improved using fisheries funds. Other Forest funds and non-USFS partnership funds contributed to the completion of 47.4 miles of stream habitat improvements. Stream habitat was improved either directly through culvert replacements and road drainage removals and riparian habitat protection, or indirectly through road decommissioning projects.

The 2007 stream improvement projects were completed on various streams throughout the Forest. Through a partnership with the Idaho Department of Fish and Game, the Forest contributed fisheries funds to assist IDFG personnel in removal of non-native brook trout in one mile of stream; the project will benefit bull trout and westslope cutthroat trout populations. Fisheries funds were used to assist road decommissioning projects within the Lochsa River drainages. Fisheries funds were also used in several partnership projects in 2007 to improve fish passage. Forest funds and funds from the Nez Perce Tribe (Bonneville Power Administration and Idaho State Office of Species Conservation) were used for seven culvert replacements in the Lolo Creek and Lochsa River drainages. As in past years, riparian fencing projects involving fence replacement, construction and maintenance were completed to meet Forest Plan Riparian Management Objectives (RMOs); starting in 2006, this work was funded by the range program.

Stream Temperature Monitoring: The stream temperature-monitoring program in 2007 monitored approximately 350 sites across the Forest. Stream temperature data for 310 sites were processed in 2007. This includes streams that were monitored during the summer of 2007, units not retrieved in previous years and multi-year units deployed during previous years to collect data in 2002 and later years. This monitoring report summarizes the data collected during 2007 on 293 sites on 246 streams; this does not include the 17 units that were retrieved in 2007 with 2003 through 2006 data. Temperature data for 17 sites are not available (instruments still instream (6), missing units (4), equipment failures (3), or analysis pending (4)). During 2007, only seven units were lost, vandalized or had equipment failures; this is approximately two percent of the units deployed in 2007. Fifty-one units deployed in years 1998-2007 are still out in the field and are not included in the above figures. Dependent upon budgets, streams will be monitored for at least five consecutive years.

The 2007 summer showed stream flows substantially below the average streams flows during the summer months (Table 1). For example, the mean monthly stream discharges during June through September were approximately 53 percent of the average discharge recorded for the Lochsa River during the 95-year period (1911-2007). Given the low stream flows, higher stream temperatures would be expected, especially considering that the summer of 2007 was warmer than the summers of 2003 - 2006 based on air temperatures units stationed throughout the Forest (Table 1). In 2007, approximately nine percent (21 streams) of the streams monitored exceeded the State's cold water biota standard. This is unchanged from 2006 but higher than 2005 data (9% vs. 3%), the 2004 data (9% vs. 6%) and 2003 data (9% vs. 6.5%). Of these 21 streams, nine streams exceeded the State cold water biota standard for five days or less.

Table 1. Comparison of air temperature data, stream flows and water temperature information collected within selected watersheds across the Clearwater National Forest during 2003-2007

Year	Number of Air Temperature hours exceeding13° C Jun 15 - Sept 30[6]	Percent of Historic Average June-Sept Lochsa River Stream Flow[7]	Number of Streams Monitored	Number of Streams Exceeding State Cold Water Biota Standard
2003	12,122	72.8%	260	13
2004	9,369	119.8%	230	13
2005	9,591	58.8%	243	6
2006	11,379	65.6%	236	21
2007	12,363	52.6%	246	21

Over the past several years numerous questions have been posed of why streams are not meeting various standards. While stream flows and associated snow pack in the drainages, summer precipitation, and the average summer ambient air temperatures affect stream temperatures during the summer months, the maximum daily temperatures are also regulated by various other factors, some unique to individual drainages. However, these factors as well as favorable high stream flows and cooler summer air temperatures may not be enough to keep stream temperatures from rising above imposed numeric standards.

As an example, a comparison of available 2007 stream temperature data from streams (198 streams) located in wilderness/roadless/undeveloped areas and developed areas within the two major subbasins (Lochsa River and North Fork Clearwater River) showed a 5% difference in streams meeting the State spawning standard of 13º C (Table 2). There was basically no difference between these wilderness/roadless/undeveloped areas and developed areas in the years 2002-2005, while 2006 and 2007 data both show slight differences (3% and 5% respectively). Only three streams out of the 100 streams (3%) within wilderness/roadless/undeveloped areas met State spawning standards for steelhead trout and westslope cutthroat trout. In comparison, only eight streams out of the 98 streams (8%) within developed areas met applicable State spawning standards (i.e. steelhead trout, westslope cutthroat trout, and spring Chinook salmon). While various variables (i.e. stream size, fire history, riparian alterations, riparian recovery, mean elevations, etc) would influence conclusions if further comparisons are made, the overall outcome of the above comparison indicates the difficulty of attaining the State spawning standard of 13º C for the selected spawning periods. Data from 203 streams located in wilderness/roadless/undeveloped areas and developed areas within the two major subbasins (Lochsa River and North Fork Clearwater River) showed 98 of 100 streams (98%) located in wilderness/roadless/undeveloped areas met the State cold water biota standard while 90 out of 103 streams (87%) in the developed areas of the drainages met the standard (Table 3). There is no change from 2006 in the wilderness/roadless/undeveloped areas but the data for the developed areas in these drainages shows a slight decrease in the number of streams (87%) meeting the State cold water biota standard).

[6] Data was summarized from five air monitoring sites located throughout the Forest.

[7] USGS data; Lochsa River is shown to reflect annual stream flow conditions on the Forest.

Table 2. Comparison of state spawning standards between wilderness/roadless/undeveloped and developed streams within the Lochsa River and North Fork Clearwater River subbasins during 2003-2007

Year	Number wilderness/ roadless/ undeveloped streams monitored for State spawning standards	Number of wilderness/ roadless/ undeveloped streams meeting State spawning standards	Percent of wilderness/ roadless/ undeveloped meeting State spawning standards	Number of developed streams monitored for State spawning standards	Number of developed streams meeting State spawning standards	Percent of developed streams meeting State spawning standards
2003	71	8	11%	93	10	11%
2004	83	9	11%	93	10	11%
2005	89	12	14%	101	15	15%
2006	88	9	10%	97	13	13%
2007	100	3	3%	98	8	8%

Table 3. Comparison of state cold water biota standard between wilderness/roadless/undeveloped and developed streams within the Lochsa River and North Fork Clearwater River subbasins during 2003-2007

Year	Number of wilderness/ roadless/ undeveloped Streams monitored for State cold water biota standard	Number of wilderness/ roadless/ undeveloped streams meeting State cold water biota standard	Percent of wilderness/ roadless/ undeveloped meeting State cold water biota standard	Number of developed streams monitored for State cold water biota standard	Number of developed streams meeting State cold water biota standard	Percent of developed streams meeting State cold water biota standard
2003	71	70	99%	99	96	97%
2004	83	83	100%	99	95	96%
2005	90	89	99%	107	104	97%
2006	87	85	98%	103	96	93%
2007	100	98	98%	103	90	87%

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

Item No. 31 - Anadromous Fisheries

POTLATCH RIVER WATERSHED

Watershed Status: No natural or anthropogenic events occurred on USFS lands in the Potlatch River watershed during 2007 that caused changes to the aquatic environment. Instream conditions and riparian

conditions did not show any substantial changes due to climate, spring stream flows, erosion (sedimentation due to surface and mass wasting events), and management activities (i.e. roads, vegetative treatments, mining and grazing). No major fires occurred in 2007. Various field reviews and monitoring activities have supported the conclusion that the habitat conditions are most likely similar to 1998-2006 conditions. However, anadromous fish numbers may vary annually due to influences outside the watershed and fish supplementation efforts by the Nez Perce Tribe involving coho salmon.

Habitat Improvement: Due to budget constraints, aquatic restoration and enhancement work within the Potlatch River watershed were primarily completed with range funds in 2007. During 2007, approximately ten miles of riparian areas including stream banks and stream channels were protected from grazing during 2007; the range program took over the funding of the riparian fence maintenance projects that fisheries funded during 1992-2005. No other major watershed restoration activities (i.e. road decommissioning, instream restoration projects) were scheduled in 2007.

Riparian Fence Maintenance - Fences on 19 permanent riparian enclosures and six temporary riparian exclosures were maintained in 2007:

- Six exclosures along the East Fork Potlatch River to protect 1.9 miles of stream.
- One exclosure along Ruby Creek to protect 0.25 miles of stream.
- Two pond exclosures within the Corral Creek watershed.
- A "Hi-Tensile" electric fence (2.3 miles) along Cougar Creek to protect one mile of stream.
- Five miles of "Hi-Tensile" fence along the West Fork Potlatch River and Feather Creek to protect 1.7 miles and 0.75 miles of stream respectively.
- One temporary electric fence and two permanent fences on Corral Creek and Hog Meadow Creek to protect the 1993 stream reconstruction projects along two miles of stream.
- Approximately one mile of "Hi-Tensile" fence along Nat Brown Creek to protect 0.5 miles stream.
- A permanent fence (Hank's fence) within the East Fork Corral Creek drainage to protect 0.5 miles of stream.
- The East Fork Big Bear Creek exclosure to protect 0.25 miles of stream.
- The permanent/temporary trail fence upstream of Little Boulder Campground to protect one mile of the mainstem Potlatch River.

Habitat Monitoring: Stream inventories of all fish bearing streams within the Potlatch River drainage have been completed on National Forest System lands during 1990-1995. Resurveys of specific streams are planned every five to ten years dependent upon stream conditions, management proposals and available funds. In 2005, the Forest completed resurveys of habitat, substrate, and fish population conditions via contract on 13 selected sensitive stream reaches within eight streams in the Potlatch River drainage to determine if stream conditions have changed since the previous surveys.[8]

Stream Habitat Monitoring/Surveys - In 2007, no Forest Plan monitoring or re-surveys were scheduled within the Potlatch River drainage.

Stream Channel and Substrate Conditions - In 2007 no streams within the Potlatch River drainage were scheduled.

Water Temperature Monitoring: Stream temperature monitoring was conducted at 14 sites on 9 streams in the Potlatch River drainage in 2007 to evaluate habitat conditions for steelhead trout. From 1990-1996 and 1998-2006 the Forest has collected temperature data on selected stream within the Potlatch River drainage to determine if stream temperatures meet Forest and State standards, locate temperature problems, identify recovery trends, and prioritize riparian recovery efforts. Sixteen years of thermograph data indicate that most of the streams have summer stream temperatures that are higher than the desired objectives for salmonid rearing. In most years, all temperature sites within the Potlatch River system

[8] U.S.D.A. Forest Service – Clearwater National Forest. 2006. 2005 watershed and fisheries monitoring report. Clearwater National Forest, Orofino, Idaho.

exceeded the desired future condition (DFC) for temperatures during the spring spawning period and all temperature sites within the Potlatch River system exceeded the State spawning standard of 13°C during the spring.

Comparison of the 2007 stream temperature data from the monitoring sites, the 14 monitoring sites on 9 streams with available data and the desired maximum temperatures as defined for the "low fishable" standard in the Forest Plan revealed that:

- The mainstem Potlatch River (at Little Boulder Creek), East Fork Potlatch River (mouth), mainstem West Fork Potlatch River at mouth, mainstem West Fork Potlatch River at below Stout property, Corral Creek, Moose Creek (downstream of Moose Creek Reservoir), Nat Brown Creek (lower & upper) and Ruby Creek did not meet the DFC (less than 20°C) for steelhead trout rearing.
- Five of the 14 sites, mainstem Potlatch River above West Fork Potlatch River, Cougar Creek, Feather Creek, Moose Creek (upstream Moose Creek Reservoir) and West Fork Potlatch River (downstream Talapus Creek) met the DFC for steelhead trout rearing.

In 2007, six sites, mainstem Potlatch River (at Little Boulder Creek), mainstem East Fork Potlatch River (mouth), Corral Creek, Moose Creek (downstream of Moose Creek Reservoir), Ruby Creek and mainstem West Fork Potlatch below Stout property exceeded the State standard for cold-water biota of the daily maximum of 22°C and the maximum daily average of 19°C. An additional site, mainstem West Fork Potlatch River at mouth exceeded the State cold-water biota standard on two days. The State temperature standard of 13°C or below for the spring spawning period (for steelhead trout) was not met at any of the 14 sites. All streams exceeded the bull trout maximum summer rearing temperature of 12°C (consecutive seven-day average of daily maximums) that EPA issued as final temperature guidance for water quality standards throughout the Pacific Northwest.

Fish Population Monitoring: In 2007, within the exception of steelhead trout spawning surveys, no fish population monitoring was scheduled within the Potlatch River drainage. Steelhead redds have been monitored in the East Fork Potlatch River since 1992 twice a year (April and May). These surveys have shown a consistently low number of redds from three to eight. During the 2007 spawning period, seven steelhead redds were observed in the index area.

LOLO CREEK WATERSHED

Watershed Status: No natural or anthropogenic events occurred in the Lolo Creek watershed during 2007 that caused changes to the aquatic environment. Instream conditions and riparian conditions did not show any substantial changes due to climate, spring stream flows, erosion (sedimentation due to surface and mass wasting events), and management activities (i.e. roads, vegetative treatments, mining and grazing). The Boundary Junction Fire in the Lochsa River drainage burned into the upper Yoosa Creek and Eldorado Creek drainages; approximately 738 acres were affected with approximately 26 percent showing a moderate to high fire severity. Cursory field review during the fall months indicated that changes to the aquatic environment were not evident since the burn areas were located on the ridges outside of the riparian areas. With the exception of the Boundary Junction Fire, no other major fires occurred in 2007. None of the seven smaller suppression fires were over one acre. Various field reviews and monitoring activities have supported the conclusion that the habitat conditions are most likely similar to 1998-2006 conditions. Based on these assessments, the presence/absence and relative abundance of fish populations within the watershed are assumed to be similar to conditions observed in previous years. However, anadromous fish numbers may vary annually due to influences outside the watershed and fish supplementation efforts by the Nez Perce Tribe involving spring Chinook salmon.

Habitat Improvement: Due to budget constraints, aquatic restoration and enhancement work within the Lolo Creek watershed were primarily completed with engineering and Tribal cooperative funds in 2007. Fisheries funds were primarily used to assist the projects in the environmental analyses, ESA consultations and project implementation and effectiveness monitoring. The projects were primarily associated with

watershed restoration activities such as fish passage improvement, road decommissioning, and road maintenance work.

Riparian Fencing - Fence maintenance on existing riparian enclosures was completed in 2007 using range funds. Approximately 4.2 miles of riparian areas including stream banks and stream channels within the Lolo Creek drainage were protected from grazing.

Fish Passage Improvement - In conjunction with the ongoing watershed restoration projects, the Forest concentrated fish enhancement efforts on three culvert replacement projects that would improve access to approximately 2.5 miles of stream.

Engineering funds and funds from the Nez Perce Tribe via the Bonneville Power Administration were used for one culvert replacement projects within the Eldorado Creek drainage. The Forest also provided funds for the project design, environmental analyses, consultations and monitoring. The culvert replacement on Snowshoe Creek will improve access for westslope cutthroat trout and other aquatic organisms to approximately 0.5 miles of stream. The new structure will also reduce the risk of a culvert failure and potential sediment input into approximately 0.1 miles habitat within the impact zone downstream of the culvert site. Although this culvert is located upstream of Eldorado Falls, a partial migration barrier to anadromous fish, the improved access may also benefit steelhead trout whenever production and downstream migration is improved in the Eldorado Creek drainage.

Engineering funds and funds from the Nez Perce Tribe were also used for two culvert replacement projects within the Yakus Creek drainage. The Forest and the Nez Perce Tribe also provided funds for the project design, environmental analyses, consultations and monitoring. The culvert replacements within the Stray Creek and Rate Creek will improve access for westslope cutthroat trout, possibly steelhead trout, bull trout and other aquatic organisms to approximately 2.0 miles of stream. The new structures will also reduce the risk of a culvert failure and potential sediment input into approximately 5.0 miles habitat within the impact zone downstream of the culvert site

Road Decommissioning – No road decommissioning projects were completed during 2007. Road decommissioning projects identified under the White White Project are scheduled in 2008-09. Future road decommissioning projects are planned in the Yakus Creek drainage (Yakus Creek Project) and Musselshell Creek drainage (Swede Fuels Project).

Habitat Monitoring: The mainstream Lolo Creek and nine tributaries have been designated a WQLS by the State of Idaho. The primary pollutants of concern are sediment and water temperature. Stream inventories of all fish bearing streams within the Lolo Creek drainage have been completed on National Forest System lands between 1991and 1994. Resurveys of specific streams are planned every five to ten years dependent upon stream conditions and management proposals. In 1998, approximately 20 miles of the mainstem of Lolo Creek were resurveyed to assess any changes in habitat stream conditions from surveys conducted in 1988 and 1993. In 2007, no re-surveys were scheduled within the Lolo Creek drainage.

Stream Habitat Monitoring/Surveys: One Forest Plan aquatic monitoring site on the mainstem Lolo Creek was established and surveyed during 2007; data is currently being summarized. This information will supplement the monitoring the PACFISH/INFISH Biological Opinion Effectiveness (PIBO) has been conducting on the Forest since 2001. In 2007, no inventories and stream habitat re-surveys were scheduled within the Lolo Creek drainage.

Stream Channel and Substrate Conditions: Stream channel and substrate conditions were monitored at permanent sites on one stream: Lolo Creek. See *riparian section* for more information.

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. In general, past monitoring data has indicated that stream temperatures in Lolo and Musselshell creeks exceeded the desired criteria (16-17°C) by several degrees and maintained these high temperatures for extended periods of time.

Stream temperatures were monitored throughout the summer at 20 sites on 18 streams (only USFS sites) within the Lolo Creek drainage to evaluate habitat conditions for steelhead trout, spring Chinook salmon, westslope cutthroat trout and bull trout. The following data is for Lolo Creek tributaries operated by the Forest, as the data recorders operated by the Nez Perce Tribe (i.e. Camp Creek, Eldorado Creek etc.) have not been summarized. Comparison of the 2007 stream temperature data and the desired maximum temperatures as defined for appropriate standards in the Forest Plan revealed that:

- The desired steelhead trout rearing temperature of 17°C was met at six streams (Dutchman Creek, Knoll Creek, Mike White Creek, Fan Creek, Nevada Creek, and Trout Creek) out of the eleven streams monitored with a "high fishable" standard. Lolo Creek, Eldorado Creek and Musselshell Creek did not meet the "high fishable" standard for steelhead trout rearing. Lunch Creek exceeded the standard on one day.
- The desired spring Chinook trout rearing temperature of 17°C was not met at the current or potential spring Chinook salmon streams (Lolo Creek, Yoosa Creek, Eldorado Creek and Musselshell Creek).
- The desired westslope cutthroat trout rearing temperature of 16°C or below was met at three streams (Brick Creek, Chamook Creek, Panther Creek, and White Creek) out of the six streams monitored with a "high fishable" standard. Yakus Creek exceeded the standard on two days.
- The desired westslope cutthroat trout rearing temperature of 18°C or below (moderate fishable standard) was met in Gold Creek and Mud Creek.
- The desired westslope cutthroat trout rearing temperature of 20°C or below (low fishable standard) was met in Dan Lee Creek.

Overall, water temperatures within 16 of the 18 streams were under the State standard for cold-water biota; water temperatures did not exceed the daily maximum of 22°C and the maximum daily average of 19°C. The temperature data showed Eldorado Creek (8 days) and Musselshell Creek (at the mouth (27 days)) exceeded the State cold-water biota standard. The State standard of 13°C for the spring spawning period (steelhead trout) was not met on any of the monitored streams in the Lolo Creek subbasin. All streams exceeded the bull trout maximum summer rearing temperature of 12°C (consecutive seven-day average of daily maximums) that EPA issued as final temperature guidance for water quality standards throughout the Pacific Northwest.

Fish Population Monitoring: For the last 20 years, population assessments were conducted via snorkeling to document trends in Lolo Creek; 15 permanent transects established in 1988 were sampled (10 log weir pools and 5 control sites).

The 2007 fish population survey at the 15 transects observed three steelhead fry (age 0+), but did not find any steelhead trout (age 1+). This is the first year that the Forest has not found any age 1+ steelhead trout (Figure 1). Population data continues to indicate a downward trend in steelhead trout production in Lolo Creek. Unlike previous years, the low densities the Forest observed could not be validated by other monitoring efforts; due to funding constraints the Nez Perce Tribe did not conduct any fish population monitoring via snorkeling in the Lolo Creek drainage. The absence of steelhead in 2007 was most likely the result of low numbers of adult steelhead trout spawning in 2005 and/or low spawning success due to low stream flow conditions. The low stream flow conditions in 2007 may have also force steelhead trout to move out of the Lolo Creek system or migrate to cooler tributary streams during the survey period in early August.

The 2007 fish population survey at the 15 transects did not find any spring Chinook salmon juveniles; densities observed in 2007 were the lowest observed by the Forest during the 19 years of monitoring (Figure 2). As with steelhead trout, the absence of juveniles observed by the Forest could not be validated by other monitoring efforts; due to funding constraints the Nez Perce Tribe did not conduct any fish population monitoring via snorkeling in the Lolo Creek drainage. The absence of spring Chinook salmon juveniles in 2007 was most likely the result of low numbers of adult spawning in 2006 and/or low spawning success due to low stream flow conditions. In 2006, the Tribe retained a high proportion of the adult returns for hatchery spawning. The low stream flow conditions in 2007 may have also force the juvenile

spring Chinook salmon to move out of the Lolo Creek system or migrate to cooler tributary streams during the survey period in early August.

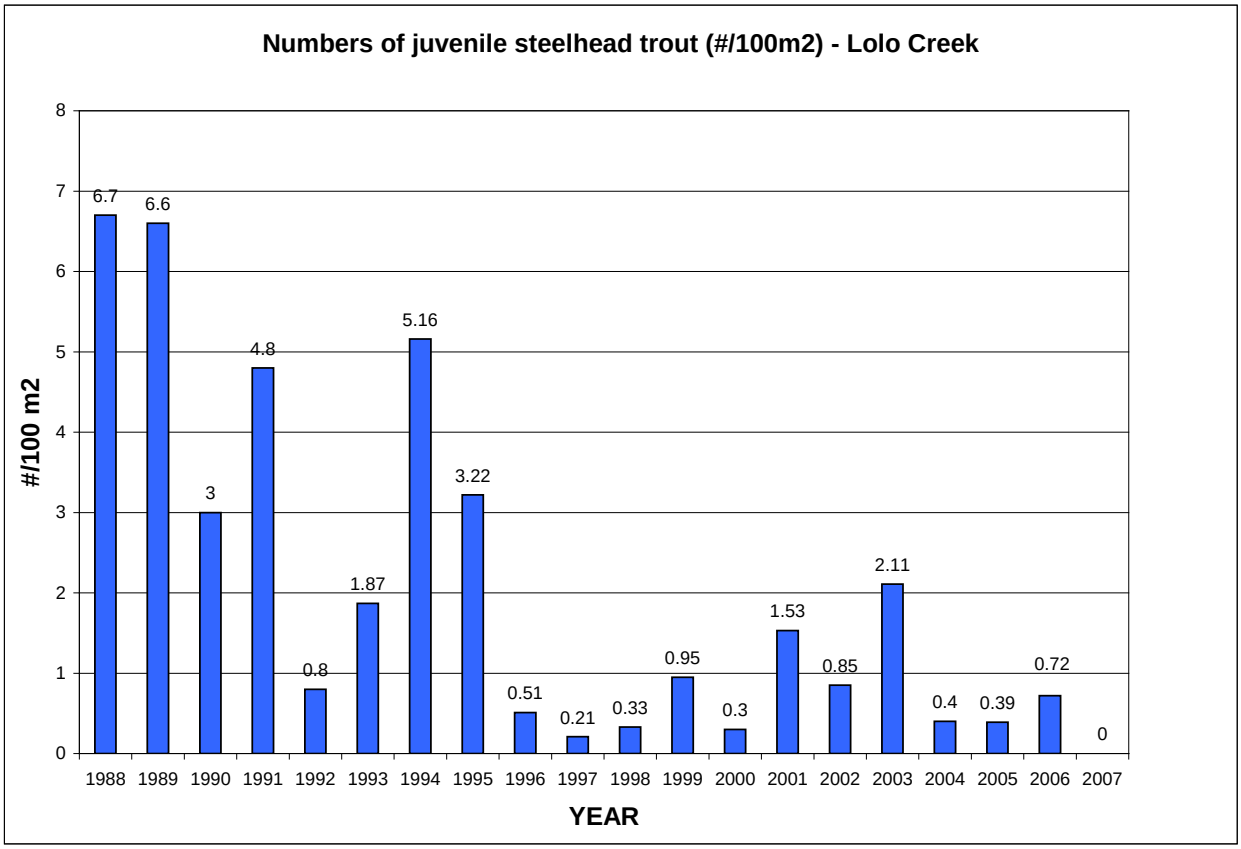


Figure 1. Comparison of the average densities (#/100m²) of juvenile steelhead trout (age 1+) that were observed for survey period 1988-2007 at permanent snorkeling stations on Lolo Creek by the Clearwater National Forest (data for 1997 and 2000 are different stations conducted by the Nez Perce Tribe within the same stream reach).

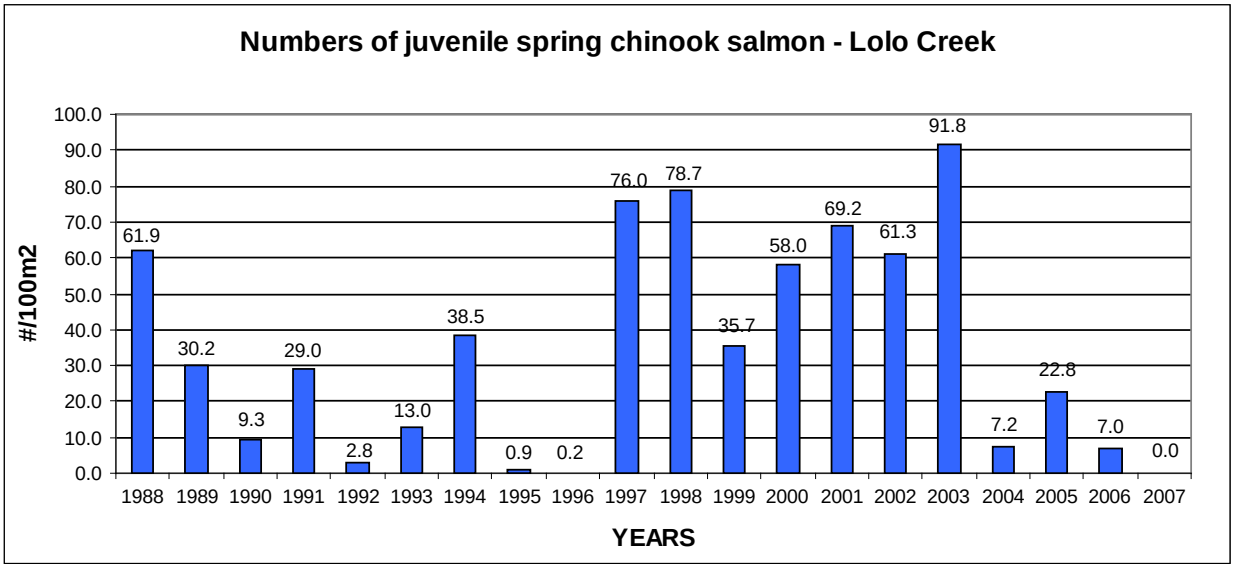


Figure 2. Comparison of the average densities (#/100m²) of juvenile spring Chinook salmon (age 0+) that were observed for survey period 1988-2007 at permanent snorkeling stations on Lolo Creek by the Clearwater National Forest (data for 1997 and 2000 are different stations conducted by the Nez Perce Tribe within the same stream reach).

Since 1992, the Nez Perce Tribe has also conducted fish population assessments in Lolo Creek tributaries such as Yoosa Creek, and Eldorado Creek. The Tribal data supplements the Forest's data and is complementary in the establishment of trends for steelhead trout and spring Chinook salmon.

As part of the continuing Idaho Supplemental Studies being conducted in the Lolo Creek drainage, the Nez Perce Tribal Fisheries Department completed the 2007 Lolo Creek spring Chinook spawning ground surveys. These surveys were conducted in the main stems of Lolo, Eldorado, Musselshell, and Yoosa creeks.

Results of the 2007 surveys indicated that a total of 14 redds were located within the Lolo Creek drainage; all nine redds were located within mainstem Lolo Creek (Figure 3). No redds were observed in Musselshell Creek, Eldorado Creek or Yoosa Creek. The number of redds within the Lolo Creek drainage was about 3 percent of the 2001 redd count (the highest in the 16-year monitoring period). The total redd count was about a third more than the 2006 redd count, but substantially below the previous five-year average (2002-2006) of 97 redds. Similar to 2006, the 2007 redd count shows a lower count than marginal spawning period of 1988-1999 which had an average of 29 redds. If the exception high count of 141 in 1997 was omitted, the average for the eleven year period (1988-1996, 1998-1999) was approximately 19 redds. The reason for the low number of redds in 2007 is a combination of the low adult returns to Lolo Creek (89 adults) and the adults kept for broodstock (60 adults) for the Nez Perce Tribal rearing facility. [9] Unlike 1999-2001, no hatchery supplementation of adult spring Chinook salmon was done by the Tribe during the 2002-2007 spawning seasons.[10]

[9] Nez Perce Tribe. 2008. Nez Perce Tribe Chinook salmon and steelhead adult escapement and spawning ground 2007 summary report. Nez Perce Tribe Fisheries Department, Lapwai, Idaho.

[10] Nez Perce Tribe 2008. Personal communications, Ryan Johnson, fisheries, biologist, Nez Perce Tribe Fisheries Department, Orofino, Idaho.

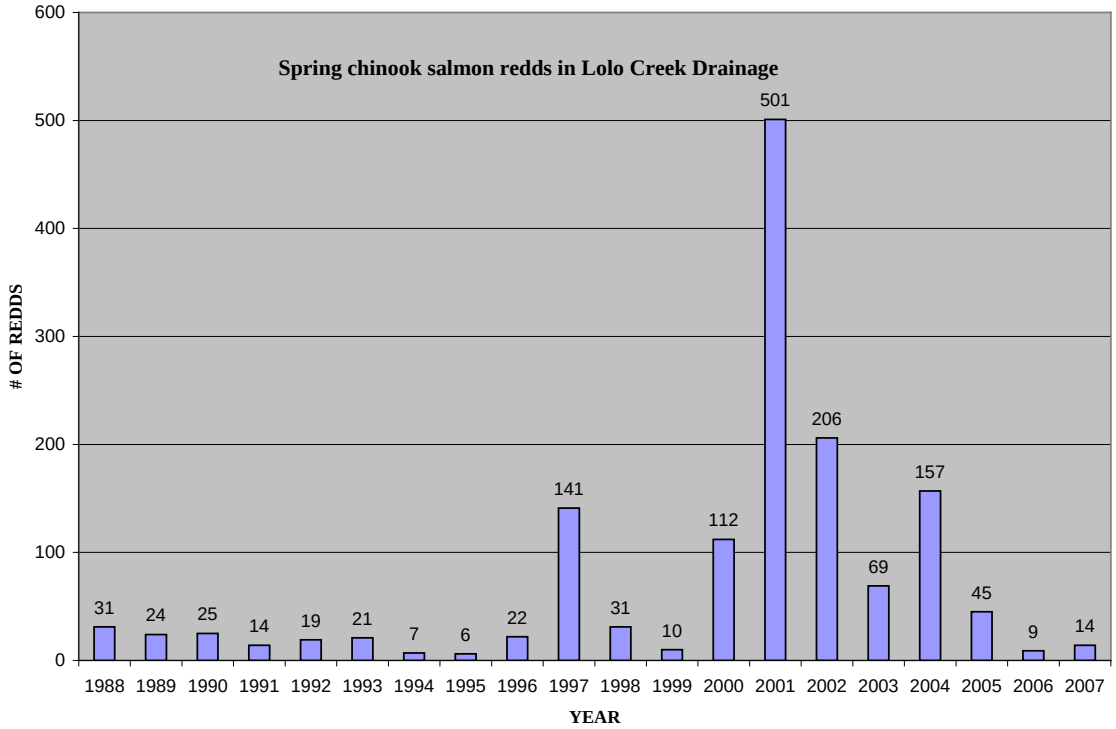


Figure 3. Comparisons of spring Chinook salmon redd counts observed within the Lolo Creek drainage during 1988-1999 (data provide by Idaho Department of Fish and Game (1988-89), U.S. Forest Service (1990-1991) and Nez Perce Tribe (1992-2007).

OROFINO CREEK WATERSHED

Watershed Status: No natural or anthropogenic events occurred in the USFS drainages within the Orofino Creek watershed during 2007 that caused changes to the aquatic environment. Instream conditions and riparian conditions did not show any substantial changes due to climatic, spring stream flows, erosion (sedimentation due to surface and mass wasting events), and management activities (i.e. roads and vegetative treatments). No major fires occurred in 2007. Various field reviews have supported the conclusion that the habitat conditions for most drainages are most likely similar to 1998-2006 conditions. Based on these assessments, the presence/absence and relative abundance of fish populations within the watershed are assumed similar to conditions observed in previous years.

Habitat Improvement: No major habitat improvement projects (road decommissioning, fish passage etc) were scheduled during 2007.

Habitat Monitoring: As in 2001-2006, stream surveys that were scheduled for Orofino Creek in 2007 were not completed due to budget constraints. Dependent upon funding, surveys will be re-scheduled for 2009.

Water Temperature Monitoring: Due to migration barriers in lower Orofino Creek, streams within the Forest's boundary are considered non-anadromous (no potential for steelhead trout or spring Chinook salmon); only water quality and habitat conditions related to resident fish (i.e. westslope cutthroat trout) are monitored and analyzed. As in 1996-2006, Orofino Creek, at the Forest Service boundary, was

monitored for summer stream temperatures in 2007. In addition, stream temperature data was collected at four tributary sites Comparison of the 2007 stream temperature data and the desired maximum temperatures as defined for the "low fishable" standard in the Forest Plan revealed that the desired cutthroat trout rearing temperature of 20°C or below was met at all sites. State standards for cold water biota were also achieved; water temperatures did not exceed the daily maximum of 22°C and the maximum daily average of 19°C. State standard of 13°C for the spring spawning periods (for westslope cutthroat trout) was exceeded at all sites.

MIDDLE FORK CLEARWATER RIVER WATERSHED

Watershed Status: No natural or anthropogenic events occurred in the USFS drainages within the Middle Fork Clearwater River watershed during 2007 that caused changes to the aquatic environment. Instream conditions and riparian conditions did not show any substantial changes due to climatic, spring stream flows, erosion (sedimentation due to surface and mass wasting events), and management activities (i.e. roads and vegetative treatments). No major fires occurred in 2007. None of the two smaller suppression fires were over one acre. Various field reviews and monitoring activities have supported the conclusion that the habitat conditions are most likely similar to 1998-2006 conditions. Based on these assessments, the presence/absence and relative abundance of fish populations within the watershed are assumed similar to conditions observed in previous years. However, anadromous fish numbers may vary annually due to influences outside the watershed.

