United States
Department of
Agriculture

Forest Service
Northern Region

Clearwater National Forest

Annual Monitoring & Evaluation Report

Fiscal Year 2009

Clearwater National Forest

FY 2009 Monitoring and Evaluation Report

Responsible Agency: USDA Forest Service

Responsible Official: Rick Brazell, Forest Supervisor
Nez Perce and Clearwater National Forests
12730 Highway 12
Orofino, ID 83544

For Further Information: Lois Hill
Kamiah Ranger Station
903 Third Street
Kamiah, ID 83536
(208) 935-4258

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 **3**

Item No. 22 - Effects of National Forest Management on Adjacent Land and Communities 3

Item No. 23 – Effects of Other Agencies on National Forests 3

Fire **4**

Fisheries **11**

Item No. 8 - Water Quality and Stream Condition for Fisheries and Non-Fisheries Beneficial Uses 12

Items No. 31 and 32 - Anadromous and Resident Fish Indicators 18

Item No. 32 - Inland Fisheries 37

Heritage Program **44**

Item No. 4 - Protection and Condition of Heritage Resource Sites 45

Lands **46**

Item No. 12 - Land Ownership Adjustments 46

Minerals **47**

Item No. 15 - Minerals Prospecting and Development 47

Item No. 36 - Minerals Resource Availability 49

Range **49**

Item No. 6 - Livestock Forage Available, Range in Good Condition Per Established Allotments 50

Recreation **52**

Item No 2 - Wide Spectrum of Recreation Opportunities 52

Item No. 14 - Off Highway Vehicle Use Impacts 57

Research Natural Areas **59**

Research Needs **60**

Item No. 24 - Research Needs 60

Riparian Areas **61**

Item No. 10 – Riparian Area Condition 61

Road Decommissioning Program **71**

Roads **84**

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

Scenic Resources **85**

Item No. 3 - Visual Quality Objectives 86

Soil and Water 87

Item No. 8 - Water Quality and Stream Condition for Fisheries and Non-Fisheries Beneficial Uses 87

Item No. 9 - Best Management Practice (BMP) Applications 93

Item No. 11 – Site Productivity 96

Timber 102

Item No. 18 - Harvested Land Restocked Within Five Years 105

Item No. 19 – Unsuited Timberlands Examined to Determine if They Have Become Suitable 106

Item No. 20 – Validate Maximum Size Limits for Harvest Areas 106

Item No. 21 – Insect and Disease Status as a Result of Activities 108

Trails 109

Item No. 16 - Trail Management 110

Wild and Scenic Rivers 112

Wilderness 113

Item No. 5 - Wilderness 113

Wildlife 121

Item No. 7 - Provision for Plant and Animal Diversity 122

Item No. 25 - Big-Game Habitat Improvement 123

Item No. 26-35 - Population Trends of Management Indicator, Threatened and Endangered Species 123

Section 3 - Appeals and Litigation 129

Section 4 – Implemented Changes 130

Section 5 – Planned Actions 130

Section 6 – List of Contributors & Consultants 131

Section 7 – Forest Supervisor Approval 132

SECTION 1 – INTRODUCTION

The ***Clearwater National Forest Monitoring and Evaluation Report, Fiscal Year 2009*** summarizes the results of Forest Plan monitoring and evaluation activities during Fiscal Year 2009. 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 FY09 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 FY08, 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 FY09 – 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.

SECTION 2 – MONITORING REPORT

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 FY09.

ACCOMPLISHMENTS/FINDINGS

The FY09 update for Item 1 will be included in the FY10 Clearwater National Forest Monitoring and Evaluation Report.

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

The FY09 update for Item 17 will be included in the FY10 Clearwater National Forest Monitoring and Evaluation Report.

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

The FY09 update for Item 22 will be included in the FY10 Clearwater National Forest Monitoring and Evaluation Report.

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 to prevent and suppress wildifres commensurate with resource values to be protected while recognizing the role of fire in ecological processes. Both planned and unplanned ignitions will be used to achieve land management objectives.

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.*
- Manage both planned and unplanned ignitions to achieve land management objectives.
- 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.
- Prepare a zone *Fire Management Plan (FMP)* annually that provides direction for accomplishing fire management objectives found in the appropriate Land Management Plan.

MONITORING ACTION

The primary elements used to monitor the Zone Clearwater and Nez Perce National Forest fire management programs are the number of fire starts and acreage burned for wildland fire events that are suppressed or managed for resource benefit, and hazardous fuels treatment acres in and out of the Wildland Urban Interface. The forests have also been reporting their figures for wildland fires and landscape burns to the Elk Collaborative.

Additionally, fire managers monitor management ignited fires to assess the acres accomplished and ensure they are meeting prescription objectives outlined in the NEPA and burn plan.

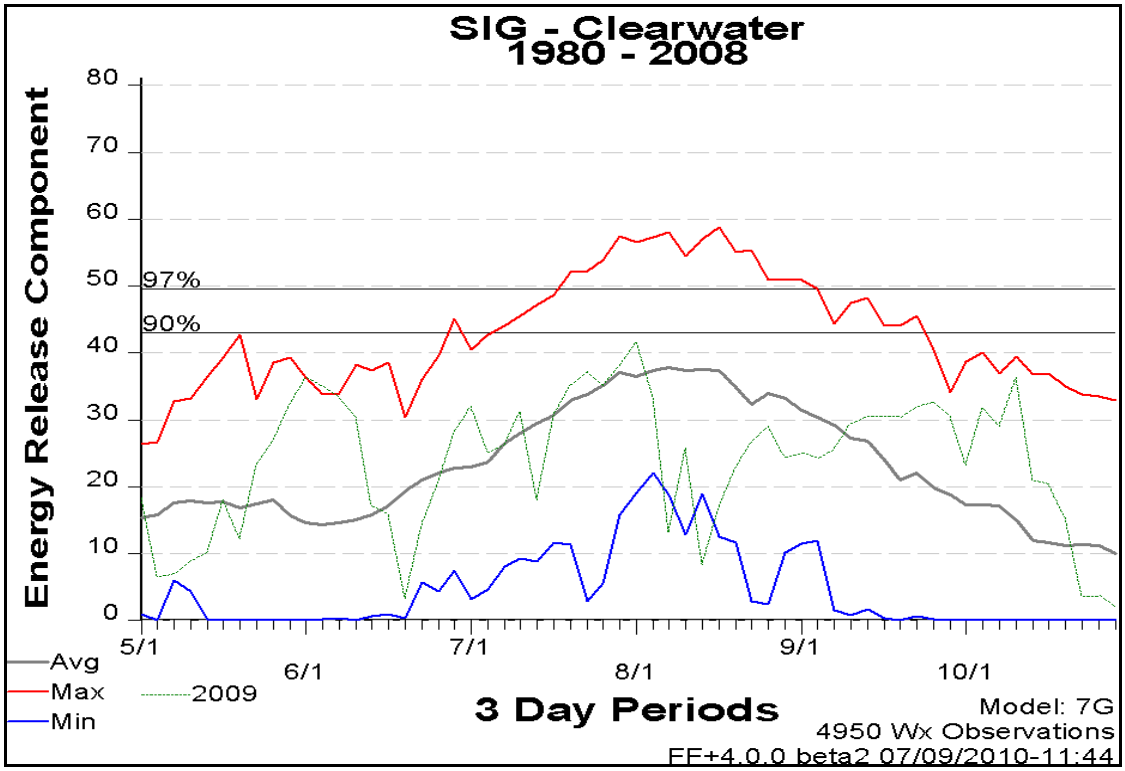
2009 SEASON SUMMARY

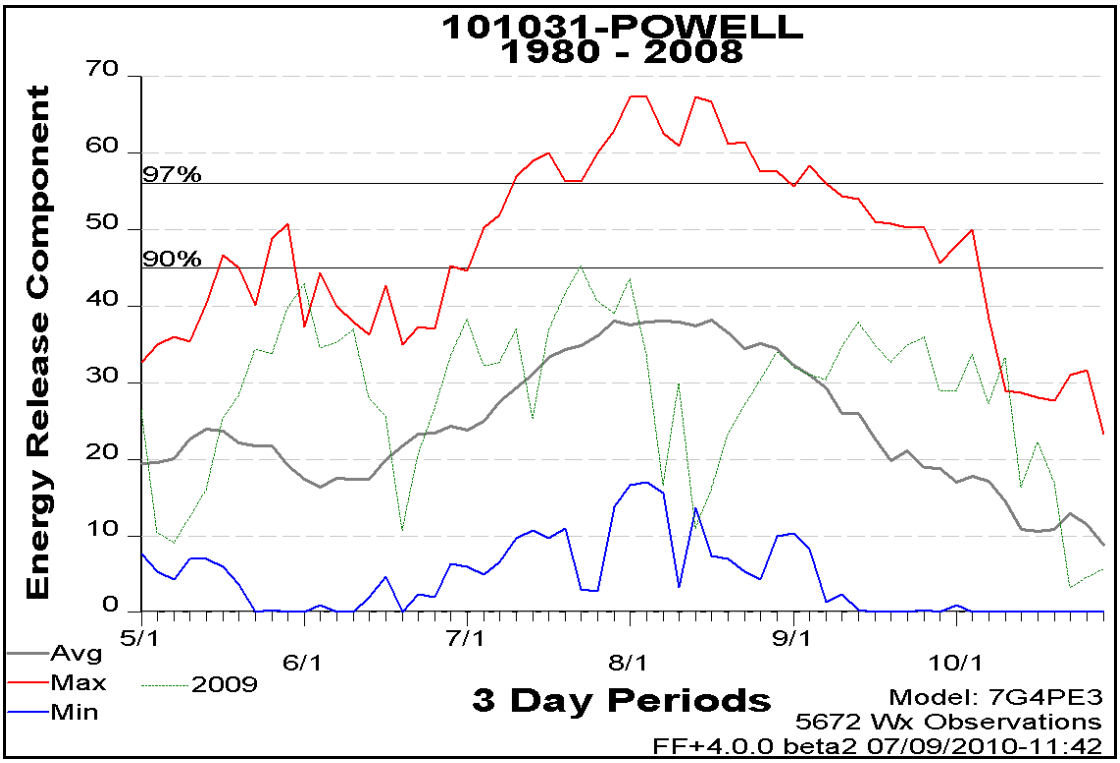
In 2009, the *Guidance for Implementation of Federal Wildland Fire Management Policy* was updated. One of the most significant changes is the ability for a wildfire to be concurrently managed for more than one objective, i.e. suppression and resource benefit. Wildland fires are now categorized into two distinct types: wildfire and prescribed fires.

The 2009 fire season was well below average in both number of starts and acres burned for wildfires on the zone. A long winter and wet spring moderated fire activity from the extremes that were recognized most recently in 2006 and 2007.

Although the 2009 fire season was quiet locally, the zone supplied firefighting and support resources to other parts of the country exceeding our zone target for p-code savings of $582,000; additional preparedness funding from the region was used to reduce the original target. Fire Managers worked hard to accomplish a large scale late-summer and fall prescribed fire program in a safe and cost efficient manner. We also worked collaboratively with the counties, State, and BLM to identify fuels treatments that will protect private lands, and allow for more fire management options while reducing firefighting costs.

Figure 1: Weather Station Graphs For Clearwater SIG And Powell 2009 Overlays Data From 1980-2008





PREPAREDNESS

The Forest continued successful implementation of the Federal Wildland and Prescribed Fire Management Policy and National Fire Plan. 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 modeled the Fire Fighting Production Capability (FFPC) for each district and the Fire Zone. The Forest took a conservative approach and only filled to the MEL minus 20 (or 80% of MEL), which equals a FFPC. Recent reductions in budget, or flat budgets with increasing costs, have resulted in a target FFPC of 56. In 2009 the Clearwater was able to exceed the regionally assigned FFPC to 67. Seventy three total firefighters, 8 engines, 4 initial attack modules, and 1 helicopter were included in the Clearwater FFPC. The Nez Perce was able to exceed the regionally assigned FFPC of 114 to 129 with one hundred and fifteen total firefighters, 8 engines, 10 initial attack modules, and 1 helicopter. Two single engine air tankers (SEATs) are partially included in the Nez Perce Forest FFPC, but not entirely as they are shared with Idaho Department of Lands. The Palouse engine and crew help support the zone fire program, but are not included in the Clearwater FFPC.

Phase II of Fire Program Analysis (FPA), which is replacing the National Fire Management Analysis System (NFMAS), was completed in 2009. The following agencies worked together to complete the analysis for Northern Idaho in 2009: Clearwater and Nez Perce Forest (took the lead), Idaho Panhandle National Forests (IPNF), Coeur d'Alene and Cottonwood Field Offices (BLM), and Coeur d'Alene and Nez Perce Tribes (BIA). The intent of FPA is to increase efficiencies by working jointly with adjacent Federal, State, and Local fire resources at a landscape, rather than unit level. This analysis models not just the suppression resources, but considers benefits of wildland fire use, fuels, and prevention programs.

The FY09 fire preparedness budget (including base 8 savings goal established by the region) was $ 3,091,000 for the Clearwater Forest and $5,262,000 for the Nez Perce Forest. In an effort to meet FFPC, the forest 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 WILDFIRE SEASON

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 within the Clear-Nez zone. The Nez Perce Forest is responsible for over 2.2 million acres of land.

Wildfires were attacked and suppressed in accordance with the 2009 Fire Management Plan, Clearwater and Nez Perce Forests, which tiers to each Forest Plan. The intent of both the Clearwater and Nez Perce National Forest Plan standards and guidelines were met by implementing an array of strategies. Each fire was assessed for its cause, potential, and location within each

land allocation, and an appropriate management response was initiated based on each fire situation and management area objectives. If a fire went beyond a pre-planned decision and an additional decision was necessary WFDSS (Wildland Fire Decision Support System) was used to help facilitate the decision making process and document the decision made. A periodic assessment and any new decisions were also documented in WFDSS.

The following figure displays the unplanned fire workload that occurred on the zone in 2009, compared with the previous ten year average.

Table 1: 2009 Fire Season

	Nez Perce Forest			Clearwater Forest		
	Number of Fires		Acres	Number of Fires		Acres
Wildfire Acres	525	4%	13,464	26	0.4%	6,297
Wildfire Starts	67	54%	124	39	49%	79
WFU Acres	1,450	31%	4,625	1,020	52%	1,967
WFU Starts	17	75%	23	37	261%	14
Total Acres	1,975	11%	18,090	1,046	13%	8,261
Total Starts	84	58%	146	76	82%	93
Human Starts	7	54%	2.6	3	59%	9.1

The 2009 fire policy states that wildfires may be managed concurrently for suppression and resource benefit. Naturally ignited wildfires that occur within a Fire Management Unit which allows for resource benefit may be managed to meet resource objectives as outlined in both the Forest Plan and Fire Management Plans. Each event meets strict prescription criteria prior to line officer approval and a site-specific decision is developed in WFDSS, replacing the ***Wildland Fire Implementation Plan*** process.

- This management option was selected for 37 starts on the Clearwater Forest in 2009, more than 2 ½ times the previous 10 year average. These fires burned a total of 14 acres. No fires were suppressed that could have been managed for resource benefit.
- This management option was selected for 17 starts on the Nez Perce Forest last year, ¾ of the previous 10 year average. These fires burned a total of 23 acres. No fires were suppressed that could have been managed for resource benefit.

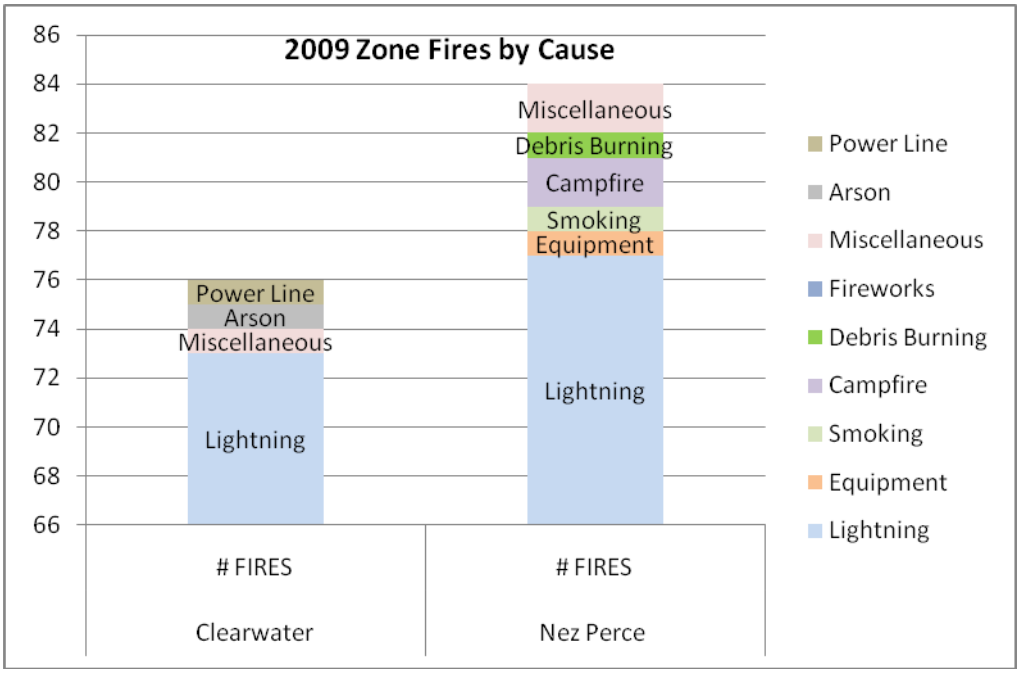
STATISTICAL CAUSE

Prevention of human caused wildfires is an important mission for the zone, along with education. The following figure displays the cause and resulting acres burned for wildfires on the zone in 2009, which was well below our ten year average for human caused fire.

Table 2: Clearwater Forest Wildland Fire Statistical Cause 2009

Cause	Clearwater		Nez Perce	
	Numberof Fires	Acres	Number Of Fires	Acres
Lightning	73	1036.45	77	1972.9
Equipment	0	0	1	1
Smoking	0	0	1	1
Campfire	0	0	2	0.2
Debris Burning	0	0	1	0.2
Fireworks	0	0	0	0
Miscellaneous	1	0.1	2	0.2

Figure 2: Wildland Fire Statistical Cause



AVIATION

The Nez Perce-Clearwater Zone relies heavily on aviation for both wildfires and prescribed fires. The following are the National and Regional resources hosted by the Clear-Nez in 2009:

- Grangeville hosted 30 smokejumpers in 2009. The jumped 15 fires on Nez Perce Forest and no fires on the Clearwater last season.
- The Northern Rockies air attack platform
- One National Exclusive Use contracted helicopter

The retardant base in Grangeville 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 the 2009 fire season. Two Air Tractor 802s, with an operational capacity of 700+ gallons each, operated out of Grangeville Air Center from mid-July through mid-September and delivered 108,771 gallons of retardant.

The helitack program for the Clear/Nez Zone provides initial attack, passenger and cargo transport, extended attack support, bucket work, and project support across the Zone with a 10-person module at both the Musselshell and Grangeville Air Centers. The Clear/Nez exclusive use helicopter contracts were renewed with Hillcrest for the 2009 fire season, providing two Bell 206 L-4 Type III helicopters.

During the 2009 fire season, the Musselshell helicopter flew 55.4 hours on fire and initial attacked 2 fires. The Grangeville helicopter flew 101.1 hours on fire and initial attacked 11 fires. The following hours were flow in support of non fire operations: Musselshell helicopter 35.4 hours and the Grangeville helicopter flew 38.2 hours.

FUELS REDUCTION

Brush disposal trust funds were used to treat 506 acres of timber harvest-related fuels in fiscal year 2009 on the Clearwater and 1,040 acres were treated on the Nez Perce.

Table 3: 2009 BD Treatment Acres

	Clearwater	Nez Perce
Activity Fuels Broadcast Burning	338	563
Activity Fuels Mechanical (Yarding, Landings, Excavator)	123	477
Hand Piling and Burning	45	
Total Treatment Acres	**506**	**1040**

The 2009 hazardous fuels operating budget for the Clearwater was $1,863,300 and $2,291,700 on the Nez Perce Forest. Additional money was provided by the region to both forests to fund NEPA analysis by the Enterprise Team for the Short Goose Moose project on the North Fork Ranger District, Clearwater Forest and Orogrande on the Red River Ranger District, Nez Perce Forest.

Table 4: Zone 2009 Hazardous Fuels Treatment Acres

	Clearwater			Nez Perce		
	WUI	Non-WUI	Total	WUI	Non-WUI	Total
Core	**1,681**	**7,417**	**9,098**	**3,728**	**4,514**	**8,242**
Rx Burning	1,109	2,264	3,373	3,355	4,394	7,749
PCT/Mechanical	572	5,153	5,725	373	120	493
Integrated	**659**	**2,100**	**2,759**	**897**	**2,493**	**3,390**
WFU		1,344	1,344		2,425	2,425
PCT/Mechanical		516	516			
Timber	659	240	899	897	68	965
Unified	**2,340**	**9,517**	**11,857**	**4,625**	**7,007**	**11,632**

Smoke management coordination continues to be a significant part of managing fire, particularly prescribed fire. The coordination between local partners, Montana/Idaho Airshed Group, Nez Perce

Tribe, Montana DEQ, Missoula County, and Idaho DEQ (both Agricultural and Wildland smoke coordinators) and all the burners on the Zone requires extensive communication throughout the year, and constant communication during the burning season, to facilitate burning when smoke conditions have the potential to affect the public.

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 2009. 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 2009, the Forest conducted a review of two projects to determine compliance with Forest Plan direction as amended by PACFISH: Blown Feathers Timber Sale and Dinner Bucket Stew Stewardship Project within the Potlatch River drainage.

The reviews of timber harvest unit (#1) under the Blown Feathers Timber Sale showed that the unit had default PACFISH riparian buffers and no observable impacts (i.e. sediment etc) to aquatic

resources. The unit was initially harvested in 2005 with a follow-up treatment in 2008 due to blown down trees. In 2008 trees remaining within the previously harvested unit were blown down into the riparian buffer along a 200-foot section of an intermittent stream; removal of these trees (including some 15-30 riparian trees that were blown down) within the riparian buffer did not cause any erosion/sediment. The woody debris component was reduced slightly, but the remaining standing trees meet or exceeded the RMO's. This project met PACFISH standards and guidelines and did not retard the attainment of the Riparian Management Objectives (RMO's).

The reviews of timber harvest units (#5 and #10) under the Dinner Bucket Stew Stewardship Project showed that the units had default PACFISH riparian buffers and no observable impacts (i.e. sediment etc) to aquatic resources. This project met PACFISH standards and guidelines and did not retard the attainment of the Riparian Management Objectives (RMO's).

INFISH

In 2009, the Forest conducted a review of one project within the Orofino Creek drainage to determine compliance with Forest Plan direction as amended by INFISH: Gezel Stewardship Project. The reviews of timber harvest units (#3 and #11) showed that the units had default INFISH riparian buffers and no observable impacts (i.e. sediment etc) to aquatic resources.

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 2009. 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 ten years (including 2009) have reduced monitoring efforts across the Forest.

ACCOMPLISHMENTS/FINDINGS

FOREST OVERVIEW

Stream Inventory (Physical): As in the past ten years, budget constraints limited the amount of stream surveys and associated monitoring as no seasonal personnel were employed during the field season. Only one stream inventory and stream habitat survey was completed by the Forest in 2009. Due to time constraints, the Forest did not establish any new aquatic monitoring sites for future Forest Plan monitoring; during past two summers (2007-2008) eight of the 12 streams have been completed. The remaining four streams will be completed in 2010-2011. 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 17.4 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 nine high mountain lakes in the Storm Creek and Warm Springs Creek drainages within the Selway Bitterroot Wilderness Area; approximately 34 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 2009 focused on riparian restoration, watershed restoration and fish passage improvement projects. Approximately 8.1 miles of stream were improved using fisheries funds. Other Forest funds and non-USFS partnership funds contributed to the completion of 63.4 miles of stream habitat improvements. Stream habitat was improved either directly through culvert replacements and removals, riparian plantings and riparian habitat protection, or indirectly through road decommissioning projects.

The 2009 stream improvement projects were completed on various streams throughout the Forest. Fisheries funds were used to assist road decommissioning and fish passage improvement projects within the Lolo Creek, Lochsa River and North Fork Clearwater River drainages. Resource Advisory Committee (RAC) funded a riparian restoration project in the Potlatch River drainage. Forest funds and funds from the Nez Perce Tribe (Bonneville Power Administration) and the Federal Highway Administration were used for nine culvert replacements and three culvert removals. Forest funds and funds from the Nez Perce Tribe were used to decommission 33 miles of road and improve 7 miles of road. 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 2009 monitored approximately 345 sites across the Forest (Table 1). Stream temperature data for 286 sites were processed in 2009. This includes streams that were monitored during the summer of 2009, units not retrieved in previous years and multi-year units deployed during previous years to collect data in 2003 and later years. This monitoring report summarizes the data collected during 2009 on 261 sites on 208 streams; this does not include the twelve units that were retrieved in 2009 with 2008 data or the eight long term units with data in years 2003 – 2007 . Temperature data for 42 sites are not available (instruments still instream (33), missing units (3), equipment failures (3),

lost/stolen (2), or analysis pending (6)). During 2009, only eight units were lost, vandalized or had equipment failures; this is approximately three percent of the units deployed in 2009. Thirty-eight units deployed in years 1998-2009 are still out in the field and are not included in the above figures. An additional 18 units with insufficient 2009 data were also excluded from this analysis as were five units with truncated 2009 data (Table 2). Dependent upon budgets, streams will be monitored for at least five consecutive years.

Table 5: Summary Of Stream Temperature Monitoring Sites Processed In 2009 And The Current Status Of Recorders Across The Clearwater National Forest.

Sites Monitored	Description	Status
237	2009 data sites processed	2008 data processed
21	2009 bad data/no data	Equipment failures
6	2009 data pending analysis	Analysis pending
2	2009 lost/stolen/vandalized data recorder	Lost/stolen
266	**Total 2009 sites processed**	
12	2008 data sites processed	2008 data processed
8	2003 – 2007 long term sites processed	2003 – 2007 data processed
286	**Total sites processed in 2009**	
	Unprocessed Sites	
3	2009 data recorder missing	Missing unit
33	2009 data recorder still in field	Still instream
14	2009 long term data recorder still in field	Collecting data
9	2003 - 2008 data recorders still in field	Pending retrieval
345	**Total sites monitored in 2009**	
29	2005 -2008 long term recorder in field	Collecting data
14	2010 long term recorder in field	Collecting data
388	**Total sites monitored**	

Table 6: Summary Of The Total Number Of 2009 Water Temperature Monitoring Sites On The Clearwater National Forest, Number Of Sites Analyzed, And The Total Number Of Streams Monitored For The 2008 Monitoring Report

Sites	Streams	Description
255		2009 sites with data
-18		2009 sites with insufficient data for analysis
237		2009 sites with sufficient data for analysis
-24		Multiple monitoring sites within the same stream
	-5	2009 streams with insufficient data for analysis
	234	2009 streams analyzed and summarized

The 2009 summer showed stream flows slightly below the average streams flows during the summer months (Table 3). For example, the mean monthly stream discharges during June through September were approximately 94 percent of the average discharge recorded for the Lochsa River during the 98-year period (1911-2009). Given the near average stream flows through the summer months, stream temperatures would be expected to be somewhat cooler than in past years, especially considering that the summer of 2009 was cooler than the summers of 2003, 2006, 2007 and 2008 based on air temperatures units stationed throughout the Forest. In 2009, approximately 3.8 percent (8 streams) of the streams monitored exceeded the State's cold water biota standard. This is an increase from 2008 (most recent relatively cool summer) however the stream flows were substantially higher in 2008 as compared to 2009. Additionally, these numbers reflect a smaller data set as they do not include the thirty nine 2009 sites that are currently pending analysis or field retrieval. The number of streams exceeding the State's cold water biota standard was higher in 2009 (4 % vs. 2%) than in 2008. Of these eight streams, three streams exceeded the State cold water biota standard for five days or less.

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 in average years. In 2008, high stream flows during the summer months were of the magnitude and duration to substantially influence spawning and rearing conditions in many streams; over 50 percent of the streams met the State spawning standard of 13º C (Table 4).

Table 7: Comparison Of Air Temperature Data, Stream Flows And Water Temperature Information Collected Within Selected Watersheds Across The Clearwater National Forest During 2003-2009.