Habitat Improvement: No major habitat improvement projects (road decommissioning, fish passage etc) were scheduled during 2007.

Habitat Monitoring: Since the stream inventories of all fish bearing streams within the Middle Fork Clearwater River drainage have been completed on National Forest System lands during 1996, no additional habitat surveys were scheduled for 2007.

Water Temperature Monitoring - Middle Fork Clearwater River Drainage: Stream temperatures were monitored throughout the summer at the mouths of Big Smith Creek, Little Smith Creek and Swan Creek to evaluate habitat conditions for westslope cutthroat trout. During 1997, the Forest started collecting water temperature data from these streams to determine temperature problems and prioritize riparian recovery efforts. Comparison of the 2007 stream temperature data from the three streams and the desired maximum temperatures as defined for the "high fishable" standard in the Forest Plan revealed that:

- The desired westslope cutthroat trout rearing temperature of 16°C was met at Little Smith Creek. Big Smith Creek and Swan Creek did not meet this standard. These streams are relatively small and do not contain any significant spring Chinook rearing habitat. Minimal steelhead trout spawning and rearing occurs in these streams; the westslope cutthroat trout rearing standard and spawning period meets the “high fishable” standards for steelhead trout.
- Big Smith Creek, Little Smith Creek and Swan Creek met the State standard for cold-water biota; water temperatures did not exceed the daily maximum of 22°C and the maximum daily average of 19°C. The State standard of 13°C for the spring spawning periods for westslope cutthroat trout was not met. As for bull trout, Big Smith Creek, Little Smith Creek and Swan Creek have not been designated potential bull trout spawning habitat; they also have exceeded the maximum summer rearing temperature of 12°C (consecutive seven-day average of daily maximums) that EPA issued as final temperature guidance for water quality standards throughout the Pacific Northwest.

LOCHSA RIVER WATERSHED

Watershed Status: In addition to numerous small fires, six major lightning-caused fires (approximately 50,400 acres) occurred in the Lochsa River watershed during 2007 that may have caused various changes to

the aquatic environment. The Boundary Junction (5,081 acres), Bridge (42,694 acres), Old Man (707 acres), Rock Lake (405 acres), Fish Butte (132 acres), and Hidden (1,400 acres) fires burned between July and the fall rains in October. All of the fires were primarily located within the wilderness/roadless areas. Two of the largest fires (Boundary Junction and Bridge) were field reviewed during September and October.

During containment actions on the Boundary Junction Fire, three large riparian trees along Eldorado Creek were felled. Fire personnel were establishing a helicopter dip site near the junction of USFS roads 500 and 524. The trees were felled prior to appropriate Forest personnel being informed; further discussions revealed that the site was not needed. Although some riparian shade was lost, the trees were dropped into Eldorado Creek which provided LWD at the site. Other than leaving the trees within the riparian area, no restoration measures were recommended.

Another incident on the Boundary Junction Fire involved a fuel break that was constructed across Yoosa Creek from the USFS road 103 (using the Knoll Creek timber sale decommissioned road) south to USFS road 5130 on the ridge between Yoosa Creek and Eldorado Creek. The excavator trail was a maximum of 20 feet wide and was not constructed within 100 feet of Yoosa Creek; a hand trail was constructed within 100 feet of the Yoosa Creek. While minimal soil disturbance was observed, the fuel break did remove large woody debris (LWD) in the riparian area and constructed a fire line directly over a perennial non-fish bearing tributary. Some opening of the riparian canopy was also observed due to the removal of alder and/or brush. Fortunately Yoosa Creek is relatively stable, with lots of LWD and a moderate propensity of flushing stream flows. The stream at this location is a relatively small cutthroat trout and steelhead trout stream with some habitat available for bull trout, although bull trout have not been observed during fish population surveys in the upper Yoosa Creek drainage.

Based on a field review by the Forest Hydrologist and Forest Fisheries Biologist on October 17, 2007, no immediate remedial or restoration measures were recommended. Since the existing levels of LWD are adequate, no additional LWD placements would be necessary. Besides some minor erosion during high stream flows at the tributary, no major riparian or stream channel alterations are expected.

To prevent riparian alterations during fire containment and/or suppression efforts in the future, the Forest has initiated a review process to have appropriate forest personnel assess situations, provide recommendations and facilitate any required consultations.

With the exception of activity adjacent to structures and the State line, suppression efforts were minimal and conducted only to “herd” the Bridge fire. Suppression activities where taken were well-planned and located away from aquatic areas; post-fire restoration work was minimal.

Cursory field reviews of the Boundary Junction and Bridge fires from existing roads were conducted in the late fall months. The wildfires generally exhibited mixed severity mosaic burn patterns with the hottest burn areas located on ridges or dry slopes. Impacts of the reduced streamside cover and the resultant effects on stream temperatures during the summer months have not been quantified, but some increases in summer stream temperatures will most likely occur in the smaller tributaries. Aerial photos of the Boundary Junction Fire indicated that some measurable impacts to several smaller tributaries of Hungery Creek may occur due to fire impacts within the riparian areas and moderate to high severity burns in the upland areas. However, impacts to the main fish-bearing streams, such as Fish Creek and Hungery Creek are expected to be minimal and non-measurable.

Within the Bridge Fire, aerial photos indicated that some measurable impacts to upper Colt Killed Creek, the mainstem Big Sand Creek and several tributaries (i.e. Bridge Creek, Hidden Creek, and Big Flat Creek) may occur due to fire impacts within the riparian areas and moderate (35 percent) to high severity (4 percent) burns in the upland areas. Impacts to lower Colt Killed Creek are expected to minimal and non-measurable.

Effects to the mainstem Lochsa River from both fires are most likely nonexistent. Sediment impacts to the major fish-bearing streams should be relatively small and localized, and the impacts are expected to dissipate during high spring runoff in 2008.

The other four large fires were located within the wilderness areas (Old Man, Rock Lake, and Hidden) and a roadless area (Fish Butte); no substantial changes to the aquatic environment within the specific watersheds are expected. Another 37 smaller fires (suppression and wildland fire use) were located within the Lochsa River drainage; with the exception of two fires (Saturday – 5 acres and Ridge – 6 acres) these fires were all under one acre.

Besides the six large fires and 37 smaller fires, no additional natural or anthropogenic events occurred within the Lochsa River watershed during 2007 that caused visible or measurable changes to the aquatic environment. Overall, instream conditions and riparian conditions did not show any substantial changes due to climatic, spring stream flows, erosion (sedimentation due to surface and mass wasting events), and management activities (i.e. roads and vegetative treatments). Various field reviews and monitoring activities have supported the conclusion that the habitat conditions are most likely similar to 1998-2006 conditions. Based on these assessments, the presence/absence and relative abundance of fish populations within the watershed are assumed similar to conditions observed in previous years. However, anadromous fish numbers may vary annually due to influences outside the watershed.

Habitat Improvement: Most improvement work regarding the aquatic resources were focused on watershed restoration (i.e. road decommissioning and culvert removal). Aquatic funds supplemented Forest funds from the engineering and watershed and BPA funds from the Nez Perce Tribe to complete road decommissioning activities in several drainages and two culvert replacement projects in the Lochsa River drainage. The Forest and Tribe participated in the design, implementation and monitoring of these projects. These activities improved access for adult anadromous and inland fish and allowed for unimpeded access for juvenile fish and other aquatic species to an additional 3.2 miles of stream.

Fish Passage Improvement - Lower Lochsa River Area – In 2007, no fish passage improvement projects were scheduled in the lower Lochsa River drainage.

Road Decommissioning - Lower Lochsa River Area – Besides general road maintenance work, the Forest completed approximately 4.7 miles of road decommissioning in the Pete King Creek drainage. Fisheries funds (95 percent) and engineering funds (5 percent) were used to remove roads in the Polar Creek drainage; habitat conditions along approximately 7.7 miles of streams within the Pete King Creek drainage are expected to improve for bull trout, steelhead trout, spring Chinook salmon and westslope cutthroat trout via removing existing sediment sources.

Fish Passage Improvement - Upper Lochsa River Area – In 2007, the Forest used fisheries improvement funds on four culvert replacement projects.

Fisheries funds (1 percent), engineering funds (2 percent) and Bonneville Power Administration funds and NOAA funds directed to the Idaho State Office of Species Conservation through the Nez Perce Tribe (97 percent) were used for three culvert replacement projects within the Indian Grave Creek and Colt Killed (White Sand) Creek drainages. The Forest and the Nez Perce Tribe also provided funds for the project design, environmental analyses, consultations and monitoring. The two culvert replacements on Indian Grave Creek, will improve access for westslope cutthroat trout, steelhead trout, bull trout and other aquatic organisms to approximately four miles of stream. The new structures will also reduce the risk of a culvert failure and potential sediment input into approximately 4.1 miles habitat within the impact zone downstream of the culvert site.

The third culvert replacement project was located in Cabin Creek; this project involved the removal and replacement of a large fill and will improve access for westslope cutthroat trout, steelhead trout, bull trout and other aquatic organisms to approximately 1.5 miles of stream. The new structures will also reduce the risk of a culvert failure and potential sediment input into approximately 1.5 miles habitat within the impact zone downstream of the culvert site.

The four culvert replacement project was located in Doe Creek; this project will improve access for westslope cutthroat trout, bull trout and other aquatic organisms to approximately 0.5 miles of stream. The new structures will also reduce the risk of a culvert failure and potential sediment input into approximately 3.0 miles habitat within the impact zone downstream of the culvert site.

Road Decommissioning - Upper Lochsa River Area – Besides general road maintenance work, the Forest completed approximately 6.1 miles of road decommissioning in the Crooked Fork Creek drainage. Engineering funds (8 percent) and Bonneville Power Administration funds through the Nez Perce Tribe (92 percent) and were used to remove roads in the Rock Creek drainage; habitat conditions along approximately 1.2 miles of streams within the Rock Creek drainage are expected to improve for bull trout, steelhead trout and westslope cutthroat trout via removing existing sediment sources.

Habitat Monitoring – Lochsa River drainage: Stream inventories of all fish bearing streams within the Lochsa River drainage have been completed on National Forest System lands during 1990-1997. Re-surveys have been conducted on several streams (Pete King Creek, Deadman Creek and Walton Creek) in 1998-1999. As part of a research study regarding the effects of road obliteration on instream conditions, the Forest resurveyed Badger Creek in 2001. Due to the Crooked Fire in 2000, re-surveys were completed on Rock Creek and Haskell Creek in 2002.

Stream Habitat Monitoring/Surveys - Lower Lochsa River Area - In 2007, no Forest Plan monitoring or re-surveys were scheduled within the lower Lochsa River drainage.

Stream Channel and Substrate Conditions – Lower Lochsa River Area - The Forest continued the substrate-monitoring project in Deadman Creek to determine trends of sediment (% fines by depth) in steelhead trout spawning areas. Due to time and funding constraints, no substrate-monitoring was conducted in Pete King Creek during 2007. This monitoring consists of measuring the substrate particles that are collected by digging a core into the stream bottom at permanent stations. These stations have been monitored for the last 20 years. Analysis of the data indicates that the percentage of sediment (fine sediment < 6.4 mm) within the substrate of both streams have ranged between 27% and 47% fines.

At the Deadman Creek stations, the substrate conditions showed a slight increase in percent fines from 32% to 33% between 2006 and 2007 respectively (Figure 4). Similar to Pete King Creek, no new sediment sources (i.e. landslides road failures) were identified during 2000-2007. Therefore, the increase is most likely the aftermath of a pulse of instream sediment being transported through the system during the past six years (2000-2006). Comparison of the percent fines between two time periods, 1990-1994 and 1995-1999, showed that the decreasing trend over the last ten years was significant ($p<0.05$). However, the increases in 2000, 2002-2003, and in 2005 most likely show that the decrease is temporary and that sediment impulses resulting from past anthropogenic activities are still present in the drainage. Information collected in the next three years will hopefully show if a long-term decreasing trend is apparent or if sediment conditions will continue to fluctuate.

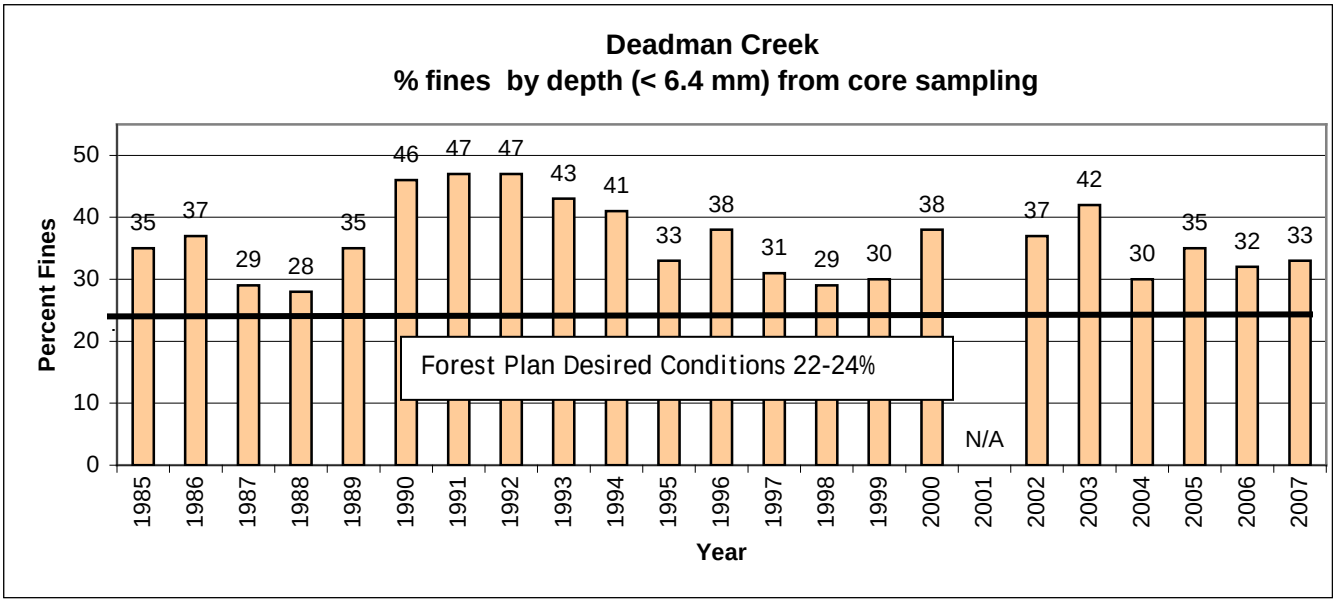


Figure 4. Comparison of average percent fines (< 6.4 mm) for years 1985-2007 at permanent substrate monitoring sites in lower Deadman Creek within the Lochsa River drainage. No data was collected in 2001.

Stream Habitat Monitoring/Surveys - Upper Lochsa River Area - Two Forest Plan aquatic monitoring sites on the mainstem Badger Creek and Brushy Fork Creek were established and surveyed during 2007; data is currently being summarized. This information will supplement the monitoring the PACFISH/INFISH Biological Opinion Effectiveness (PIBO) has been conducting on the Forest since 2001. In 2007, no inventories and stream habitat re-surveys were scheduled within the upper Lochsa River drainage.

Stream Channel and Substrate Conditions - Upper Lochsa River Area - As part of a research study regarding the effects of road obliteration on instream conditions, stream channel and substrate conditions were monitored at three permanent sites in Badger Creek. See *riparian section* for more information.

Water Temperature Monitoring - Lochsa River Drainage: Stream temperatures were monitored throughout the summer at 100 sites on 83 streams within the Lochsa River drainage. Temperature data for an additional nine sites are not available (instruments still instream (3), missing units (2), analysis pending (2), or equipment failures (2) prevented data collection). The Forest has been collecting water temperature data from 1990-2007 to determine temperature problems and prioritize riparian recovery efforts. In past years, thermograph data revealed that temperatures exceeding the desired rearing temperature criteria by several degrees were maintained for extended periods of time. Comparison of the 2007 stream temperature data from the 91 monitoring sites on the 79 streams with available data with desired maximum temperatures as defined for the "*high fishable*" and "*no effect*" standard in the Forest Plan revealed that:

- The desired bull trout rearing temperature of 12°C (no effect) was not met at Beaver Creek, the only bull trout designated stream within the Forest Plan.
- The desired steelhead trout rearing temperature of 15°C (no effect) was not met at any of the ten streams monitored with a "no effect" standard. Fern Creek and Dan Creek exceeded the standard on one and five days respectively.
- The desired steelhead trout rearing temperature of 17°C (high fishable) was met at 19 streams out of the 34 streams monitored with a "high fishable" standard. Doe (1day), Legendary Bear (5days) and Post office Creek (4days) exceeded the standard on five days or less.

- The desired spring Chinook trout rearing temperature of 15°C (no effect) was not met at of the five major streams with Chinook habitat, although one site, Waw'aalamnine (Squaw) Creek above West Fork Waw'aalamnine (Squaw) Creek did meet the standard.
- The desired westslope cutthroat trout rearing temperature of 13°C was not met at any of the six streams monitored with a "no effect" standard.
- The desired westslope cutthroat trout rearing temperature of 16°C (high fishable) was met at 16 of the 24 streams monitored with a "high fishable" standard. Lost Creek exceeded the standard one day and Pack Creek exceeded the on three days.

Overall, water temperatures of 74 of the 79 monitoring streams within the Lochsa River drainage were under the State standard for cold-water biota; water temperatures did not exceed the daily maximum of 22°C and the maximum daily average of 19°C. The four sites on the mainstem Lochsa River exceeded the standard from 17 to 33 days and Fish Creek exceeded the standard on 21 days. The remaining three streams, Crooked Fork Creek, Colt Killed Creek and Pete King Creek exceeded the standard on one, five and six days respectively. The State standard of 13°C for the summer period (spring chinook salmon was not met at any of the monitored sites. The State standard of 13°C for the spring spawning period (steelhead trout) was not met at any of the streams monitored. Twin Creek exceeded the standard on seven days. The State standard of 13°C for the spring period for westslope cutthroat trout was met at two streams, Bridge Creek and Muleshoe Creek. Muleshoe Creek met the bull trout maximum summer rearing temperature of 12°C (consecutive seven-day average of daily maximums) that EPA issued as final temperature guidance for water quality standards throughout the Pacific Northwest. Bridge Creek exceeded the bull trout maximum summer rearing temperature average on 2 days.

Fisheries Population Monitoring:

Lower Lochsa River Area: As in previous years, fish population monitoring (via snorkeling) of selected streams continued at established long-term monitoring stations. However, budget constraints and inclement weather conditions during late August limited the number of sites to the Pete King Creek, Deadman Creek, Hungery Creek and lower Fish Creek drainages. Fish population monitoring was not completed in all of the Hungery Creek and Fish Creek sites in 2007. Average steelhead juvenile densities at the Pete King Creek sites showed moderate levels similar to 2004-2006 while densities since 2000 at the Deadman Creek sites have been at or higher than the desired conditions. The lower Fish Creek sites showed fluctuating annual densities that are relatively good, while the densities at the Hungery Creek sites show a downward trend since 2000; however the data set is missing two years. Fish species present in some or all of the study streams included spring Chinook salmon, steelhead/rainbow trout, westslope cutthroat trout, mountain whitefish and sculpin. No bull trout were observed during the surveys.

Monitoring of age 1+ steelhead trout juveniles within the Pete King Creek drainage has been conducted over a number of years to assess the trend in steelhead production within developed watersheds within the lower Lochsa River drainage (Figure 5).

The 2007 data indicates that steelhead trout populations within Pete King Creek have remained at the 2004-2006 levels which are similar to the 25-year average of 8.7 age 1+ fish/100m^2. Fish population data collected by the Forest showed densities of juvenile steelhead (age 1+) averaged about 10.9 fish/100m^2 in lower Pete King Creek. In 2007, the fish population monitoring only included four of the ten original transects; changes in stream conditions have resulted in a majority of non-pool habitats at six original transects. Since these transects did meet the selection criteria for the monitoring project, an additional six sites were selected and monitored.

The 2007 densities are still below the desired densities of juveniles (age 1+) >15 fish/100m^2 (Figure 5). In past years, the low numbers of juvenile steelhead trout in Pete King Creek were most likely due to a two conditions: (1) fair-poor habitat conditions have reduced potential spawning and rearing, and (2) low number of adult spawners due to downriver adult and juvenile escapement problems. Habitat conditions are expected to recover slowly until proposed watershed restoration activities (i.e. road obliteration) are

completed over the next ten years and vegetative recovery occurs in the riparian areas. Following watershed restoration projects, stream channels will need to undergo undetermined number of spring runoff events to reconfigure the stream channels to reflect more natural and stable conditions.

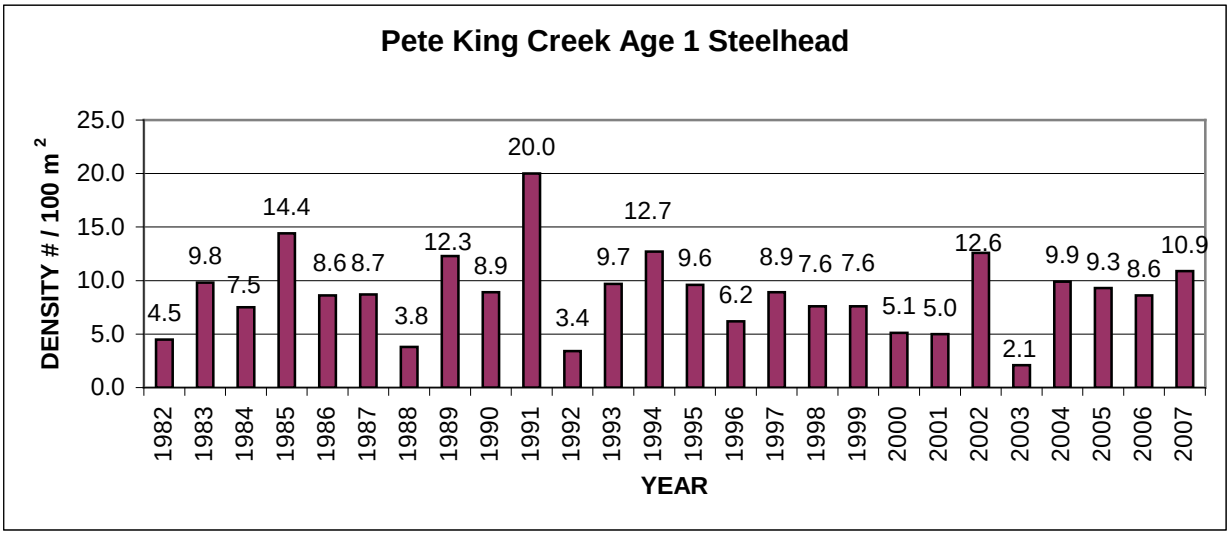


Figure 5. Comparison of the average densities (#/100m²) of juvenile steelhead trout (age 1+) that were observed for survey period 1982-2007 permanent snorkeling stations on Pete King Creek in the Lochsa River drainage by the Clearwater National Forest. Only six of the ten sites were monitored in 2006 due to habitat changes.

The 2007 data indicates steelhead trout populations within Deadman Creek have remain stable since 2000; no sampling was conducted in 2001 and 2005. Fish population data collected by the Forest in 2007 showed densities of juvenile steelhead (age 1+) averaged about 17.7 fish/100m^2 in lower Deadman Creek; the densities are slightly higher than the desired densities of juveniles (age 1+) >15 fish/100m^2 (Figure 6) and higher than the 22-year average of 12.7 fish/100m^2. The high densities observed during past five years (2001 and 2005 excluded) most likely indicates that Deadman Creek has a strong and stable steelhead population. However, due to downriver adult and juvenile escapement problems, and the relatively short monitoring period in relation to the 4 to 5 year life cycle for steelhead trout, the trend could be temporary and reversed in future years. Monitoring data over at least two additional life cycles (eight years) would is needed to support any firm conclusions.

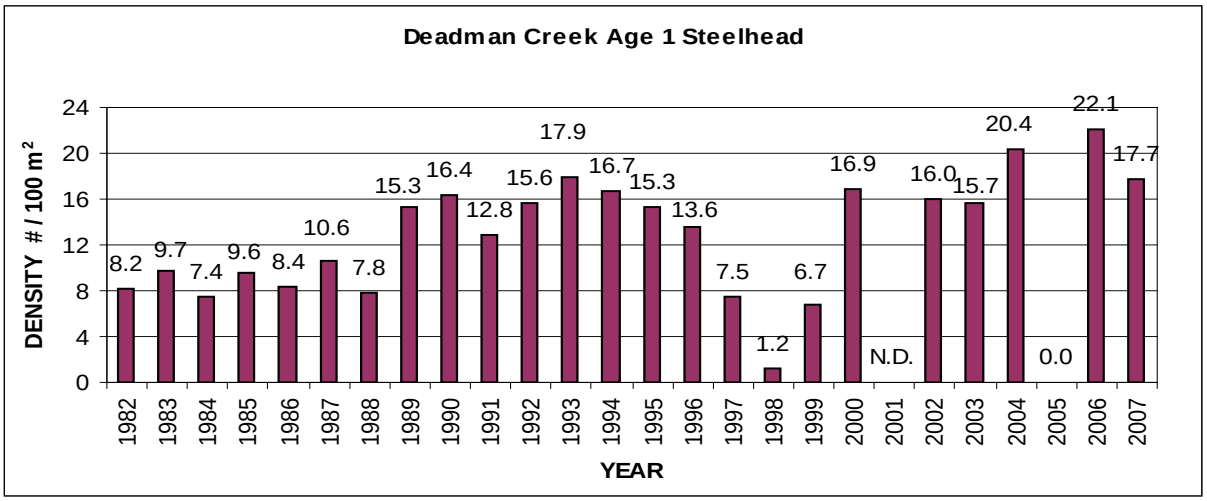


Figure 6. Comparison of the average densities (#/100m²) of juvenile steelhead trout (age 1+) that were observed for survey period 1982-2007 permanent snorkeling stations on Deadman Creek in the Lochsa River drainage by the Clearwater National Forest. No data was collected in 2001and 2005.

Monitoring of age 1+ steelhead trout juveniles within the Fish Creek and Hungery Creek drainages has been conducted over a number of years to assess the trend in steelhead production within undeveloped watersheds within the lower Lochsa River drainage (Figures 7 and 8). Budget and time constraints in 2007 limited fish population sampling to the ten permanent sites within lower Fish Creek and only 13 of the 25 permanent monitoring sites in lower Hungery Creek.

In comparison to the 2005-2006 average (no data was collected in 2004), the average steelhead trout juvenile densities in 2007 showed a moderate decrease (36%) at the lower Fish Creek sites (Figure 7). The 2007 densities (12.1 fish/100m²) were lower than those observed in 2005 and 2006 (18.3 and 19.3 fish/100m² respectively) and are below the desired densities of juveniles (age 1+) >15 fish/100m² (Figure 7); the average density observed in 2007 is also lower the same as the period of record (23-year average) of 18.3 fish/100m².

The densities at the Hungery Creek sites (1.8 fish/100m²) were the lowest observed during the 27 years of monitoring (no monitoring was completed during 2004-2005) and substantially below the desired densities of juveniles (age 1+) >15 fish/100m² (Figure 8). The densities observed in 2007 were also much lower than the period of record (27-year average) of 15.4 fish/100m². The absence of steelhead in 2007 was most likely the result of low numbers of adult steelhead trout spawning in 2005 and/or low spawning success due to low stream flow conditions. The low stream flow conditions in 2007 may have also forced steelhead trout to move out of the mainstem Hungery Creek or migrate to cooler tributary streams during the survey period in early August. Stream temperature data from Hungery Creek during 2007 indicates that during August the temperatures were several degrees warmer than in 2006.

Although juvenile steelhead densities within the Fish Creek and Hungery Creek drainages have been and are relatively good when compared to drainages in the upper Lochsa River, the overall data maintains the downward trend in steelhead production in these streams. As these drainages are basically undeveloped and current habitat conditions appear to be stable, the lower densities are most likely a function of a low number of adult spawners due to downriver adult and juvenile escapement problems.

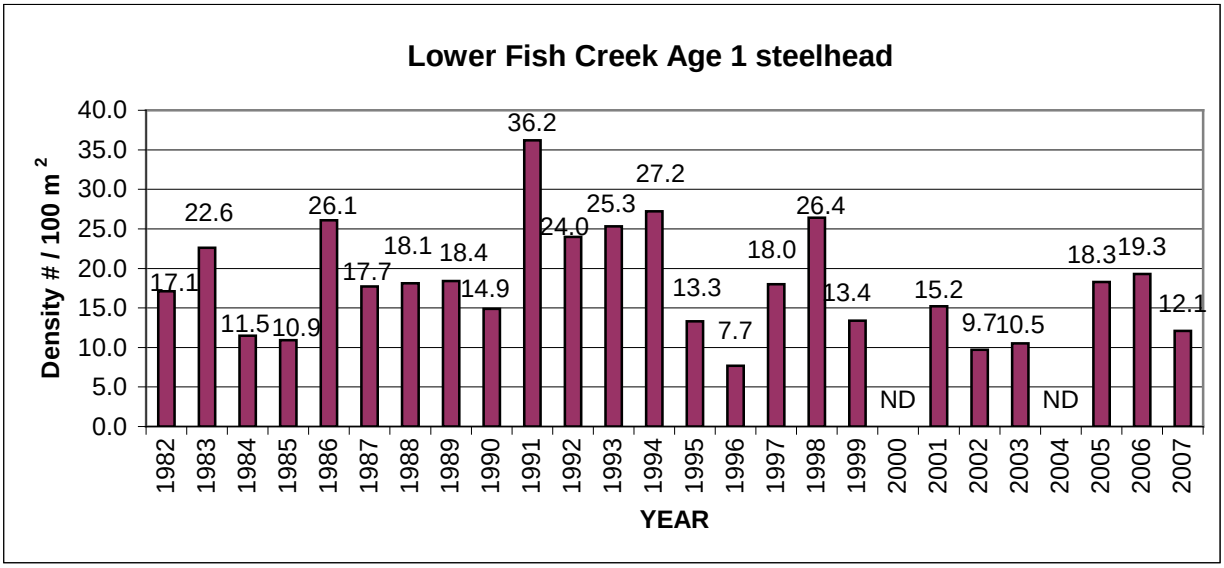


Figure 7. Comparison of the average densities (#/100m²) of juvenile steelhead trout (age 1+) that were observed for survey period 1982-2007 permanent snorkeling stations on lower Fish Creek in the Lochsa River drainage by the Clearwater National Forest. No data was collected in 2000 and 2004.

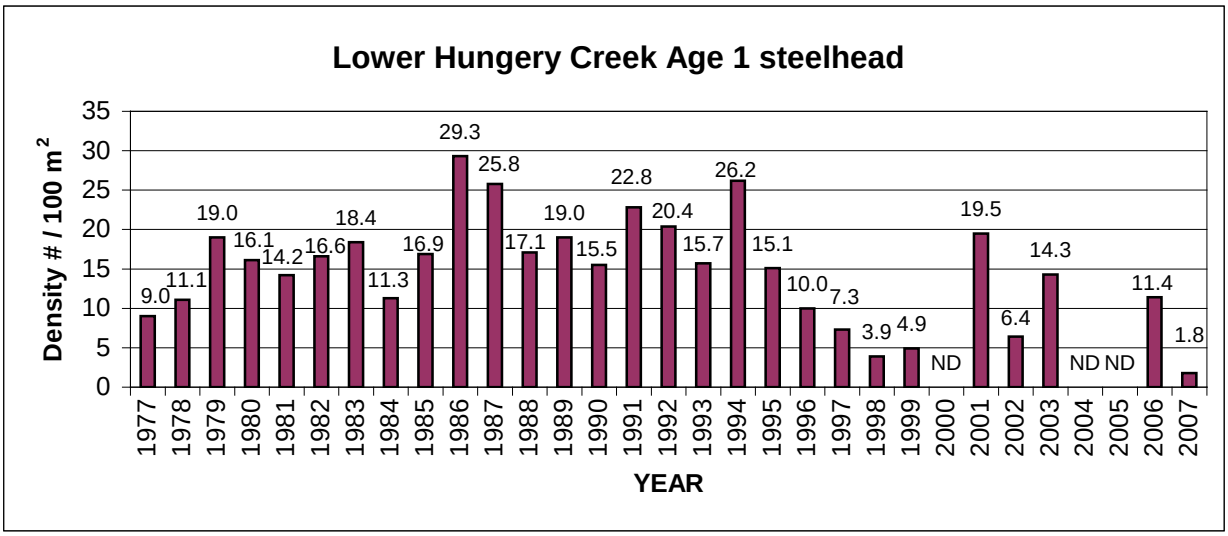


Figure 8. Comparison of the average densities (#/100m²) of juvenile steelhead trout (age 1+) that were observed for survey period 1977-2007 permanent snorkeling stations on lower Hungery Creek (Fish Creek drainage) in the Lochsa River drainage by the Clearwater National Forest. No data was collected in 2000, 2004-2005.

As part of the continuing Idaho Supplemental Studies being conducted in the Lochsa River drainage, the U.S. Fish and Wildlife Service completed the 2007 spring Chinook spawning ground surveys in lower five miles of Pete King Creek. The survey found one redd during the 2007 spawning period (U.S. Fish and Wildlife Service 2007)[11]. Spring Chinook spawning in Pete King Creek occurs infrequently as 0 redds were found during 1992-96, 1998-99, 2003 and 2005 survey periods. One or two redds were documented during

[11] U.S. Fish and Wildlife Service. 2008. Provisional data from Idaho Fishery Resource Office, Dworshak National Fish Hatchery, Ahsahka, Idaho.

the 1997, 2000, 2002 and 2006 spawning seasons. Three redds were observed during the 2004 spawning season. The highest redd count during the 12-year monitoring period was during 2001 when the large spring Chinook salmon run into the Clearwater River basin contributed 17 redds.

Upper Lochsa River Area: Due to budget constraints and other priorities, the Forest did not conduct any fish population monitoring (via snorkeling) in the upper Lochsa River drainage during 2007.

In 2007, the Forest continued bull trout spawning ground surveys on selected streams within the Lochsa River drainage. Due to time constraints, surveys were only conducted on the two streams. Approximately 4.1 miles of stream was surveyed during the spawning period of September through early October. Long-term index areas in two major bull trout streams in the upper Lochsa River drainage were surveyed: Waw'aalamnine (Squaw) Creek, West Fork Waw'aalamnine (Squaw) Creek. Spawning (37 redds) was documented during multiple surveys in these two streams.

A summary of bull trout redds counted during the past 14 years (1994-2007) for the Waw'aalamnine (Squaw) Creek drainage is shown in Figure 9. The 2007 redd counts were lower than in 2006, showing a two year declining trend as compared to 2003-2005. During the earlier surveys (prior to 1999) only one survey was conducted; counts are assumed to be low and most likely do not reflect the actual redd counts. In addition, the 1995-96 flood event modified the culvert outlet at the mouth of the West Fork Waw'aalamnine (Squaw) Creek which caused a fish migration barrier during low stream flows. The absence or low number of redds found during spawning surveys reflect the effects of the migration barrier during the 1996-2000 migration periods and subsequent spawning seasons. The culvert was replaced during the summer of 2000 with a bottomless arch structure; the redd counts increased substantially the following years.

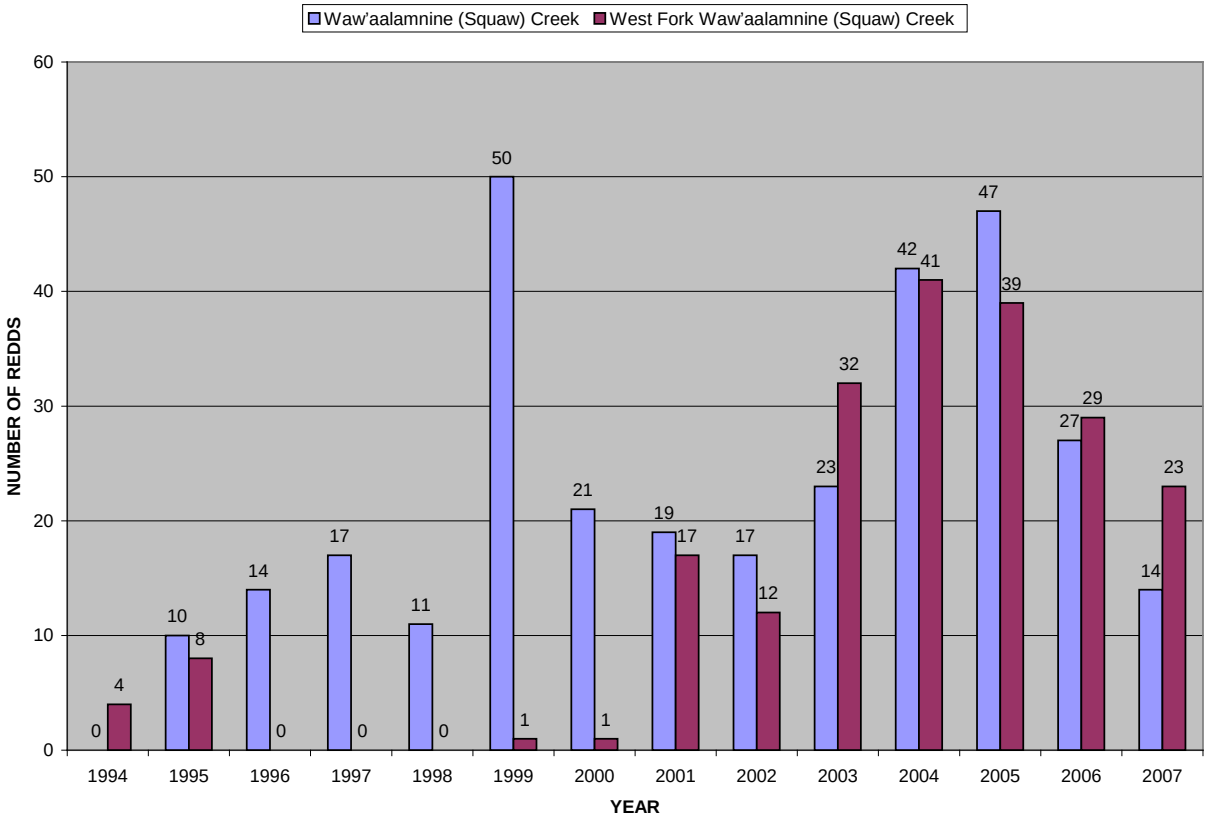


Figure 9. Number of bull trout redds observed by Forest in Waw'aalamnine (Squaw) Creek and West Fork Waw'aalamnine (Squaw) Creek during 1994-2007 spawning season.

As part of the continuing Idaho Supplemental Studies being conducted in the Lochsa River drainage, the Nez Perce Tribal Fisheries Department completed the 2007 spring Chinook spawning ground surveys in Imnamatnoon (Papoose) and Waw'aalamnine (Squaw) creeks. Results of these surveys indicated that spring Chinook spawning were substantially below the 15-year average in Imnamatnoon (Papoose) Creek and Waw'aalamnine (Squaw) Creek (Figures 10 and 11). A total of 1 and 0 redds were located within Imnamatnoon (Papoose) Creek and Waw'aalamnine (Squaw) Creek respectively. This compares to an average of 32 redds/year in Imnamatnoon (Papoose) Creek and 10.7 redds/year in Waw'aalamnine (Squaw) Creek during 1992-2006 survey period.

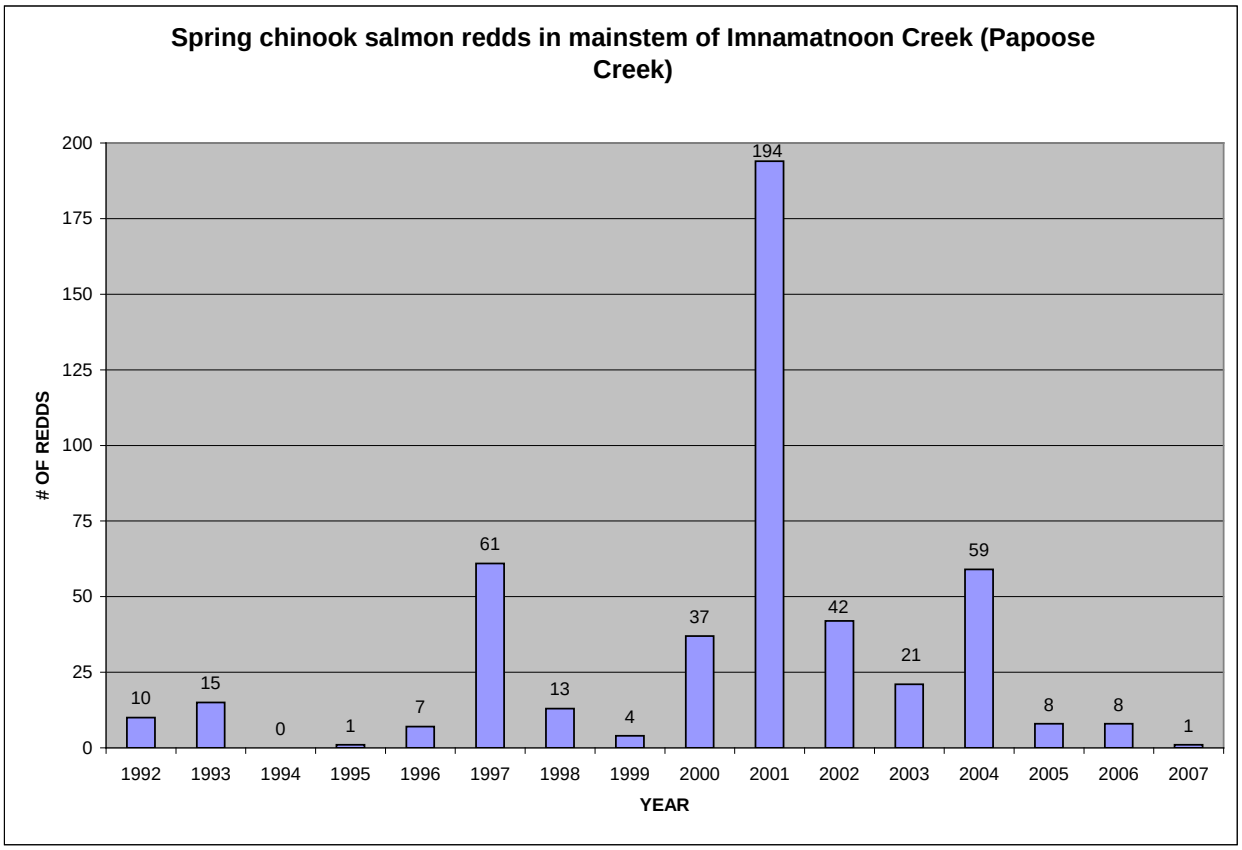


Figure 10. Number of spring Chinook salmon redds observed by Nez Perce Tribe in Legendary Bear (Papoose Creek) during 1992-2007 spawning season.[12]

[12] Nez Perce Tribe. 2008. Nez Perce Tribe Chinook salmon and steelhead adult escapement and spawning ground 2007 summary report. Nez Perce Tribe Fisheries Department, Lapwai, Idaho.

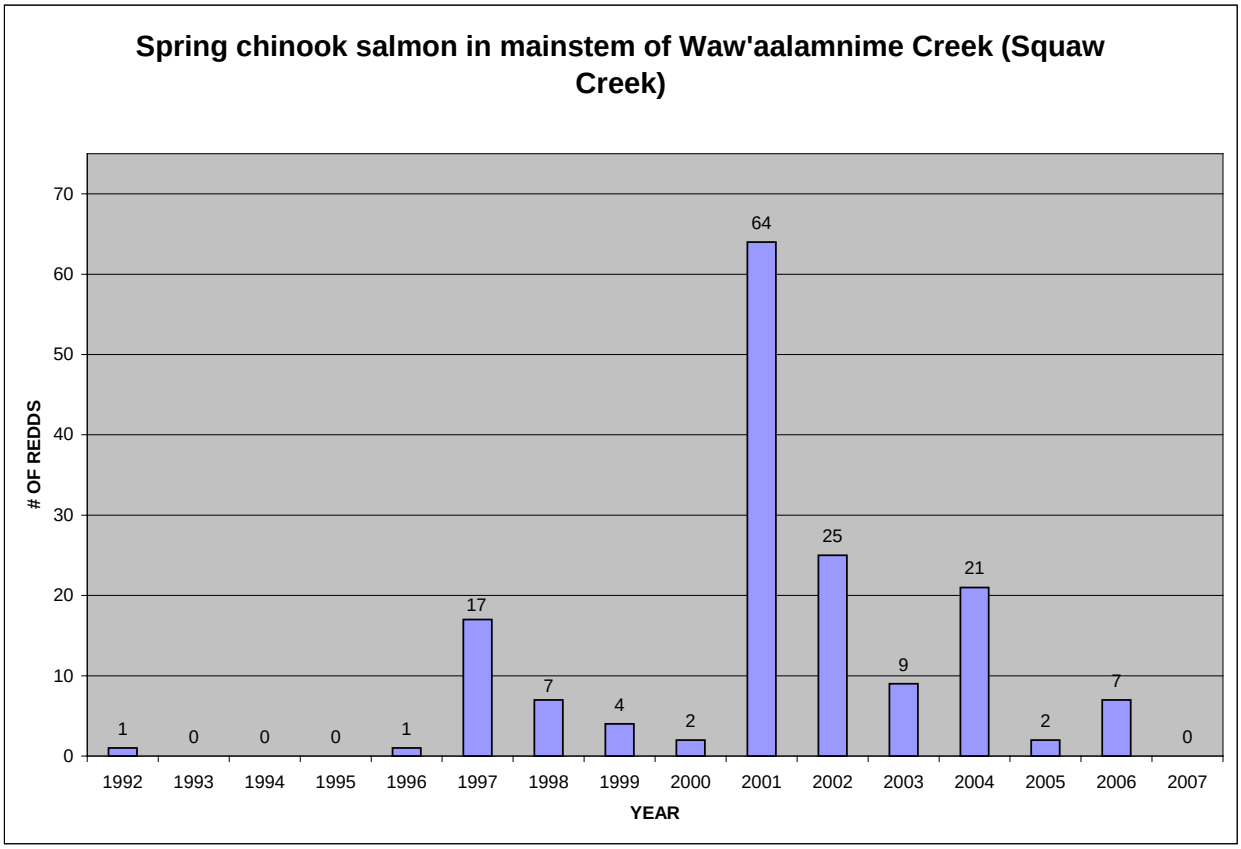


Figure 11. Number of spring Chinook salmon redds observed by Nez Perce Tribe in Fishing Creek (Squaw Creek) during 1992-2007 spawning season.13

Item No. 32 - Inland Fisheries

NORTH FORK CLEARWATER RIVER WATERSHED

Watershed Status: No natural or anthropogenic events occurred in the USFS drainages within the North Fork Clearwater River watershed during 2007 that caused visible or measurable changes to the aquatic environment. Only three of the 32 wildfires were larger than one acre; these included Slick (410 acres), Slick 2 (90) and Bowl (1.8). These fires included designated wildland fire use (no suppression actions) or suppression fires.

Overall, instream conditions and riparian conditions did not show any substantial changes due to climatic, spring stream flows, erosion (sedimentation due to surface and mass wasting events), and management activities (i.e. roads and vegetative treatments).Various field reviews and monitoring activities have supported the conclusion that the habitat conditions are most likely similar to 1998-2006 conditions. Based on these assessments, the presence/absence and relative abundance of fish populations within the watershed are assumed to be similar to conditions observed during various surveys throughout the 1990's.

[13] Nez Perce Tribe. 2008. Nez Perce Tribe Chinook salmon and steelhead adult escapement and spawning ground 2007 summary report. Nez Perce Tribe Fisheries Department, Lapwai, Idaho.

Habitat Improvement: Due to budget constraints, aquatic restoration and enhancement work within the North Fork Clearwater River watershed were primarily limited in 2007 to annual road maintenance projects.

Fish Passage Improvement: In 2007, no fish passage improvement projects were scheduled in this subbasin.

Road Decommissioning: In 2007, no road decommissioning projects were scheduled in this subbasin.

Riparian Fencing: One temporary electric fence that was installed in 1996 around the sediment trap in the upper Elk Creek drainage was maintained in 2007. This provided protection of the riparian vegetation and maintained the integrity of the sediment trap from stream bank alterations.

Habitat Monitoring: Stream inventories of the majority of fish bearing streams within the North Fork Clearwater River drainage have been completed on National Forest System lands during 1988-2005. Approximately 154 miles of stream remain to be inventoried; the mileage is primarily in the roadless areas within the Kelly Creek, Cayuse Creek and Fourth of July Creek drainages. Due to budget constraints, no new inventories or re-surveys were scheduled within the North Fork Clearwater River drainage.

Stream Habitat Monitoring/Surveys - Two Forest Plan aquatic monitoring site on the mainstem Orogrande Creek and Moose Creek were established and surveyed during 2007; data is currently being summarized. This information will supplement the monitoring the PACFISH/INFISH Biological Opinion Effectiveness (PIBO) has been conducting on the Forest since 2001. In 2007, no inventories and stream habitat re-surveys were scheduled within the North Fork Clearwater River drainage.

Stream Channel and Substrate Conditions - In 2007, no streams within the North Fork Clearwater River drainage were scheduled.

Water Temperature Monitoring: The Forest have been collecting water temperature data from 1992 to 2007 to determine temperature problems and prioritize riparian recovery efforts. Due to migration barrier at Dworshak Dam, streams within the Forest's boundary are considered non-anadromous (no potential for steelhead trout or spring Chinook salmon); only water quality and habitat conditions related to resident fish (i.e. westslope cutthroat trout and bull trout) were analyzed.

In 2007, stream temperatures were monitored at 144 sites on 132 streams within the North Fork Clearwater River drainage. Temperature data for eight of these sites are not available (instruments still instream (6) or equipment failures (2)). Comparison of the 2007 stream temperature data from the 136 monitoring sites on the 124 streams with available data with the desired maximum temperatures as defined for the appropriate standards in the Forest Plan Forest Plan revealed that:

- The desired westslope cutthroat trout rearing temperature of 13°C (no effect) was monitored at 15 streams. The standard was met at Birch Creek and Weasel Creeks. Mink Creek exceeded the standard on three days. The standard was not met at any of the five sites on mainstem North Fork Clearwater River.
- The desired westslope cutthroat trout rearing temperature of 16°C (high fishable) was met at 40 streams out of the 85 streams monitored with a “high fishable” standard. In addition, five streams exceeded the standard by four days or less.
- The desired westslope cutthroat trout rearing temperature of 18°C (moderate fishable) was met at seven of the nine streams monitored with a “moderate fishable” standard. Beaver Creek exceeded the standard on 23 days and Tumble Creek exceeded the standard on 4 days.
- The desired westslope cutthroat trout rearing temperature of 20°C (low fishable) was met at 10 streams out of the 13 streams monitored with a “low fishable” standard. Cottonwood Creek exceeded the standard on one day.
- The desired brook trout rearing temperature of 17°C (high fishable) was met at the West Fork Elk Creek. The other stream monitored for this standard, Elk Creek (upstream the town of Elk River) exceeded the standard for 44 days .

- The desired brook trout rearing temperature of 20°C (low fishable) was met at Oviatt Creek. Partridge Creek and Long Meadow Creek exceeded the standard on 11 and 23 days respectively.

Overall, water temperatures of 114 of 124 streams (with monitoring data) within the North Fork Clearwater River drainage were under the State standard for cold-water biota; water temperatures did not exceed the daily maximum of 22°C and the maximum daily average of 19°C. The temperature data included the mainstem North Fork Clearwater River; monitoring data showed that three sites on the mainstem North Fork Clearwater River (upstream Weitas Creek, upstream Orogrande Creek (both 27 days) and upstream Beaver Creek (22 days)) did not meet the State cold-water biota standard. Kelly Creek (mouth (7 days)), Cayuse Creek (upstream Toboggan Creek (9 days)), Partridge Creek (6 days), Long Meadow Creek (9 days), Little Moose Creek (9 days) and Orogrande (mouth (16 days)) also exceeded the standard. Hemlock Creek (5 days), Weitas (above Hemlock Creek (5 days)), Washington Creek (at FS boundary (2 days) and Elk Creek (upstream Elk River (2 days)) exceeded the standard for five or less days. The State standard of 13°C for the spring period for westslope cutthroat trout was met at six streams Cache Creek, Coyote Creek, Game Creek, Niagara Gulch, Shell Creek and Slate Creek). An additional three streams Jap Creek, Siam Creek (both 1 day) and Weasel Creek (2 days) exceeded the standard for five days or less. None of the streams monitored met the bull trout maximum summer rearing temperature of 12°C (consecutive seven-day average of daily maximums) that EPA issued as final temperature guidance for water quality standards throughout the Pacific Northwest. Two streams (Game Creek (5 days) and Niagra Gulch (2 days) exceeded bull trout standard for five days or less.

Fish Population Monitoring: As in past years, bull trout spawning surveys were conducted on selected streams during 2007. IDFG also conducted fish population monitoring at some of their permanent monitoring sites.

Bull Trout Spawning Surveys - Surveys were conducted on seven streams within the North Fork Clearwater River drainage. Approximately 8.0 miles of stream within the upper North Fork Clearwater River and Moose Creek drainages were surveyed by the Forest during the spawning period of September through early October. The streams included: Moose Creek, Lake Creek, Goose Creek, Bostonian Creek, Niagara Gulch, Placer Creek and Vanderbilt Creek.

Bull trout spawning (68 redds) was documented in six of the seven streams; no bull trout spawning was found in the Moose Creek index area. As in previous years, the surveys found major concentrations of fluvial or adfluvial bull trout spawning activity in the Lake Creek, Vanderbilt Creek and Bostonian Creek drainages. The second highest number of redds observed in any known major bull trout drainage within the upper North Fork Clearwater River subbasin during the past ten years was found in Vanderbilt Creek in 2006; 35 redds were documented in the two mile stream reach. Major concentrations of redds were also found in Bostonian Creek and Goose Creek. Multiple surveys on some of these streams are scheduled for survey by the Forest in 2007.

Comparison of redd count data collected in index areas of the four major spawning streams within the upper North Fork Clearwater River drainage indicates an average of nearly 52 redds over the past four years. Prior to 2003, only one survey was conducted on these streams; the surveys were usually conducted during the last two weeks in September. During 2003, two surveys were conducted on three of these streams. Based on the relatively early spawning timing observed in 2003 and the low number or absence of adult bull trout observed during surveys conducted during mid-September, the 1994-2002 annual redd counts were most likely under estimates of the actual spawning success due to the inability to distinguish older redds. Therefore surveys were scheduled earlier in September and where necessary multiple surveys were scheduled during late August to mid- September to obtain an accurate count. Figure 12 displays the redd count information available for the bull trout spawning index areas that are monitored each year.

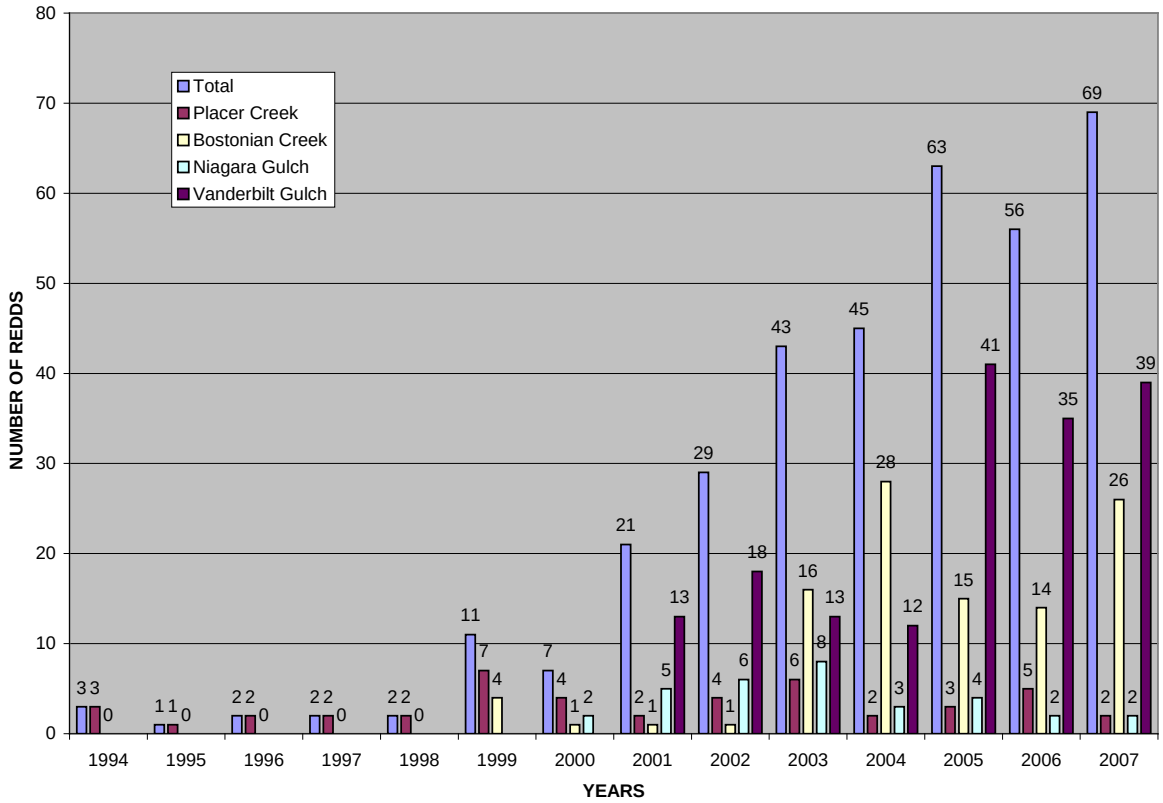


Figure 12. Number of bull trout redds observed by Forest and IDFG personnel within spawning index areas on four streams within the upper North Fork Clearwater River drainage (1994-2007).

IDFG Population Monitoring - IDFG also conducted fish population monitoring via snorkeling 17 permanent sites in 6 streams (Isabella Creek, Beaver Creek, Collins Creek, Skull Creek, Quartz Creek, and Orogrande Creek); no bull trout were found during the surveys.14

As part of their ongoing monitoring program, personnel from the Idaho Department of Fish and Game also conducted fish population monitoring via snorkeling and creel census activities within the mainstem North Fork Clearwater River and other selected tributaries.

Ecosystem Monitoring and Adaptive Management of High Lakes Project: In 2006, the IDFG and the Clearwater and Nez Perce national forests started a partnership project establish and document the cooperation between the parties in funding field surveys, collection and analysis of data, and adaptive management activities related to high lakes management within the forests under the title Ecosystem Monitoring and Adaptive Management of High Lakes within the Department's Clearwater Region of Idaho. This project is a continuation of previous Challenge Cost-Share (CCS) Agreement projects between the Forest Service and the Department where comprehensive mountain lake data was collected to determine lake status and management classification.

As a result of these past efforts, a management plan has been developed to guide future high lakes management utilizing the data collected in previous work. Included in the plan is a landscape based, ecosystem level approach to monitor native macro-fauna status and trend relative to the level of introduced fish populations and the amount of fishless habitat at the watershed scale. Criteria establishing levels of fishless habitat have been proposed and a monitoring strategy is in development. The Idaho Department of Fish and Game and the Forest Service administering the high lakes in the Department's

[14] Idaho Department Fish and Game. 2007. Provisional data from Region 2 Idaho Department Fish and Game, Lewiston, Idaho.

Clearwater Region have entered discussions on the development of a long-term monitoring plan and an active restoration strategy to remove non-native fish from selected high lakes. The entities have agreed to complete in late 2008 a master agreement for 2009-2011 and which will be updated annually via supplements.

The Ecosystem Monitoring and Adaptive Management of High Lakes Project is primarily composed of two activities:

- Activity 1: Monitoring and evaluation of ecosystem level impacts related to high lakes fisheries management activities. In general, Activity 1 will result in a long-term data set to evaluate trends in native fauna related to relative levels of introduced fish populations at the HUC 5 watershed level. Additional work under Activity 1 will include assessments of fish populations downstream of high lakes to determine population level effects of fish introductions. This information will advance the native fish risk assessment portion of the mountain lake plan and provide baseline information for additional adaptive management activities undertaken in Activity 2.
- Activity 2: Management related activities geared toward reducing legacy threats from past management activities. Activity 2 will represent active adaptive management addressing risks to native fauna. Activity 2 will include efforts to remove non-native fish species from mountain lakes and tributaries downstream from mountain lakes.

Specific actions proposed for the 2007 field season and included under the agreement for both forests were as follows for Activity 1:

- Implementation of landscape based monitoring and evaluation program as described in the High Lakes Plan. Monitoring was conducted in the Storm Creek drainage on the Clearwater National Forest in 2007.
- Determine distribution and genetic status of fish populations downstream of high lakes in the selected drainages.
- Management plan and database development and maintenance.
- Implement annual stocking program

Specific actions proposed for the 2007 field season under Activity 2 for the Clearwater National Forest includes:

- Implement year three of electro-fishing brook trout removal from Ice Lake outlet.
- Assess success of removal effort at Ice Lake and need for future efforts.
- Assess the success of the brook trout eradication process in Fly Lake, Heather Lake and Platinum Lake; determine brook trout abundance and introduced tiger musky via surveys.

In 2007, specific accomplishments on the Clearwater National Forest included:

- Of the 14 lakes scheduled to be surveyed, only five lakes were completed in 2007; the Bridge Fire led to the closure of the Storm Creek drainage. The remaining lakes are scheduled to be surveyed in 2008.
- Assisted IDFG crews with the brook trout removal project via electro-fishing for a 0.5 mile stream reach downstream of Ice Lake.
- Assisted IDFG crews with the population assessments of brook trout and tiger musky in three high mountain lakes in the upper North Fork Clearwater River drainage. Approximately 10 acres of lake will be restored following the elimination of brook trout.

Watershed Status: No natural or anthropogenic events occurred on USFS lands in the Palouse River watershed during 2007 that caused changes to the aquatic environment. Instream conditions and riparian conditions did not show any substantial changes due to climatic, spring stream flows, erosion (sedimentation due to surface and mass wasting events), and management activities (i.e. roads and vegetative treatments). No major fires occurred in 2007. Various field reviews and monitoring activities have supported the conclusion that the habitat conditions for most drainages are most likely similar to 1998-2006 conditions. Monitoring efforts have shown some improvement and degradation in specific drainages that were impacted by the 1995/96 floods. Based on these assessments, the presence/absence and relative abundance of fish populations within the watershed are assumed similar to conditions observed during 1997-98 surveys.

Habitat Improvement: No major habitat improvement projects (road decommissioning, fish passage etc) were scheduled during 2007.

Habitat Monitoring: Stream inventories of all fish bearing streams within the Palouse River drainage have been completed on National Forest System lands during 1990-1998. Re-surveys of specific streams are planned every five to ten years dependent upon stream conditions, management proposals and available funds.

Stream Habitat Monitoring/Surveys - In 2007, no Forest Plan monitoring or re-surveys were scheduled within the Palouse River drainage.

Stream Channel and Substrate Conditions - Stream channel and substrate conditions were monitored at permanent sites near the mouths of three streams (North Fork Palouse River, Big Sand Creek and Wepah Creek). See riparian section for more information.

Water Temperature Monitoring: Stream temperatures were monitored throughout the summer at 11 sites on 10 streams within the Palouse River drainage to evaluate habitat conditions for brook trout and rainbow trout. The upper Palouse River is not accessible to anadromous fish. In addition, bull trout and westslope cutthroat trout have not been observed in the upper Palouse River drainage. Comparison of the 2007stream temperature data from the11 baseline sites and the desired maximum temperatures as defined for the "low fishable" standard in the Forest Plan revealed that:

- The desired rainbow trout and brook trout rearing temperature of 20°C was met at five streams, Big Creek, Big Sand Creek, Little Sand Creek, Gold Creek, and Strychnine Creek.
- Mannering Creek (2 days) and Meadow Creek (below Blakes Fork Creek (5 days)), North Fork Palouse River (1 day) exceeded the standard for less than five days while mainstem Palouse River (9 days) and East Fork Meadow Creek (19 days) exceeded the standard slightly longer.

Water temperatures at seven of the ten streams, *Big Creek, Big Sand Creek, Little Sand Creek, Gold Creek, Mannering Creek, North Fork Palouse River and Strychnine Creek* were under the State standard for cold-water biota; water temperatures did not exceed the daily maximum of 22°C and the maximum daily average of 19°C. The remaining three streams, East Fork meadow Creek, Meadow Creek (below Blakes Fork Creek) and Palouse River (at gage and below Wagner Gulch), exceeded the standard on three days or less. The State standard of 13°C for the spring spawning periods for rainbow trout was not met at any site. Water temperatures were not recorded throughout the fall spawning period for brook trout. However, the stream temperatures are most likely below the State standard of 13°C.

Fish Population Monitoring: Due to the absence of ESA –listed and sensitive fish species (i.e. steelhead trout, bull trout, westslope cutthroat trout, spring Chinook salmon), fish population monitoring is not scheduled on an annual basis within the Palouse River drainage; no monitoring was conducted in 2007.

Heritage Program

Goal

Manage and interpret cultural resources in accordance with federal laws and Forest Service direction. Ensure that Indian tribal rights, as retained in treaties and other agreements with the tribes, are protected. Manage the Lolo Trail National Historic Landmark to protect cultural resource values while enhancing public use and awareness. Nominate significant cultural resource 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 American Indian tribes to facilitate communication, consultation and cooperation. Identify and enhance resource values on the Lolo Trail system. Work with the public to improve values and increase awareness of cultural resources. Continue to assess cultural resource sites for nomination to the National Register of Historic Places.

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

Frequency of Measurement: Annual
Reporting Period: Annual

Monitoring Action

Compare project effects to environmental analysis documents and project cultural resource reports to determine if projects had any effects on cultural resources. If this determination is made, consultation with the Idaho SHPO is carried out and necessary mitigation is prescribed.

Accomplishments/Findings

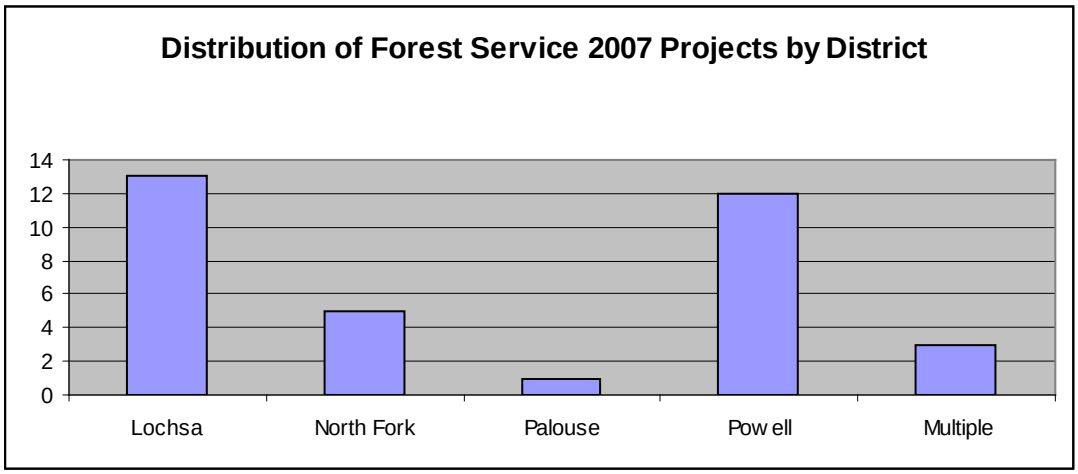
The National Historic Preservation Act (NHPA) directs federal agencies to consider the effects of their planned activities on heritage resources. In compliance with that law, the Forest inventories proposed projects such as timber sales, recreation facilities development and others to identify heritage resources and develop plans to protect significant sites during project implementation. The Forest also has an active program to inventory additional areas of the Forest outside of project areas and monitor historic properties.

In fiscal year 2007, the Clearwater National Forest was reinstated as a participating forest in the Programmatic Agreement between the Idaho State Historic Preservation Officer, The Advisory Council on Historic Preservation, and the Region 1 National Forests of Idaho (PA). This is an important aspect of the Heritage Program as it allows the Forest to operate under a program alternative for meeting the agency's responsibilities under section 106 of the National Historic Preservation Act. This alternative provides significant efficiencies in the section 106 process. For example, it facilitates local decision making and helps reduce the amount of time involved in consultation. Roughly 70 percent of the Clearwater National Forest's undertakings were categorized as "no inventory", or "no property" projects. These projects were reviewed locally and authorized to proceed by the Forest Archaeologist. Without the advantages of the PA, the 22 projects treated as "no inventory" or "no property" projects could have required an additional 660 days to secure concurrence from the State Historic Preservation Officer (SHPO).