Year	Average Number Of Hours Air Temperatures Exceeded 13° C Jun 15 - Sept 30[2]	Percent Of Historic Average June-Sept Lochsa River Stream Flow[3]	Number Of Streams Monitored	Number Of Streams Exceeding State Cold Water Biota Standard (%)
2003	11,531 (12,122)	83.9	260	13 (5)
2004	8,702 (9,369)	84.8	230	13 (6)
2005	9,177 (9,591)	53.0	243	6 (2)
2006	11,008 (11,379)	69.3	236	21 (9)
2007	11,869 (12,363)	51.0	246	21 (9)
2008	9.705	165.4	234	4 (2)
2009	9553 (9700)	93.8	208	8 (4)

Comparison of available 2009 stream temperature data from streams (163 streams) located in wilderness/roadless/undeveloped areas and developed areas within the two major subbasins (Lochsa River and North Fork Clearwater River) showed approximately 23 percent of the streams meeting the State spawning standard of 13º C (Table 4). The slightly below average stream flows during the summer months in 2009 provided cooler stream conditions that led to a higher percentage of streams meeting the standard compared to previous years. In 2009 approximately 24 percent of the streams monitored within wilderness/roadless/undeveloped areas met State spawning standards for steelhead trout and westslope cutthroat trout. In comparison (22 percent) of the streams monitored within developed areas met applicable State spawning standards (i.e. steelhead trout, westslope cutthroat trout, and spring Chinook salmon). More specifically, slightly more (2.5%) wilderness/roadless/undeveloped streams met the State spawning standard of 13º C as compared to the developed streams (Table 4). While data from 2006 and 2007 showed an opposite trend as slightly more streams in developed drainages met the State spawning standard of 13º C (4% and 5% respectively), data from 2003-2005 and more recently 2008 indicated that there was basically no difference between these wilderness/roadless/undeveloped areas and developed areas. Some of these differences between undeveloped and developed may be attributed to the smaller 2009 data set as they do not include 39 sites that are currently pending analysis or field retrieval. 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 while attaining the State spawning standard of 13º C for the selected spawning periods is usually difficult in most years, higher stream flows throughout the summer months can influence stream temperatures substantially dependent upon the magnitude and duration.

[2] Data was summarized from three air monitoring sites located throughout the Forest. Data in () was summarized from five air monitoring sites; data from only three sites was available for 2009.

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

Table 8: Comparison Of State Spawning Standards Between Wilderness/Roadless/Undeveloped And Developed Streams Within The Lochsa River And North Fork Clearwater River Subbasins During 2003-2009

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 Streams 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%
2008	96	49	51%	91	46	51%
2009	73	18	24%	90	20	22%

Data from 168 streams located in wilderness/roadless/undeveloped areas and developed areas within the two major subbasins (Lochsa River and North Fork Clearwater River) showed 73 monitored streams (100%) located in wilderness/roadless/undeveloped areas met the State cold water biota standard4 while 93 out of 95 streams (98%) in the developed areas of the drainages met the standard (Table 5). There is no change between 2008 and 2009 in the wilderness/roadless/undeveloped areas and the data for the developed areas in these drainages shows essentially no change in the number of streams (99% versus 98%) meeting the State cold water biota standard as compared to previous years. Near average summer stream flows provided the conditions that maintain cooler water temperatures throughout the summer.

Table 9: 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 2003-2009

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 Streams 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%
2008	96	96	100%	96	95	99%
2009	73	73	100%	95	93	98%

[4] State standard for cold-water biota of the daily maximum of 22°C and the maximum daily average of 19°C.

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.

Items No. 31 and 32 - Anadromous and Resident Fish Indicators

Five major watersheds within the Forest provide habitat for anadromous and inland (resident) fisheries. Within the mainstem Clearwater River subbasin, steelhead trout and/or spring Chinook salmon are found with inland fisheries in the Potlatch River, Orofino Creek and Lolo Creek drainages. Although anadromous fish do not migrate upstream into the Forest's lands within Orofino Creek drainage, steelhead trout are present downstream on non-USFS lands. Upstream of the mainstem Clearwater River, the Middle Fork Clearwater River and several tributaries provide habitat for anadromous and inland fisheries. Finally the major anadromous fisheries on the Forest in terms of available habitat, is the Lochsa River drainage.

POTLATCH RIVER WATERSHED

Watershed Status: No natural or anthropogenic events occurred on USFS lands in the Potlatch River watershed during 2009 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, vegetative treatments, mining and grazing). No wildfires occurred in the Potlatch River drainage in 2009. Various field reviews and monitoring activities have supported the conclusion that the habitat conditions are most likely similar to 1998-2008 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 program and Resource Advisory Committee (RAC) funds contributing to a riparian restoration project. Overall these two restoration activities focused on the two primary limiting factors (high water temperatures and excessive sedimentation) within the upper Potlatch River system. Reduction of summer water temperatures and anthropogenic sediment sources would assist the steelhead trout recovery efforts within the drainage. During 2009, approximately ten miles of riparian areas including stream banks and stream channels were protected from grazing during 2009; the range program took over the funding of the riparian fence maintenance projects that fisheries funded during 1992-2005. A cooperative meadow restoration project with the Latah County Soil and Water Conservation District (LCSWCD) and Idaho Department of Fish and Game (IDFG) was completed on USFS lands and private lands. Although no other major watershed restoration activities (i.e. road decommissioning, fish passage improvement, instream restoration projects) were scheduled in 2009, several restoration projects (i.e. meadow restoration, stream bank stabilization, road decommissioning) are scheduled for 2010 and later years.

Riparian Fence Maintenance: Fences on 18 permanent riparian enclosures were maintained in 2009 (Table 6). Approximately 7.4 miles of stream habitat was protected from grazing.

Table 10: Riparian Fences and Riparian Acres Protected from Grazing Within the Potlatch River Drainage

Fence Name	Fence Length (feet)	Riparian Acres Protected
Corral Creek Allotment		
Hank's Fence	1,919	1.5
Tee Pond Exclosure Fence	2,367	5.5
Upper East fork Exclosure	1,067	0.7
Lower East Fork Exclosure	1,428	2.1
West Fork Potlatch/Moose Allotment		
Feather Creek Exclosure	8,009	10.1
West Fork Potlatch Exclosure 1	1,555	2.8
West Fork Potlatch Exclosure 2	5,294	6.9
West Fork Potlatch Exclosure 3	3,106	3.6
West Fork Potlatch Exclosure 4	7,596	15.5
West Fork Potlatch Exclosure 5	1,887	3.0
Cougar Upper Exclosure	3,451	4.5
Cougar Lower Exclosure	4,463	6.0
Potlatch Creek Allotment		
McGary Meadows Lower Exclosure	2,545	4.7
McGary Meadows Middle Exclosure	3,999	5.6
McGary Meadows Upper Exclosure	6,634	10.2
Potlatch River Trail Fence	5,708	76.2
Ruby Creek Exclosure	1,971	10.5
Purdue Creek Allotment		
Nat Brown Exclosure	3,153	2.5
Total	**66,152**	**171.9**

Riparian Restoration: Resource Advisory Committee (RAC) funds was used to improve meadow habitat in Tee and Colby meadows on USFS lands. Approximately 0.4 miles of the East Fork Corral Creek within USFS lands was improved; another 1.5 miles of East Fork Corral Creek was improved on private lands via other partners (Latah County Soil and Water Conservation District and Idaho Department of Fish and Game). NFWF fisheries funds were used to complete ESA consultations and coordination efforts. The objective of the project was to improve the meadow habitat in Tee and Colby meadows by re-directing the majority of the stream flow of the East Fork Corral Creek into the historic channel that carried the stream prior to railroad construction. The project involved road decommissioning, riparian planting, stream bank stabilization, fencing, and instream channel improvements.

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. 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.[5] Resurveys of specific streams are planned every five to ten years dependent upon stream conditions, management proposals and available funds. Re-surveys of stream reaches may occur for specific projects in future years, but funding constraints will limit re-surveys of entire drainages. As noted in the summary section, the overall status and trend of habitat conditions will be monitoring via the PIBO monitoring process. The PIBO aquatic monitoring sites will provide the Forest an assessment of stream habitat, riparian

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

and water quality conditions within the Palouse River drainage; this information will be reported under the current and future Forest Plans.

Stream Habitat Monitoring/Surveys: No re-surveys of the PIBO aquatic monitoring sites within the Potlatch River drainage were scheduled in 2008. The full complement of PIBO sites (4) were established in 2001 and re-surveyed in 2006 by the Multi-regional PIBO Effectiveness Monitoring Staff. The PIBO sites are scheduled to be re-surveyed in 2011.

Stream Channel and Substrate Conditions: In 2009, no streams within the Potlatch River drainage were scheduled.

Water Temperature Monitoring: Stream temperature monitoring was conducted at 13 sites on 8 streams in the Potlatch River drainage in 2009 to evaluate habitat conditions for steelhead trout. From 1990-1996 and 1998-2009 the Forest has collected temperature data on selected streams 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. Nineteen years of thermograph data indicate that most of the streams have summer stream temperatures that are higher than the desired objectives for salmonid rearing. In most years, all temperature sites within the Potlatch River system exceeded the desired future condition (DFC) for temperatures during the spring spawning period and all temperature sites within the Potlatch River system exceeded the State spawning standard of 13°C during the spring.

Comparison of the 2009 stream temperature data from the monitoring sites, the 13 monitoring sites on 8 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), West Fork Potlatch River below Stout property, Moose Creek (downstream of Moose Creek Reservoir), Nat Brown Creek (lower) and Ruby Creek did not meet the DFC (less than 20°C) for steelhead trout rearing. Nat Brown Creek (upper) exceeded the standard on two days.

Six of the 13 sites mainstem Potlatch River above West Fork Potlatch River, West Fork Potlatch River at mouth, West Fork Potlatch River (downstream Talapus Creek), Cougar Creek, Feather Creek, Moose Creek (upstream Moose Creek Reservoir) and met the DFC for steelhead trout rearing.In 2009, four sites, mainstem Potlatch River (at Little Boulder Creek), East Fork Potlatch River (mouth), West Fork Potlatch River below Stout property, and Moose Creek (downstream of Moose Creek Reservoir) exceeded the State standard for cold-water biota of the daily maximum of 22°C and the maximum daily average of 19°C. The West Fork Potlatch River below Stout property only exceeded the State cold-water biota standard on five 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 13 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 2009, no fish population monitoring projects were completed by the Forest within the Potlatch River drainage. Cooler spring conditions resulted in a late spring runoff which prevented the Forest from conducting the annual steelhead trout spawning surveys. Monitoring of fish populations was not scheduled in 2009 by the Forest however, the IDFG completed fish population surveys (via snorkeling) on the mainstem Potlatch River and 11 tributaries as part of their ongoing research involving the steelhead trout habitat restoration on non-Federal lands.

Mussel Population Monitoring: In 2008, the Forest started an inventory and monitoring program to assess native mussel populations in potential habitats across the Forest and identify non-indigenous mollusks that may be detrimental to the existing aquatic environments. Since mussels are sessile organisms that are long lived (100 years or more) and are sensitive to changing water quality and

habitat conditions, they are considered good indicators of the health of aquatic ecosystems (Williams et al. 1993[6] and Nedeau et. al 2005[7]). Their existence depends on stream conditions that are relatively free from excessive sedimentation and unstable stream channels. The only native mussel that has been found within the Forest is the western pearlshell (*Margaritifera falcate*). Strong viable populations include all age classes.

In 2009, as part of the stream survey in Ruby Creek, field crews located a viable population of western pearlshell; permanent transects were established to monitor the population in future years.

OROFINO CREEK WATERSHED

Watershed Status: No natural or anthropogenic events occurred during 2009 in the USFS drainages within the headwaters of the Orofino Creek watershed 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 wildfires occurred within the Orofino Creek drainage in 2009. Various field reviews have supported the conclusion that the habitat conditions for this drainage are most likely similar to 1998-2008 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: The only project within the Orofino Creek drainage that involved watershed restoration during the past several years was the Gezel Stewardship Project; this project was completed in 2008. No other major habitat improvement projects (road decommissioning, fish passage etc) were scheduled during 2009.

Habitat Monitoring: As in 2001-2008, stream surveys that were scheduled for Orofino Creek in 2009 were not completed due to budget constraints. Dependent upon funding, surveys will be re-scheduled for 2011.

Stream Habitat Monitoring/Surveys: No Forest Plan and/or PIBO aquatic monitoring sites have been established or planned within the Orofino Creek drainage.

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 are monitored and analyzed. Cutthroat trout was designated an indicator species for the drainage in the Forest Plan. As in 1996-2008, Orofino Creek, at the Forest Service boundary and upstream Rosebud Creek were monitored for summer stream temperatures in 2009. A recorder malfunction resulted in no useable data from the site at the Forest boundary. In addition, stream temperature data was collected at four tributary sites. Temperature recorders at two of these sites, Rescue Creek and Trapper Creek, are still in the field. Comparison of the 2009 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 three sites Jensen Creek, Gezel Creek and Orofino Creek (*upstream Rosebud Creek*). State standards for cold water biota were also achieved; water temperatures did not exceed the daily

[6] Williams, J.D., M.L. Warren, Jr., K.S. Cummings, J.L. Harris, and R.J. Neves. 1993. Conservation status of freshwater mussels of the United States and Canada. *Fisheries* Vol. 18, No.9. American Fisheries Society, Bethesda, MD.

[7] Nedeau, E., A.K. Smith and J. Stone. 2005. Freshwater mussels of the Pacific Northwest. U.S. Fish and Wildlife Service. Vancouver, WA.

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 all three sites with Gezel Creek exceeding the standard on 1 day.

Fish Population Monitoring: Due to the absence of ESA – listed fish species (i.e. steelhead trout, bull trout and spring Chinook salmon), fish population monitoring is not scheduled on an annual basis within the Orofino Creek drainage; no monitoring was conducted in 2009. Previous fish population monitoring has not found any populations of sensitive fish species (i.e. westslope cutthroat trout) within the upper Orofino Creek drainage. However, fish population surveys conducted in 2009 did find a small population of westslope cutthroat trout in Clearwater Gulch.

LOLO CREEK WATERSHED

Watershed Status: No natural or anthropogenic events occurred in the Lolo Creek watershed during 2009 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, vegetative treatments, mining and grazing). No major fires occurred in the Lolo Creek drainage in 2009. Fourteen small suppression fires totaled 1.6 acres. Various field reviews and monitoring activities have supported the conclusion that the habitat conditions are most likely similar to 1998-2008 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: Improvement work regarding the aquatic resources was focused on watershed restoration (i.e. fish passage improvement, road decommissioning, road maintenance) and riparian protection. Aquatic funds supplemented Forest funds from the engineering and watershed and BPA funds from the Nez Perce Tribe to complete fish passage improvement and road decommissioning activities. The Forest and Tribe participated in the design, implementation and monitoring of these projects. The Forest also finished the reconstruction of the Musselshell Meadows Fence in 2009.

Riparian Fencing: Fence maintenance on existing riparian enclosures was completed in 2009 using range funds (Table 7). Approximately 4.2 miles of riparian areas including stream banks and stream channels within the Lolo Creek drainage were protected from grazing.

During 2008, the Forest concentrated its range funding and efforts in reconstructing the Musselshell Meadows Fence to protect meadow and riparian values along Musselshell Creek; steelhead trout and spring Chinook salmon spawn and rear within and adjacent to Musselshell Meadows. The Nez Perce Tribe assisted with the reconstruction efforts. Due to problems acquiring materials during the summer of 2008, only 50 percent of the fence (approximately 2,600 feet) was completed in 2008. The remaining materials were purchased with 2008 range funds. The fence was completed in 2009.