Thirty-two section 106 projects were completed under the auspices of the PA during FY2007. Seventeen of these involved field inventory and site evaluation, resulting in the inventory of 1,163 acres and the documentation of six new historic properties. Along with the section 106 undertakings, the Clearwater

continues to maintain an active section 110 program. As part of the latter, condition assessments were carried out for 35 historic properties. The goal of the condition assessments is to document site conditions and determine, where appropriate, the cost of bringing sites up to a minimal standard of protection. Many of the monitored sites were found to be in a stable state and therefore do not require additional actions at this time. Table 1 shows the distribution of projects surveyed in Fiscal year 2007. Results of these surveys are coordinated through a consultation process with the Idaho State Historic Preservation Office and the Advisory Council on Historic Preservation.

Table 1. Heritage Workload Distribution.

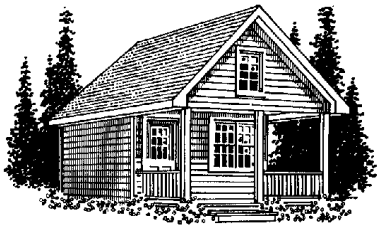


The Heritage Program accelerated its efforts in the realm of information management in Fiscal year 2007. Federal Accounting Standards Advisory Board Standard #29 and the associated directive requires that all heritage assets (cultural resource sites) be entered into the Agency's corporate database system, INFRA. All heritage program survey and site data were migrated into INFRA before the expiration of the September 30, 2007 deadline specified in the standard.

The number of Section 110 activities carried out on the Forest during 2007 was limited, due in part to the absence of a program lead for 5 months of the fiscal year, and the costs associated with filling that position. However, the field work and delivery of products associated with one significant project, the Railroad Logging Heritage Stewardship Enhancement (HSE) Project, were completed during 2007. The products included interpretive power points presentations and professional papers developed for presentation at the 2007 Northwest Anthropological Conference (NWAC) and other public presentations given during the course of the year.

While Section 110 field work in general was limited, Forest Heritage Program personnel remained very active in the arena of public outreach. The Forest hosted a symposium on the cultural resources of the Clearwater at the 2007 NWAC in Pullman as well as presenting the results of the above mentioned HSE project. A total of six papers, ranging in topics from Forest overviews to a video on cultural resource preservation from a tribal perspective, were presented. The Forest also participated in the 2007 Idaho Archaeology and Historic Preservation Month with an archaeological presentation at the Lewiston Public Library. Additionally, heritage program staff participated frequently in the Forest's recreation program "campfire talks", presenting numerous talks on local area prehistory and history.

LANDS



Item No. 12 - Land Ownership Adjustments

Frequency of Measurement: Annual
Reporting Period: Annual
FY05-06

MONITORING ACTION

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

FINDINGS

During FY07, the Forest continued to work on the completion of the *BOISE FOOTHILLS/NORTHERN IDAHO LAND EXCHANGE*. Participants include the Clearwater National Forest, Idaho Panhandle National Forest, Idaho Department of Lands, and the BLM.

That portion of the *BOISE FOOTHILLS/NORTHERN IDAHO LAND EXCHANGE* on the Clearwater National Forest involves 4,119.70 acres of Federal land and 2,812.93 acres of non-Federal lands. With the lands in this exchange identified and fieldwork completed, the appraisal was prepared, reviewed and the valuations approved. The Agreement to Initiate was executed by all parties April 2005. The USFS determined that special legislation was needed to give the agency the necessary authority to process and consummate the exchange as currently proposed. In March 2006, S.1131, titled the "Idaho Land Enhancement Act," passed the Senate Energy/Resources committee. and is in the cue for final consideration by the full Senate, then will be submitted to the House of Representatives.

The primary objective of the exchange for the Forest Service is improved land management through consolidation of land ownership. This exchange is consistent with the management area objectives identified in the Forest Plan and the land adjustment criteria also within the Forest Plan.

Negotiations began in 2006 to acquire nearly 40,000 acres of checkerboard ownership currently owned by TWJ Holdings, L.L.C., and formerly owned and managed by Plum Creek Timberlands, L.P. The proposed land exchange will include the exchange of lands from the Clearwater, Idaho Panhandle, Nez Perce and Payette National Forests. Completion of this land exchange will consolidate management of federal landownership in an area that is a stronghold for T&E terrestrial and aquatic species.

Over the past ten-year period, the Forest has been involved in seven land exchange cases. During that time, 31,078 acres have been acquired while 23,020 acres have been exchanged. Completion of these exchanges has saved the government in excess of $1,000,000 through savings in administrative costs such as landline location, rights-of-way acquisition, and trespass cases.

Minerals

Goal

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

Strategy

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

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

Operations

A total of 103 operations were processed on the Forest during FY07. Of these, 90 were non-bonded, non-energy operations; 13 were bonded non-energy operations. All 13 bonded non-energy operations were administered to standard.

In FY96, the Washington Office issued new definitions for accomplishment indicators. Due to the difference in definitions of accomplishment, the 265 average annual number of cases predicted in the Forest Plan should not be compared to the 103 total operations processed and administered during FY07.

Locatable Minerals

The only significant locatable mineral mined from the Forest is gold. Miners are not required to report their production to the Forest Service. However, the Forest minerals geologist has estimated that approximately 21 ounces of gold were mined from the Forest during FY07. The value of this amount of gold would be approximately $13,440 at an average gold price of $640/oz.

COMMON VARIETY MINERALS

The Forest provided mineral materials for road surfacing to county and state agencies, for national forest roads and for use in private industry. Forest records show that 1950 tons of materials were produced from national forest lands in FY04 with an estimated value of $490.

MONITORING

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

Item No. 36 - Minerals Resource Availability

Frequency of Measurement: Annual
Reporting Period: Five Years

MONITORING ACTION

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

ACCOMPLISHMENTS/FINDINGS

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

RANGE

GOAL

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

STRATEGY

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

Item No. 6 - Livestock Forage Available, Range in Good Condition Per Established Allotments

Frequency of Measurement: Annual
Reporting Period: Five Years

MONITORING ACTION

Forest range personnel will annually monitor each grazing allotment for range readiness, use, condition of range, forage availability and protection of other resources. Data will be entered into the *INFRASTRUCTURE* database generating one source of information about the Clearwater National Forest Range Program. This is an on-going process and there is a need to continue entering improvements.

ACCOMPLISHMENTS/FINDINGS

Range allotments are routinely monitored for use, possible resource damage and maintenance needs. Current range conditions overall are good. There are 15 cattle allotments and 18 grazing permits on the Forest. The allotments are located within the Potlatch River and Lolo Creek drainages within the mainstem Clearwater River subbasin and the Palouse River drainage within the lower Snake River subbasin. Two grazing permits were inactive during 2007 with another taking non-use for the third season. There were approximately 5,064 HMs this year. An HM is the use and occupancy of the range by one animal for one month. These numbers reflect the permitted animals on cattle allotments, and do not include animals associated with recreational visitors.

Maintenance: Specific fence maintenance activities within the Potlatch River and Lolo Creek drainages were completed in 2007 to administer grazing as well as protection riparian areas (see *fisheries section* for additional information). The range program took over the funding of the riparian fence maintenance projects that fisheries funded during 1992-2005.

Potlatch River Drainage: Riparian Fence Fences on 19 permanent riparian enclosures and six temporary riparian exclosures were maintained in 2007:

- Six exclosures along the East Fork Potlatch River.
- One exclosure along Ruby Creek.
- Two pond exclosures within the Corral Creek watershed.
- A “Hi-Tensile” electric fence (2.3 miles) along Cougar Creek.
- Five miles of “Hi-Tensile” fence along the West Fork Potlatch River and Feather Creek.
- One temporary electric fence and two permanent fences on Corral Creek and Hog Meadow Creek.
- Approximately one mile of “Hi-Tensile” fence along Nat Brown Creek.
- A permanent fence (Hank’s fence) within the East Fork Corral Creek drainage.

- The East Fork Big Bear Creek exclosure.
- The permanent/temporary trail fence upstream of Little Boulder Campground.

Lolo Creek Drainage: Fence maintenance on existing riparian enclosures was completed in 2007 using range funds.

- Musselshell Meadows fence
- Upper and lower Musselshell Creek fences
- Section 6 Meadow fence on Lolo Creek

Improvements: During 2007 new improvements were completed on several allotments within the Potlatch River and Lolo Creek drainages:

Potlatch River Drainage:

- A new hardened stream crossing was constructed in the East Fork Corral Creek (Allotment #49 near Hank's fence) using range betterment funds (RBRB)and vegetative funds (NFVW).
- Cleaned out and repaired various cattle guards using range betterment (RBRB) and NFVW funds.
- Installed one mile of new permanent fence along the mainstem Potlatch River around the Potlatch Canyon trailhead using Clearwater Resource Advisory Committee (RAC) and engineering funds.
- One cattle guard was moved and 0.25 miles of new allotment boundary fence was constructed in allotment #35 (West Fork Potlatch River area).

Lolo Creek Drainage:

- A new cattle guard was installed on USFS road 520 within the in the Cedar Creek drainage (approximately one mile south of Chamook Saddle) using range funds (RBRB and NFRG).

RECREATION

GOAL

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

STRATEGY

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

- Identify Recreation Areas: The Forest has been divided into seven areas with unique opportunities – the Palouse Plateau, the North Fork Clearwater River Corridor, the Lolo Trail Corridor, the Highway 12 Corridor, the Selway-Bitterroot Wilderness, roadless areas and roaded areas. Each of these areas has identified recreation opportunities and challenges, as well as visitor use patterns and needs.
- Reconstruct Existing Recreation Facilities to Standards Appropriate: Facilities at all sites will be evaluated for safety, repair and accessibility. Facilities will be maintained or reconstructed as funding and feasibility allow.
- Provide for Construction of New Recreation Facilities: Add new facilities to provide a diversity of recreation opportunities if funding is available. New facilities at all sites will be constructed to meet the needs of people with disabilities if possible.
- Continue to Request Funding: Funding is needed to operate, maintain and reconstruct sites to full service standards.

Item No 2 - Wide Spectrum of Recreation Opportunities

Frequency of Measurement: Annual
Reporting Period: Five Years

MONITORING ACTION

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

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

ACCOMPLISHMENTS/FINDINGS

Normally, recreation use estimates are arrived at primarily by observation and professional opinion. Use estimates for developed recreation sites reflect more closely actual use since they are based on fees paid and information provided by recreational users at points of contact such as visitor centers.

General Forest Area Use

Recreation use within the Lolo Creek drainage, Lolo Motorway corridor, and Elk Summit, Parachute Hill and Saddle Camp roads remained steady in 2007. Steady visitation was observed Memorial Day through Labor Day summer season, with dispersed camping, driving for pleasure, fishing and berry picking being the main activities. These GFAs are also visited during fall hunting season.

Recreation use within the North Fork Clearwater River corridor remained steady in 2007. Steady visitation was observed Memorial Day through Labor Day summer season, with fishing and dispersed camping being the main activities. No noticeable change in the number of boaters was observed. The low numbers of elk in the North Fork Clearwater watershed continued to reduce the number of hunters visiting this area.

Recreation on the Palouse continues to steadily increase, with an ever-increasing draw for motorized recreation. In addition Potlatch Corporation has begun to charge general access recreation fees and we continue to see a noticeable increase in use on FS ground.

Monitoring information for the Selway Bitterroot Wilderness is located in the *Wilderness* section.

Monitoring Information regarding for the Lochsa River including boating use on is located in the *Wild and Scenic Rivers* section.

Great Burn

In 2007 the Forest continued with a participating agreement with the Great Burn Study Group. Under this agreement the forest helps fund the group to complete the following work in the Great Burn:

Supply state licensed professional applicators to apply herbicides to noxious weeds adjacent to the Kelly Creek Trail #567 and within Hansen, Bear, and Deer Creek Meadows according to 2007 Noxious Weed Work Plan for Kelly Creek Drainage.

Conduct a bug release off the Kelly Creek Trail #567 to kill plants not reached by herbicide application, post all treated areas and map and report treated areas in a written document to the Forest Service according to 2007 Noxious Weed Work Plan for Kelly Creek Drainage.

Perform weed inventory on Trails 567, 565, 428, 506, 513, 508, 760, and 490 according to 2007 Noxious Weed Work Plan for Kelly Creek Drainage.

Monitor and document effectiveness of herbicide applications on all treated sites 2+ weeks after spraying, utilizing fields on issued hardcopy spreadsheet application forms completed during spray operations according to 2007 Noxious Weed Work Plan for Kelly Creek Drainage.

Maintain brief daily journal of work activities and submit copy to USFS by 9/30/2007; document all spray activities daily, using issued hardcopy spreadsheet forms; Follow up by completing issued Daily Herbicide Application Record forms prior to 9/30/2007; Submit to USFS, all completed spraying and effectiveness monitoring documentation forms by 9/30/2008; Submit to USFS, all completed inventory sheets and maps by 9/30/2008; Complete and submit to USFS, a summary narrative documenting all noxious weed work, including overall effectiveness assessment and detailed site specific future treatment recommendations by 11/01/2007 according to 2007 Noxious Weed Work Plan for Kelly Creek Drainage.

Perform monitoring trips on the North Fork Ranger District, evaluating the wild and remote character of various areas.

Participate in Northern Bitterroot DNA Survey with USFWS.

Perform incidental repair or replacement of Forest Service signs in the Great Burn area of the North Fork Ranger District.

Evaluate campsites and stock staging areas at Leo Lake and clean up a highline and stock staging area away from the lake.

Rehabilitate campsites on lake shores in the Kidd Lake area and assess the need for signs.

Perform a small carnivore field study to set and remove traps in collection of hair samples in Moose Mountain and Bighorn/Weitas.

Inventory and pull noxious weeds as feasible in the eastern portion of Bighorn Weitas inventoried roadless area and the Goose Lake area.

In addition to the work performed through this partnership, the forest also employed one back country ranger to patrol, monitor and assist in the implementation of many activities (including those listed above) throughout the Great Burn area.

Snowmobile Use Monitoring: Monitoring information for the Great Burn area is located in the *Wilderness* section and below under the Accomplishments/Findings section.

DEVELOPED AREA USE

Fees collected in FY2007 decreased dramatically at developed campgrounds. This drop in visitation is assumed to be related to fuel cost increases. For 2007, recreation use change percentage in the table below is attributed to the amount of change reflected in fee collection from the previous year. Use of a better tracking system for campground fees (in place since 2000), is allowing more accurate trends for fee sites to be assessed for the present and the future.

Recreation Use And Fees Collected*	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07
Recreation Use (M Visitor Days)	1600	1328	1347	1576	1702	1673	1715	1609	1411
Fees Collected	$85,907	$95,347	$96,664	$113,760	$124,000	$121,900	$124,974	$117,334	$102,909
Recreation Use Change from Previous Year (%)	-11	-17	+1.5	+17	+8	-1.7	+2.5	-6.2%	-12.3%
Note: Increases or Decreases for Recreation Visitor Use are calculated using the percentage increase or decrease resulting from the amount of fees collected									

RECREATION FACILITY IMPROVEMENT

Emphasis continues to be placed on improving existing recreation facilities. These improvements focus on reducing critical deferred maintenance items with emphasis on health and safety concerns such as sanitation improvements. Site upgrades that improve access to recreation facilities for disabled visitors are also a priority of the facility improvement program. Money to fund these improvements comes mostly from Capital Improvement funds and from Idaho Department of Recreation – Recreational Vehicle Grant funds.

The Forest focused on upgrading aging sanitation facilities throughout the forest. During the summer of 2007 two concrete vault toilets were installed as replacements of aging facilities at Flat Creek and Fawn Creek camps, popular dispersed sites in the North Fork Clearwater corridor. Also in 2007 work was started on the Elk Creek Interpretive Kiosk located near Elk River, Idaho. This project is a joint effort between the

U.S. Forest Service and the community of Elk River to improve visitor information in the Elk River area. The project will be completed during the summer of 2008. This project will be followed in 2009 with an upgrade to the Elk Creek Falls Trailhead, which sees nearly 5000 visitors per year.

In FY 2007 the forest received grants to finish improvements to Lolo Creek Campground including furnishings for five new campsites, a new fence and new signs throughout the campground, rehabilitate the White Sand Campground and construct a group shelter at Elk Creek Campground near Elk River. The construction work for these projects is planned for FY 2008. Funding through the Idaho Department of Parks and Recreation's Recreational Vehicle Grant fund has provided opportunities to repair and improve multiple campsites over the last 18 years.

PARTNERSHIPS

Partnerships continue to be important to the success of the Forest's recreation program. In FY2007, as in previous years, partners contributed a significant amount of labor and funding to improve recreational facilities, and help meet Forest visitor expectations by providing interpretive and "Good Host" programs.

Partnerships remain an important part of operating Lolo Pass Visitor Center. Partners helping to support the visitor center include: Idaho Department of Transportation, Montana Transportation Department, Montana Chamber of Commerce and Northwest Interpretive Association.

Partnerships supported through the Recreation Enhancement Act (REA) Program in FY 2007 included:

- The Idaho Humanities Council and Palouse-Clearwater Environmental Institute were partners in supporting the Forest's Campground Fireside Program,
- Idaho Outfitters and Guides Licensing Board, and the Idaho Department of Fish and Game both partners supporting the Forest Service efforts to complete a statewide GIS mapping project to facilitate public knowledge and administration of the Outfitters and Guides on the three north Idaho Forests (Panhandle, Clearwater, and Nez Perce N.F.'s).

NOXIOUS WEED CONTROL

The Clearwater National Forest and the Idaho Transportation Department (ITD) coordinate noxious weed treatment in the Highway 12 corridor from Kooskia to Lolo Pass. For the eighth year, the ITD treated noxious weeds in the highway right-of-way from Kooskia to Lolo Pass. The Lochsa Ranger District, with assistance from the Moose Creek Ranger District, treated weeds in administrative sites including campgrounds, trailheads and river access sites from Tukaytespe to White Sands campground. Noxious weed treatments on the west end of the Highway 12 corridor are in a moderate to low maintenance range while efforts on the east end are at the initial attack phase.

Treatment is aimed at reducing noxious weed occurrence and invasion. Treatments include pulling, introducing biological controls, and herbicide application. Grass seeding in treatment areas helps to out-compete new weed starts. Monitoring has shown that most of the sites treated are exhibiting significant decline in the area of noxious weed infestation. After a site has been treated for several years, weed proliferation appears to be reduced and treatment can then be less intensive. New sites have been identified for future treatment as sites treated for several years enter a maintenance stage.

Developed sites along the North Fork Clearwater River, the campgrounds on the Palouse, ATV trails and trailheads and elsewhere on the Forest were also treated to reduce the spread of noxious weeds.

RECREATION ENHANCEMENT ACT (REA)

Revenue from the REA program (previously known as the fee demonstration program) continued to play a vital role in providing value-added products and services to Forest visitors.

The Clearwater National Forest's REA program includes retention of revenues collected from the fee campground program on the Forest, all cabin and lookout rentals on the Forest, all recreation special use permits, including outfitter and guide permits, and a recreation pass program for the Lolo Pass Visitor Center's winter program.

Item No. 14 - Off Highway Vehicle Use Impacts

Frequency of Measurement: Annual
Reporting Period: Five Years

MONITORING ACTION

The Forest recreation staff annually prepares reports displaying the effects of off highway vehicles (OHVs) on Clearwater National Forest resources. Monitored items include complaints and conflicts between user groups, impacts to trails from motorized use, snowmobile activity in the Great Burn recommended wilderness and in the Selway-Bitterroot Wilderness, changes in trail and campsite conditions at Fish Lake, citations for violations of closure regulations, and resource damage occurring on the Forest.

ACCOMPLISHMENTS/FINDINGS

CHANGES IN TRAIL AND CAMPSITE CONDITIONS AT FISH LAKE

In FY00, formalized monitoring of the effects of OHV activity on dispersed campsites at Fish Lake on the North Fork Ranger District was begun with the inventory of the location, number and physical condition of campsites at the lake, and recording of observations of the condition of the trail to the lake. These measurements and observations will be conducted annually to determine if trail and campsite conditions are changing over time. Some plant recovery has occurred with a scattering of grass and forbs, but the amount of foot traffic at campsites is keeping them essentially devoid of small vegetation. The installation of traffic barrier posts at campsites along the lake continues to be effective in deterring OHV users from driving and parking at campsites.

Monitoring of OHV activity on the trail to Fish Lake and at the lakeside campsites continued through FY07 with one or more visits to the lake during the July 4th through Labor Day holidays. Trail #419 was closed annually through approximately July 30th to prevent damage to meadows and other wet areas caused by riders leaving the trail to get around the remaining piles of snow.

Visitors observed at the lake during administrative visits appeared to be about the same as in previous years during the fishing season. No actual counts of persons camping or traveling to the lake were made.

RESOURCE DAMAGE AND INCIDENTS OF UNAUTHORIZED CONSTRUCTION OF A TRAIL

Resource damage to trails and other resources resulting from motorized use is still considered to be minimal and relatively easily corrected though concerns over the effects of OHV use are increasing – particularly on the Palouse Ranger District. Incidents of unauthorized creation of OHV trails by cutting

vegetation and repeated use of a route continue to occur throughout the Forest, and particularly in the North Fork of the Palouse River drainage. There have also been incidents of widening of Forest system trails by OHV users. As these incidents are found they are evaluated and action taken to deter further use.

Changes In Trail And Campsite Conditions At Fish Lake

In FY00, formalized monitoring of the effects of OHV activity on dispersed campsites at Fish Lake on the North Fork Ranger District was begun with the inventory of the location, number and physical condition of campsites at the lake, and recording of observations of the condition of the trail to the lake. These measurements and observations will be conducted annually to determine if trail and campsite conditions are changing over time. Some plant recovery has occurred with a scattering of grass and forbs, but the amount of foot traffic at campsites is keeping them essentially devoid of small vegetation. The installation of traffic barrier posts at campsites along the lake continues to be effective in deterring OHV users from driving and parking at campsites.

Monitoring of OHV activity on the trail to Fish Lake and at the lakeside campsites continued through FY07 with one or more visits to the lake during the July 4th through Labor Day holidays. Trail #419 was closed annually through approximately July 30th to prevent damage to meadows and other wet areas caused by riders leaving the trail to get around the remaining piles of snow.

Visitors observed at the lake during administrative visits appeared to be about the same as in previous years during the fishing season. No actual counts of persons camping or traveling to the lake were made.

Resource Damage And Incidents Of Unauthorized Construction Of A Trail

Resource damage to trails and other resources resulting from motorized use is still considered to be minimal and relatively easily corrected though concerns over the effects of OHV use are increasing – particularly on the Palouse Ranger District. Incidents of unauthorized creation of OHV trails by cutting vegetation and repeated use of a route continue to occur throughout the Forest, and particularly in the North Fork of the Palouse River drainage. There have also been incidents of widening of Forest system trails by OHV users. As these incidents are found they are evaluated and action taken to deter further use.

Response To Demands For OHV Opportunities

Construction of OHV system loop routes has taken place on the North Fork and Palouse Ranger districts. NEPA is scheduled to be complete in 2007 for the Sheep Mountain/Camp 60 OHV Trail system which will offer 58 miles of OHV riding opportunities on the North Fork District. The project was funded cooperatively with State OHV grant and federal monies.

Law Enforcement Reporting

Law Enforcement Statistics Relating To OHV Use*	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07
OHV Speeding	0	0	0	0	0	0	0	0	0	3	0

OHV Road Closure Violation Citations	1	0	8	2	2	0	0	5	2	4	3
OHV Off Road Violation Citations	0	0	0	0	0	0	0	2	0	1	1
OHV Trail Closure Violation Citations	1	0	0	0	0	0	6	1	2	0	6
Unauthorized Trail Building Citations	0	2	0	0	0	0	0	0	1	0	0
Incident Reports of Violations Related to OHV Use	48	116	137	188	190	107	72	96	110	127	75
Damaging a Natural Feature			1	0	1	0	0	4	0	0	0
OHV Parking Violation Citations*					2	0	0	0	0	0	0
No Registration for ATV Citations*								2	1	5	8
No Registration for Snowmobile Citations*								1	1	4	0
No State OHV Sticker on ATV Citations*					3	0	0	1	0	4	0
No State OHV Sticker on MC Citations*								1	0	4	1
No State OHV Sticker on ATV Incidents*					20	0	0	0	30	25	6
No State OHV Sticker on Snowmobiles*						5	1	0	45	36	0
Operating MC on road with suspended license*							1	0	0	0	0
Snowmobile Fatality								2	0	0	0
Operating OHV in unsafe manner Citations											2
TOTAL	50	118	146	190	218	112	80	115	192	213	102

*Source of information is LEIMARS law enforcement statistical report. Data regarding violations of requirement for an OHV sticker were not available for years prior to FY01 and were excluded from the TOTAL.

RESEARCH NATURAL AREAS

GOAL

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

MONITORING ACTION

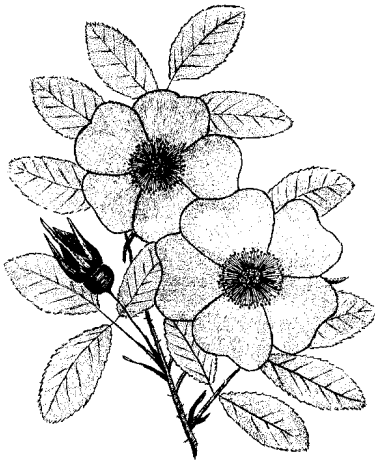
Establish a sufficient number of Research Natural Areas (RNA) on the Forest. Each should include at least two or three examples of major habitats and at least one example of a minor habitat. Major habitats are widespread, whereas minor habitats are unique, with little occurrence on the Forest.

ACCOMPLISHMENTS/FINDINGS

The 1987 Forest Plan identified candidate research natural areas (RNA) that contained the forest, non-forest and aquatic types assigned by the Forest Service Northern Region guide. All except two of the candidate RNAs have been established. The ***"Research Natural Areas of the Northern Region: Status and Needs Assessment"*** (1996) identifies the forest herbaceous and aquatic types that are typical on the Clearwater National Forest.

The existing recommended Research Natural Areas are Fenn Mountain, Rhodes Peak, and Bull Run. Official designation will occur when an "***Establishment Report"*** is completed for the proposed RNAs. Reports are completed as funding is available.

The Forest has received one proposal from the public to establish a research natural area in Hemlock Creek. The initial assessment submitted with the proposal indicates that this location may contain the two Tsuga mertensiana types recommended for additions in the Regional Assessment.



During FY07 no reports were prepared addressing Research Natural Area issues.

Research Needs

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.

Item No. 24 - Research Needs

Frequency of Measurement: Annual
Reporting Period: Five Years

Findings

There were no research projects initiated on the Clearwater National Forest in FY07.

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

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

Accomplishments/Findings

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

Instream sediment was analyzed using the Wolman pebble count technique. Wolman pebble counts classify the size of the stream substrate. Channel cross-sections were measured to determine changes in deposition (sediment deposits) or scour (removal of channel rock) over time.

In 2007, the Forest measured channel geometry and instream sediment in 7 streams across the Forest. Table 1 lists these monitoring sites. Data collected at each site may be obtained by contacting the Forest Hydrologist at the Supervisor's Office.

Table 1. Channel Morphology Sites – 2007

Sub-basin	Stream	Beneficial Uses[1]	Activities	Year(s) Data Collected
Palouse River (17060108)	North Fork of the Palouse River	Rainbow Trout	Mining	1993, 1996, 2002, 2007
	Big Sand Creek	Brook Trout	Timber Harvest	1990, 1993, 1996, 1997, 2002, 2007
	Wepah Creek	Brook Trout	Timber Harvest	1998, 2002, 2007
Lochsa River (17060303)	Badger Creek (Above Trib cc)	Westslope Cutthroat Trout	Road Decommissioning	2001, 2002, 2003, 2005, 2007
	Badger Creek Trib cc	Westslope Cutthroat Trout	Road Decommissioning	2001, 2002, 2003, 2005, 2007
	Badger Creek (Below Trib cc)	Westslope Cutthroat Trout	Road Decommissioning	1989, 2001, 2002, 2003, 2005, 2007
Lower North Fork Clearwater River (17060308)	Elk Creek (gage site)	Brook Trout	Timber harvest, Landslides	1993, 1994, 1995, 1996, 2005, 2007

[1]Beneficial uses as listed in the Forest Plan

Table 2 provides a summary of the Wolman pebble count data for each of the 7 sites measured.

Table 2. Summary of Wolman Pebble Count Data Collected in 2007. Channel type, gradient, percent fine sediment, D50 (mean particle size), and D84 (two standard deviation from mean).

Stream	Channel Type	Gradient %	% Fines[1] 0-2mm	% Fines[2] 0-4mm	D50 in mm[3]	D84 in mm[4]
North Fork of the Palouse River	E4	0.7	16.5	16.9	40 (Very Coarse Gravel)	161 (Large Cobble)
Big Sand Creek	B4	0.7	45.2	45.4	16 (Medium Gravel)	147 (Large Cobble)
Wepah Creek	E4	1.5	2.0	24.8	50 (Very Coarse Gravel)	51(Very Coarse Gravel)
Badger Creek (Above Trib cc)	C6b	3.2	21.8	25.5	31 (Coarse gravel)	119 (Small Cobble)
Badger Creek Trib cc	A4a	9.8	46.2	47.6	8 (Fine Gravel)	125 (Small Cobble)
Badger Creek (Below Trib cc)	A3	5.2	25.9	27.8	32 (Coarse Gravel)	206 (Large Cobble)
Elk Creek (gage site)	C4	0.2	45.5	47.8	5 (Fine Gravel)	28 (Coarse Gravel)

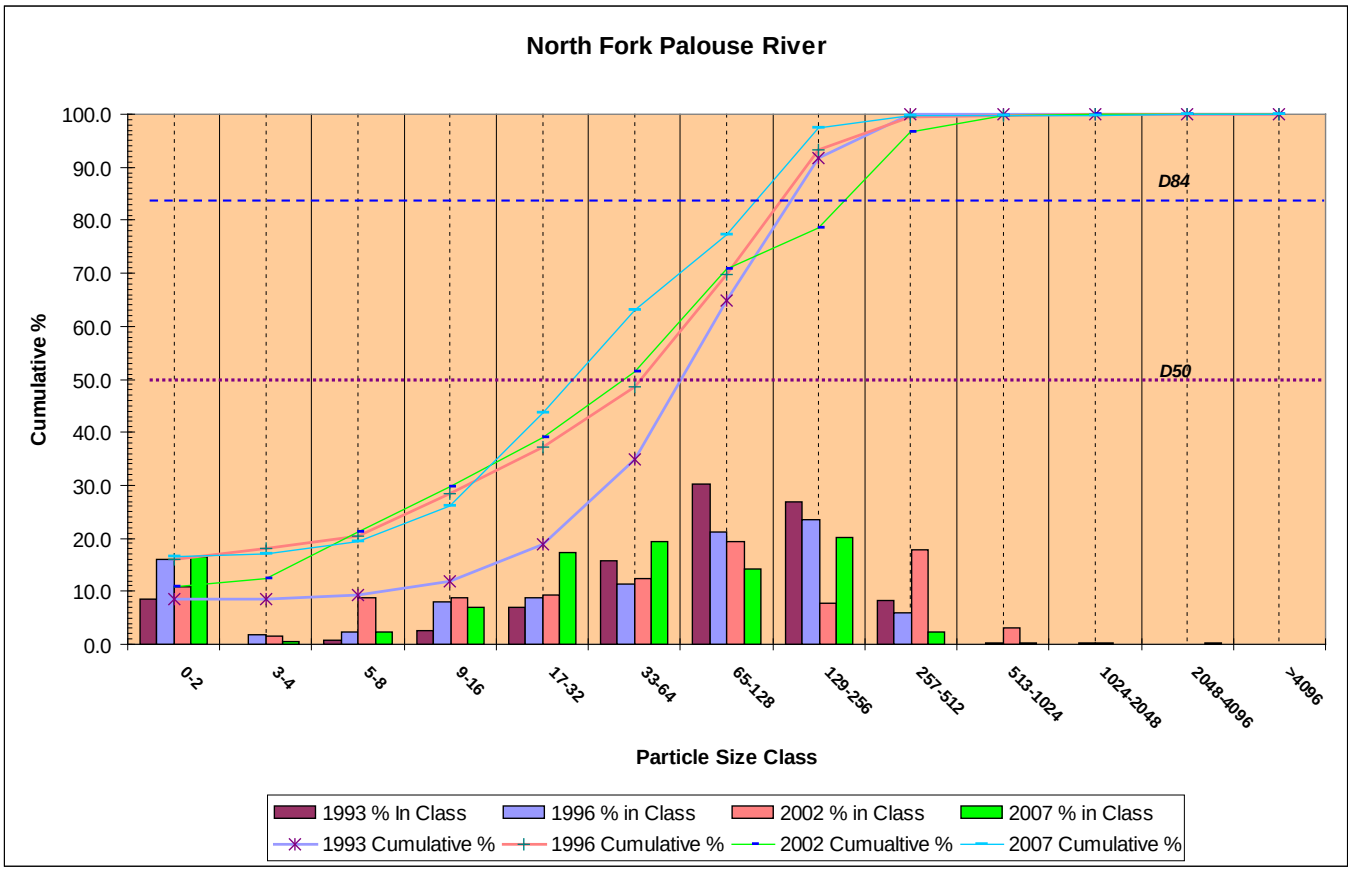
1 Clay, silt, and sand.
2 Clay, silt, sand, and very fine gravel.
3 The mean particle size. The stream classification is based on the D50.
4 The diameter that is equal to 84% of the bed particles. The choice of the 84% value is arbitrary; it is two standard deviations larger than the mean size, assuming a normal distribution. Experience has shown that particles larger than the median size play an important role in flow resistance, and therefore a single parameter to describe bed particle size should be some size larger than the median.
5 The Potlatch River (Abv West Fork) is a pool reach type and has a sand substrate. Therefore, no Wolman pebble count data was collected in 2006.

North Fork Palouse River. North Fork Palouse River is monitored to analyze the effects of mining. Wolman pebble count information was collected for North Fork Palouse River four times between 1993 and 2007. The channel type is a E4 with a gradient of 0.7 percent. Table 3 and Figure 1 show the Wolman pebble count data for the four years. The D50 in this channel has been decreasing over time. There is a vast amount of mining in this area, which could be a reason for the increase in smaller particles.