Table 11: Riparian Fences and Riparian Acres Protected from Grazing Within the Lolo Creek Drainage

Fence Name	Fence Length (feet)	Riparian Acres Protected
Musselshell/Cedar Allotments		
Upper Musselshell Creek Exclosure	4,172	12.3
Musselshell Meadows	15,424	154
Lower Musselshell Creek Exclosure	4,289	8.6
Section 6 Exclosure	19,993	274
Total	**43,878**	**448.9**

Fish Passage Improvement: In 2009, the Forest used fisheries improvement funds on two culvert removal projects and one culvert replacement project. Fisheries funds (1%), engineering funds (46%), and Bonneville Power Administration funds directed through the Nez Perce Tribe (53%) were used for culvert removal and replacement projects within the Mox Creek and Musselshell Creek drainages. The Forest and the Nez Perce Tribe also provided funds for the project design, environmental analyses, consultations and monitoring. The projects provided approximately 1.0 miles of improved fish passage; approximately 5.7 stream miles (downstream of the structures) were also improved via reduced risk of culvert failures and chronic sedimentation.

Road Decommissioning: Besides general road maintenance work, the Forest completed approximately 26 miles of road decommissioning in the Lolo Creek drainage. During 2009, fisheries funds were used to support the planning and implementation of road decommissioning project within the Lolo Creek drainage as approved under the White White EIS and Yakus Creek EIS. The projects reduced the risks of culvert failures and chronic sedimentation to approximately 19.4 miles of stream.

Engineering funds (50 percent) and Bonneville Power Administration funds through the Nez Perce Tribe (50 percent) and were used to remove roads in the Mike White Creek, White Creek, Nevada Creek and Lolo Creek (Nevada Creek to Dutchman Creek) drainages. Approximately 8.4 miles of fish habitat (steelhead trout, bull trout, and westslope cutthroat trout) in the Nevada Creek and Mike White Creek, and White Creek drainages and mainstem Lolo Creek downstream of the project areas was improved via reduced risk of culvert failures and chronic sedimentation.

Fisheries funds (44 percent) and Bonneville Power Administration funds through the Nez Perce Tribe (56 percent) and were used to fund the decommissioning of approximately 12 miles of road within the Yakus Creek drainage. Approximately 9.9 miles of fish habitat (steelhead trout, bull trout, and westslope cutthroat trout) in the Yakus Creek drainage downstream of the project area (mainstem Yakus Creek, Nan Creek, Stray Creek, Rat Creek and Molly Creek) and 1.1 miles in one small Lolo Creek tributary (Buckner Creek) was improved via reduced risk of culvert failures and chronic sedimentation.

Future road decommissioning projects are planned in the 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 have been 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 general, the surveys noted that the fish habitat within Lolo Creek drainage were generally similar to conditions documented during the 1993 survey. No changes in overall substrate conditions were observed; the 1998 average cobble embeddedness level of 41.5 percent for the 20 miles of stream was basically

the same as the 1993 level of 41.0 percent. In 2009, no re-surveys were scheduled within the Lolo Creek drainage.

Stream Habitat Monitoring/Surveys: No Forest Plan and/or PIBO aquatic monitoring sites within the Lolo Creek drainage were scheduled in 2009. The full complement of PIBO sites (6) were established in 2001 (1) and 2006 (5) by the Multi-regional PIBO Effectiveness Monitoring Staff. The Forest established an additional site within the major anadromous spawning area in the mainstem Lolo Creek in 2007. The PIBO sites are scheduled to be re-surveyed in 2011; the Forest site will be monitored in 2010.

No inventories and stream habitat re-surveys were scheduled within the Lolo Creek drainage this past year.

Stream Channel and Substrate Conditions: In 2009, no streams within the Lolo Creek drainage were scheduled.

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.

1) Stream temperatures were monitored throughout the summer at 18 sites on 17 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 2009 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 eight streams (Dutchman Creek, Eldorado Creek (upstream Six Bit Creek), Fan Creek, Knoll Creek, Lunch Creek, Mike White Creek, Trout Creek and Nevada Creek) out of the ten streams monitored with a "high fishable" standard. Lolo Creek, and Musselshell Creek did not meet the "high fishable" standard for steelhead trout rearing. Insufficient data was available for Yoosa Creek.

2) The desired spring Chinook trout rearing temperature of 17°C was met at Eldorado Creek (upstream Six Bit Creek). It was not met at two of the other current or potential spring Chinook salmon streams (Lolo Creek and Musselshell Creek). Insufficient data was available for Yoosa Creek.

3) The desired westslope cutthroat trout rearing temperature of 16°C or below was met at five streams (Brick Creek, Chamook Creek, Panther Creek, White Creek and Yakus Creek) out of the six streams monitored with a "high fishable" standard. Musselshell Creek (Upstream Gold Creek) exceeded the standard.

4) The desired westslope cutthroat trout rearing temperature of 18°C or below (moderate fishable standard) was met in Gold Creek.

5) 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 15 of the 17 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 Lolo Creek (5 days) and Musselshell Creek (at the mouth (11 days)) exceeded the State cold-water biota standard. The State standard of 13°C

for the spring spawning period (steelhead trout) was met at Fan Creek and Lunch Creek it not met on any of the other monitored streams in the Lolo Creek subbasin although Dutchman Creek, Knoll Creek, Panther Creek and Trout Creek all exceeded the standard on three or fewer days. 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 22 years, population assessments were conducted via snorkeling to document trends in Lolo Creek; 15 permanent transects established in 1988 were scheduled to be sampled (10 log weir pools and 5 control sites). However, due to time constraints only five transects were sampled in 2009.

The 2009 fish population survey at five of the 15 permanent transects observed 51 steelhead fry (age 0+), and one steelhead trout (age 1+). Similar to 2008, the number of age 1+ juveniles observed in 2009 is extremely low, the densities (<0.1 age 1+ fish/100m^2) continued to indicate a downward trend in steelhead trout production in Lolo Creek (Figure 1). 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 low densities of juvenile steelhead trout in 2009 were most likely the result of low numbers of adult steelhead trout spawning in 2008 and/or low spawning success due to various habitat conditions.

The 2009 fish population survey at the five of the 15 permanent transects found low numbers of spring Chinook salmon juveniles. Densities observed in 2009 were the highest since 2005 (Figure 2). As with steelhead trout, the low number 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 increase in the number of spring Chinook salmon juveniles in 2009 was most likely the result of higher numbers of adult spawning in 2008 (102 redds) and/or better spawning success due to average stream flow conditions.

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 2009 Lolo Creek spring Chinook spawning ground surveys. These surveys were conducted in the main stems of Lolo, Eldorado, Musselshell, and Yoosa creeks.

Figure 3: Comparison Of The Average Densities (#/100m²) Of Juvenile Steelhead Trout (Age 1+) That Were Observed For Survey Period 1988-2009 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)

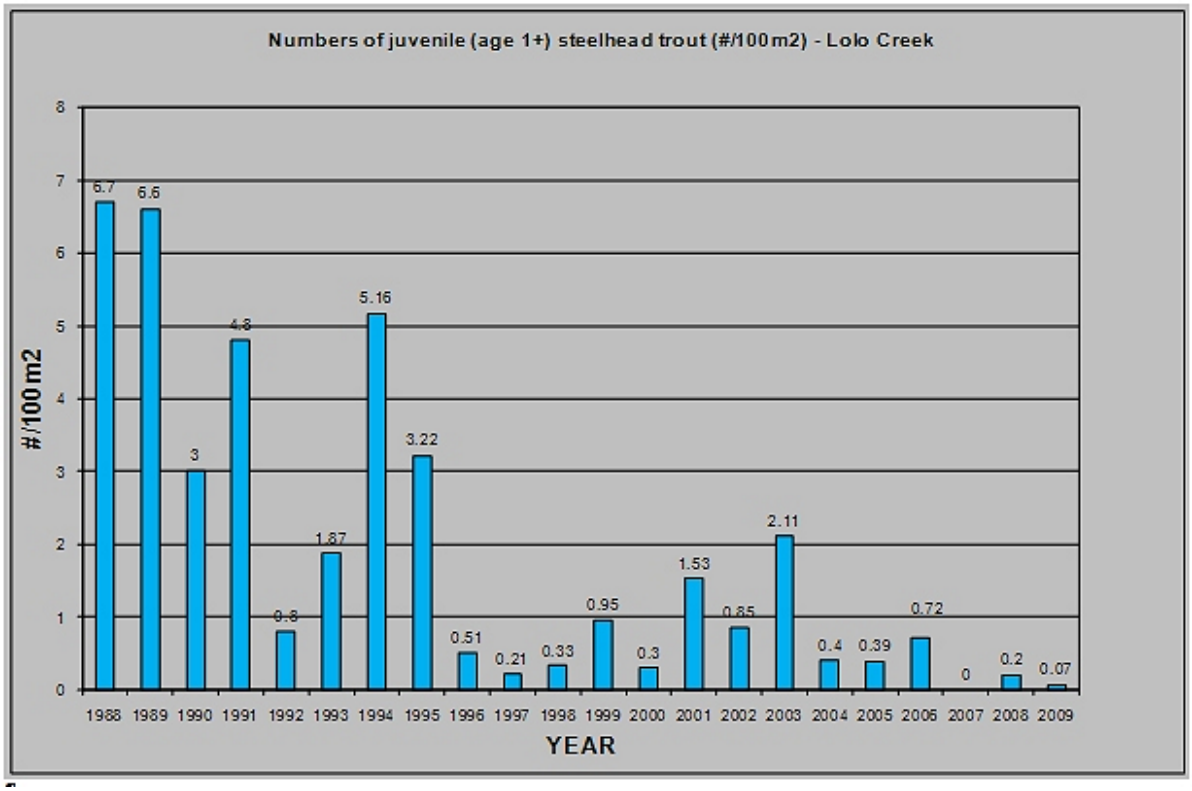
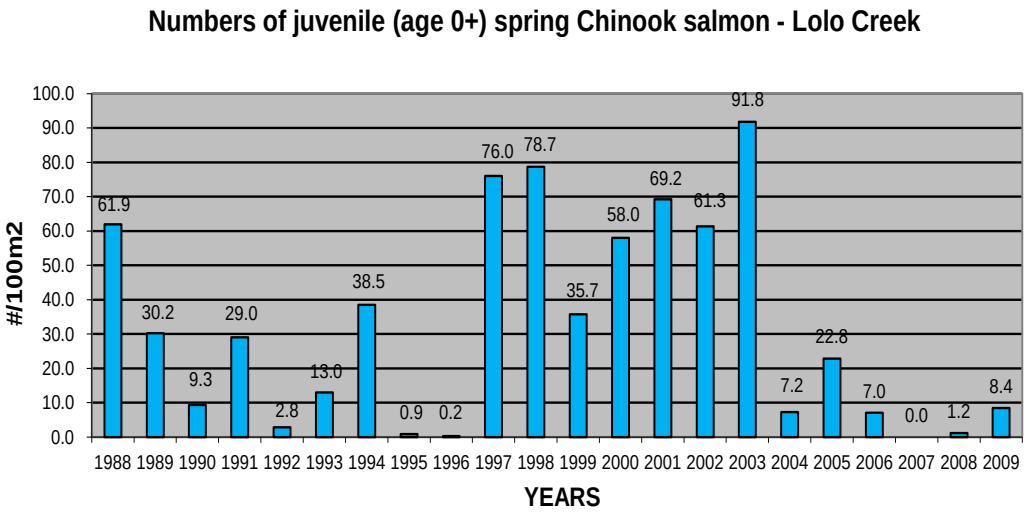


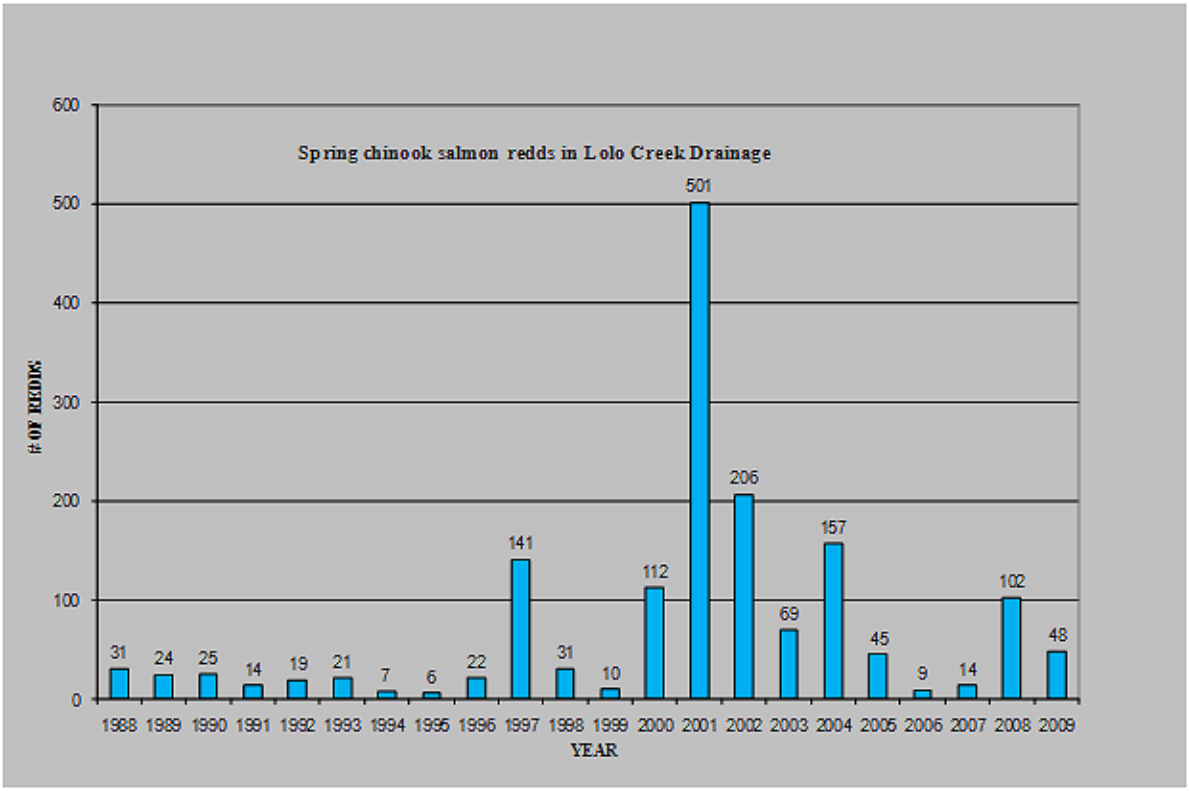
Figure 4: Comparison Of The Average Densities (#/100m²) Of Juvenile Spring Chinook Salmon (Age 0+) That Were Observed For Survey Period 1988-2009 At Permanent Snorkeling Stations On Lolo Creek By The Clearwater National Forest (Data For 1997 And 2000 Are Different Stations Conducted By The Nez Perce Tribe Within The Same Stream Reach)



Results of the 2009 surveys indicated that a total of 48 redds were located within the Lolo Creek drainage; all of the redds were located within mainstem (Figure 3)[8]. No redds were observed in Musselshell Creek, Eldorado Creek or Yoosa Creek. The number of redds within the Lolo Creek drainage was about 10 percent of the 2001 redd count (the highest in the 22-year monitoring period). The total redd count was slightly lower than half of the 2008 redd count and below the previous five-year average (2004-2008) of 65 redds.