Table 3. North Fork Palouse River Wolman Pebble Count Data; 1993 - 2007

Year	% Fine Sediment 0-2 mm	% Fine Sediment 0-4mm	D50 in mm	D84 in mm
1993	8	8	91 (Small Cobble)	209 (Large Cobble)
1996	16	18	70 (Small Cobble)	199(Large Cobble)
2002	11	12	59 (Very Coarse Gravel)	317 (Small Boulder)
2007	17	17	40 (Very Coarse Gravel)	161 (Large Cobble)
Mean	13	14	65 (Small Cobble)	222 (Large Cobble)

Figure 1. North Fork Palouse River Wolman Pebble Count Data; 1993 - 2007



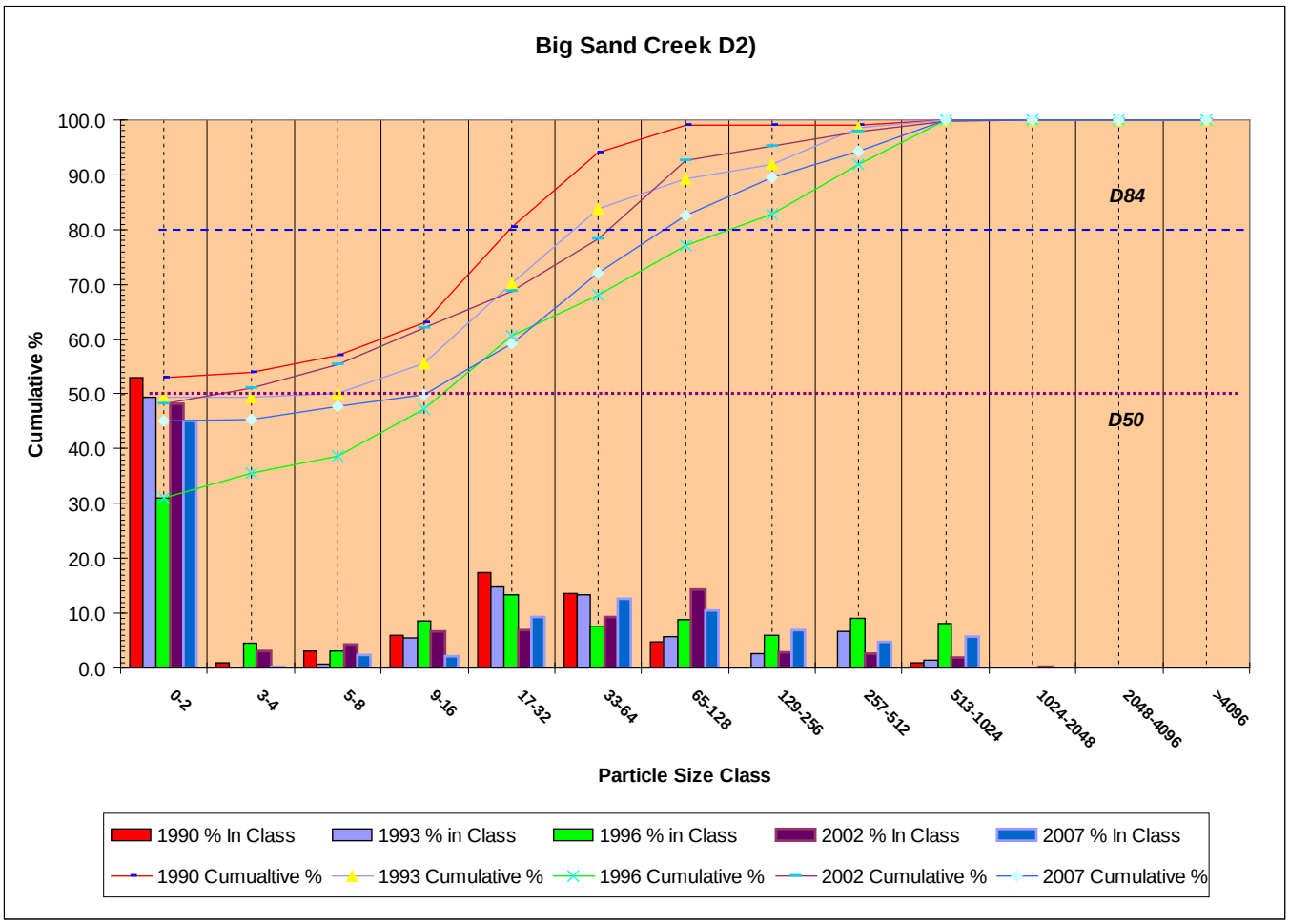
Big Sand Creek. Big Sand Creek is monitored to analyze the effects of timber harvest. Wolman pebble count information was collected for Big Sand Creek five times between 1990 and 2007. The channel type is a B4 with a gradient of 0.7 percent. Table 4 and Figure 2 show the Wolman pebble count data for the five years. In the flood year of 1996 there was a decrease of fine material and an increase of D50 and D84. There was a flushing of the system which removed a portion of the smaller substrate and left larger material. There appears to be natural channel deposition after the channel was scoured from the 1995-1996 flood.

The Riffle Stability Index (RSI) for Big Sand Creek in 2007 was 65 percent (approximately 80 percent of the channel substrate was mobile during bankfull flow). RSI has varied from 53 to 65 percent between 1993 and 2007.

Table 4. Big Sand Creek Wolman Pebble Count Data; 1990 - 2007

Year	% Fine Sediment 0-2 mm	% Fine Sediment 0-4mm	D50 in mm	D84 in mm
1990	53	54	2 (Sand)	39 (Very Coarse Gravel)
1993	49	49	7 (Fine Gravel)	64 (Very Coarse Gravel)
1996	31	36	18 (Coarse Gravel)	278 (Small Boulder)
2002	48	51	3 (Very fine Gravel)	85 (Small Cobble)
2007	45	45	16 (Medium Gravel)	147 (Large Cobble)
Mean	45	47	9 (Medium Gravel)	123 (Small Cobble)

Figure 2. Big Sand Creek Wolman Pebble Count Data; 1990 – 2007

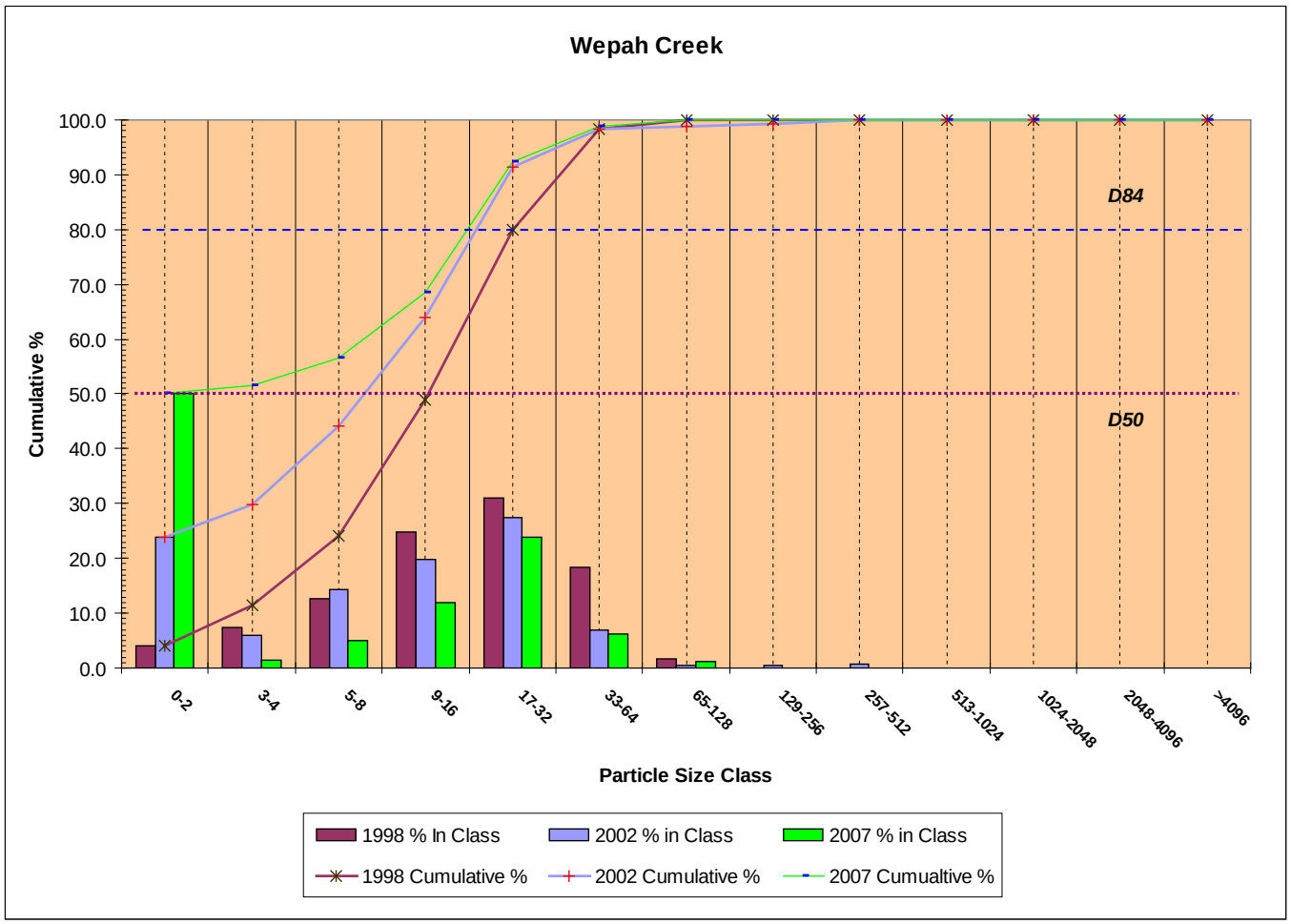


Wepah Creek. Wepah Creek is monitored to analyze the effects of timber harvest. Wolman pebble count information was collected for Wepah Creek three times between 1998 and 2007. The channel type is an E4 with a gradient of 1.5 percent. Table 5 and Figure 3 show the Wolman pebble count data for the three years. There has been a substantial increase in fine sediment from 1998 to 2007. The cause of the sediment increase is not known.

Table 5. Wepah Creek Wolman Pebble Count Data; 1998, 2002 AND 2007

Year	% Fine Sediment 0-2 mm	% Fine Sediment 0-4mm	D50 in mm	D84 in mm
1998	4	12	16 (Medium Gravel)	37 (Very Coarse Gravel)
2002	24	30	10 (Medium Gravel)	27 (Coarse Gravel)
2007	50	52	2 (Sand)	25 (Coarse Gravel)
Mean	26	31	9 (Medium Gravel)	30 (Coarse Gravel)

Figure 3. Wepah Creek Wolman Pebble Count Data; 1998, 2002, AND 2007



Based upon the analysis of streams in the Palouse River watershed in 2007, specifically the North Fork Palouse River and Wepah Creek, instability, bank erosion and sediment appear to be increasing. It is therefore important to repeat the RSI monitoring of these streams within the next three years; by 2010. We also recommend a field review of the two watersheds in the spring of 2008 to determine cause and effect of the apparent instability.

SUBSTRATE MONITORING IN THE LOCHSA RIVER SUBBASIN

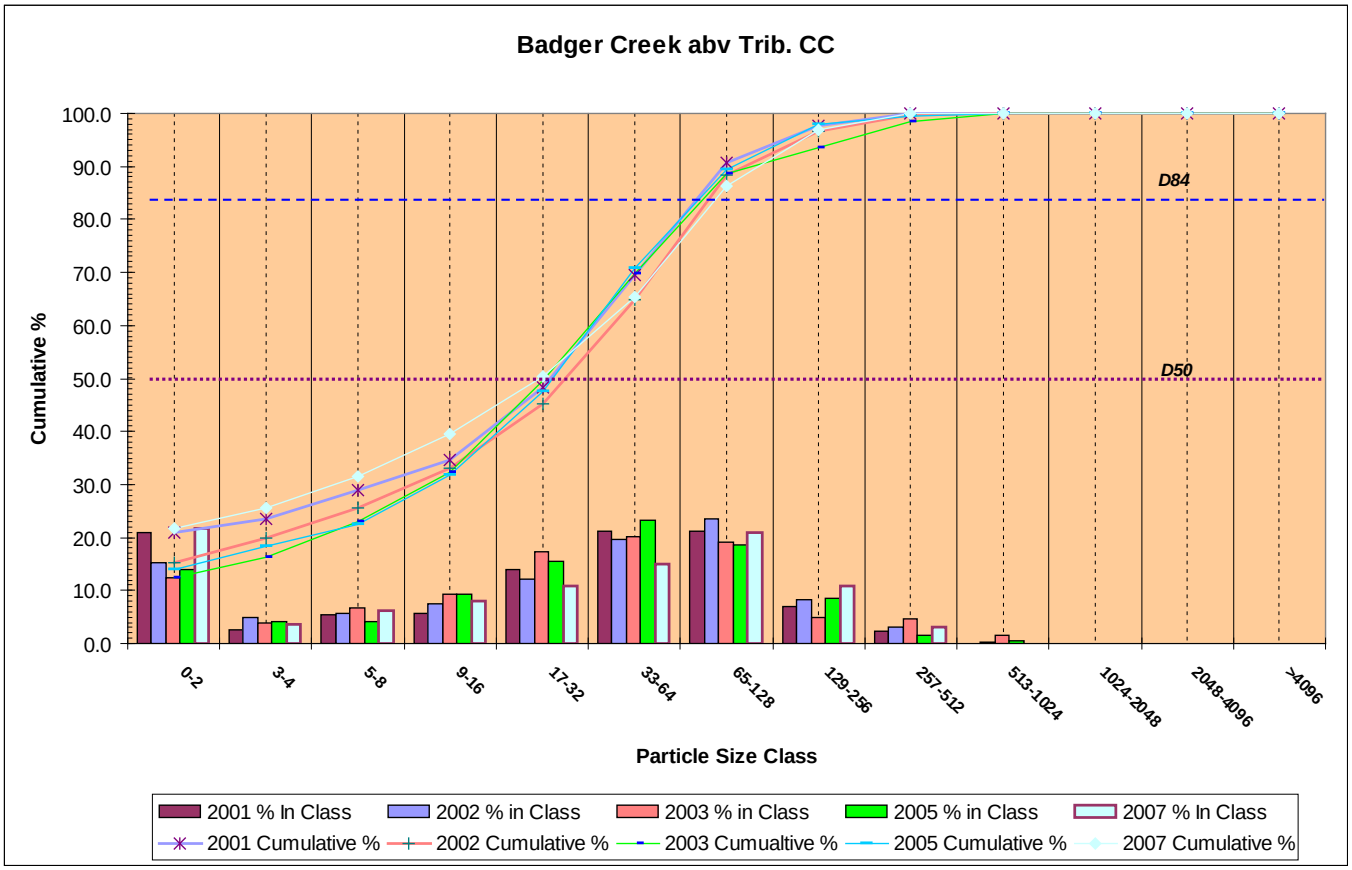
Badger Creek (above Trib CC). Badger Creek is being monitored to analyze the effects of road decommissioning. Wolman pebble count information was collected for Badger Creek in 2001, 2002, 2003, 2005 and 2007. A complete channel survey was done in 2001[16]. The channel type is a C6b with a gradient of 3.2 percent. Bank stability was measured at 4.8. Table 6 and figure 4 show the Wolman pebble count data for the five years. As compared to year 2005, there has been an increase in fine sediment and decrease in D50 and an increase in D84. The Riffle Stability Index in Badger Creek above tributary CC was determined to be 65 percent (approximately 65 percent of the channel substrate was mobile during bankfull streamflows) in 2007.

[16] Clearwater National Forest. Clearwater National Forest Fish Habitat Inventory Survey: Badger Creek. July 2001.

Table 6. Badger Creek (above Trib cc) Wolman Pebble Count Data; 2001 - 2007

Year	% Fine Sediment 0-2 mm	% Fine Sediment 0-4mm	D50 in mm	D84 in mm
2001	21	24	36 (Very Coarse Gravel)	108 (Small Cobble)
2002	15	20	40 (Very Coarse Gravel)	114 (Small Cobble)
2003	13	17	31 (Coarse Gravel)	108 (Small Cobble)
2005	14	18	39 (Very Coarse Gravel)	113 (Small Cobble)
2007	22	26	31 (Coarse Gravel)	119 (Small Cobble)
Mean	17	21	35 (Very Coarse Gravel)	112 (Small Cobble)

Figure 4. Badger Creek (above Trib cc) Wolman Pebble Count Data; 2001- 2007

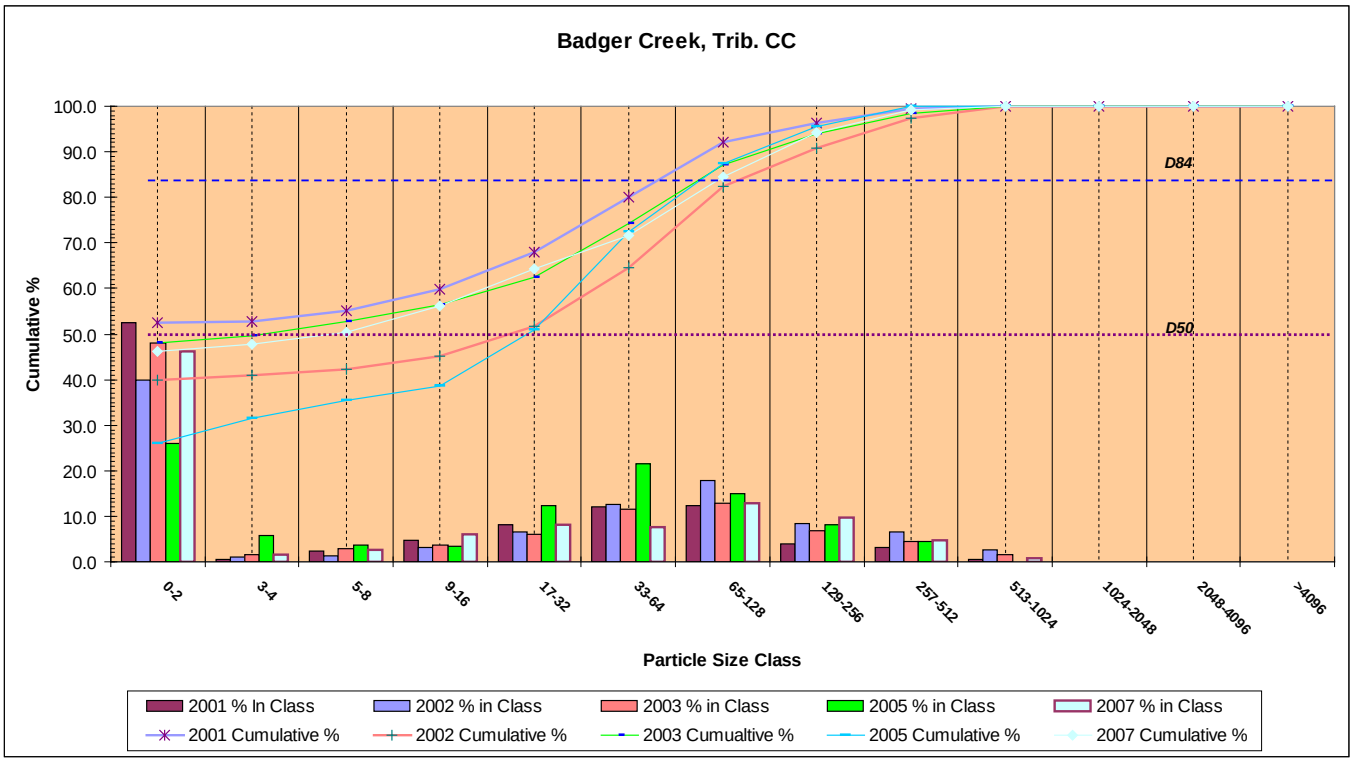


Badger Creek Trib CC (mouth). Badger Creek is being monitored to analyze the effects of road decommissioning. Wolman pebble count information was collected in Badger Creek in 2001, 2002, 2003, 2005 and 2007. A complete channel survey was done in 2001. The channel type is an A4a with a gradient of 9.8 percent. Bank stability was measured at 4.8 and cobble embeddedness was 47 percent. Table 7 and figure 5 show the Wolman pebble count data for the five years.

Table 7. Badger Creek Trib cc Wolman Pebble Count Data; 2001 – 2007

Year	% Fine Sediment 0-2 mm	% Fine Sediment 0-4mm	D50 in mm	D84 in mm
2001	52	52	2 (Sand)	77 (Small Cobble)
2002	40	41	28 (Coarse Gravel)	149 (Large Cobble)
2003	48	50	4 (Very Fine Gravel)	109 (Small Cobble)
2005	26	32	30 (Coarse Gravel)	110 (Small Cobble)
2007	46	48	8 (Fine Gravel)	125 (Small Cobble)
Mean	42	45	14 (Medium Gravel)	114 (Small Cobble)

Figure 5. Badger Creek (Trib cc) Wolman Pebble Count Data; 2001- 2007

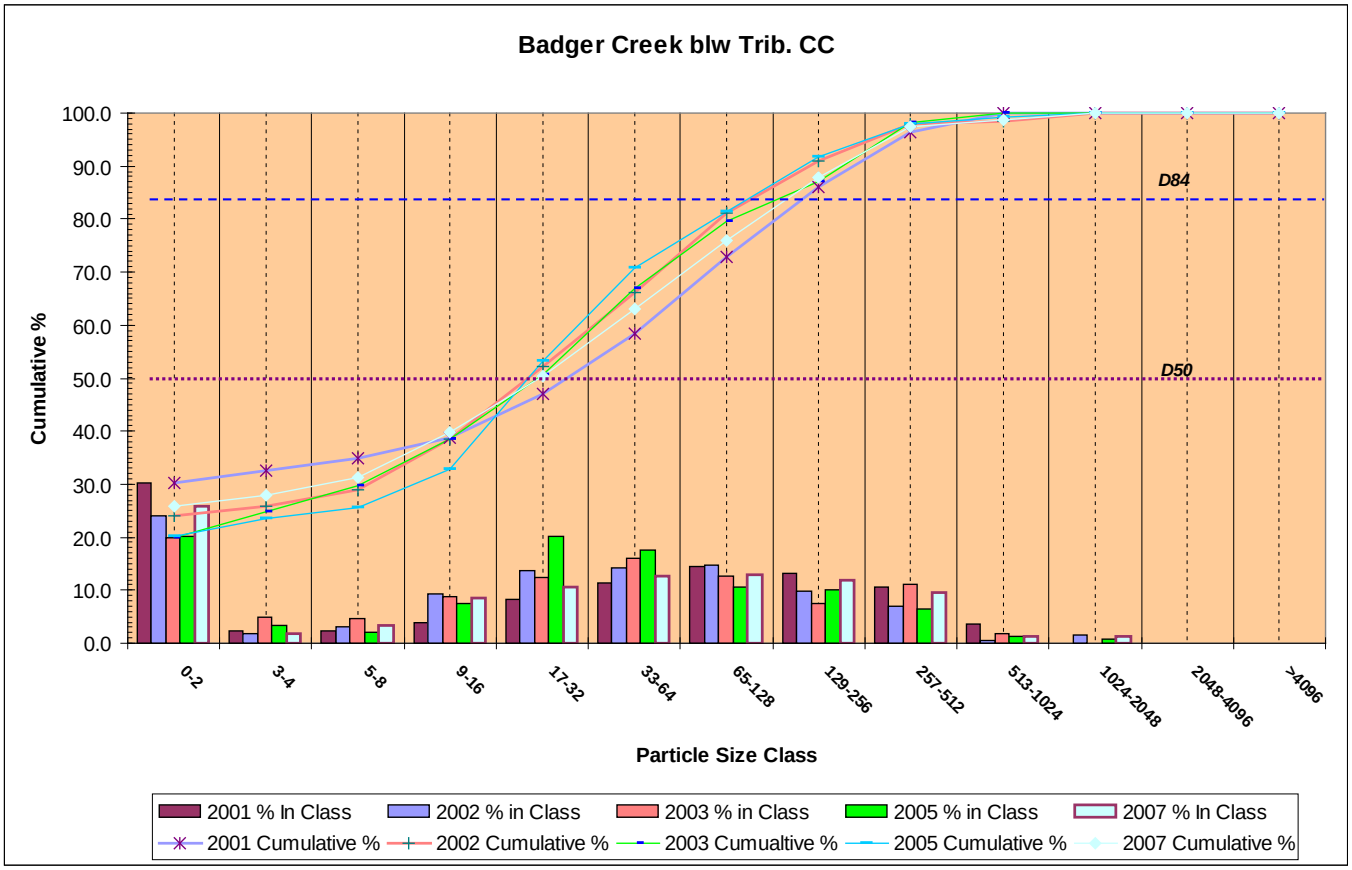


Badger Creek (below Trib CC). Badger Creek is being monitored to analyze the effects of road decommissioning. Wolman pebble count information was collected in Badger Creek below tributary CC in 2001, 2002, 2003, 2005 and 2007. A complete channel survey was done in 2001. The channel type is an A3 (deeply entrenched, moderate gradient, low sinuosity, cobble substrate) with a gradient of 5.2 percent. Bank stability was measured at 4.8 and cobble embeddedness was 47 percent. Table 8 shows the Wolman pebble count data for the five years.

Table 8. Badger Creek Below Trib cc Wolman Pebble Count Data; 2001-2007

Year	% Fine Sediment 0-2 mm	% Fine Sediment 0-4mm	D50 in mm	D84 in mm
2001	30	33	39 (Very Coarse Gravel)	231 (Large Cobble)
2002	24	26	29 (Coarse Gravel)	156 (Large Cobble)
2003	20	25	31 (Coarse Gravel)	194 (Large Cobble)
2005	20	24	29 (Coarse Gravel)	154 (Large Cobble)
2007	26	28	32 (Coarse Gravel)	206 (Large Cobble)
Mean	24	27	32 (Coarse Gravel)	188/ (Large Cobble)

Figure 6. Badger Creek (Below Trib cc) Wolman Pebble Count Data; 2001- 2007



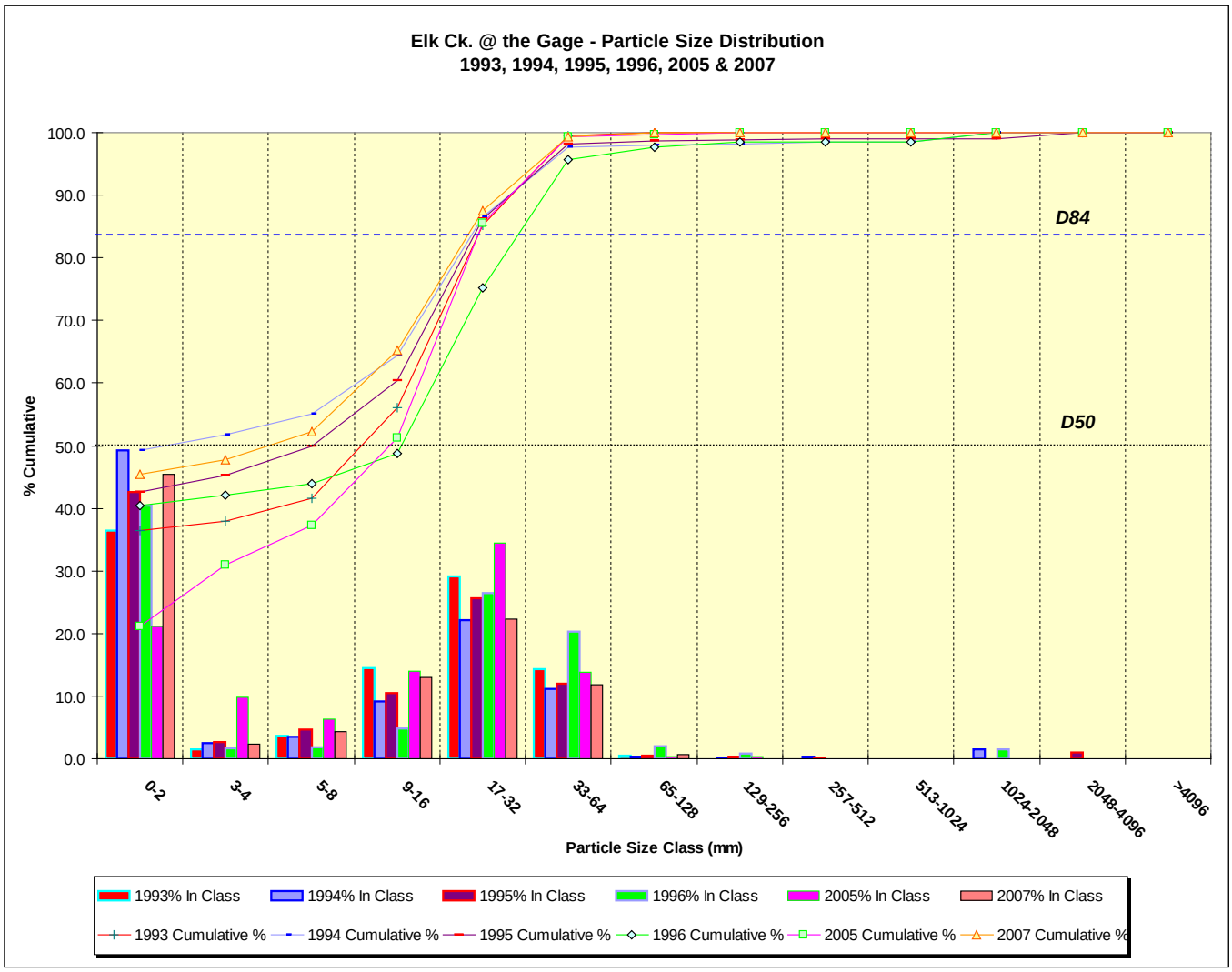
SUBSTRATE MONITORING IN THE LOWER NORTH FORK CLEARWATER RIVER SUBBASIN

Elk Creek (Gage Site). Elk Creek is monitored to analyze the effects of timber harvest, and land slides (1996). Grazing was discontinued in this watershed in 2006. Wolman pebble count information was collected for Elk Creek in 1993, 1994, 1995, 1996, 2005 and 2007. The channel type is a C4 stream with a gradient of 0.2 percent. Table 9 and Figure 7 show the Wolman pebble count data for the six years. There was an increase in fine sediment in 2007. It was noted that there was a squatter living near the monitoring site for a while. Tire tracks were seen on the banks, meaning these individuals could have been driving across the channel multiple times, increasing bank erosion and inputs of fine sediment. Individuals were also seen washing dishes in the stream.

Table 9. Elk Creek Wolman Pebble Count Data; 1993 - 2007

Year	% Fine Sediment 0-2 mm	% Fine Sediment 0-4mm	D50 in mm	D84 in mm
1993	37	38	12 (Medium Gravel)	31 (Coarse Gravel)
1994	49	52	3 (Very Fine Gravel)	30 (Coarse Gravel)
1995	43	45	2 (Sand)	30 (Coarse Gravel)
1996	40	42	17 (Coarse Gravel)	43 (Very Coarse Gravel)
2005	21	31	15 (Medium Gravel)	31 (Coarse Gravel)
2007	46	48	6 (Fine Gravel)	29 (Coarse Gravel)
Mean	39	43	9 (Medium Gravel)	32 (Coarse Gravel)

Figure 7. Elk Creek Wolman Pebble Count Data; 1993 - 2007



Road Decommissioning Program

Goal

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

- Reduce erosion from road surfaces and slopes and related sedimentation of streams.
- Reduce the risk of mass failures and subsequent impact on streams.
- Restore natural surface and subsurface drainage patterns.
- Restore vegetation and site productivity
- Restore stream channels, at road crossings and where roads run adjacent to channels
- Use road maintenance funds more effectively - concentrate the available funds on roads that are needed for long-term access.
- Protect and restore fish habitat.

Accomplishments/Findings

Road decommissioning includes activities that stabilize and restore unneeded roads to a more natural state. In most cases, road decommissioning involves using heavy equipment to decompact road surfaces, remove drainage structures and fill material from streams and draws, recontour through unstable areas, and revegetate.

The Clearwater National Forest and the Nez Perce Tribe have worked together since 1996 to decommission roads on National Forest under a watershed restoration partnership. Over 600 miles of problem roads have been decommissioned since 1996. Approximately half of these have been decommissioned in partnership areas where the Tribe contributes funds and labor directly to the project.

Based on field information about the road's condition, a road to be decommissioned is targeted either for abandonment or some level of decommissioning (previously referred to as obliteration). A road to be *abandoned* is already stable and is revegetating naturally. No physical work is required for abandonment, just a change in the database to reflect the fact that it no longer will be tracked as a road. However, roads to be *decommissioned* will require some physical work in addition to the database change. The extent of decommissioning work required is classified in four levels.

- Level I. Recontouring at the start of the road to restrict vehicle access
- Level II. Some work required along the road to address mass failure or erosion risk factors
- Level III. Substantial work required along the full length of the road
- Level IV. Recontouring most of the road

Decommissioning roads to Levels 2 through 4 includes several standard approaches to treatment. Treatments along the road prism range from decompaction in areas with stable fill but reduced infiltration and productivity, to strong outslopes or complete recontours in areas requiring fill stabilization. For every

road, all culverts and ditches are pulled. Revegetation of treated areas combines seeding with a non-persistent grass mix, scattering duff excavated from natural ground above road cutslope, and transplanting native forbs and shrubs which are growing on-site either adjacent to or on the road surface. Natural mulch consisting of onsite woody debris, logs, and stumps as well as imported weed-free straw mulch (used in areas where natural mulch is scarce) cover most disturbed ground. Treatments along stream crossings require a complete recontour of all fill material with stream channels restored to natural grade and dimensions. Each stream crossing receives the same revegetation prescription as the roadbed with a special emphasis on transplants maintenance.

Roads that are needed for the long-term transportation system but are not being used now (and probably won't be needed for 20 years) are put into "intermittent storage" status. This requires ensuring that the road is stable and will not need to be maintained for the non-use period. Roads put into IS status typically have their culverts and associated fill removed. The road may be outsloped and fills in unstable areas may be pulled.

Year	Reconstruction (Miles)	New Construction (Miles)	Decommissioning (Miles)	Intermittent Storage (Miles)
1987	20.1	18.9	0	0
1988	45.4	49.2	0	0
1989	77.6	34.7	0	0
1990	39.8	31.5	0	0
1991	61.4	36.1	0	0
1992	66.4	37.2	9.5	1.6
1993	45.3	3.8	2.6	1.9
1994	61.6	8.6	1.4	0
1995	108.9	1.5	9	0.6
1996	72	1.8	15	0.3
1997	7.6	1	52	8.2
1998	85.3	1.1	134	8.6
1999	19.8	1	83.5	10.6
2000	33.1	8.6	47.4	4
2001	11.6	0	64	8.3
2002	5.6	0.1	40.4	3
2003	24.4	0	33.3	4.6
2004	13.3	2.1	29.4	8.5
2005	15.1	4.0	21.4	15.0
2006	16.7	4.2	58.1	9.1
2007	17.0	5.9	21.5	3.3
TOTAL	848.0	251.3	622.5	87.6

In FY07, 21.5 miles of road were decommissioned at a cost of approximately $8,000 per mile. This cost includes equipment, materials, labor and project administration and inspection. In addition, 6.3 miles of road were stored for future use in a hydrologically neutral condition such that the risk to aquatic resources was minimized. The cost of this "intermittent storage" work was approximately $5,000 per mile. The Nez Perce Tribe contributed funding and labor under a watershed restoration partnership for the decommissioning and storage of roads in the Rock Creek drainage of the Upper Lochsa watershed.