[8] Nez Perce Tribe. 2010. Nez Perce Tribe Chinook salmon and steelhead adult escapement and spawning ground 2009 summary report. Nez Perce Tribe. Department of Fisheries Resource Management. Lapwai, Idaho.

Figure 5: 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 (1992-2009)



Mussel Population Monitoring: In 2009, no monitoring was scheduled within the Lolo Creek drainage. The monitoring established in 2008 on the seven viable populations will be redone in 2011.

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 2009 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). Only one wildfire (9.0 acres) occurred in the drainage during 2009. Various field reviews and monitoring activities have supported the conclusion that the habitat conditions are most likely similar to 1998-2008 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 2009.

Habitat Monitoring: Stream inventories of all fish bearing streams within the Middle Fork Clearwater River drainage have been completed on National Forest System lands during 1996. Since no natural or anthropogenic events have occurred since 1996 that would possibly change habitat conditions in the tributaries, re-surveys were not warranted in 2009. Re-surveys of stream reaches may occur for specific projects in future years, but funding constraints will limit re-surveys of entire drainages. As noted in the summary section, the overall status and trend of habitat conditions will be monitoring via the PIBO monitoring process.

Stream Habitat Monitoring/Surveys: The only PIBO aquatic monitoring site within the Middle Fork Clearwater River subbasin (established in 2004 on Smith Creek by the Multi-regional PIBO Effectiveness Monitoring Staff) was re-surveyed in 2009. The Forest will summarize the two years of data in future reports.

Water Temperature Monitoring: 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. Data for Swan Creek is currently pending analysis. During 1997, the Forest started collecting water temperature data from these streams to determine temperature problems and prioritize riparian recovery efforts. Comparison of the 2009 stream temperature data from Big Smith Creek, Little Smith Creek 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 both Big Smith Creek and Little Smith Creek. These streams are relatively small and do not contain any significant spring Chinook salmon rearing habitat. Minimal steelhead trout spawning and rearing occur in these streams; the westslope cutthroat trout rearing standard and spawning period meets the “high fishable” standards for steelhead trout.

Big Smith Creek and Little Smith Creek both 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 exceeded in both of these streams. As for bull trout, Big Smith Creek and Little Smith 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: No natural or anthropogenic events occurred in the Lochsa River watershed during 2009 that caused changes to the aquatic environment. Only five of the 34 wildfires were larger than one acre; these included Freezeout (2 acres), Maud (443), Rupe (53), Warm Springs (8), and Williams (3). These five wildfires were designated wildland fire use (no suppression actions). The remaining wildfires were either designated wildland fire use or suppression fires. 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, vegetative treatments, mining and grazing). Various field reviews and monitoring activities have supported the conclusion that the habitat conditions are most likely similar to 1998-2008 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.

Habitat Improvement: Improvement work regarding the aquatic resources was focused on watershed restoration (i.e. fish passage improvement and road decommissioning). Aquatic funds supplemented Forest funds from the engineering and partnership funds (Federal Highway Administration and BPA funds from the Nez Perce Tribe) to complete seven fish passage improvement projects in the Lochsa River drainage. The Forest and Tribe participated in the design, implementation and monitoring of these projects. The fish passage activities improved access for adult anadromous and inland fish and allowed for unimpeded access for juvenile fish and other aquatic species to an additional 6.6 miles of stream; approximately 6.1 stream miles (downstream of the structures) from also improved via reduced risk of culvert failures and chronic sedimentation. The road decommissioning and improvement projects are expected to improve approximately 7.8 miles of stream for bull trout, steelhead trout and westslope cutthroat trout via removing existing sediment sources.

Fish Passage Improvement - Lower Lochsa River Area: In 2009, funds from the Federal Highway Administration were used to replace three culverts on U.S. Highway 12. Culverts on Bimerick Creek and Glade Creek were replaced with bridges and the culvert on Apgar Creek was replaced with a bottomless culvert. The project improved access for steelhead trout, bull trout, westslope cutthroat trout and other aquatic organisms to approximately 3.5 miles of stream and reduced the risk of culvert failures and potential sediment input into approximately 0.3 miles habitat within the impact zone downstream of the culvert sites.

Fisheries funds were used to remove a culvert on Polar Creek within the Pete King Creek drainage. The project improved access for westslope cutthroat trout and other aquatic organisms to approximately 0.25 miles of stream and reduce the risk of a culvert failure and potential sediment input into approximately 0.5 miles habitat within the impact zone downstream of the culvert site.

Road Decommissioning - Lower Lochsa River Area: Besides general road maintenance work, no road decommissioning projects were scheduled in the lower portion of the Lochsa River subbasin.

Fish Passage Improvement - Upper Lochsa River Area: In 2009 Forest used fisheries improvement funds on three culvert replacements projects. Fisheries funds (1%) and Bonneville Power Administration funds directed through the Nez Perce Tribe (99%) were used for culvert replacement projects on Savage Creek, Haskell Creek and Horse Creek. The Forest and the Nez Perce Tribe also provided funds for the project design, environmental analyses, consultations and monitoring. The culvert replacements will improve access for steelhead trout, bull trout, westslope cutthroat trout and other aquatic organisms to approximately three miles of stream. The new structures will also reduce the risk of a culvert failure and potential sediment input into approximately 3.5 miles habitat within the impact zone downstream of the culvert sites.

Road Decommissioning and Improvement - Upper Lochsa River Area: Besides general road maintenance work, the Forest completed approximately seven miles of road decommissioning within the Lost Creek drainage and five miles road improvement with emphasis to aquatic restoration within the Waw'aalamnine (Squaw) Creek drainage. Forest (including fisheries funds) and partnership funds were used to support the planning and implementation of these projects. Engineering funds (50%) and Bonneville Power Administration funds through the Nez Perce Tribe (50%) were used to remove roads in the Lost Creek drainage; habitat conditions along approximately 2.8 miles of streams within the Lost Creek drainage are expected to improve for bull trout, steelhead trout and westslope cutthroat trout via removing existing sediment sources.

Aquatic funds (1%), Engineering funds (20%) and Bonneville Power Administration funds through the Nez Perce Tribe (79%) were used for the Road #108 Improvement Project that is located within Waw'aalamnine (Squaw) Creek drainage. The objective of the project was to reduce sedimentation from road #108 which parallels Waw'aalamnine (Squaw) Creek for approximately five miles. The project involved drainage improvements (adding cross drains and culverts, replacement of culverts, reshaping road, vegetative transplants, vegetated riprap work and aggregate placements). The project is expected to reduce potential sediment input into

approximately 5.0 miles habitat within Waw'aalamnine (Squaw) Creek which supports one of the best bull trout spawning streams within the Lochsa River drainage.

Habitat Monitoring: 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: The seven PIBO aquatic monitoring sites that were established in 2001 (1) and 2004 (6) within the lower Lochsa River drainage by the Multi-regional PIBO Effectiveness Monitoring Staff were re-surveyed in 2009. The Forest will summarize the two years of data in future reports. The two remaining PIBO sites (established in 2006) are scheduled to be re-surveyed in 2011.

In 2009, no stream surveys were scheduled within the lower Lochsa River drainage.

Stream Channel and Substrate Conditions – Lower Lochsa River Area: In 2009, no streams within the lower Lochsa River drainage were scheduled. Due to time and funding constraints, no substrate-monitoring (via coring) was conducted at the permanent monitoring sites in Pete King Creek or Deadman Creek during 2009. 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 24 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.

Stream Habitat Monitoring/Surveys - Upper Lochsa River Area*:* No Forest Plan and/or PIBO aquatic monitoring sites within the upper Lochsa River drainage were scheduled in 2009. The full complement of PIBO sites (14) were established in 2001 (4), 2002 (1), 2006 (5), 2007 (3) and 2008 (1) by the Multi-regional PIBO Effectiveness Monitoring Staff. The PIBO sites are scheduled to be re-surveyed in 2011. In addition the Forest established and surveyed two additional Forest Plan aquatic monitoring sites in 2007 within the upper Lochsa River drainage: Brushy Fork Creek and Badger Creek. Another site within the Colt Creek drainage will be established and surveyed in 2010. This information will supplement the monitoring the PACFISH/INFISH Biological Opinion Effectiveness (PIBO) has been conducting on the Forest since 2001. Four of these Forest Plan monitoring sites are scheduled to be re-surveyed in 2011.

In 2009, no stream surveys were scheduled within the upper Lochsa River drainage.

Stream Channel and Substrate Conditions - Upper Lochsa River Area: In 2009, no streams within the upper Lochsa River drainage were scheduled.

Water Temperature Monitoring: Stream temperatures were monitored throughout the summer at 73 sites on 64 streams within the Lochsa River drainage. The Forest has been collecting water temperature data from 1990-2009 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 2009 stream temperature data with desired maximum temperatures as defined for the "*high fishable*" and "*no effect*" standard in the Forest Plan revealed that:

1) Data is currently pending analysis for Beaver Creek, the only bull trout designated stream within the Forest Plan.

2) The desired steelhead trout rearing temperature of 15°C (no effect) was met at two of the seven streams (Dan Creek and Swamp Creek) monitored with a "no effect" standard. Fish Creek (upper) exceeded the standard on one day.

3) The desired steelhead trout rearing temperature of 17°C (high fishable) was met at 27 streams out of the 29 streams monitored with a "high fishable" standard. The remaining two streams, Pete King Creek (mouth) and Deadman Creek (mouth) exceeded the standard on 24 days and 2 days respectively.

4) The desired spring Chinook salmon rearing temperature of 15°C (no effect) was met at one of the four major streams with Chinook salmon habitat; Waw'aalamnine (Squaw) Creek (above West Fork Waw'aalamnine Creek).

5) The desired westslope cutthroat trout rearing temperature of 13°C was not met at of the seven streams monitored with a "no effect" standard.

6) The desired westslope cutthroat trout rearing temperature of 16°C (high fishable) was met at 16 of the 17 streams monitored with a "high fishable" standard. The remaining stream, Hoodoo Creek exceeded the standard on just two days.

Overall, water temperatures of 63 of the 64 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. Three of the four sites on the mainstem Lochsa River (upstream Pete King Creek, upstream Eel Creek, upstream Boulder Creek) exceeded the standard. The mainstem Lochsa River (upstream Cliff Creek) did not exceed the standard. The State standard of 13°C for the summer period (spring Chinook salmon was met at Waw'aalamnine (Squaw) Creek (upstream West Fork Waw'aalamnine Creek). The State standard of 13°C for the spring spawning period (steelhead trout) was met at 12 of the 35 streams monitored. An additional twelve streams exceeded the standard on five days or less. The State standard of 13°C for the spring period for westslope cutthroat trout was met at 6 of the 24 monitored streams with another three streams exceeding the standard on five or fewer days. 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 was met at Muleshoe Creek and West Fork Waw'aalamnine (Squaw) Creek (upstream Spring Creek). Exceeding the bull trout maximum summer rearing temperature on five days or less were Bridge Creek (1 day), Williams Lake Creek (3 days) and Spring Creek (5 days).

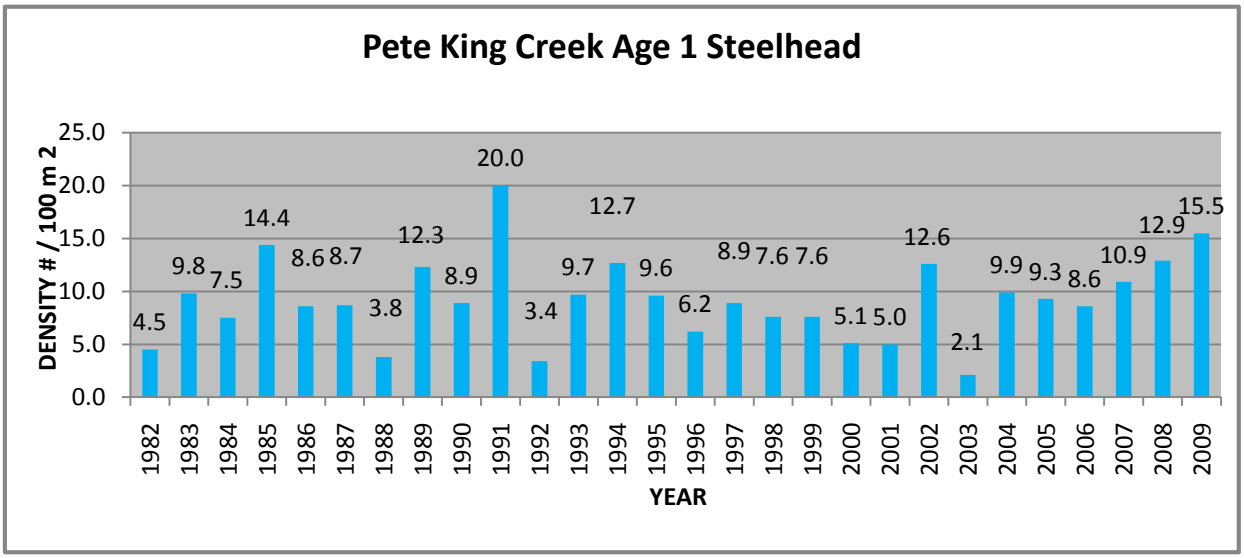
Fisheries Population Monitoring - Lower Lochsa River Area: As in previous years, fish population monitoring (via snorkeling) of selected streams continued at established long-term monitoring stations. However, budget constraints and inclement weather conditions during late August limited the number of sites to the Pete King Creek and lower Fish Creek drainages. No monitoring was conducted in Deadman Creek, Hungry Creek (lower and middle sections) or upper and mid Fish Creek in 2009. Average steelhead juvenile densities at the Pete King Creek sites showed the highest levels since 1991. The lower Fish Creek sites showed a substantial decline in densities from the previous several 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 4).

The 2009 data indicated that steelhead trout populations within Pete King Creek increased slightly over the 2004-2008 levels and were higher than the 28-year average of 9.1 age 1+ fish/100m^2. Fish population data collected by the Forest showed densities of juvenile steelhead (age 1+) averaged about 15.5 fish/100m^2 in lower Pete King Creek. In 2009, the fish population monitoring only included eight of the ten original transects; changes in stream conditions have resulted in a majority of non-pool habitats at two original transects.

The 2009 densities are at the desired densities of juveniles (age 1+) >15 fish/100m^2 (Figure 4). 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 6: Comparison Of The Average Densities (#/100m²) Of Juvenile Steelhead Trout (Age 1+) That Were Observed For Survey Period 1982-2009 Permanent Snorkeling Stations On Pete King Creek In The Lochsa River Drainage By The Clearwater National Forest. Only Six And Eight Of The Ten Sites Were Monitored In 2006 And 2008/2009 Respectively Due To Habitat Changes



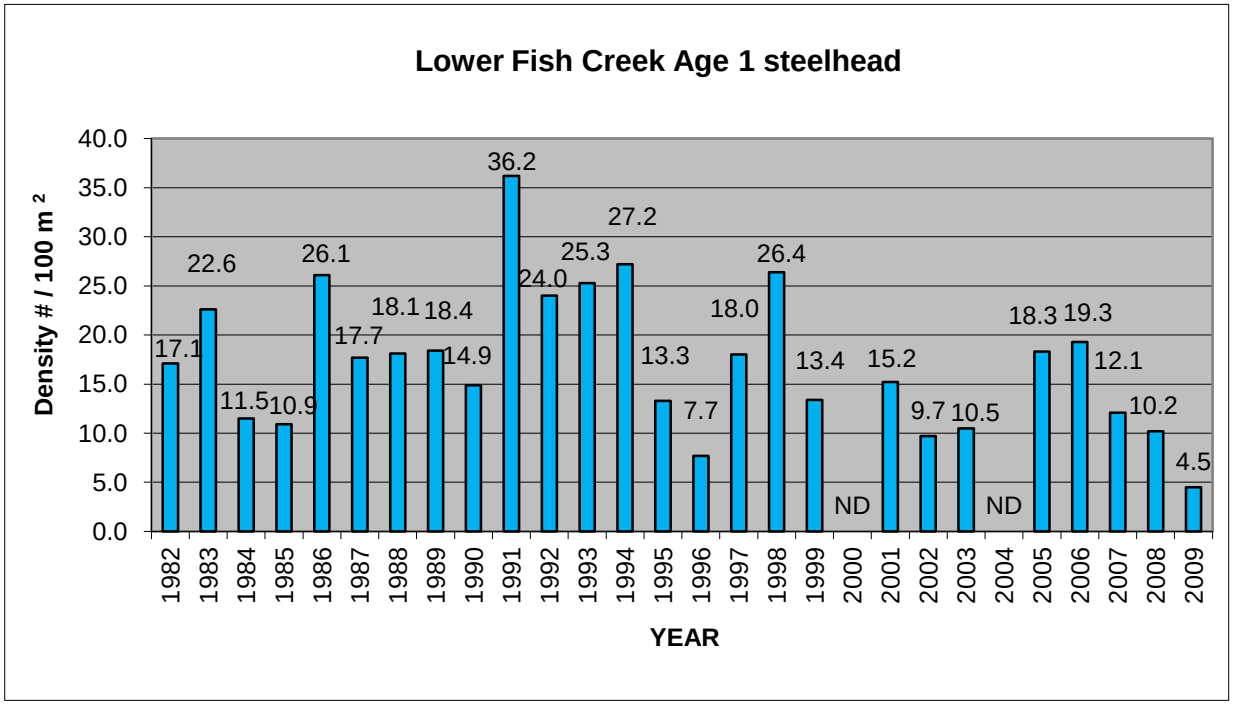
Monitoring of age 1+ steelhead trout juveniles within the Fish Creek and Hungery Creek drainages has been conducted over a number of years to assess the trend in steelhead production within undeveloped watersheds within the lower Lochsa River drainage (Figure 5). Budget and time constraints in 2009 limited fish population sampling to the ten permanent sites within lower Fish Creek.

The average steelhead trout juvenile densities in 2009 showed a substantial decrease (76%) at the lower Fish Creek sites as compared to the 2005-2006 average of 18.8 fish/100m² (Figure 5). The 2009 densities (4.5 fish/100m²) were approximately 66 percent lower than those observed in 2008 (10.2 fish/100m²) and are below the desired densities of juveniles (age 1+) >15 fish/100m² (Figure 5); the average density observed in 2009 is also lower than the period of record (25-year average) of 17.8 fish/100m².

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 over the past several years 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 1982-2009 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



As part of the continuing Idaho Supplemental Studies being conducted in the Lochsa River drainage, the U.S. Fish and Wildlife Service completed the 2009 spring Chinook spawning ground surveys in lower five miles of Pete King Creek. The survey found one redd during the 2009 spawning period (U.S. Fish and Wildlife Service 2010)[9]. Spring Chinook spawning in Pete King Creek occurs infrequently as redds counts have ranged from 0-2 in most years. 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.

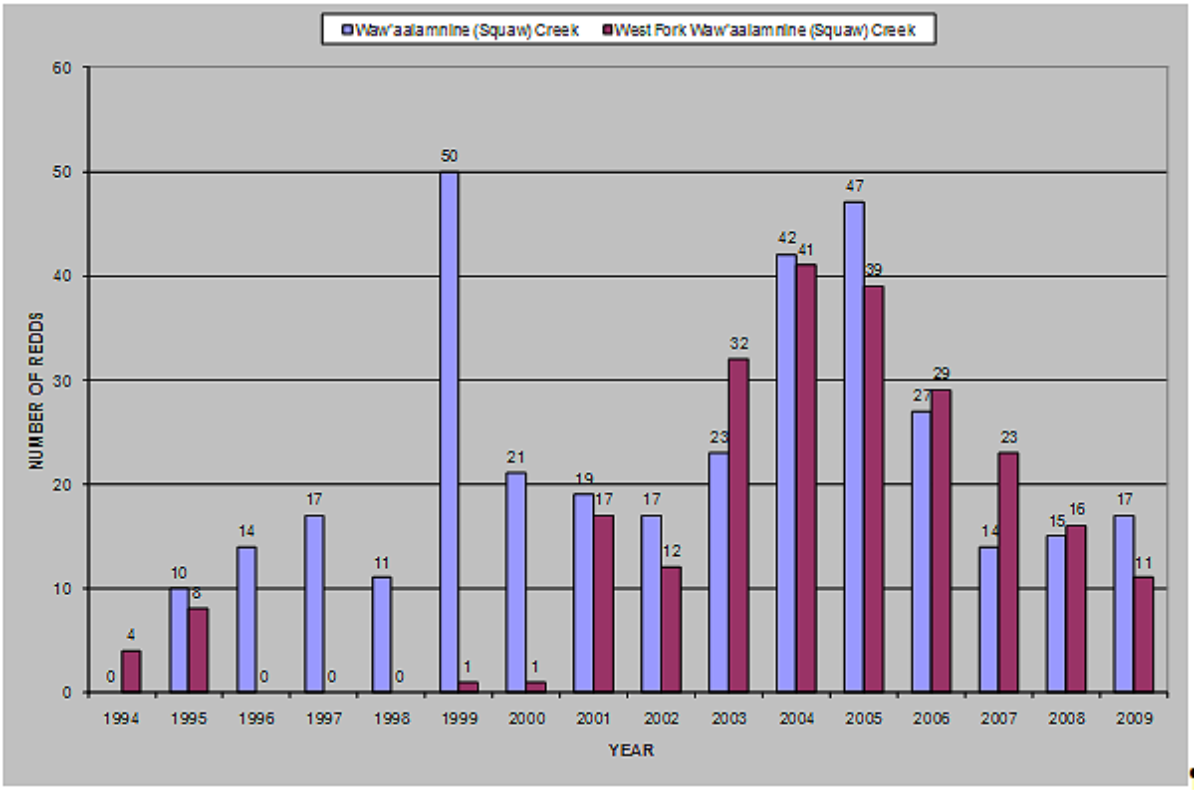
Fisheries Population Monitoring - Upper Lochsa River Area: Due to budget constraints and other priorities, the Forest did not conduct any fish population monitoring (via snorkeling) in the upper Lochsa River drainage during 2009.

In 2009, 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 late August through early September. 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 (28 redds) was documented during multiple surveys in these two streams.

[9] U.S. Fish and Wildlife Service. 2010. Provisional data from Idaho Fishery Resource Office, Dworshak National Fish Hatchery, Ahsahka, Idaho.

A summary of bull trout redds counted during the past 16 years (1994-2009) for the Waw'aalamnine (Squaw) Creek drainage is shown in Figure 6. The 2009 redd counts were lower than in 2008, showing a four 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 did 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 8: Number Of Bull Trout Redds Observed By Forest In Waw'aalamnine (Squaw) Creek And West Fork Waw'aalamnine (Squaw) Creek During 1994-2008 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 2009 spring Chinook spawning ground surveys in Imnamatnoon (Papoose) and Waw'aalamnine (Squaw) creeks. Results of these surveys indicated that spring Chinook spawning in Imnamatnoon (Papoose) Creek and Waw'aalamnine (Squaw) Creek were slightly above and slightly below the 17-year average respectively (Figures 7 and 8).[10] A total of 32 and 7 redds were located within Imnamatnoon (Papoose) Creek and Waw'aalamnine (Squaw) Creek respectively. This compares to an average of 30.1 redds/year in Imnamatnoon (Papoose) Creek and 11.6 redds/year in Waw'aalamnine (Squaw) Creek during 1992-2008 survey period.

[10] Nez Perce Tribe. 2010. Nez Perce Tribe Chinook salmon and steelhead adult escapement and spawning ground 2009 summary report. Nez Perce Tribe Fisheries Department, Lapwai, Idaho.

Figure 9: Number Of Spring Chinook Salmon Redds Observed By Nez Perce Tribe In Imnamatnoon (Papoose Creek) During 1992-2009 Spawning Season[11]

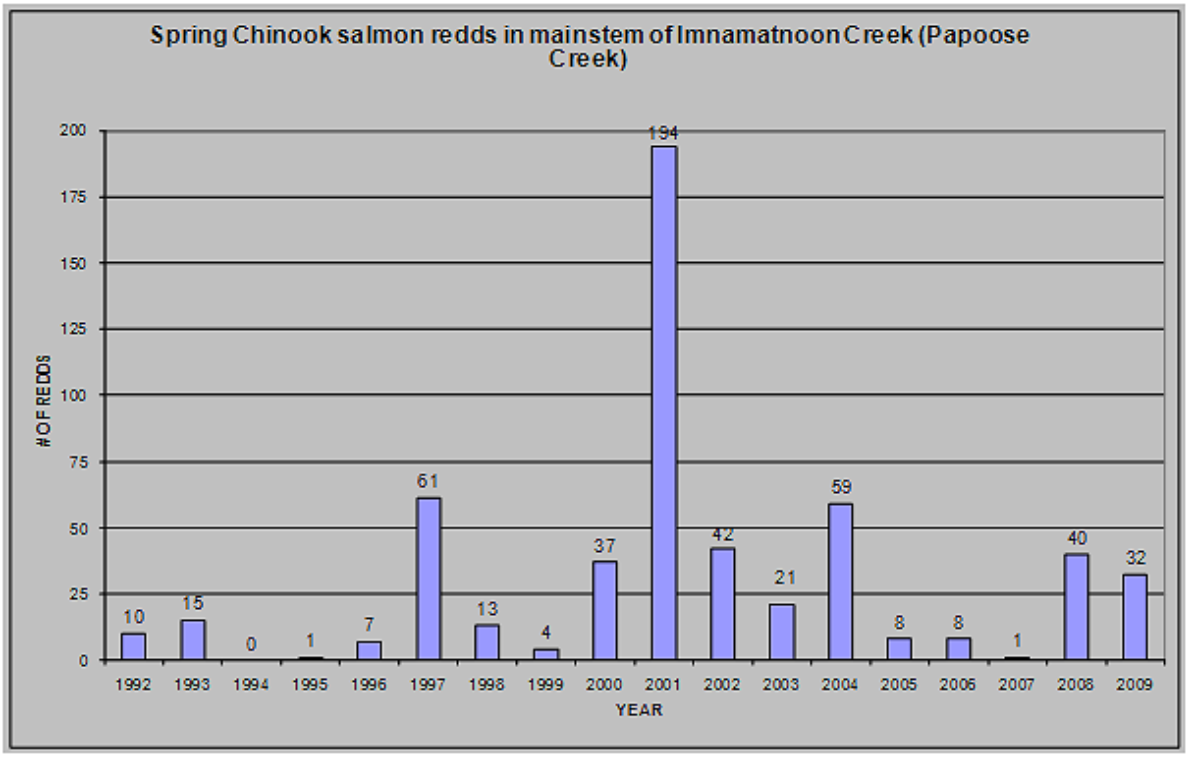
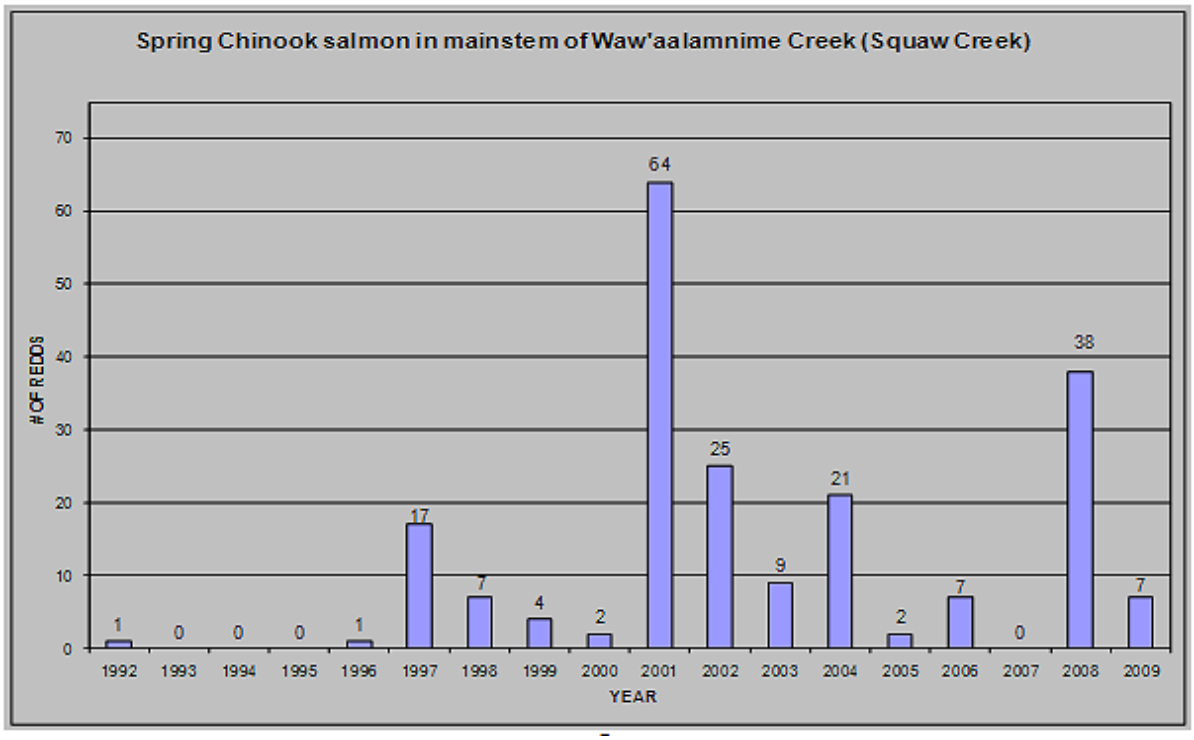


Figure 10: Number Of Spring Chinook Salmon Redds Observed By Nez Perce Tribe In Waw'aalamnine (Squaw Creek) During 1992-2009 Spawning Season[12]



NORTH FORK CLEARWATER RIVER WATERSHED

Two major watersheds within the Forest provide habitat only to inland (resident) fisheries. Dworshak Dam on the North Fork Clearwater River ended the anadromous fish migration into the watershed including USFS lands. The Palouse River drainage, a tributary to the Snake River does not have anadromous fisheries due to the migration barrier at Palouse Falls.