GOAL

The Clearwater National Forest and the Nez Perce Tribe monitor road decommissioning projects in order to track the effectiveness of the Forest's decommissioning program. The Nez Perce Tribe and the Forest Service cooperatively fund the monitoring of road decommissioning projects on the Forest. The monitoring crew is made up of an employee of the Forest and an employee of the Tribe. Monitoring protocols are designed to answer questions pertinent to decommissioning goals (listed above) and provide feedback to the decommissioning program on treatment effectiveness.

This monitoring plan looks to provide some feedback to the program goals by looking for answers to the following questions:

- Is there surface erosion associated with the decommissioned road segment and how much?
- Are there mass failures present?
- Are natural surface and subsurface drainage patterns restored?
- Is there vegetation coverage? Is there succession to native plants?
- Are stream channels restored to the point that subsequent adjustments are minimal?

MONITORING ACTION

Field methods include both qualitative assessments and quantitative measurements on selected ¼ mile segments of decommissioned roads (Table 1). Approximately one monitoring segment is set up for every 10 miles of road decommissioned. These segments are established in the year they were decommissioned (year 0). Data is collected along the segments in the first year after decommissioning (year 1), the second year after decommissioning (year 2), the fifth year after decommissioning (year 5), and the tenth year (year 10) after decommissioning. The findings and discussion below apply only to monitoring segments that were visited in 2007 (Table 1) with the exception of mass failures, which are reported annually for all monitoring segments.

Table 1. Monitoring Segments Visited in 2007

Date Monitored	Yr of Decom	Monitoring Yr	Drainage	Road	Segment
3-Jul	1997	10	Porcupine	3930	1
2-Jul	1997	10	Glade Cr	5540	1
24-Oct	2002	5	Post Office	75760	1
3-Oct	2002	5	Deception	830063	1
29-Aug	2002	5	Deception	830476	1
29-Aug	2005	2	Deception	732	1
21-Aug	2005	2	Badger	5621C	1
13-Aug	2005	2	Bridge Cr	75052	1
7-Jul	2006	1	Spruce	5690	1of 2
7-Jul	2006	1	Spruce	5691	2 of 2
28-Aug	2006	1	NF Face	74551	1
22-Aug	2006	1	Badger	75676	1
28-Aug	2006	1	NF Face	830256	1

ACCOMPLISHMENTS/FINDINGS

1. Surface Erosion: Is there surface erosion associated with the decommissioned road segment and how much? Define the feature or treatment associated with the recorded erosion.

Any surface rilling or gullying or sheet erosion is noted and, as of 2002, the dimensions recorded. Prior to 2002, the monitoring crew made qualitative observations of "significant" or "insignificant".

"Significant" was defined as highly visible and likely to get worse while "insignificant" was defined as visible but minor. In 2002, protocol was changed to a more quantitative method of estimation the percent of surface area of a feature affected by surface erosion. Mass failures less than 10 cubic yards are tracked as surface erosion.

Findings:

- 46%of segments monitored (6 of 13) exhibited at least one instance of surface erosion. This compares with 60% in 2006, 46% in 2005, 59% in 2004, 46% in 2003 and 68% in 2002.
- There was no surface erosion noted on the two sites that were in year 10 past decommissioning.
- Two segments (15% of the segments with surface erosion) showed signs of surface erosion outside of channel areas in the interfluvial zones only. This trend it typical of most years except 2005 when 67% of surface erosion occurred outside the fluvial zones.
- Road 5690 seg 1(Spruce Cr yr1) exhibited surface erosion over 80% of access trail over entire segment due to flatness and in some places inslope of trail along with soil type and lack of vegetation.
- Road 5690 seg 2 (Spruce Cr yr1) exhibited surface erosion over 60% of access trail, this is due to water running from the road directly above this one.

Discussion: We continually find surface erosion associated with our higher elevation (over 5000 foot) sites. This is partly due to slower revegetation where we have shorter, cooler growing seasons and less developed soils. In addition, the Spruce Creek segments lie on glaciated landtypes: 47L91, Glacial Trough Bottoms, and 49L66, Dissected Trough Walls. Both landtypes have very high water tables as evident in the field. Harvest and fire, both of which have occurred in the vicinity of these roads within the past 10 years, exacerbate the problems associated with shallow subsurface water. The roads intercepted the shallow watertable resulting in severe scouring prior to decommissioning.

Road 5690 provides access to Trail 63 to Spruce Creek Lakes. It was outslope and waterbarred and placed in Intermittent Stored condition with a foot trail on it in 2006. The Trail and the waterbars continue to intercept ground water causing erosion over much of the disturbed area.

2. Mass Failures: Are there any mass failures along the decommissioned road? How large are they (cubic yards)? For monitoring purposes, any slide, slump or debris flow larger than ten cubic yards that initiates on a road after it has been decommissioned is monitored as a mass failure. An attempt is made to identify the cause of the failure, the feature it is associated with, and the likelihood of it continuing or becoming larger. Decommissioned road segments with known mass failures are designated as monitoring segments or noted as sites to visit annually. Not all segments listed in this section are listed in Table 2.

Findings:

From a total of over 600 miles of road decommissioned on the Clearwater National Forest since 1996, there are 13 known mass failures over 10 cubic yards in size (Table 2). One (on Road 75675) is new this year.

Table 2. Mass Failures

Road	Drainage	District	Yr Decom	Yr Noted	Size (CY)	Associated Feature / Treatment
564	Post Office	Powell	2001	2002	27*	Strong outslope on glacial till
729B	N.F. Face	N.F.	2001	2003	12	Stream Grade Channel
4773	Schwartz	Palouse	1995	1999	340	Outslope near top of old landslide
4773	Schwartz	Palouse	1995	1999	370	Cross drain channel, crosses old landslide
6056	Fish Cr	N.F.	1998	1998	12	Top old failure, stream grade channel
4801	Salmon Cr	N.F.	1998	1999	531	Old debris torrent, stream grade channel
5540	Glade Cr	Lochsa	1997	1998	27	Sideslope saturation
5540	Glade Cr	Lochsa	1997	2003	510*	Fill failure into stream
830476	Deception	N.F.	2002	2002	10*"	Pre-existing rotational slump apporx 1100cy
729	Deception	N.F.	1999	2003	550*	Fill failure into intermittent stream
74551	N.F. Face	N.F.	2006	2006	291*	Stream Grade Channel
74551	N.F. Face	N.F.	2006	2006	216**	Pre-existing rotational slump
75675	Badger	Powell	2006	2007	76'	Fill failure onto lower road

*Movement subsequent to decommissioning
**Movement noted in 2005

- A fill failure was identified on an unmonitored portion of road 75675 in 2007. The treatment of the failed portion of road was strong outslope due to steepness of area (cutbank at site of failure is 30 feet).
- A road fill failure exists at the beginning of a monitoring segment on an abandoned segment of road (Road 5540, Glade Cr).
- A fill failure into an intermittent stream was identified on an un-monitored portion of road 729 placed in "intermittent storage" in 2003. The treatment at this site was a slight outslope.
- One growing slump area was noted in 2003 on Road 564 (Post Office) of 26.6 cubic yards associated with unstable glacial deposits.
- Five mass failures are associated with historic or pre-existing landslides.
- New movement associated with a pre-existing rotational slump on a road 830476 segment recountoured in 2002 is being tracked as a 10 cubic yard failure. There is also new tension cracking at this site, indicating potential future movement.
- There are two existing failures on Road 4773, Schwartz Creek, (340 cubic yards and 370 cubic yards), both associated with one historic landslide.
- There are two existing failures on Road 74551 (291 cubic yards and 216 cubic yards), one associated with a stream grade channel and one with a rotational slump.

Discussion: Half of the large mass failures are associated with landslides that were evident prior to decommissioning the road and perhaps prior to road construction. However, there were at least three failures (roads 5540 and 729) observed on high risk segments where the treatment was probably too light. All mass wasting is on high risk landtypes. The segment on road 830476 is not mapped as a high risk landtype; however this road crosses a large rotational slump.

Based on these observations, one might suggest that lighter treatments such as abandonment or minor (+10%) outslope are inappropriate treatments for high risk landtypes. Prior to decommissioning a road, we should record the mapped land type and then ground truth. Prescriptions for treatment should account for high risk landtypes, both mapped and observed in the field.

3. Cross Drain Channels (CDC's): Are natural surface and subsurface drainage patterns restored? Are the CDC's associated with surface water drainage or converted (intercepted) groundwater? Do the CDC's function to restore natural surface and subsurface drainage patterns? How well are they mimicking natural function while minimizing risk?

Cross drain channels promote the drainage of saturated hillsides, seeps, natural swales, subsurface water, and other areas that may accumulate water. When monitoring cross drain channels, we note whether they lie in a natural topographic feature such as a draw or swale, we determine whether they primarily drain surface water or intercepted subsurface water (such as wet ditches) and we note any surface erosion or mass wasting associated with the channel. In addition, we note any other problems observed.

Findings:

In 2007, out of 7 cross drain channels monitored, the following was found:

- 5 (71%) in natural swales (draining primarily surface groundwater)
- 2 (29%) in seeps (draining primarily converted subsurface groundwater)

These were the following problem areas associated with cross drain channels:

- Surface Erosion: 2 incidents (28%)
- Road 5690 (Spruce Cr yr 1) 2 CDC's on segment, with both exhibiting erosion over 50+% from concentrated overland flow, and soil type.

Discussion: Construction of cross drain channels provides a drain for seeps or saturated areas resulting from road construction. In addition, cross drains provide drainage at minor swales and undefined draws. Forest roads can intercept shallow subsurface flow paths, converting groundwater to surface water. True restoration of the natural slope hydrology would necessitate reconstruction of the preexisting subsurface flow paths; however, because of the complexities of flow path development and extensive alteration of the hillside during road construction, it is unlikely that these flow paths could be recreated through a simple recontour or outslope may cause saturation of the reconstructed hill slope resulting in landslides. While, true restoration may not be possible, the most effective treatments should return groundwater exposed as surface flow back to subsurface. The goal is to encourage infiltration of the shallow subsurface water without causing saturation and subsequent landslides.

Brush blankets can be used in cross drain channels to encourage infiltration of water in boggy or saturated areas. The excavator operator uses the bucket and thumb to transplant existing vegetation from the untreated road or adjacent slopes. Transplants are planted in strips across the constructed channel at 4' to 8' intervals from the top to the bottom of the channel. Vegetation slows surface water movement and breaks up the soil serving the dual purpose of filtering suspended sediment and increasing infiltration. Both of the CDC erosion sites from this year have clump plantings in them and that is the only vegetation that survived the concentrated overland flow of water that this site experienced (note: photos below).

Clump plantings in CDC's on road 5690 monitoring segment 2007.

We see both mass wasting and surface erosion associated with cross drain channels. The mass failures tend to be associated with saturation, while the surface erosion tends to be associated with concentrated overland flow. Surface erosion in cross drain channels is likely a result of concentrating flow in a feature that never evolved to handle concentrated flow. This years monitoring results showed a trend similar to last years where the amount of CDC's monitored showed a decrease in surface erosion compared to prior years; half (52% and 46%) of channels monitored in 2004 and 2003 exhibited surface erosion while only 25%, 36% and 28% of those monitored in 2005 thru 2007 exhibited surface erosion. This reduction corresponds to our use of brush blankets. Revegetation of cross drain channels and reinfiltration of converted subsurface water should continue to be a major emphasis of the road decommissioning program.

4. Revegetation: Is there vegetation coverage? Is there succession to native plants? Are we seeing an invasion of weeds on the disturbed ground associated with decommissioned roads?

Revegetation goals are twofold: Short-term erosion prevention and long-term conversion to the native vegetation of the slope. The seed mixture used from 1999-2004 was designed to be aggressive in the short term and less persistent over time, promoting native species succession. All disturbed areas were seeded with a non-native seed mix of annuals and non-persistent perennials for short-term erosion prevention and soil amending properties.

During road decommissioning, the excavator transplants clumps of native brush and sod during the treatment of the prism. The excavator operator conserves vegetation growing on the untreated sideslopes as well as on the untreated roadbeds. As the excavator operator works out the road, he uses the bucket and thumb to plant the conserved vegetation, including the root mass and surrounding soil, on the treated prism. The excavator operator can also scatter some of the duff layer from the top of the cutslope across the treated road prism. This incorporates organic material on the newly treated slope, recruiting seeds, nutrients, soil microbes and other organisms. In areas of specific need, we plant nursery grown stock, either trees or shrubs. We also sprig wet areas with willow, cottonwood, dogwood, and other species that grow from cuttings.

Methods for monitoring vegetation and ground cover are borrowed from ECODATA (USDA Forest Service, 1992). The point cover method is used to measure the amount of ground cover after decommissioning. Ground cover is important in controlling surface erosion. Most ground cover is in the form of mulch or planted vegetation.

Findings:

Figure 1. Changes in vegetative cover type over time on decommissioned road 5540 monitoring segment

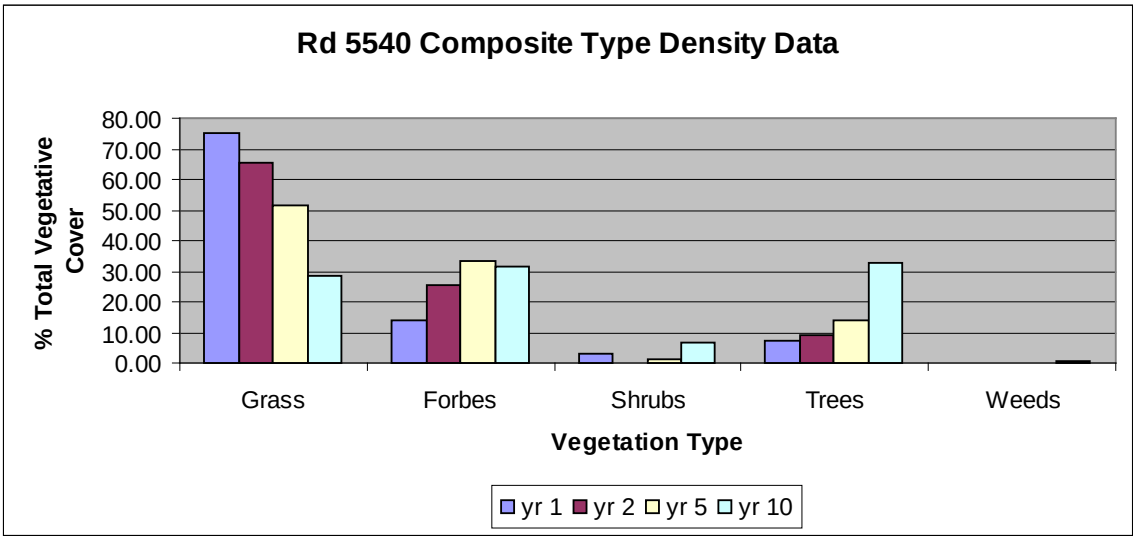
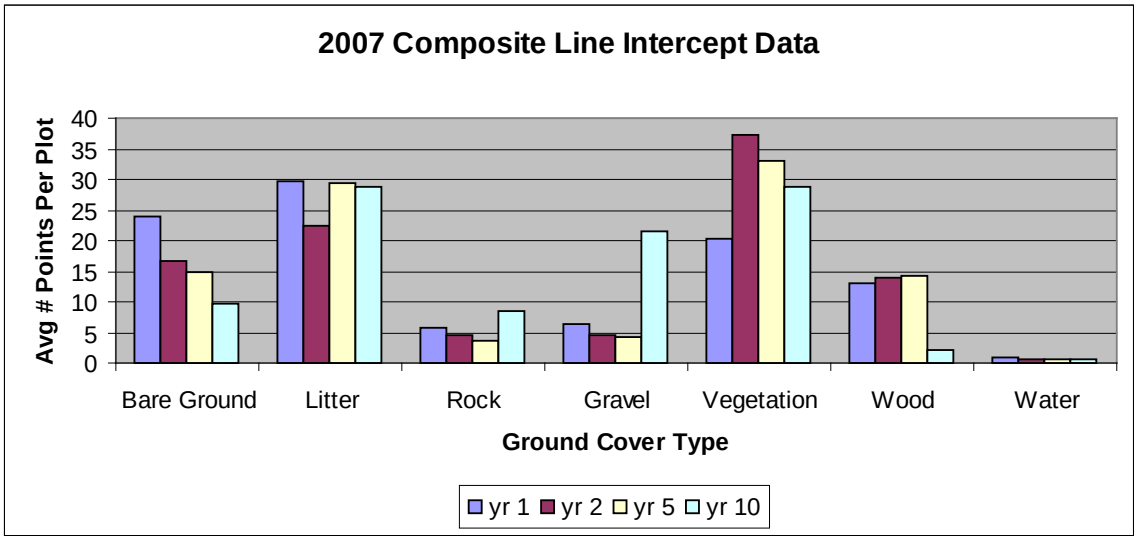


Figure 2. Breakdown of ground cover changes over time on all segments monitored in 2007



Discussion: On rd 5540, the percentage of bare ground decreased from 43.2% to 9.8% from year one after decommissioning to year 10 after decommissioning, while the amount of vegetative cover increased from 10.0% to 28.8% in the same timeframe. For all sites monitored in 2007 on average, the percentage of bare ground on monitoring segments decreased from 23.9% to 9.8% from year one after decommissioning to year 10 after decommissioning, while the amount of vegetative cover increased from 20.3% to 28.8% on the same timeframe (figure 1). There was only one 10 year vegetation plot to monitor this year which is on a dry, granitic site which is why the vegetative cover for year 10 is only 28.8%.

There appears to be moderate succession to native species, although nonnative grasses are persistent to 10+ years (figure 2). The grass mix used from 1999 through 2004 and part of 2005 consisted of:

- 15% perennial ryegrass
- 20% annual ryegrass
- 10% hard fescue
- 35% mountain brome
- 15% sheep fescue
- 5% white dutch clover

Much of this mix is non-native but somewhat non-persistent. When we started using this mix in 1999, the native seed mixes were quite expensive (5-10 times the cost of the above mix). However, as demand for the native mixes has increased, supply has increased and the cost has become comparable to the non-native. In 2005, we adjusted our seed mix to:

- 20% annual rye
- 25% Idaho fescue
- 35% mountain brome
- 20% bluebunch wheatgrass

This mix is native except for the annual rye grass, which is often used when a fast establishment is desired, but low long-term persistence. The annual rye grass will provide good ground cover for a year or two and

then decrease, hopefully as the native species re-establish themselves. We will be monitoring the success of this new mix in preventing short term erosion and its persistence as compared to the old mix.

5. Stream Grade Channel: How much does each channel adjust (degrade/aggrade) over time? Is the size of the bed material increasing (indicating degradation) or decreasing (indicating aggradation) over time?

Stream grade channels are restored at live water crossings, usually where a culvert (metal, log, or slash) was removed. Restoration of channels includes: removal of structure, removal of full to grade, recontour of adjacent slopes, installation of channel stabilization structures (weir and bank armor) and Revegetation of the area.

In order to track channel stability and channel adjustment over time, we collect the following information:

- Channel cross-sections
- Longitudinal surveys
- Wolman pebble counts (Wolman, 1954)

Findings:

- Nearly all channel cross sections show settlement of six to twelve inches over the first winter (see example Figure 3)
- Minor changes (primarily degradation, less aggradation) occur on nearly every cross section from year to year.
- Longitudinal Surveys indicate some minor changes to the stream channel including small headcuts, establishment of step/pool systems, and minor degradation (see example Figure 4).

Discussion: It appears that there is some settling of the entire disturbed surface over the first winter as the snow packs the freshly disturbed soil. This may be due in part to erosion of the surface material in addition to recompaction of the surface.

The cross sections, the profiles and the pebble count all indicate that in the first year of these newly constructed channels, we see a flush of fines and small particles from the channel surface. The changes in the aggregated pebble count indicate scouring of silt and sand size particles. We predict that we will see less change as the channel adjusts then stabilizes.

Figure 3. Example cross section road 75760

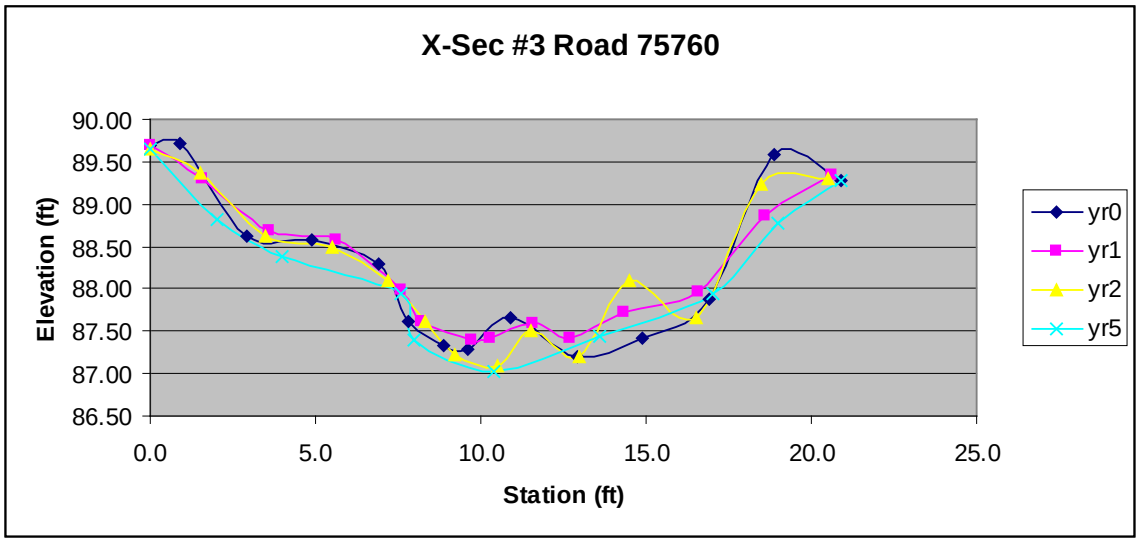
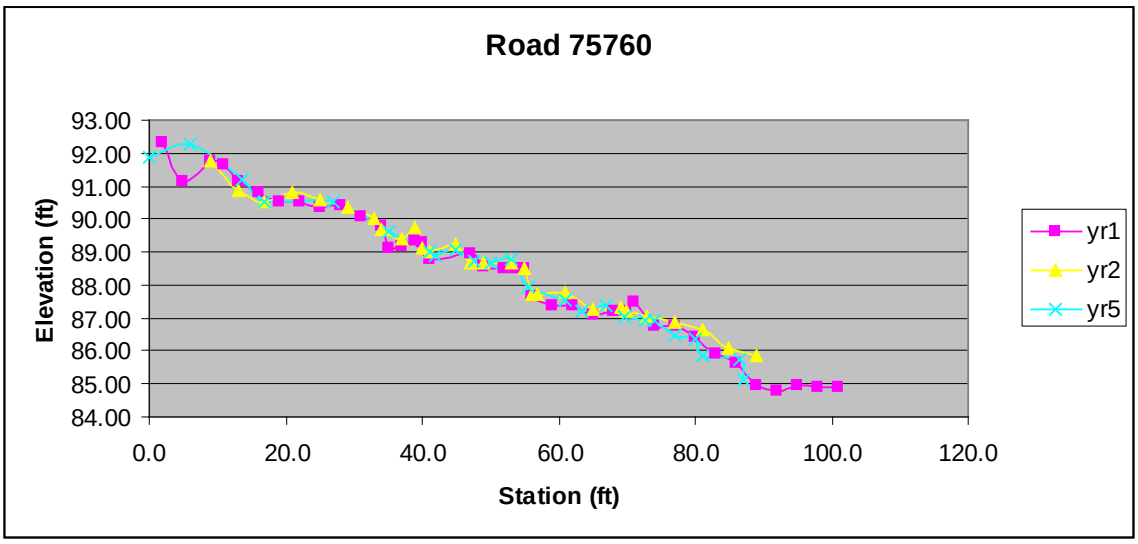


Figure 4. Example longitudinal profile at stream grade channel road 75660



SUMMARY

The monitoring program on the Clearwater National Forest is designed primarily as a feedback loop to the road decommissioning program to ensure that the goals of the program are being met. In the future, we will focus more emphasis on techniques identified through monitoring as needed and successful.

ACKNOWLEDGEMENTS

The Nez Perce Tribe and the Clearwater National Forest joined together in a watershed restoration partnership in 1996. The road decommissioning monitoring program is a part of this partnership. The monitoring crew is made up of employees of both the Forest and the Tribe. In 2006 and 2007, the Nez Perce Tribe lead the analysis and summarized the data in this report.

ROADS

Item No. 13 - Miles of Road Open/Restricted

Frequency of Measurement: Annual
Reporting Period: Five Years

MONITORING ACTION

The Forest engineer has chosen to adjust the display of the road data to show the current miles of open roads and miles of restricted roads in a different manner than in previous years. The road information is broken down to show the different restriction groups of roads. The mileage in each travel code is shown. A brief description of the travel group appears below the table. This information will help the user picture what roads are open, when they are open and what type of vehicle is allowed. There is no information on snowmobile restrictions included in the table.

ACCOMPLISHMENTS/FINDINGS

The Clearwater National Forest development road system is made up of roads that vary from narrow single-lane unsurfaced to double-lane paved roads. This system of approximately 4,095 miles provides access to many areas. Road restrictions are a major component in resource protection. Driven by resource needs, including big game habitat needs and water quality, road restrictions are reviewed annually and revised when necessary to meet the current management situation.

Roads Table 1. Miles of Restricted Roads

Restriction Groups Travel Codes	Miles	% of Total Designated Roads
CYA	1,037.3	25.3%
OSA	770.7	18,8%
OSS	117.5	2.9%
OYA	1,632.2	39.9%
OYS	537.5	13.1%
Total Designated Road Mileage	4,095.2	

CYA – Closed yearlong to all-wheeled vehicles
OSA – Open seasonally to all-wheeled vehicles
OYA – Open yearlong to all-wheeled vehicles
OSS - Open seasonally to small (motorcycle and ATV) but closed yearlong to full-sized vehicles
OYS – Open yearlong to small-wheeled vehicles (motorcycle and ATV

Scenic Resources

Goal

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

Strategy

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

Item No. 3 - Visual Quality Objectives

Frequency of Measurement: Annual
Reporting Period: Five Years

Monitoring Action

The Forest landscape architect, assisted by District personnel reviewed all management activities for their effects on the scenic resource. Activities that were monitored for their effects on the scenic resource were timber harvesting, recreation development, fire and road decommissioning projects. The monitoring process included field observations of selected management activities and an office review of project reports.

Accomplishments/Findings

The Forest landscape architect and District personnel provided input to District Rangers by serving on interdisciplinary teams (IDT) for timber harvesting proposals, recreation projects, watershed analysis and prescribed fire proposals. Recommendations were provided for these projects that outlined practices, which would aid the Districts in meeting SIOs on several proposed management actions. These activities will continue to be monitored during the implementation phase of the project. During FY 2007 there were no timber sales that were completed and closed out. Several large management plans were completed for sale at a later date including Cherry Dinner, Yakus, and Corralled Bear.

There were several prescribed fires on the Clearwater National Forest in FY 2007. The burns reduced the brush undergrowth, removed a few trees and darkened the bark on some, but by spring the effects were very minimal and the corridor appears natural, with no long term negative visual effects. Most burn areas were small in size and in areas outside of critical viewing corridors. There was no significant impact on the scenic integrity from any critical viewpoints from these activities.

Another area of concern in protection of the scenic quality of forested landscape is in road management. Currently, the Forest is completing a number of culvert replacement projects all of which were outside critical visual travel corridors this year. With most culvert replacement projects, there is a short-term effect on the visual condition during the period when excavation takes place, but vegetative cover returns within one year and a positive effect on the scenic quality of an area is obvious within five years.

Additional information regarding effects on scenery of other FY 2007 management activities is available at the Supervisor's Office.

Water Quality (formerly "Soil and Water")

Goal

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

Strategy

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

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

Frequency of Measurement: Annual
Reporting Period: Annual

Monitoring Action (Non-Fisheries)

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

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

Accomplishments/Findings

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

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

Table 1 shows the Forest's monitoring network by major drainage basin and watershed. The number of years of record and the type of monitoring station is also presented. Additional water temperature monitoring was done during the summer months at approximately 320 stations. Contact the Forest Fisheries

Biologist for water temperature information, or the Forest Hydrologist for sediment, turbidity, stream flow, precipitation or SNOTEL information.

Table 1. Water Quality Monitoring Network

Basin	Watershed - Location	Years Of Monitoring[1]	Data Type
Palouse River (17060108)	Palouse River (Moscow Mountain)	50	SNOTEL, Precipitation (NRCS)
Lochsa River (17060303)	Lochsa River (Near Lowell)	81	Discharge (USGS)
	Pete King Creek (Walde Lookout)	41	Annual Precipitation
	Pete King Creek (Mouth)	32	Discharge, Suspended Sediment
	Canyon Creek (Mouth)	16	Discharge, Suspended Sediment
	Deadman Creek (Mouth)	20	Discharge, Suspended Sediment
	Fish Creek (Mouth)	40	Discharge, Suspended Sediment
	Badger Creek (Mouth)	12	Discharge, Suspended Sediment
	Crooked Fork (Crooked Fork)	42	Snow Course (FS and NRCS)
	Crooked Fork (Lolo Pass)	51	SNOTEL, Precipitation (NRCS)
	White Sand Creek (Savage Pass)	70	SNOTEL, Precipitation (NRCS)
Clearwater River (17060306)	Potlatch River (Sherwin)	50	SNOTEL, Precipitation (NRCS)
	Potlatch River (Near Spalding)	5	Discharge (USGS)
	Orofino Creek (Pierce R.S.)	56	Snow Course (FS and NRCS)
	Orofino Creek (Shanghi Summit)	69	SNOTEL, Precipitation (NRCS)
	Lolo Creek (Mouth)	28	Discharge (USGS)
	Lolo Creek (Hemlock Butte)	47	SNOTEL, Precipitation (NRCS)
	Lolo (Sec 6)	26	Discharge, Suspended and Bedload Sediment
Upper North Fork Clearwater River (17060307)	North Fork of the Clearwater River (Aquarius Bridge)	41	Discharge (USGS)
	Quartz Creek (Mouth)	24	Discharge, Suspended Sediment
	Quartz Creek (Indian Henry Ridge)	8	Annual Precipitation
	Cold Springs Creek (Mouth)	18	Discharge, Suspended Sediment
	Cold Springs Creek (Cool Creek)	22	SNOTEL, Precipitation (NRCS)
	Long Creek (Hoodoo Basin)[2]	40	SNOTEL, Precipitation (NRCS)
	Cayuse Creek (Cayuse Landing)	41	Annual Precipitation
	Weitas Creek (Doris Butte)	37	Annual Precipitation
	Weitas Creek (Creator Meadows)	44	SNOTEL, Precipitation (NRCS)
Lower North Fork Clearwater River (17060308)	Beaver Creek (Beaver Divide)	37	Annual Precipitation
	Elk Creek (Elk Butte)	44	SNOTEL, Precipitation (NRCS)
	Elk Creek (Road 1705)	27	Discharge, Suspended and Bedload Sediment

1 Monitoring intensity can vary from several grab samples to automatic samplers that run for five months or more.
2 Site is located in Montana.

The Forest processed 1,229 suspended sediment, 1,213 turbidity and 14 bedload samples in 2007. Bedload sediment samples were collected to determine the proportion of sediment moving as suspended and bedload in two watersheds. Total sediment load can be determined for the watershed with these measurements. This information is useful for determining the effects of activities and calibrating

watershed models. Stream discharge and suspended sediment data is summarized in Table 2 and is available from the Forest Hydrologist at the Supervisor's Office.

Table 2 displays the period of record, mean daily discharge through 2006, 2007 mean daily discharge, mean daily suspended sediment through 2006 and mean daily suspended sediment in 2007. Mean daily discharge is calculated from 12 flow measurements per day and mean daily suspended sediment is a composite of four sediment samples.

Table 2. Water Quality Monitoring Results

Station	Period of Record Used in Analysis	Mean Daily Discharge (cfs) Through 2006	2007 Mean Daily Discharge (cfs)	Mean Daily Suspended Sediment Through 2006 (mg/l)	2007 Mean Daily Suspended Sediment (mg/l)
Pete King Creek (Mouth)	1976-2007	44	31	18.2	7.1
Canyon Creek (Mouth)	1992-2007	44	32	10.1	6.2
Deadman Creek (Mouth)	1988-2007	41	34	11.2	5.2
Fish Creek (Mouth)	1958-1966 1976-2007	218	188	8.0[1]	5.8
Badger Creek (Mouth)	1983-1984 1988-1989 2001-2007	13	8	4.1	4.0
Lolo Creek (Sec 6)	1982-2007	94	78	10.5	21.0
Quartz Creek (Mouth)	1982 1984-2007	148	134	11.4	19.6
Cold Springs Creek (Mouth)	1983-1992 2000-2007	34	-- [2]	5.5	2.6
Elk Creek (Road 1705)	1982-2007	76	-- [3]	9.7	5.5
Mean of all stations		80	58	9.8	9.5

[1] Suspended sediment in Fish Creek is representative of a granitic geology watershed with little or no timber harvesting and roads.
[2] Unit well log left at well site, will be retrieved in Spring
[3] Equipment malfunction

Generally, monitoring of suspended sediment has shown a recovery trend forest-wide from past management practices. Of the nine water quality stations where suspended sediment measurements were previously collected, two had sediment levels higher in 2007 than the mean of all previous years. Much of the recovery is believed to be the result of less land disturbing activities, better application of BMPs, PACFISH and INFISH buffers, road decommissioning and better road location and design.

Lolo Creek and Quartz Creek all showed increases in sediment when compared to the mean of all previous years collected. For Lolo Creek there was a period in late April where the samples appeared to be very sandy, and samples analyzed ranged from 60 – 160 mg/l. The source is unknown. The reason for the increase of suspended sediment for Quartz Creek is unknown. This is the second year in a row that the average suspended sediment for the year is higher than the average suspended sediment for dates of record. The landslide which occurred in the '96-'97 floods near the mouth created a natural dam which ponded the area above. This slide could possibly be generating sediment. Given the time frame since the slide (11 years) the site is mostly vegetated and should be stable. The increase of sediment warrants field verification this summer.

Turbidity has been monitored at ten to twenty stations before 1991 and after 1997. The results of turbidity monitoring in 2007 are presented in Table 3.