Watershed Status: No natural or anthropogenic events occurred in the USFS drainages within the North Fork Clearwater River watershed during 2009 that caused visible or measurable changes to the aquatic environment. Only four of the 20 wildfires were larger than one acre; these included Bar Creek (6 acres), Grasshopper Creek (10), Placer (6), and Swamp (5). 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 1998-2008 conditions. Based on these assessments, the presence/absence and relative abundance of fish

[12] Nez Perce Tribe. 2010. Nez Perce Tribe Chinook salmon and steelhead adult escapement and spawning ground 2009 summary report. Nez Perce Tribe Fisheries Department, Lapwai, Idaho.

populations within the watershed are assumed to be similar to conditions observed during various surveys throughout the 1990's.

Habitat Improvement: Besides annual road maintenance projects, improvement work regarding the aquatic resources was focused on watershed restoration (i.e. fish passage improvement and road improvement); no road decommissioning projects were scheduled in the North Fork Clearwater River drainage in 2009. Aquatic funds supplemented Forest funds from the engineering and partnership funds (U.S. Fish and Wildlife Service) to complete two fish passage improvement projects and one road improvement project in the upper North Fork Clearwater River subbasin. The Forest funds (fisheries and engineering) were used in the design, implementation and monitoring of these projects.

Fish Passage Improvement: In 2009, the Forest used fisheries improvement funds on one culvert replacement project and one stream ford improvement project. Forest funds (engineering) were used to replace a culvert on Unnamed (Squaw) Creek. The project improved access for bull trout, westslope cutthroat trout and other aquatic organisms to approximately 5.6 miles of stream and 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.

Fisheries funds (1%), U.S. Fish and Wildlife Service (26%), and engineering funds (73%) were used to replace a stream ford on Independence Creek; a vented ford structure (bridge) was constructed to allow for full passage for bull trout and westslope cutthroat trout. The project improved fish passage for approximately 1.8 stream miles; approximately 0.2 stream miles (downstream of structure) was protected from structure failure.

Road Decommissioning: In 2009, no road decommissioning projects were scheduled in this subbasin.**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.

Re-surveys of stream reaches may occur for specific projects in future years, but funding constraints will limit re-surveys of entire drainages. As noted in the summary section, the overall status and trend of habitat conditions will be monitoring via the PIBO monitoring process. The PIBO aquatic monitoring sites will provide the Forest an assessment of stream habitat, riparian and water quality conditions within the Palouse River drainage; this information will be reported under the current and future Forest Plans.

Stream Habitat Monitoring/Surveys: The full complement of PIBO sites (28) were established in 2001 (1), 2002 (1), 2004 (15), and 2005 (6) by the Multi-regional PIBO Effectiveness Monitoring Staff. The PIBO sites are scheduled to be re-surveyed in 2009-2012. In 2009, 16 PIBO sites were re-surveyed; the Forest will summarize the two years of data in future reports. In addition to two supplemental monitoring sites established by the Forest in the Moose Creek and Orogrande Creek drainage in 2007, the Forest established and surveyed three additional Forest Plan aquatic monitoring sites in 2008 within the North Fork Clearwater River drainage: Deception Gulch, Lake Creek and Fourth of July Creek. Another site, Isabella Creek will be established in 2010. This information will supplement the monitoring the PACFISH/INFISH Biological Opinion Effectiveness (PIBO) has been conducting on the Forest since 2001. Four of these Forest Plan monitoring sites are scheduled to be re-surveyed in 2011.

In 2009, no stream surveys were scheduled within the North Fork Clearwater River drainage.***Stream Channel and Substrate Conditions***: In 2009, 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 2009 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.

Comparison of the 2009 stream temperatures data from 113 sites on 103 streams with available data with the desired maximum temperatures as defined for the appropriate standards in the Forest Plan Forest Plan revealed that:

1) The desired westslope cutthroat trout rearing temperature of 13°C (no effect) was monitored at seven streams. The standard was met at Bear Creek and Grasser Creek. The standard was not met at any of the four sites on mainstem North Fork Clearwater River.

2) The desired westslope cutthroat trout rearing temperature of 16°C (high fishable) was met at 63 streams out of the 75 streams monitored with a "high fishable" standard. Of the remaining twelve streams, two streams exceeded the standard by five days or less, Larson Creek (5 days) and Sprague Creek (3 days).

3) The desired westslope cutthroat trout rearing temperature of 18°C (moderate fishable) was met at all eight streams monitored with a "moderate fishable" standard.

4) The desired westslope cutthroat trout rearing temperature of 20°C (low fishable) was met at all 13 streams monitored with a "low fishable" standard.

5) The desired brook trout rearing temperature of 17°C (high fishable) was met at both of the streams monitored: West Fork Elk Creek and Johnson Creek.

6) The desired brook trout rearing temperature of 20°C (low fishable) was met at all three monitored streams, Oviatt Creek, Partridge Creek and Long Meadow Creek.

Overall, water temperatures of 108 of 109 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. Two sites on the mainstem North Fork Clearwater River (upstream Orogrande Creek and upstream Weitas Creek) exceeded the standard on one day. The State standard of 13°C for the spring period for westslope cutthroat trout was met at 53 of the 112 streams monitored with a State standard. An additional 13 streams exceeded the standard for five days or less. Sixteen 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. Ten additional streams 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 2009. IDFG also conducted bull trout spawning surveys on several streams.

Bull Trout Spawning Surveys: Surveys were conducted on five streams within the North Fork Clearwater River drainage. Approximately 4.7 miles of stream within the upper North Fork Clearwater River and Moose Creek drainages were surveyed by the Forest during the spawning period of late August through early September. The streams included: Moose Creek, Bostonian Creek, Niagara Gulch, Placer Creek and Vanderbilt Creek.

Bull trout spawning (69 redds) was documented in four of the five 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 Vanderbilt Creek and Bostonian Creek drainages. The 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 2009; 49 redds were documented in the two mile stream reach. Major concentrations of redds were also found in Bostonian Creek.

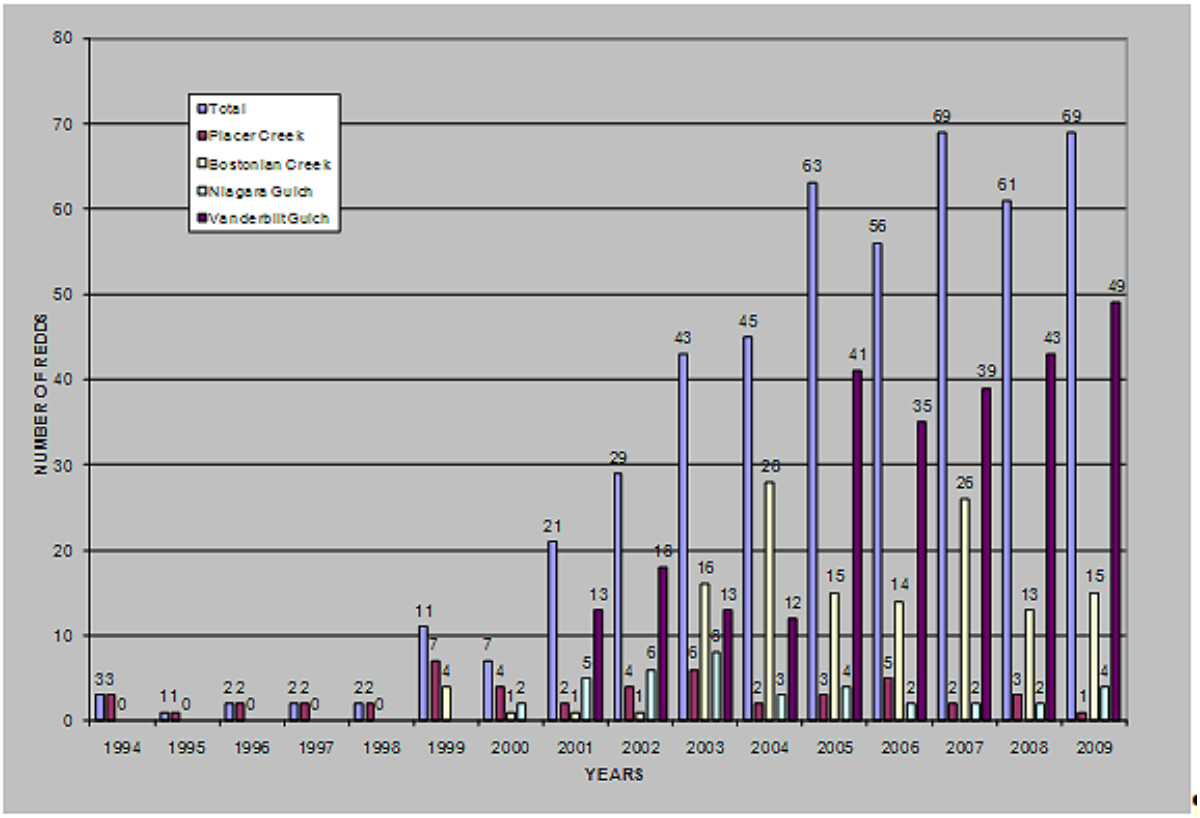
Comparison of redd count data collected in index areas of the four major spawning streams within the upper North Fork Clearwater River drainage indicates an average of 58 redds over the past seven years (2003-2009). Although redd counts show some minor annual fluctuations during the past seven years, the trend is relatively stable in these four drainages. Redds counts in other drainages in the North Fork Clearwater River have been more sporadic. Prior to 2003, only one survey was conducted on the four streams in the upper North Fork Clearwater River; 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 9 displays the redd count information available for the bull trout spawning index areas that are monitored each year.

IDFG Bull Trout Spawning Surveys: In addition to the Forest's surveys, the IDFG conducted bull trout spawning surveys within several major tributaries in the North Fork Clearwater River drainage that have shown persistent bull trout spawning activity. In 2009, IDFG found bull trout redds in Goose Creek (2), Long Creek (11), North Fork Kelly Creek (6), and Lake Creek (2).[13]

IDFG Population Monitoring: IDFG did not conduct their annual fish population monitoring via snorkeling at the permanent monitoring sites throughout the North Fork Clearwater River drainage in 2009.

[13] Idaho Department Fish and Game. 2009. Provisional data.

Figure 11: 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 (1994-2009)



PALOUSE RIVER DRAINAGE

Watershed Status: No natural or anthropogenic events occurred on USFS lands in the Palouse River watershed during 2009 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 wildfires occurred in the Palouse River drainage in 2009. Various field reviews and monitoring activities have supported the conclusion that the habitat conditions for most drainages are most likely similar to 1998-2008 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 2009.

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 have been planned every five to ten years dependent upon stream conditions,

management proposals and available funds. Re-surveys of stream reaches may occur for specific projects in future years, but funding constraints will limit re-surveys of entire drainages. As noted in the summary section, the overall status and trend of habitat conditions will be monitoring via the PIBO monitoring process. The PIBO aquatic monitoring sites will provide the Forest an assessment of stream habitat, riparian and water quality conditions within the Palouse River drainage; this information will be reported under the current and future Forest Plans.

Stream Habitat Monitoring/Surveys: No re-surveys of the PIBO aquatic monitoring sites within the Palouse River drainage were scheduled in 2009. The full complement of PIBO sites (3) were established in 2001 (1) and 2006 (2) by the Multi-regional PIBO Effectiveness Monitoring Staff. The PIBO sites are scheduled to be re-surveyed in 2011.

In 2009, no other Forest Plan monitoring or re-surveys were scheduled within the Palouse River drainage.

Stream Channel and Substrate Conditions: In conjunction with the Forest Plan monitoring efforts, stream channel and substrate conditions were monitored at permanent sites on two streams: Little Sand Creek and Gold Creek. See *riparian section* for more information.

Water Temperature Monitoring: Stream temperatures were monitored throughout the summer on 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 2009 stream temperature data from the 11 baseline sites and the desired maximum temperatures as defined for the "low fishable" standard in the Forest Plan revealed that:

1) The desired rainbow trout and brook trout rearing temperature of 20°C was met at nine of the ten monitored streams: Big Creek, Big Sand Creek, Little Sand Creek, Gold Creek, North Fork Palouse River, Mannering Creek , Meadow Creek (downstream Blakes Fork Creek), Palouse River (at gage and downstream Wagner Gulch) and Strychnine Creek.

2) The remaining stream, East Fork Meadow Creek, exceeded the standard on four days.

Water temperatures at all ten monitored streams, Big Creek, Big Sand Creek, Little Sand Creek, Gold Creek, Mannering Creek, North Fork Palouse River, East Fork Meadow Creek, Meadow Creek (downstream Blakes Fork Creek), Palouse River (at gage and downstream Wagner Gulch) 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 State standard of 13°C for the spring spawning periods for rainbow trout was not met at the only site with a State standard; North Fork Palouse River exceeded the standard on 31 days. 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 2009.

HIGH MOUNTAIN LAKES: NORTH FORK CLEARWATER AND LOCHSA RIVER DRAINAGES

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 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 2010 a master agreement for 2010-2014 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 2009 field season and included under the agreement for both forests were as follows: Activity 1:

- Implementation of landscape based monitoring and evaluation program as described in the High Lakes Plan. Monitoring was conducted in the Storm Creek and Warm Springs Creek drainages on the Clearwater National Forest in 2009.