Table 3. Turbidity Monitoring Results - Period of record, mean daily turbidity through 2006, maximum turbidity period of record, mean daily turbidity in 2007 and maximum turbidity in 2007

Station	Period of Record	Mean Daily Turbidity (ntu) Through 2006	Maximum Turbidity (ntu) Period of Record	Mean Daily Turbidity (ntu) 2007	Maximum Turbidity (ntu) 2007
Pete King Creek (Mouth)	1978-1990 1998-2007	3.4	99.9	2.8	12.1
Canyon Creek (Mouth)	1998-2007	1.9	48.5	2.1	7.5
Deadman Creek (Mouth)	1988-1990 1998-2007	1.7	46.9	1.9	7.5
Fish Creek (Mouth)	1998-2007	1.7	26.6	2.2	6.0
Badger Creek (Mouth)	1983-1984 1988-1989 2001-2007	1.3	31.9	1.7	4.4
Lolo Creek (Sec 6)	1985-1988 1990, 1998-2007	2.6	19.0	1.9	5.0
Quartz Creek (Mouth)	1988-1990 1998-2007	2.2	60.5	4.7	30.7
Cold Springs Creek (Mouth)	1983-1986 2000-2007	1.4	46.1	2.6	14.3
Elk Creek (Road 1705)	1982-1987 1990 1998-2007	2.7	87.0	2.5	8.9
Mean of all stations		2.1	--	2.5	--

In Idaho Water Quality and Waste Treatment (IDAPA 58.01.02) turbidity standards have been set as follows:

Turbidity, below any applicable mixing zone set by the Department, shall not exceed background turbidity by more than fifty (50) NTU instantaneously or more than twenty-five (25) NTU for more than ten (10) consecutive days.

At the nine Clearwater National Forest water quality monitoring stations, 1,213 turbidity samples were collected and analyzed in 2007. No samples exceeded the State turbidity criteria.

Elk Creek Suspended and Bedload Sediment: A total of 186 samples of bedload have been collected at the Elk Creek gaging station between 1978 and 2007 (See Table 4). Bedload varied from a high of 0.26 percent in 2000, to a low of 0.0 percent of the total sediment load in 2007. Mean bedload for 2007, based on seven samples was 6.5 pounds per day, or 0.1 percent of the total mean sediment load. Mean bedload for the period of record is 174 pounds per day, or 6.0 percent of the total sediment load. In recent years (1997-2005), bedload seems to be declining from historic (1980-1996) averages. This may be due to improving channel substrate conditions, watershed recovery from past landslides and application of best management practices.

Table 4. Elk Creek Suspended and Bedload Sediment Data for 1978 Through 2007. A comparison of discharge, depth integrated suspended sediment, and bedload sediment.

Date	Q-cfs	Suspended Sediment Lbs/day	% Suspended Sediment	Bedload Lbs/day	% Bedload	Total Sediment Lbs/day
Mean 1978-1991	84.1	3,660	87.1	303	12.9	3,965
Mean 1997	340	21,500	97.9	451	2.1	21,962
Mean 1998	97.0	1,360	93.7	92.0	6.3	1,452
Mean 1999	157	3,750	90.4	294	9.6	4,045
Mean 2000	178	2,890	80.6	697	19.4	3,583
Mean 2001	81.1	692	94.4	41.0	5.6	733
Mean 2002	191	2,900	93.2	48.2	6.8	2,940
Mean 2003	104	1,344	96.5	47.8	3.5	1,392
Mean 2004	126	2,445	97.1	66.0	2.9	2,511
Mean 2005	70	633	98.3	15.2	1.7	648
Mean 2006	114	1,914.2	98.7	32.0	1.3	1,946
March 28, 2007	174	5,258	99.96	1.90	0.04	5,258
April 6, 2007	133	7,099	99.8	13.8	0.19	7,099
April 18, 2007	187	4,630	99.8	11.0	0.24	4,630
April 24, 2007	147	7,271	99.7	18.7	0.26	7,271
May 8, 2007	114	18,277	100	0.1	0.00	18,277
July 3, 2007	20	640	100	0.0	0.00	640
July 31, 2007	10	252	100	0.0	0.00	252
Mean 2007	**112**	**6,204**	**99.9**	**6.5**	**0.1**	**6,210**
Mean Period of Record	138	4,108 lbs/day	94.0 %	174 lbs/day	6.0%	4,282 lbs/day

Lolo Creek Suspended and Bedload Sediment: A total of 181 bedload samples have been collected and analyzed at Lolo Creek between 1980 and 2007 (Table 5). Bedload varied from a high of 1.1 percent to a low of 0.0 percent of the total sediment load in 2007. Mean bedload for 2007, based on seven samples was 19 pounds per day, or 0.4 percent of the total sediment load. Mean bedload for the period of record is 449 pounds per day, or 4.8 percent of the total sediment load. In recent years (1998-2006), bedload seems to be declining from historic (1980-1997) averages. This may be

due to improving channel substrate conditions, watershed recovery from past activities and application of best management practices.

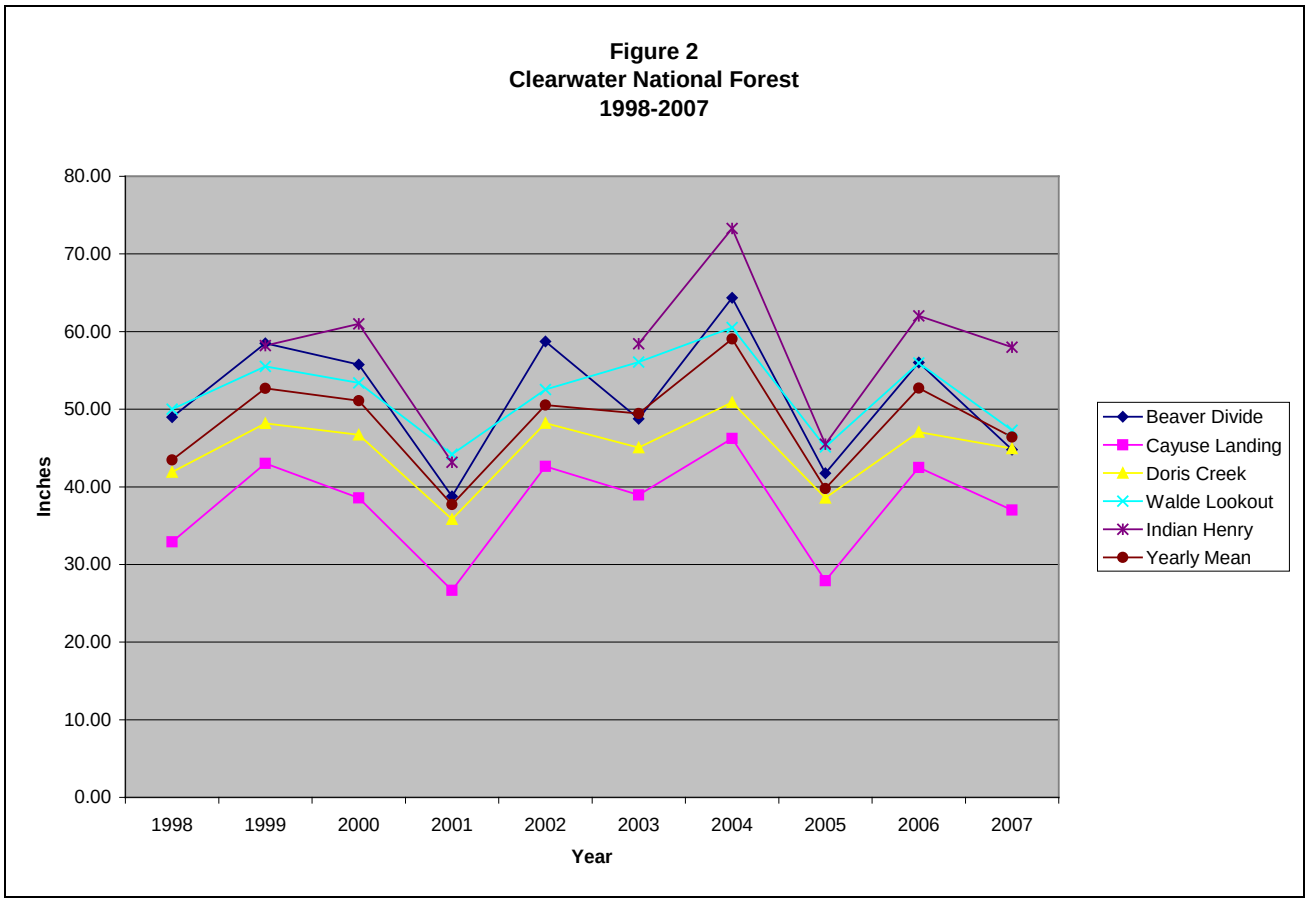
Table 5. Lolo Creek Suspended and Bedload Sediment Data for 1980 Through 2007. A Comparison of Discharge, Depth Integrated Suspended Sediment, and Bedload Sediment

Date	Q – cfs	Suspended Sediment Lbs/day	% Suspended Sediment	Bedload Lbs/day	% Bedload	Total Sediment Lbs/day
Mean 1980-1997	164	10,600	78.9	2,840	21.1	13,471
Mean 1998	144	3,220	97.0	96.0	3.0	3,319
Mean 1999	243	10,800	98.0	159	2.0	10,986
Mean 2000	226	6,560	86.0	1,070	14.0	7,624
Mean 2001	212	5,410	96.5	196	3.5	5,604
Mean 2002	306	10,300	97.4	171	2.4	10,500
Mean 2003	205	4,497	97.7	113	2.3	4,610
Mean 2004	248	5,664	97.9	150	2.1	5,815
Mean 2005	212	6,101	99.1	64.7	0.9	6,166
Mean 2006	227	5,422	99.0	55	1.0	5,477
April 26, 2007	199	2,904	99.0	626.7	1.0	2,932
May 11, 2007	241	5,196	99.3	758.9	0.7	5,234
May 14, 2007	224	4,823	98.9	701.8	1.1	4,877
May 16, 2007	194	4,594	99.8	613.2	0.2	4,602
May 21, 2007	180	4,748	99.9	569.4	0.2	4,755
July 11, 2007	24	318	100	74.8	0.0	318
August 8, 2007	10	193	100	30.7	0.0	193
Mean 2007	153	3,254	99.6	19.4	0.4	3,273
Mean Period of Record	213 cfs	6,530 Lbs/day	95.2%	449 Lbs/day	4.8%	6,986 Lbs/day

2006 Precipitation Measurements: The Forest maintains five yearly catch precipitation stations for the purpose of assisting the State Climatologist in developing isohyetal maps (maps of equal rainfall areas). The gages are located at Beaver Divide, Cayuse Landing, Doris Creek, Walde Lookout and Indian Henry Ridge. Precipitation in the 2007 water year (October 1, 2006 - September 30, 2007) was slightly above the mean for the period of record. Records go back to the 1960's in most cases.

Beaver Divide received 44.78 inches in 2007 (86 percent of the period of record average); Cayuse Landing received 37.02 inches (94 percent of average); Doris Creek received 44.93 inches (105 percent of average); Walde Lookout received 47.29 inches (98 percent of average); and Indian Henry received 58.00 inches (101 percent of average). The mean precipitation for the five stations in 2007 was 46.40 inches, or 101 percent of the period of record average. Figure 2 shows precipitation at the five stations over the last ten years.

Figure 2. Clearwater National Forest Precipitation 1998-2007



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

Frequency of Measurement: Annual
Reporting Period: Five Years

MONITORING ACTION

The Forest hydrologist will coordinate with employees, including timber sale administrators, engineering representatives, contracting officer representatives, the Forest Soil Scientist/Ecologist, and fire management officers to monitor all projects for compliance with ***Best Management Practices*** (BMPs). BMPs are actions taken to minimize negative, detrimental or undesirable effects that may result from implementation of management activities and are defined in the Idaho Forest Practices Act. The primary objective of BMPs is the maintenance of water quality.

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

The following individuals were involved in the 2007 BMP audits: Pat Murphy - Forest Fisheries Biologist, Anne Connor - Forest Hydrologist, Meg Foltz - Hydrologist, Matt Schweich - Wildlife Biologist, Dan Davis - Forest Wildlife Biologist, Jim Mital - Forest Ecologist, Mike Stayton - Timber, Mike Edmonson – DEQ, and Robert Sanchez -Hydrologist

Table 6, summarizes the 2007 Forest Practices Act Internal Audit and includes the following information, by column:

1) FPA# refers to the rule number in Rules Pertaining to the Idaho Forest Practices Act (Title 38, Chapter 13, Idaho Code)[17];

2) Description of the FPA rule;

3) Number of BMPs that were observed Forest wide;

4) Number of BMP observations that were in compliance with the FPA rules (Implementation);

5) Percent of BMP compliance;

6) Number of occurrences where sediment or other pollutants were not delivered to a stream or draw (effectiveness); and

7) Percent of BMP effectiveness.

Table 6. 2007 Forest Practices Act Audit Summary

	Description	# of Inspections	Implemented	% Implemented	Effective	% Effective
030	TIMBER HARVEST	////////	////////	////////	////////	////////
030.03	SOIL PROTECTION	////////	////////	////////	////////	////////
a.	Skidding Erosion	2	2	100	2	100
b.	30% Limitation	2	2	100	2	100
c.1.	Number of Skid Trails	2	2	100	2	100
c.2.	Tractor Size Appropriate	2	2	100	2	100
d.	Cable Yarding	1	1	100	1	100
030.04	LOCATION LANDINGS/SKIDS	////////	////////	////////	////////	////////
a.	Locate Landings and Skid Trails out of SPZ	3	3	100	3	100
b.	Size of Landings	3	3	100	3	100
c.	Landing Fill Stabilization	3	3	100	3	100
030.05	DRAINAGE SYSTEM	////////	////////	////////	////////	////////
a.	Drainage Skid Trails	2	2	100	2	100
b.	Drainage Landings	3	3	100	3	100
030.06	TREATMENT OF WASTE MATERIALS	////////	////////	////////	////////	////////
a.	Slash out of Class I Streams	--	--	--	--	--
b.	Slash out of Class II Streams	3	3	100	3	100
c.1.	Soil out of SPZ	3	3	100	3	100
c.2.	Oil, Fuel out of SPZ	3	3	100	3	100
030.07	STREAM PROTECTION	////////	////////	////////	////////	////////
a.	Lakes - Riparian Management Px	--	--	--	--	--
b.	Skidding, Stream Crossing SPZ	2	2	100	2	100
c.	Skidding in SPZ	2	2	100	2	100
d.	Cable Stream Crossing	--	--	--	--	--

[17] April 1, 2000

	Description	# of Inspections	Implemented	% Implemented	Effective	% Effective
e.1.	Hardwoods, Shrubs, Grasses, Rocks - Shade	3	3	100	3	100
e.2.	Class 1 - 75% Current Shade	--	--	--	--	--
e.3.	Logging of SPZ	3	3	100	3	100
e.4-8.	Large Organic Debris	3	3	100	3	100
f.	Prescribed burns	////////	////////	////////	////////	////////
f.1	Hand Piles	--	--	--	--	--
f.2	Machine Piles	--	--	--	--	--
030.08	MAINTENANCE OF RELATED VALUES	////////	////////	////////	////////	////////
c.	Wet Areas	3	3	100	3	100
040	ROAD CONSTRUCTION AND MAINTENANCE	////////	////////	////////	////////	////////
040.02	SPECIFICATIONS AND PLANS	////////	////////	////////	////////	////////
a.	Minimize Road Construction in SPZ	3	3	100	3	100
b.1.	Roads No Wider Than Necessary	3	3	100	3	100
b.2.	Minimize Cuts and Fills	3	3	100	3	100
c.	Plan for Natural Road Drainage	3	3	100	3	100
d.	Plan for Ditches and Culverts	3	3	100	3	100
e.	Installation of New Culverts	////////	////////	////////	////////	////////
e.1.	Fish Passage	1	1	100	1	100
e.2.	50 year Culvert Design	3	3	100	3	100
f	Minimum Stream Crossings	3	3	100	3	100
g.	Avoid Reuse of Roads in SPZ	--	--	--	--	--
040.03	ROAD CONSTRUCTION	////////	////////	////////	////////	////////
a.	Construction Followed Plan	3	3	100	3	100
b.	Debris Cleared From Drainage ways	3	3	100	3	100
c.	Stabilize Exposed Areas	3	3	100	3	100
d.	Compact and Minimize Soft Material in Fills	3	3	100	3	100
e.	Remove Berms on Outsloped Roads	--	--	--	--	--
f.	Quarry Drainage	--	--	--	--	--
g.	Minimize Erosion of Embankments at Culverts	--	--	--	--	--
h.	Wet Weather Delays	--	--	--	--	--
i.	Stabilize Cutslopes	3	3	100	3	100
j.	60% Slope Full Bench	--	--	--	--	--
040.04	ROAD MAINTENANCE	////////	////////	////////	////////	////////
a.	Sidecast Out of Streams	3	3	100	3	100
b.	Stabilize Slumps and Slides	3	3	100	3	100
c.	ACTIVE ROADS	////////	////////	////////	////////	////////
c.1.	Culvert and Ditch Function	3	3	100	3	100
c.2.	Crown and Waterbar	3	3	100	3	100
c.3.	Minimize Road Surface Erosion	3	3	100	3	100
c.4.	Postpone Hauling During Wet Periods	--	--	--	--	--
c.5.	Road Stabilization Material out of Stream	3	3	100	3	100
e.	INACTIVE ROADS	////////	////////	////////	////////	////////
e.1.	Culverts and Ditches Cleaned	1	1	100	1	100
e.2.	Road Closed	1	1	100	1	100
f.	Long Term Inactive Roads	////////	////////	////////	////////	////////
f.1.	Outslope, Waterbar, Seed	1	1	100	1	100

	Description	# of Inspections	Implemented	% Implemented	Effective	% Effective
f.2.	Road Closed	1	1	100	1	100
f.3.	Remove or Maintain Drainage	1	1	100	1	100
g.	ABANDON ROADS	////////	////////	////////	////////	////////
g.1	Structures Removed and Gradient Restored	--	--	--	--	--
g.2	De-compact Roads	--	--	--	--	--
g.3	Pull Back Fill Slopes in SPZ	--	--	--	--	--
g.4.	Stabilize Fills	--	--	--	--	--
g.5.	Cross Ditch or Outslope to Eliminate Ditches	--	--	--	--	--
g.6.	Seed, Mulch, Armor Bare Earth	--	--	--	--	--
040.05	WINTER OPERATIONS	////////	////////	////////	////////	////////
a.	Adequate Cross Drainage	--	--	--	--	--
b.	Road Maintenance	--	--	--	--	--
	SUMMARY	108	108	100 %	108	100 %

There were 108 BMP observations conducted last year with overall implementation and effectiveness rates of 100 percent. Many BMPs continue to have a 100 percent implementation and effectiveness rate.

Item No. 11 – Site Productivity

Frequency of Measurement: Annual
Reporting Period: Five Years

MONITORING ACTION

The Forest Soil Scientist will coordinate with District personnel to monitor soil conditions for compliance with Forest Plan and Regional Standards. Monitoring focuses on the impact of management actions on the soil resource. Specifically, the detrimental soil disturbances reviewed include: compaction, displacement, rutting, severe burning, surface erosion, loss of surface organic matter, and soil mass movement. Monitoring focuses on assessing impacts of past management actions in proposed treatment units in new projects. In addition, reviews were conducted in BAER (burned area emergency response) projects for soil impacts caused by wildfires.

ACCOMPLISHMENTS/FINDINGS

The primary emphasis of site productivity monitoring has been to ensure that site productivity is being maintained by limiting detrimental soil disturbances to less than 15% of activity areas as specified in the Clearwater Forest Plan and the Northern Region Soil Quality Monitoring Supplement ((FSM 2500-99-1). Soil monitoring was conducted on a variety of projects across the Forest in FY04-FY07 and will be reported in a later report.

TIMBER

GOAL

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

STRATEGY

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

TIMBER STAND INVENTORY

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

- In the first phase, aerial photographs are examined to identify areas that are relatively alike in size, tree density and species. Phase one has been completed; all stands on the Forest have been mapped and identified for suitability and management area.
- The second phase involves field stand examination of randomly selected stands. Phase two has been completed on approximately 82 percent of the 173 Forest compartments. No additional compartments were field sampled in FY03; however, approximately 23,500 acres of stand exams were accomplished, thereby increasing the number of stands with current field inventories as well as adding to the pool of stand exams from which to match to unsampled stands.
- The third phase involves data compilation, then application of the data to unsampled stands. The introduction in FY93 of the "***Most Similar Neighbor Estimation Procedure***" allowed the Forest to initially complete phase three on most of the timbered strata. This procedure matches sampled stands to unsampled stands using photo-interpreted and physical characteristics of the stands. It results in timely, statistically unbiased estimates of the important characteristics for every stand on the Forest. Testing and validation of this process is complete and a vegetation inventory database has been established to store the generated data.
- Now that the compartment field sampling has been completed and the "***Most Similar Neighbor***" programs are operational and have been updated to draw information out of the FACTS and FS-VEG data bases, the inventory program has shifted to maintenance and updating. The inventory compilation programs are periodically rerun, and new project stand exams are added, especially

for stands that have experienced changes due to harvest, wildfire and insect outbreaks. The photo interpretation data is selectively updated for stands that have notably changed.

FOREST PRODUCT SALES AND ASQ

In FY07, the Forest offered a variety of products including sawlogs, cedar products, firewood, Christmas trees, boughs, herbs, roots, mushrooms, posts and poles. These products were sold through six timber sales, 1100 firewood permits, 462 Christmas tree permits, and 57 miscellaneous collection permits. Two of the timber sales were stewardship sales where a portion of the timber receipts are credited to the TS Purchaser to offset costs of implementing resource management and restoration projects in and near the sale area. The annual volumes offered, sold, harvested, and under contract since FY03 are shown in Table 1 below.

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

	FY03	FY04	FY05	FY06	FY07
Offer	30.8	30.0	27.4	1.6	19.8
Sold	29.8	30.0	28.7	10.8	19.8
Cut	25.2	25.4	21.7	19.3	6.0
Contract	36.6	30.8	31.2	31.3	40.8

The total acres of timber sold by harvest method during the past five years are shown in Table 2 below.

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

	FY03	FY04	FY05	FY06	FY07
Clearcut and Clearcut with Reserves	472	423	153	0	491
Shelterwood and Seed Tree	472	252	502	0	146
Final Removal	16	168	0	0	0
Selection	0	0	0	0	26
Intermediate Harvest	271	26	79	113	499

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

Table 3. Roaded and Unroaded Timber Sold

Year	Roaded Sawtimber	Roaded NIC*	Roaded Total	Unroaded Sawtimber	Unroaded NIC*	Unroaded Total	Forest Total
03	28.6	1.2	**29.8**	0	0	**0**	**29.8**
04	26.9	3.1	**30.0**	0	0	**0**	**30.0**
05	26.2	2.5	**28.7**	0	0	**0**	**28.7**
06	8.1	2.7	**10.8**	0	0	**0**	**10.8**
07	18.0	1.8	**19.8**	0	0	**0**	**19.8**

*NIC = non-interchangeable component

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

Table 4. Comparison of Forest Plan Projections with Annual Acreage of Timber Sales, 1988-2007

Management Area	Forest Plan Acres	Forest Plan Volume Mmbf	Timber Sale Average Acres	Timber Sale Average Volume Mmbf
Timber Production	3,497	81.2	2,151	34.5
Road/Trail Corridors	125	.8	25	0.5
Big-Game Summer Range	3,099	62.5	25	0.4
Big-Game Winter Range	1,007	23.6	299	5.1
Riparian Areas	3,516	5.2	43	0.8
Middle Fork Clearwater Scenic Corridor	0	0	14	0.4

The difference between planned ASQ volume and the average annual volume sold shown in Table 4 is due,in large part, to not harvesting 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

In 2006, the database of record used for this Monitoring Action is the nationwide Forest Service Activities Tracking System (FACTS) instead of the regional database TSMRS. The National Forest Management Act of 1976 requires that when trees are cut to achieve timber production objectives, the cuttings shall be made in such a way as to ensure that the technology and knowledge exist to adequately restock the land within five years after final harvest. Reforestation records pertaining to regeneration harvests that occurred in 2002 were compiled and the required percentages calculated. The data presented in Table 5 are based on the status of regeneration at the end of 2002. The time elapsed since harvest is five years. Seedtree cuts are not considered final harvests, but because seedtree cutting initiates stand regeneration, the Forest monitors restocking success on the same basis as with the final harvests.

FY 2007 — Table 5. **2000 Regeneration Harvests Adequately Restocked in Five Years**

	Clearcut	Seedcut	Final	Selection	TOTAL
Number of Stands	25	18			**43**
Number of Acres	324	328			**652**
Stand Success %	56	56			**56**
Acres Success %	54	60			**57**

Eighteen of the stands, 276 acres, listed above have not received site preparation. Site preparation is expected to occur in 2008. Their status will change from unknown to progressing or certified once site

preparation and planting occurred. Only one clearcut, 4 acres was not adequately stocked after five years. This unit is scheduled for replanting in 2008.

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

All timberlands, both suitable and unsuitable, 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 with the number of stands exceeding this standard.

ACCOMPLISHMENTS/FINDINGS

The maximum size of harvest openings created by even-aged regeneration harvesting (a method of harvest that results in a regenerated stand of similar age) should normally be less than 40 acres. Harvest opening size may exceed 40 acres when certain exceptional conditions apply such as insect outbreaks that threaten surrounding stands, catastrophic blowdown, final removal of shelterwood trees in order to protect established regeneration in existing shelterwood and seedtree areas, and with Regional Forester approval. Only one regeneration harvest was completed in fiscal year 2007 (October 1, 2006 to September 29, 2007) due to winter logging (FY 08) or units not fully accomplished (accepted by sale administrator).

Table 6 shows the acres reported in the stand database for FY07.

FY 2007 — Table 6. FY07 Even-aged Regeneration Harvests by Harvest Type and Size Category

District	Clearcut & Clearcut with Reserves		Seedtree & Shelterwood		Final Removal	
	#Stands <40 Acres	# Stands > 40 Acres	#Stands < 40 Acres	# Stands > 40 Acres	# Stands < 40 Acres	# Stands > 40 Acres
Pierce	0	0	0	0	0	0
Palouse	0	0	0	0	0	0
North Fork	0	0	0	0	0	0
Lochsa	0	0	0	0	0	0
Powell	1	0	0	0	0	0
TOTAL	1	0	0	0	0	0
Average Size	15 Acres	0 Acres	0 Acres	0 Acres	0 Acres	0 Acres

Frequency of Measurement: Annual
Reporting Period: Five Years

MONITORING ACTION

Insect and disease status is evaluated during post-treatment stand exams. Silviculturists will 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 extent of widespread insect and disease problems.

ACCOMPLISHMENTS/FINDINGS

Annual aerial detection surveys are used to assess current levels of insect and disease activity on the Forest. Areas with active insect outbreaks and recent forest fires are mapped and summarized. 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 are significantly underestimated.

Regular aerial detection surveys were conducted on the Forest in FY07. Mapping of current tree mortality and damage occurred on all ranger districts exclusive of the Selway-Bitterroot Wilderness.

In FY06 aerial detection surveys were limited due to smoke from active forest fires. Only the Palouse District and parts of the Lochsa and North Fork Districts were flown. In 2007, a full survey was conducted. Summary results are shown in Table 7.

FY07 – Table 7. Mortality caused by Insects, Pathogens and Disturbance

Insect/Pathogen/Disturbance	2007 Acres	2007 Number of Trees	2006 Acres
Western pine beetle	166	322	159
Mountain pine beetle	32,214	73	2,033
Douglas-fir beetle	833	1,471	499
Spruce beetle	6	3	
Western balsam bark beetle	238	625	27,176
Pine engraver	43	120	13
Fir engraver	4,365	4,375	3149
Defoliators	528		
Western spruce budworm	399		181
Balsam woolly adelgid	4,928	68	34,907
Larch needle cast	349		
Diplodia blight	457		
White pine blister rust	1,419	260	2,763
Wild fire	13,748		133
Flooding/high water	27	59	48
Dieback	4		673
Total	59,723	7,376	71,734

TRAILS

GOAL

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

STRATEGY

- Public safety, use and resource considerations will be used to set trail work priorities.
- Identify relocation and construction needs,
- Manage an effective trail maintenance program.
- Maintain safe bridges.
- Manage an effective trail construction/reconstruction program.

Item No. 16 - Trail Management

Frequency of Measurement: Annual
Reporting Period: Five Years

MONITORING ACTION

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

ACCOMPLISHMENTS/FINDINGS

TRAIL MAINTENANCE

Approximately 350 miles of snow trails are maintained annually. Three hundred of these miles are groomed for snowmobiles in Clearwater County using state of Idaho snowmobile funds. Two hundred of these miles are on National Forest lands.

The table below shows annual accomplishments by maintenance level for the Forest's summer trail system.

Level I: minimum clearing, minimum drainage work and no tread work

Level II: brushing with some structure and tread work

Level III: heavy clearing, tread repair, and construction of drainage structures

Table 1. Miles of Trail Maintenance Accomplished*

	2002		2004		2005		2006		2007	
	Motorized	No Motor	Motorized			No Motor	Motorized	No Motor	Motorized	No Motor
Level I	**733**		**1025.08**		**851**		**651**		**822**	
	342	391	591.67			433.41	468	383	500	322
Level II	**53**		**45.10**		**58**		**42**		**40**	
	22	31	20.8			24.3	27	31	21	19
Level III	**21**		**82.87**		**24**		**38**		**26**	

	9	9	51.76			51.76	9	15	11	15
Total Maintained	**807**		**1153.05**		**933**		**731**		**731**	
	373	434	664.23			488.82	504	429	532	356

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

Table 2. Trail Maintenance

Trail Maintenance Labor Type	2002	2003	2004	2005	2006	2007
Force Account Maintenance	113	405.35	343	220	170	130
Volunteer Maintenance	140	325.68	230	394	240	336
Contract Maintenance	554	422.02	319	319	321	422

TRAIL RECONSTRUCTION

Reconstruction work was completed on the Cliff Creek Trail by Forest Service crews. A contract was awarded in September for Pedro Ridge reconstruction, but work did not begin due to poor weather. The project work will occur in 2007. Apgar Creek Trail reconstruction was completed by an Idaho Department of Corrections inmate crew, and a state trail cat and Forest Service crew were used to accomplish the work on the Palouse OHV system. Clearing work on Camp 60/Sheep Mountain OHV was started in 2006 by an inmate crew, and work was started on Wind Lakes Trail reconstruction by a Forest Service crew. Work on both of these projects will be completed in 2007.

Table 3. 2006 Trail Reconstruction Program

Projects Completed	Trail No.	Miles
Cliff Creek	226	1.0
Pedro Ridge	917	4.9
Apgar Creek	111	4.0
Palouse OHV System I	Multi	7.1
Camp 60/Sheep Mountain OHV	Multi	3.0
Wind Lakes	24	4.0
Total Trail Reconstruction		**24.0**

Reconstruction work was completed on 4 trail projects that were started in 2006 – Wind Lakes, Cliff Creek, Camp 60/Sheep Mountain OHV and Pedro Ridge. The Cliff Creek project was essentially completed in 2006, the work in 2007 included touchup brushing, drainage work and rehabilitation of 2 old trails in the area. This work was completed by a Student Conservation Association crew. Wind Lakes and Pedro Ridge trail reconstruction projects were completed by Forest Service crews. The Camp 60/Sheep Mountain work was by a combination prison crew labor, contract and State trail cat.

Table 4. 2007 Trail Reconstruction Program

Projects Completed	Trail No.	Miles
Wind Lakes	24	2.5
Cliff Creek	226	0.3
Camp 60/Sheep Mountain OHV	Multi	17.0
Pedro Ridge	917	0.2
Deferred Maintenance	Various	0.2
Total Trail Reconstruction		**20.2**

Wild and Scenic Rivers

Goal

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

Monitoring Action

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

Accomplishments/Findings

Scenic Easements

The Clearwater and Nez Perce National Forests continue to share the Wild and Scenic Rivers Administrator position. This position provides scenic easement administration services to both forests for easements along the Lochsa, Middle Fork Clearwater, Selway and Main Salmon Rivers.

The scenic easement review board evaluated a variety of landowner proposals during monthly meetings in FY07. An example of project types before the board included: timber harvest, remodeling and additions to existing homes, new home construction, road construction, bare land development, barn, and shop proposals.

The Forest Service has entered an era in which the challenge is to maintain the character of the landscape and river corridor while working with landowners having different desires, often more development oriented, than those traditionally found in the river corridor. New property owners did not directly benefit from the compensation for acquisition of the scenic easements and likely paid an increased value for their properties because of the protections the easements provide. It is sometimes difficult to gain voluntary compliance.

In FY06 the Clearwater National Forest filed suit against two easement landowners for non-compliance with their scenic easements. One case was settled out of court and resulted in the scenic easements being revised for the subject property. The other case was ruled in the Forest Service's favor and appealed to the 9th Circuit. The appeal is pending.

River Administration

Five outfitters continue to operate on the Lochsa River under special use permit. Four outfitters operate on the Middle Fork Clearwater River under special use permit. The number of actual service days actually provided by these outfitters has been increasing. Total service days provided for the Lochsa increased just over 1% with 2946 days in 2006 and 2980 days in 2007. A more drastic increase of 30% was seen on the

Middle Fork Clearwater with 410 days in 2006 and 535 days in 2007. The increases on the Middle Fork Clearwater are consistent with the River Management Plan and can be directly attributed to the River Dance Lodge in Syringa operated by permitted outfitter ROW, Inc. The Clearwater National Forest continues to cooperated with the Bureau of Land Management (Cottonwood Field Office) in sharing a river ranger for the Lochsa patrol season.

Issues, such as highway safety and congestion continue to raise hard questions for management. The Forest Service and ITD continue to meet semi-annually to coordinate projects. An MOU was consummated in 2007 to formalize the working relationahip. Considerable time was given to planning and design of ITD's proposed Syringa Creek to Tumble Creek widening project planned for implementation in 2008.

WILDERNESS

GOAL

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

Item No. 5 - Wilderness

Frequency of Measurement: Annual
Reporting Period: Annual

MONITORING ACTION

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

ACCOMPLISHMENTS/FINDINGS

The following report is a summary of the Clearwater National Forest's findings located in the Selway-Bitterroot Wilderness (SBW) ***"State of the Wilderness Report"*** *(*SOW). The full SOW reports can be obtained from the Clearwater National Forest web site.

MONITORING USE IMPACTS

The Selway Bitterroot Wilderness spans the border of north central Idaho and western Montana and is one of the wildernesses established with the 1964 Wilderness Act. Its' 1.3 million acres lie within four National Forests.

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

Both site and social indicators are monitored by wilderness rangers during their time in the field. Site indicators are measured at each campsite a minimum of once every five years. Each year, wilderness rangers visit a percentage of campsites and conduct complete campsite inventories. They also visit and naturalize a number of sites in addition to those officially inventoried. The wilderness program accomplishment summary, included below, identifies campsite inventory accomplished in 2007.

The Selway Bitterroot Wilderness spans the border of north central Idaho and western Montana and is one of the wildernesses established with the 1964 Wilderness Act. Its' 1.3 million acres lie within four National Forests.

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

Both site and social indicators are monitored by wilderness rangers during their time in the field. Site indicators are measured at each campsite a minimum of once every five years. Each year, wilderness rangers visit a percentage of campsites and conduct complete campsite inventories. They also visit and naturalize a number of sites in addition to those officially inventoried. During 2006, rangers monitored 93 campsites and in 2007, 55 campsites were monitored.

Opportunity Class I – One site per square mile; one light site

Crags Lakes

The Crags Lakes area includes Old Man, Elizabeth, Kettle, Dishpan, Lloyd and Florence lakes, an area encompassing approximately 5 square miles. Sites at Florence Lake are monitored each year in coordination with Idaho Fish and Game. Twenty-two campsites are on record for the area. Twelve of the sites were monitored in 2007. Of these sites, nine were rated as light, two moderate and one site was fully recovered. Overall site ratings remained consistent and out of standard.

Colt Lake Basin

This area was last monitored in 2005. The area has historically shown two sites with a light rating within the roving square mile, and appears to be receiving use.

Opportunity Class II – Two sites per square mile; one light, one moderate site

White Sand Lake

This area was last monitored in 2006. Four campsites are on record for the area. Campsite ratings include three moderate and one heavy rating. The area has been receiving use and impacts have increased somewhat over the last few years.

Army Mule/Warm Springs Junction

This area was last monitored in 2006. There are four campsites on record for the area, one in every rating category from light to extreme.

California Lake

This area was last monitored in 2006. Field data has shown the area as being out of standard with one moderate and two light sites. Impacts have remained the same over the last 5 year period.

Opportunity Class III – Three sites per square mile; two light, one moderate site

Wind Lakes

There are eleven campsites on record in the immediate Wind Lakes area, which encompasses approximately one square mile. These sites were monitored twice in 2007 in accordance with the monitoring plan for the Wind Lakes Trails Environmental Assessment. The Decision Notice for the Wind LakesTrails Environmental Assessment was released in September 2004. All associated trail work was completed in 2007. Campsite ratings included five light, two moderate, three heavy and one extreme rating. Restoration efforts were initiated in 2007 to reduce impacts at the two sites with the most severe resource damage.

Seven Lakes

Forest Service employees and volunteers began restoration work in the area during the summer of 1992. Additional work continued during succeeding years to bring the area nearer to the desired future condition identified for Opportunity Class III. The area will continue to be monitored to measure results and identify trends. Future management of the area will be based on effectiveness of restoration and use trends.

The original campsite designation at Seven Lakes was reviewed in 2004 with Dave Spildie from the Aldo Leopold Wilderness Research Institute (ALWRI). Dave concluded that the Seven Lakes Restoration Plan provided a unique opportunity to research the effectiveness of a confinement strategy to reduce pack stock impacts. The Forest order remains in effect until it is revoked or rescinded.

There are a total of twenty-nine campsites on record for the area, which encompasses approximately 4 square miles. Campsite impact ratings include thirteen light, twelve moderate and four heavy ratings. Five of the twenty-nine sites were monitored in 2007. Three of the sites monitored remained the same (2 light, 1 moderate) as when previously monitored, one moderate site increased to a heavy rating and another moderate site decreased to a light rating. The majority of these sites were monitored in 2003 and are on schedule for monitoring next year in 2008.

Big Sand Lake

This area was last monitored in 2003. There are three campsites on record for the area, consisting of one moderate and two extreme ratings. These sites are scheduled to be monitored again next year in 2008.

Cedar and Moose Junction

Two campsites are on record for the area. One site was monitored in 2004 and one in 2006, and classified as light and heavy respectively.

Junction Trail 211/644

This area was last monitored in 2006. There are two campsites on record, each with a heavy rating.

Opportunity Class IV – Four sites per square mile; one heavy or extreme, two moderate site

Fish Lake

There are six campsites on record for the area. Campsite ratings include three moderate, one heavy and two extreme ratings. Of the six sites, one was monitored in 2007, two in 2006, one in 2004, and two in 2003.

Volunteers obtained airstrip use data from 2002-2007.

Stanley Hot Springs/Huckleberry Flats

These two areas are within the same roving square mile and are monitored together. There are sixteen campsites on record for Stanley Hot Springs and an additional six campsites in the adjacent Huckleberry Flats area. All but one of the sites were monitored in 2007. At Stanely Hot Springs there were three light ratings, ten moderate ratings, two heavy ratings and one site fully recovered. At Huckleberry Flat, there was one light rating, three moderate ratings, one heavy rating and one site fully recovered. The area continues to receive constant use and trend levels have remained relatively constant. Attempts have been made to close some of the sites by signing, blocking off, and planting, but use levels counter all efforts.

Volunteers have been intermittently stationed/or patrol at the hot springs most years since 2002.

ACTIVITY MONITORING

Selway-Bitterroot Wilderness - 2007 State of the Wilderness Report

The annual State of the Wilderness Report is developed to share information with the public regarding management activities in the Selway-Bitterroot Wilderness (SBW). This Report provides a summary of 2007 SBW management, visitor use, and campsite monitoring efforts that we hope meets public needs and interests. This report is compiled for all 3 National Forests (Bitterroot, Clearwater & Nez-Perce) managing the Selway Bitterroot Wilderness. Status reports are for the whole wilderness, while the Wildenress Program Accomplishment Summary is specific to the Clearwater's activity monitoring.

Noxious Weeds DEIS

Noxious Weeds - A Draft Environmental Impact Statement for managing invasive plants in and adjacent to the Selway-Bitterroot Wilderness is near completion. Scoping for the Proposed Action began Oct. 26, 2006 and continued through the end of November. The ID Team has developed, and is in the process of

analyzing, five alternatives (the Proposed Action, the No Action Alternative, and three additional alternatives). The anticipated date for release of the DEIS is by the middle of April 2008.

Wildland Fire

The summer of 2007 was a very active year for wildland fire. Fifty-nine Wilderness fire events were managed for a total of nearly 105,000 acres burned. Many of these fire events were "Fire Use" fires managed for resource benefits. The Moose Creek Ranger Station was threatened by three fires burning nearby and was structure protected for most of August. Fortunately, fire did not reach the Station. Several trails and areas in the SBW were closed for a portion of the summer season due to fire activity, limiting access for both the public and Forest Service crews.

Table 1. Ten-Year Wilderness Stewardship Challenge

Accomplishment Level	Top Possible Score	2007	2006
Fire Plans	10	10	10
Noxious/Invasive Weeds	10	5	5
Air Quality	10	10	10
Education	10	10	4
Solitude	10	6	6
Recreation Site Inventories	10	6	6
Outfitter & Guide Operations	10	8	8
Adequate Forest Plan Direction	10	6	8
Information Needs	6	2	2
Workforce	10	2	2
Total	94	67	61

In 2007, the Selway-Bitterroot Wilderness showed modest improvement in meeting the goals of the Stewardship Challenge, primarily due to completion and implementation of the SBW Information and Education Plan. The score for adequate forest plan direction to prevent degradation of the wilderness resource dropped this year. This score is based on a combination of existing forest plan direction and having monitoring accomplished on schedule. Managers agree that monitoring for the standard related to public use (number of parties encountered and number of parties camped within sight or sound) is not being effectively met, and are looking at ways to better monitor existing public use.

Wilderness Program Accomplishment Summary

Table 2. Wilderness Program Accomplishment Summary

Type of Activity	Unit of Measure	Clearwater NF	2007 Total
Field Presence	Wilderness Rangers (include River Rangers)	3	8
	Wilderness Ranger Field Days	156	410
	Volunteers	38	74
	Volunteer Hours	3,944	5,946
Education	Formal Education Programs	17	36
	Audience Members Reached	530	1,188
Trails	Miles of Trail Maintained	211.4	617.4
	Total Wilderness Trail Miles	325.3	1,490.7
Known Use / Visitation (Unknown # visitors not contacted or registered)	Individuals Contacted by Wilderness Rangers in the Field	195	788
	Trailhead Registration (people)	818	3,457
	Monitoring Days /	NA	151/449

Type of Activity	Unit of Measure	Clearwater NF	2007 Total
	Landings at Moose Cr. Airstrip		
	Monitoring Days/ Landings at Shearer Airstrip	NA	28/55
	Monitoring Days / Landings at Fish Lake Airstrip	56/88	56/88
O/G use	Outfitters	5	37
	Camps Used in the SBW	6	55
	Camps Inspected	21	52
Violations	Violations Recorded (incidents & citations combined)	25	38
Campsites	Total Existing Campsites/ Campsite Inventory Baseline Completed	331/331	1007/ 1002
	Campsites w/ Inventory Accomplished in 5 Year Cycle & (% of Total Campsites)	299 (90%)	588 (58%)
	Campsite Inventory Accomplished 2007 & (% of Total Campsites)	55 (17%)	199 (19%)
Fire	Wilderness Fire Events	13	59
	Wilderness Acres Burned	44,674	104,879
Authorizations	Mechanical Use Authorizations	7	31

ADMINISTRATIVE SITES

Administration of the SBW for the purposes for which it was established, entails maintenance of certain structures and facilities both within (W) and immediately adjacent (A) to the Wilderness. The following list identifies use at these sites during 2007.

- Horse Camp: (W) Used through out the summer for wilderness rangers and trail crew.
- Fish Lake: (W) Used throughout the summer for wilderness rangers, trail crew and volunteers.
- Diablo Lookout: (W) Intact structure, not usually staffed.
- McConnell Mountain Lookout: (W) Deteriorating structure, not staffed
- Grave Peak Lookout: (W) Deteriorating structure, not staffed.
- Hidden Peak Lookout: (W) Deteriorating structure, not staffed.
- Bear Mountain Lookout: (A) Staffed in '07.
- Beaver Ridge Lookout: (A) Staffed in '07.
- Lochsa Historic Ranger Station: (A) Staffed by volunteers in the summer.
- Elk Summit Guard Station: (A) Staffed by a volunteer for the summer. Trail crew use.
- Colt Creek Cabin: (A) Not staffed, cabin burned to the ground in '06.

RESEARCH

The Wilderness Act specifically refers to the value of wilderness to science. Because wilderness areas encompass an array of habitat types and provide homes for a wide range of organisms in a relatively undisturbed setting, these areas offer rich opportunities for research. In the SBW, research needs are prioritized annually. Projects must be approved by the Forest Supervisor and must be conducted so as to preserve the natural conditions of the wilderness with the imprint of human work substantially unnoticed. Research must be carried out in a manner consistent with opportunity class requirements and avoid impacting users' pursuits of isolation in opportunity classes 1, 2 and 3.

The following research is currently underway in the SBW:

- Temperature Monitoring for Fish Bearing Streams: Clearwater National Forest: 1999-2007. Monitoring provides year-round temperature data on creeks within the SBW to determine if the streams meet Cold Water Biota Standards. Streams monitored include Upper Storm Creek, North and South Forks of Storm Creek, and Maude were started for testing in 2002 and went through 2005. Big Sand Creek had data collected in 1998, 1999, 2003 and 2004. Dan, Fern, Pedro and Wind Lakes Creeks were collected from 1998 through 2003. Wag, Queen, Tom Beal, Dodge, Upper Warm Springs, and Hungry Creeks were started in 2003 and will continue through 2007. This monitoring information can be reviewed in the annual Clearwater NF Monitoring Plan. Contact: Pat Murphy (208) 476-4541
- Idaho Fish and Game (IDFG) surveys high mountain lakes on the Forest for location, size, depth, and fish/amphibian data. IDFG has a Fisheries Management Plan started in 2001 through 2007, and can be obtained from the Fisheries Bureau Headquarters in Boise, ID at (208) 334-3791.
- Idaho Fish and Game also tagged Bull Trout the summer of 2003 in the Lochsa River to see where the fish go to spawn. They were found in SBW locations. For more information, you can call Dani Schiff at IDFG in Lewiston as the primary contact at 208-799-5010.
- Wolf Population Monitoring Project: As part of an ongoing survey, wolves are being radio collared by both the Nez Perce Tribe and Idaho Fish and Game. Data is being collected to help understand populations, home ranges and movement patterns of wolves. The Selway-Bitterroot Wilderness is part of this study area. Contact:Steve Nadeau at 208.334-2148.
- Forest Inventory: remeasuring of perrmanent plots occurred. This inventory provides information on tree growth and development and other indicators of ecosystem health. The Selway-Bitterroot Wilderness is part of this long term study. Contact: Bev Yelczyn, Forest Silviculturalist at 208.476-8264.

WILDERNESS TRAIL MAINTENANCE

Table 3. 2007 Wilderness Trail Maintenance by Forest and Opportunity Class

Opportunity Class	1			2			3			4			Total Miles/Forest
Maintenance Level	I	II	III	I	II	III	I	II	III	I	II	III	
Miles Maintained (Clearwater NF)	0	0	0	16.3	0	0	153.3	9.5	8.8	12.5	11	0	211.4
Total Miles	9.1*			35.9			259.3			23.5			328.1*

*For 2007, trails occurring along the outer SBW boundary of the Clearwater NF and adjacent to Opportunity Class 1 (OC1) compartments have been recorded as miles of trail in OC1. These miles may or may not fall officially within the OC1 compartment.

NOTE: Discrepancies in total miles recorded may vary slightly from year to year as a result of updated measurements from trail condition surveys.

In 2007, 211.4 trail miles of the 328.1 miles of trail located in the Selway Bitterroot Wilderness on the Clearwater National Forest were maintained by contractors, Forest Service crews and volutneers. A number of trails on the Powell Ranger District that are usually opened and maintained annually were not able to be accessed for maintenance due to the Bridge Creek Fire. It is anticipated that these trails may be closed for a number of years due to the heavy downfall anticipated as a result of the fire.

WILDLIFE

GOAL

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

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

STRATEGY

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

Each year improve approximately 1,300 acres of big-game habitat using a variety of methods such as prescribed fire, fertilization, slashing, logging, and planting. Use road closures, decommissioning, and modification of timber sale design, layout, and scheduling to maintain or enhance wildlife habitat.

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

Provide the public with current information on the programs and status of wildlife habitat management.

Item No. 7 - Provision for Plant and Animal Diversity

Frequency of Measurement: Annual
Reporting Period: Five Years

MONITORING ACTION

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

ACCOMPLISHMENTS/FINDINGS

A wide variety of plant and animal habitats currently exist and are well represented on the Clearwater National Forest. The exception is early seral and old growth or late successional habitats. The primary cause for the declines of old growth was intensive timber harvesting and the exclusion of large-scale fire over the past 70 years to maintain early seral stands.

On a Forest-wide scale, old growth habitat for the Clearwater National Forest is analyzed using Forest Inventory and Analysis (FIA) data. A complete description of these data and the methodology used is available in the following reports: *Detailed Estimates of Old Growth, Clearwater National Forest* by Renate Bush et al. (November 29, 2006) This document and additional information on old growth habitat management is available on the internet at http://fia.fs.fed.us or http://www.fs.fed.us/r1/clearwater/terra_org/terra.htm.

Percent Old Growth in the Clearwater National Forest

Table 1 provides a summary of the estimates of percent old growth on forest lands for the Clearwater National Forest as per the Northern Region's Green and others 2005 definition of old growth.

Table 1. Clearwater National Forest estimates of percent of old growth, standard error, and 90 percent confidence intervals

Forest	Estimated Percent Old Growth	90% Confidence Interval - Lower Bound	90% Confidence Interval - Upper Bound	Total Number PSUs	Number Forested PSUs
Clearwater	9.4%	7.3%	11.8%	305	300

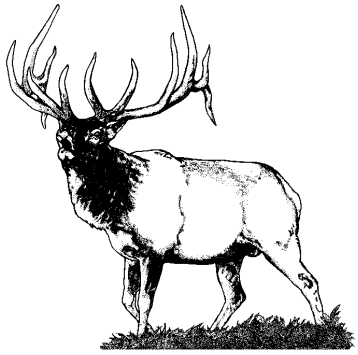
During project analysis individual stands within the project area are field checked and evaluated as to whether or not they meet the criteria from Appendix H of the Forest Plan and the Old Growth Forest Types for the Northern Region by Green et al.

Item No. 25 - Big-Game Habitat Improvement

Frequency of Measurement: Annual
Reporting Period: Annual

MONITORING ACTION

Areas being treated will have monitoring plans developed.



ACCOMPLISHMENTS/FINDINGS

In FY07 approximately 1,100 acres of big game habitat was improved with prescribed fire. An additional 1,200 acres of secondary fuels treatments (thinning, harvest, etc) were completed and assisted in restoring fire-adapted systems and aided in rejuvenating forage for big game species. Natural fire benefits contributed an additional 15,000 acres of restored habitat. Additional accomplishment information can be found in the ***Fire*** and ***Timber*** sections.

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

Frequency of Measurement: Annual
Reporting Period: Annual

MONITORING ACTION

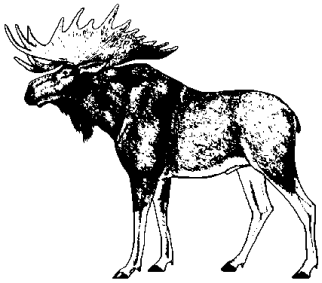
Information will be provided on these species focusing on population trends and effects of management of these species.

ACCOMPLISHMENTS/FINDINGS

Forest Service regulations provided that "Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area". The Forest Service's focus for meeting the requirement of NFMA and its implementing regulations for MIS is on assessing and monitoring habitat to provide for diversity of species. The following species were selected in the Forest Plan as management indicator species: elk, moose, white-tailed deer, pileated woodpecker, goshawk, pine marten, and all Threatened and Endangered species.

Elk: Elk summer habitat is evaluated using the latest Interagency Guidelines for Managing Elk Habitat in North Central Idaho. Population data are from the Idaho Department of Fish and Game (IDF&G) big game surveys. Elk summer habitat conditions continue to improve. Road closure and obliteration projects along with prescribed burns and wildfires continues to improve, restore, and enhance areas of habitat across the forest. The elk population on the Clearwater National Forest is estimated at 7,200. Sufficient habitat exists to increase elk populations. Winter conditions during FY07 were above average snowfall which would have had an overall negative effect to the elk population. The elk population trend remains stable.

Moose: There are no specific habitat management guidelines for moose habitat. Implementing elk habitat guidelines should have a positive effect on maintaining moose habitats. The Powell Ranger District continues to support habitat for approximately 75% of the moose population on the Forest. Population data are from the Idaho Department of Fish and Game (IDF&G) big game surveys. Moose habitat conditions continue to improve. Road obliteration projects along with prescribed burns and wildfires continues to improve and enhance areas of habitat across the forest. The moose population on the Clearwater National Forest is estimated at 1,500. Sufficient habitat exists to increase populations. Winter conditions during FY 07 were generally mild. The population trend appears stable to increasing.



Deer: There are no specific habitat management guidelines for deer habitat. Implementing elk habitat guidelines should have a positive effect on maintaining deer habitats. Population data are from the Idaho Department of Fish and Game (IDF&G) big game surveys. Deer habitat conditions continue to improve. Road obliteration projects along with prescribed burns and wildfires continues to improve and enhance areas of habitat across the forest. The deer population on the Clearwater National Forest is estimated at 6,000. Sufficient habitat exists to increase populations. Winter conditions during FY 07 were generally mild. The trend in deer population over the past five years is increasing especially on the Palouse Ranger District and other lands adjacent to agricultural areas.

Pileated Woodpecker: A recent habitat assessment for the pileated woodpecker indicates adequate habitat exists and is well distributed on the Forest and across the Northern Region. Based on this assessment, the Clearwater National Forest is estimated to have approximately 337,000 acres of suitable nesting habitat to support pileated woodpeckers. This habitat is well-distributed across the forest at lower to mid elevations. Partners in Flight Landbird Conservation Plan estimates the population for pileated woodpeckers across their range to be at 930,000 with an accuracy/precision rating of 4A. Idaho Fish and Game estimates the population of pileated woodpeckers on the forest to be in the mid to upper range of 1000-10,000 individuals.

At the Regional scale, habitat modeling estimated that there is enough suitable nesting habitat to support about 2362 pairs of pileated woodpeckers, and enough winter foraging habitat to sustain about 19,430 pairs of birds (Samson, 2006). Median dispersal distance for pileated woodpeckers is estimated to be about 150 miles, which indicates that pileated woodpeckers across the entire Region belong to a single, well connected population. The Forests neighboring the Clearwater to the south and east show pileated woodpecker habitat in excess of the quantity modeled to maintain a minimum viable population on their Forests alone (Lolo -165%, Clearwater -346% and Nez Perce -459%). The large amount of apparently suitable habitat well distributed across the Region combined with the interconnectedness of the population

indicates that short-term viability of pileated woodpeckers across the Region is not an issue (Samson, 2006).

These findings are also consistent with the broader view offered by the Natural Heritage and Partners in Flight Programs. The international network of Natural Heritage Programs employs a standardized ranking system to denote global (G range-wide) and state (S) status. Species are assigned numeric ranks ranging from 1 (critically imperiled) to 5 (demonstrably secure), reflecting the relative degree to which they are "at-risk." The pileated woodpecker is listed as G5 and S4 in Idaho. G5 indicates that throughout its range, it is considered common, widespread, and abundant, although it may be rare in parts of its range. It is not vulnerable in most of its range. S4 indicates that in Idaho, it is apparently secure. It is not identified by PIF or Idaho Comprehensive Wildlife Conservation Strategy (CWCS) as a priority species in need of conservation measures at this time. No pileated woodpecker habitat was harvested in FY 07.

Goshawk: Recent habitat assessments for the Northern goshawk indicate adequate habitat exists and is well distributed on the Forest and across the Northern Region. Based on habitat and goshawk detection estimates, breeding goshawks and their habitat appear abundant and well distributed across R1 (Kowalski 2006, Samson 2006a). Based on these assessments, the Clearwater National Forest is estimated to have approximately 600,000 acres of suitable nesting habitat (Samson, 2006). Partners in Flight Landbird Conservation Plan estimates the population for goshawks across their range to be at 490,000 with an accuracy/precision rating of 3A. Idaho Fish and Game estimates the population of goshawks on the forest to be in the low to mid range of 100-1000 individuals.

Using the best available information during a species status review, the U.S. Fish and Wildlife Service concluded that:

- There was no evidence of a declining population trend for goshawks in the western United States (west of the 100th meridian).
- There is no evidence that goshawk habitat is limiting the population, or that significant curtailment of the species' habitat or range is occurring.
- The goshawk continues to be well-distributed throughout its historical range.
- There are no significant areas of extirpation.
- While the goshawk uses stands of mature and older forests it is not dependent on old-growth, and uses a variety of forest habitats in meeting its life history requirements.
- Listing as endangered or threatened is not warranted.

According to NatureServe (accessed 12/19/2006) the northern goshawk has a conservation status rank of G5. This indicates the species is globally secure – common, widespread and abundant. The state conservation status rank is S4 indicating that in Idaho, the goshawk is apparently secure. It is not identified by PIF or Idaho Comprehensive Wildlife Conservation Strategy (CWCS) as a priority species in need of conservation measures at this time. No goshawk habitat was harvested in FY 07.

Pine Marten: A recent habitat assessment for the American marten indicates adequate habitat exists and is well distributed on the Forest and across the Northern Region. Based on this assessment, the Clearwater National Forest is estimated to have approximately 800,000 acres of suitable habitat to support the American marten (Samson, 2006). This habitat is well-distributed across the Clearwater NF at higher elevations. Idaho Fish and Game estimates the population of American marten on the forest to be in the low to mid range of 1000-10,000 individuals.

These findings are also consistent with the broader view offered by the Natural Heritage Program. The international network of Natural Heritage Programs employs a standardized ranking system to denote global (G range-wide) and state (S) status. Species are assigned numeric ranks ranging from 1 (critically imperiled) to 5 (demonstrably secure), reflecting the relative degree to which they are "at-risk." The marten is listed as G5 and S5 in Idaho. G5 indicates that throughout its range, it is considered common, widespread, and abundant, although it may be rare in parts of its range. It is not vulnerable in most of its

range. S5 indicates that in Idaho, it is secure. Approximately 25 marten are legally trapped on the Clearwater each year. No pine marten habitat was harvested in FY 07.

References:

- Samson, F. B. 2005 (amended March 6, 2006). Conservation assessment of the northern goshawk, blacked-backed woodpecker, flammulated owl, and pileated woodpecker in the Northern Region, USDA Forest Service., Northern Region, Missoula, Montana, USA.
- Sauder, J. Personal Communication, June 29, 2007.
- Hennekey, R. Personal Communication, July 18, 2007.

Gray Wolf (Experimental/non-essential): Wolves have been reintroduced into North Central Idaho in 1995. Recent data indicates the wolf population in Idaho is growing with an estimated population of 673 statewide. At least 72 known packs or potential pairs, 185 pups, and areas of suspected wolf activity have been investigated, resulting in the documentation of 41 or more breeding pairs of the Central Idaho Experimental Population Area. In the Clearwater Region there are 21 documented packs. The process for delisting the wolf is currently ongoing. Additional information can be found at: http://www.r6.fws.gov/wolf.

Bald Eagle (Threatened): The bald eagle occurs mostly as a winter resident on the Clearwater Forest. Approximately 60 bald eagles winter in the Clearwater basin and its tributaries. Biologists from the Forest work on the National Wildlife Federation's annual bald eagle survey each January. Most of the bald eagle habitat is found along major watercourses. Recovery goals for the bald eagle have been exceeded for the past five years. The bald eagle was proposed for delisting in July 2000. A trend in numbers of bald eagles over the past five years is increasing based on incidental observations and annual surveys.

Lynx (Threatened): The Canada lynx was listed as a threatened species. A Conservation Strategy and Assessment has been approved. Field surveys for the presence of lynx have been conducted on portions of the forest. A multi-year research project focusing on various aspects of lynx ecology and movements associated with the construction activities in the Lolo Pass area was started in FY02 and completed in FY 06. The study is a cooperative project involving various state and federal agencies. Published results from the study are available from the Intermountain Research Lab in Missoula.

SECTION 3 - APPEALS AND LITIGATION

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

PROJECT LEVEL APPEALS

The Forest received 3 appeals on two projects during FY05 and 6 appeals on four projects in FY06. Information on each appeal and the outcome of the appeal is shown in the following table.

Project Name FY07	Appellant	Status	Major Appeal Issues
Small Scale Suction Dredge EIS	Friends of the Clearwater, Alliance for the Wild Rockies, Lands Council, Wild West Institute	Decision Withdrawn	Clean Water Act, Proper Permits, Roadless
Small Scale Suction Dredge EIS	Idaho Conservation League	Decision Withdrawn	Clean Water Act, Proper Permits, Roadless
Gold Bug Veg.	John Krebs	Decision Affirmed	Road Obliteration, Watershed
White White Veg.	Friends of the Clearwater, Alliance for the Wild Rockies, Lands Council, Wild West Institute	Decision Affirmed	Water Quality, Fishies
Sheep Mtn/Camp 60 OHV Trail	Friends of the Clearwater, Lands Council, Wild West Institute	Decision Affirmed	Motorized Use

LITIGATION

The Forest was not involved in any lawsuits during FY07. Information on each lawsuit and the current status is shown in the following table.

Topic of Lawsuit, Plaintiffs and Defendants	Status	Major Issues
N/A	N/A	N/A

SECTION 4 – IMPLEMENTED CHANGES

ECOSYSTEM MANAGEMENT

The Forest continued with the implementation of Ecosystem Management and restoration concepts and principles when designing projects. The Forest has developed an integrated strategy when designing projects. In FY07, the Clearwater National Forest reviewed and adjusted its Program of Work to better reflect the priorities identified in the Regional Integrated Restoration and Protection Strategy. The Region's strategy was aimed at aligning increasingly scarce resources (dollars and people) and focus them on doing the highest priority restoration work in an integrated and efficient manner. Priority for restoration needs was assigned in four broad scale "values at risk": community threat zones (which on the Clearwater equates to the County WUI areas identified in the County Wildfire Mitigation Plans; municipal watersheds; priority watersheds for aquatic restoration; and big game winter range (which on the Clearwater is focused on elk winter range). Areas across the forest were mapped with the above values at risk and assigned a priority which reflected how many of the above "values at risk" areas intersected. The Clearwater actively re-shuffled projects within the program of work to emphasize projects in the priority areas.

The effect on FY07 implementation was essentially non-existant as the program was well underway. The shifts in program would effect planning FY08 and the outyears as the above strategy would guide a process for assessing projects on the program of work. Our objective is to integrate our work across functional boundaries so we can achieve multiple objectives and targets from any given project.

No EAWS were accomplished in FY07. To insure that EAWS are accomplished in the right place, we will be re-evaluating EAWS in light of NFMA and the Integrated Strategy to insure an EAWS is the best tool to provide the existing and desired condition information which will lead to projects which might be missed without such a comprehensive analysis.

FOREST PLAN REVISION

Revision of the Forest Plan was halted in FY 07 as a result of a lawsuit challenging the planning rule. It is likely work on Forest Plan Revision will resume in FY2010.

FOREST PLAN AMENDMENTS

One Forest Plan amendment (Number 31) was implemented during FY07. This amendment amends Appendix K to change the water quality objective for Gold Creek, on the Palouse District, through the Gold Bug EA

SECTION 5 – PLANNED ACTIONS

INTRODUCTION

This section identifies actions slated for 2008 and beyond, in the following order.

1) Discussion of Clearwater National Forest Ecosystem Management Documents
2) Steps in the Revision of the Forest Plan
3) Amendments that may be Proposed to the Current Forest Plan
4) Discussion of Projected Budget (Appendix C in the Forest Plan)
5) List of Other Activities Planned in FY08

(1) Ecosystem Management Documents: Clearwater National Forest Ecosystem Management Documents – There one EAWS scheduled to be completed in 2007; Lochsa Corridor EAWS. Forest resource specialists are assisting in development of an Environmental Management System (EMS) for the Regional Office. They are using the WO EMS protocols for FY 2008 focusing on fleet.

(2) Steps in the Revision of the Forest Plan for the Clearwater National Forest: The Draft Revised Forest Plan is on hold and was not released in 2008.

(3) Amendments That May be Proposed to the Current Forest Plan: Throughout 2005, a few project-specific amendments are expected as analysis continues or is initiated on projects. In 2008 or 2009 travel planning may trigger forest plan amendments. Most needed changes identified will be forwarded to the Forest Plan Revision team to be accomplished with that effort.

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

(5) Other Planned Activities

Effects	• A Final Environmental Impact Statement and Record of Decision for the Lynx Forest Plan amendment is expected to be issued in 2007.
Fisheries	• Monitoring in the Lochsa River watershed area is scheduled to continue in 2005. • Habitat monitoring in the Orofino Creek drainage was rescheduled for 2005. • Population monitoring is planned to continue in the lower Lochsa River area during 2005. • Culvert replacement in Waw'aalamnime Creek scheduled for 2006.
Lands	• The agreement to initiate the Boise Foothills/Northern Idaho Land Exchange was executed by all parties in April 2005. Special legislation is needed to give the agency the necessary authority to process and consummate the exchange as currently proposed. In March 2006, S.1131, titled the "Idaho Land Enhancement Act," passed the Senate Energy/Resources committee. • Acquisition of sections of Lewis and Clark Trail easements across private lands began in 2006 to acquire nearly 40,000 acres of checkerboard ownership currently owned by TWJ Holdings, L.L.C., and formerly owned and managed by Plum Creek Timberlands, L.P.
Recreation	• Snowmobile activity in the Selway-Bitterroot Wilderness area and Great Burn proposed wilderness area will be monitored from the air in FY05.
Riparian Areas	• Road obliteration to eliminate unneeded roads in the Deception Gulch area is planned to continue in FY04. • Beginning in 2002 and continuing through 2004, an estimated 50 miles of road will be decommissioned in the Badger Creek watershed. Monitoring will continue each year through 2007.
Road Decommissioning	• The results of effectiveness monitoring for use of brush blankets is planned for FY05.
Wildlife	• Begin implementation of various Middle Black projects in 2005.

SECTION 6 – LIST OF CONTRIBUTORS & CONSULTANTS

Name	Telephone	Resource Area
Laura Barrett	208-983-7015	Fire, Fuels Outputs
Heather Berg	208-926-4274	Wild and Scenic Rivers
Vern Bretz	208-476-8322	Minerals, Mineral Outputs
Anne Connor	208-476-8235	Road Decommissioning
Mark Craig	208-476-8291	Timber Targets, Timber Outputs
Don Curnutt	208-476-8238	Roads/Facilities Outputs
Dan Davis	208-476-8353	Wildlife, RNA, Wildlife Outputs
Lori Deford	208-983-4059	Law Enforcement
Bruce Ellis	208-476-8350	Heritage
Colleen Fahy	208-476-8278	GIS, Database
Lois Foster	208-935-4258	Writer Editor
Marty Gardner	208-476-8219	Economic Modeling, Effects, Appeals/Litigation, Implemented Changes, Planned Changes
Doug Gober	208-476-8223	Effects
Carol Hennessey	208-935-4270	Trails, Wilderness
Diana Jones	208-476-8239	Scenic
Mark Klinke	208-476-8300	Silviculture, TSI, Reforestation, etc.; Outputs
Rick Kusicko	208-476-8374	Timber
Jim Mital	208-476-8348	RNA, New Research
Roberta Morin	208-476-8354	Lands
Pat Murphy	208-476-8208	Range, Fisheries, Fisheries and Range Outputs
Mike Niccolucci	406-329-3352	Economic Model Factors
Debbie Phillips	208-476-8282	Economic Model budget information, Target Accomplishment
Dean Roach	208-476-8351	Roads
Robert Sanchez	208-476-8316	Soils and Water, Riparian
Mike Stayton	208-875-1171	Trails
Beverly Yelczyn	208-476-8264	Timber, Silviculture
Rachel Young	208-983-4025	Fire, Fuels

SECTION 7 – FOREST SUPERVISOR APPROVAL

Approval

I have reviewed this annual Forest Plan Monitoring and Evaluation Report for FY05-06. This report meets the intent of the Forest Plan (Chapter IV) and 36 CFR 219. I have also considered the recommendations of my staff on proposed changes to the Forest Plan. Amendments needed to keep the Forest Plan current will be implemented only after appropriate participation and analysis.

This report is approved.

/s/ Elayne M. Murphy *9/30/2008*

for THOMAS K. REILLY Date