- 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 2009 field season under Activity 2 for the Clearwater National Forest included:

- 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 2009, specific accomplishments on the Clearwater National Forest included:

- Of the nine lakes remaining to be surveyed in the Storm Creek drainage (five were surveyed in 2007), an additional five lakes were surveyed in 2009: Dan, Middle Storm, North Section 25, North Storm and South Section 25; the remaining four lakes will be surveyed during the next five-year rotation.
- Within the Warm Springs Creek drainage, the field crews finished surveys on three lakes that initial surveys were completed in fall 2008: Middle Wind, Northwest Wind and West Wind. Field crews also completed the survey on Dodge Lake. The remaining lake (Hungry Lake) is scheduled to be surveyed in 2010; a total of ten lakes were scheduled for survey under this project.
- 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.

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.

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.

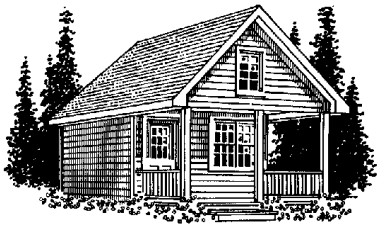
ACCOMPLISHMENTS/FINDINGS

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 2009, the Clearwater National Forest continued to operate 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 90 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 336 days to secure concurrence from the State Historic Preservation Officer (SHPO). In the case of FY2009, this was particularly important as the number of heritage personnel remained reduced by one, Thirty-two section 106 projects were completed under the auspices of the PA during FY2009. Eight of these involved field inventory and site evaluation, resulting in the inventory of approximately 3,214 acres and the documentation of 14 new historic properties and the re-evaluation and assessment of four previously recorded sites. In addition to the inventories conducted by Clearwater National Forest personnel, Consultation was initiated on a major American Recovery and Re-investment Act involving mitigation of adverse effects to a prehistoric archaeological site (10CW34). Although the final results and actual field work will be reported on in FY2010, the Memorandum of agreement regarding the mitigation of adverse effect was developed and completed prior to September 30, 2009. The Heritage Program continued to improve its efforts in the realm of information management in Fiscal year 2009. The Forest is now fully compliant with National and Regional direction regarding the population and use of the INFRA Heritage Module as the program's database of record. In FY2009, all upward reporting regarding heritage program accomplishment was completed using the Heritage INFRA module. Along with the section 106 undertakings, the Clearwater continues to maintain an active section 110 Program and condition assessments were carried out for 32 historic properties. The goal of the 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. In part, these activities continue to be carried under the auspices of the Regional Recreation Director's emphasis "Heritage

Stewardship Enhancement" initiative. Using these funds, a Challenge Cost Share was developed with the University Idaho. The University, over the course of next several years, be revisiting sites within the Lolo Trail National Historic Landmark, conducting condition assessments and inventorying areas of the Landmark not previously inventoried.

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 objectivess.

FINDINGS

The Office of General Counsel executed the Preliminary Title Opinion for the *BOISE FOOTHILLS-NORTHERN IDAHO LAND EXCHANGE* Phase II on September 9, 2009. Access analysis was completed to address access needs of the parties as well as public access. All but one of the conveyance and easement documents for Phase II were executed by the United States of America and the State of Idaho in September and October 2009. State of Idaho Deed No. 13752 conveying the State Aldape parcel to the USA was executed on January 25, 2010. All deeds were then recorded in February of 2010.

Participants of the *BOISE FOOTHILLS-NORTHERN IDAHO LAND EXCHANGE* include the Clearwater National Forest, Idaho Panhandle National Forest, Boise National Forest, Idaho Department of Lands, and the BLM. In Phase II the Forest Service conveyed 132.50 acres in exchange for approximately 460 acres from the Idaho Department of Lands. Under this exchange, a total of 7,232 acres of Federal land were conveyed and 3,514.05 acres of non-Federal lands were acquired from the State of Idaho across three Forests. The exchange was authorized by the Idaho Land Enhancement Act of 2006 (120 Stat. 2645).

In September 2008 the Clearwater National Forest completed a feasibility analysis for the proposed Upper Lochsa Land Exchange. The outcome of the feasibility analysis was a recommendation to enter into an "Agreement to Initiate" which was signed by both parties in September 2008. In the proposed land exchange the Forest Service would acquire approximately 39,371 acres of land from Western Pacific Timber, LLC (WPT) formerly owned by Plum Creek Timber Co. in the upper Lochsa River drainage in exchange for approximately 28,212 acres of federal land. The federal lands are located within the Clearwater, Nez Perce and Idaho Panhandle National Forests. Public scoping to begin the EIS for the land exchange was initiated with a notice in the Federal Register in December 2008. The draft EIS is anticipated to be available for public review in August 2010.

Both referenced land exchanges are in compliance with the primary goals and objectives for the Lands program as stated in the 1987 Clearwater Forest Plan. The goals include: Achieve a land ownership pattern in the Forest that will provide for soil and watershed protection, and effective

and efficient management of National Forest System lands. Acquire lands that will maximize short-range and long-range management opportunities. Dispose of lands which do not contribute to Forest Plan management direction.

Kooskia & Kamiah Conveyance Projects: These projects were nominated under the FSREA (Forest Service Facility Realignment and Enhancement Act of 2005 (Title V. P. L. 109.54) program to be conveyed pending a feasibility analysis to meet objectives of the Forest Facilities Master Plan to reduce facility maintenance costs. In 2009 the Kooskia Administrative Site Conveyance project was withdrawn due to significant heritage issues. The Kamiah Administrative Site Conveyance Project has been put on hold pending analysis of the consolidation of the Clearwater and Nez Perce National Forests.

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 57 operations were processed on the Forest during FY09. All 57 operations were non-bonded nonenergy operations. A total of 70 operations were administered to standard. Of the 70, 13 were bonded nonenergy operations.

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 70 total operations processed and administered during FY09.

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 20 ounces of gold were mined from the Forest during FY09. The value of this amount of gold would be approximately $19,446.80 at an average gold price of $972.34/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 27 tons of materials were produced from national forest lands in FY09 with an estimated value of $270.

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.

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.)

Frequency of Measurement: Annual
Reporting Period: Five Years

MONITORING ACTION

Forest range personnel will annually monitor each grazing allotment for range readiness, range condition, forage utilization, condition of range improvements 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 and updating improvements.

ACCOMPLISHMENTS/FINDINGS

Range allotments are routinely monitored for use, possible resource damage and maintenance needs. Current range conditions overall are good. There are 17 cattle allotments and 15 grazing permits on the Forest. There is currently one inactive allotment. 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. There were approximately 5,319 head months (HMs) this year.[14] These numbers reflect the permitted animals on cattle allotments, and do not include animals associated with recreational visitors.

Fence Maintenance: Aside from boundary and pasture fence maintenance, exclosure fence maintenance activities within the Potlatch River, Palouse River and Lolo Creek drainages were completed in 2009 to administer grazing as well as providing riparian area protection. The range program took over the funding of the riparian fence maintenance projects that fisheries funded during 1992-2005. Approximately 12.7 miles of riparian areas including stream banks and stream channels were protected from grazing in 2009 (see *fisheries section* for additional information).

Potlatch River Drainage: Riparian fences on 18 riparian exclosures:

[14] For grazing purposes, a head month is a month's use and occupancy of the range by one weaned or adult cow with or without a calf, bull, steer, heifer, horse, burro, mule or five sheep or goats (1.32AUM's/HM).

Table 12: Potlatch River Drainage Riparian Exclosures

Fence Name	Fence Length (ft)	Riparian Acres Protected
Corral Creek Allotment		
Hanks Fence	1,919	1.5
Tee Pond Exclosure Fence	2,367	5.5
Upper EF Exclosure	1,067	0.7
Lower EF Exclosure	1,428	2.1
West Fork Potlatch/Moose Allotment		
Feather Creek Exclosure	8,009	10.1
West Fork Potlatch Exclosure 1	1,555	2.8
West Fork Potlatch Exclosure 2	5,294	6.9
West Fork Potlatch Exclosure 3	3,106	3.6
West Fork Potlatch Exclosure 4	7,596	15.5
West Fork Potlatch Exclosure 5	1,887	3.0
Cougar Upper Exclosure	3,451	4.5
Cougar Lower Exclosure	4,463	6.0
Potlatch Creek Allotment		
McGary Meadows Lower Exclosure	2,545	4.7
McGary Meadows Middle Exclosure	3,999	5.6
McGary Meadows Upper Exclosure	6,634	10.2
Potlatch River Trail Fence	5,708	76.2
Ruby Creek Exclosure	1,971	10.5
Purdue Creek Allotment		
Nat Brown Exclosure	3,153	2.5
Potlatch River Drainage Total	**66,152**	**171.9**

Lolo Creek Drainage: Fence maintenance on existing riparian enclosures was completed in 2008 using range funds.

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

Improvements: During 2008, the Forest concentrated its funding and efforts in reconstructing the Musselshell Meadows Fence to protect meadow and riparian values along Musselshell Creek; steelhead trout and spring Chinook salmon spawn and rear within and adjacent to Musselshell Meadows. The Nez Perce Tribe assisted with the reconstruction efforts. Due to problems acquiring materials during the summer of 2008, only 50 percent of the fence (approximately 2,600 feet) was completed in 2008. The remaining materials were purchased with 2008 funds and the rest of the fence will be reconstructed in early 2009.

Monitoring: During 2008, the Forest completed the following monitoring and evaluations projects:

- Range readiness observations were completed on all allotments prior to grazing.
- The Forest conducted clip and forage production sampling on the larger allotments with pasture rotations.
- Grazed loop measurements were taken on the larger allotments with pasture rotations.

- Stubble height measurements were taken on the smaller non-rotational allotments.
- Photo points were taken on all allotments; some of these points were newly established monitoring sites.

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:

- Compare recreation use on the Forest with the broad range of opportunities that could occur and are supported in the Forest Plan,
- Identify changes or conflicts in existing recreation use, and
- 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 in 2009 within the Lolo Creek drainage, Lolo Motorway corridor, and Elk Summit, Parachute Hill and Saddle Camp roads was not noticeable different from 2008. This overall decrease in use from previous years is thought to have occurred due the national economy and the increase cost of fuel. 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. However the low numbers of elk in theses areas continued to reduce the number of hunters visiting this area.

Recreation use within the North Fork Clearwater River corridor was similar to the above in 2009. Visitation was observed from late April through Labor Day summer season, with fishing, boating, driving for pleasure, developed and dispersed camping being the main activities. These GFAs are also visited during fall hunting season. The low numbers of elk in the North Fork Clearwater watershed continued to reduce the number of hunters visiting this area. These GFAs are also visited during fall hunting season.

Due to the proximity of major population centers (Spokane and Pullman, WA and Moscow and Lewiston, ID) recreation on the Palouse Ranger District continues to steadily increase, with an ever-growing draw for motorized recreation and developed camping. 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 2009, the Forest continued with a participating agreement with the Great Burn Study Group. Under this agreement the forest funded the group to complete a variety of work in the Great Burn, including:

- Application of herbicides to noxious weeds along the Kelly Creek Trail #567 and various other locations in the Great Burn
- Weed inventories on a number of trails throughout the Great Burn
- Monitoring and documenting effectiveness of herbicide applications on all treated sites 2+ weeks after spraying

- Completion of a daily journal of work activities and final summary narrative of all work completed during the field season
- Completion of monitoring trips on the North Fork Ranger District to evaluate the wild and remote character of various areas, replace signs in the Great Burn, evaluate campsites and stock staging areas at Leo Lake, and rehabilitate campsites on lake shores in the Kidd Lake area

DEVELOPED AREA USE

Campgrounds: Fees collected in FY2009 saw the highest revenue in 10 years at developed campgrounds. This increase in revenue collected and increase in recreation use is assumed to be related the national economy and people taking "stayacations". For 2009, 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 what put in place in 2000 and then revamped in 2009 allowing more accurate trends for fee sites to be assessed for the present and the future.

Table 13: Recreation Use

Recreation Use And Fees Collected*	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
Recreation Use* (Visitor Days)	13,280	13,470	15,760	17,020	16,730	17,150	16,090	14,110	12,332	21,005
Fees Collected	$95,347	$96,664	$113,760	$124,000	$121,900	$124,974	$117,334	$102,909	$65,161	$107,661
Recreation Use Change from Previous Year (%)	-17	+1.5	+17	+8	-1.7	+2.5	-6.2%	-12.3%		

* 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

Improvement of developed and dispersed recreation facilities continues so that a variety of recreation opportunities can be provided in a way that also protects resources. Improvements during FY 2009 focused 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 many of the improvements in FY 2009 came from Idaho Department of Recreation – Recreational Vehicle Grant funds. Funding through this program has provided opportunities to repair and improve multiple campsites over the last 20 years.

Aquarius Campground

- During the summer of 2008 two concrete vault toilets and other trailhead amenities were installed at Camp 60/Sheep Mountain Trailhead, a popular dispersed site and OHV trailhead on the North Fork Ranger District near Headquarters, Idaho. This portion of the project was completed using IDPR Recreational Vehicle Grant funds.

- 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 was 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 IDPR grant funds to improve Lolo Creek Campground and in FY 2008 for White Sand Campground including replacement of tables, firerings, fencing, and sign installation. A portion of the construction work for these projects was completed in FY 2008 with the remainder to be completed in FY 2009. The forest also received a grant to construct a Group Shelter at Elk Creek Campground. Design work was completed in FY 2008 with construction to begin in FY 2009.

- Work was completed on the replacement of 4 concrete toilet vaults at Kelly Creek Campground.

- Improvements to the water system were made at Wilderness Gateway Campground. Several table tops and firerings were also replaced as part of this RSI project.

- Replacement of the aging electrical system at Powell Campground was completed. This project was funded through IDPR Recreational Vehicle Grant funds.

- A campground host site was developed at Wendover Campground on the Powell Ranger District.

- The Palouse Divide grooming program on the Palouse Ranger District was expanded from 8 to 13 miles of regularly groomed non-motorized trails.

PARTNERSHIPS

Partnerships continue to be important to the success of the Forest's recreation program. In FY2009, 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, Discover Your Northwest Interpretive Association, Glade Creek State Park, Traveler's Rest State Park, the Lolo National Forest, and the grooming of the Lolo Pass Ski trails.

Other Partnerships supported in FY 2009 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).
- Various groups assisted with trail development and maintenance as well as recreation facility maintenance on all the Ranger Districts, including Public Lands Access Year-Round, Lewis and Clark ATV Club, Panhandle Trail Riders Association, the Valley Cats Snowmobile Club, and Latah Youth Services.

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 ninth 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 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.

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 FY08 with one or more visits to the lake during the July 4th through Labor Day holidays. Historically, trail #419 has been closed 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.

SNOWMOBILE ACTIVITY IN THE GREAT BURN RECOMMENDED WILDERNESS AND IN THE SELWAY-BITTERROOT WILDERNESS

Snowmobiling is currently allowed in the Idaho section of the great burn. Through discussions with avid local riders, the Blacklead area is very popular with advanced riders. On any given Saturday and Sunday between January 1 and mid April, 30+ riders have been reported.

Reports of a few Wilderness Incursions were reported near the Tom Beale Park area and the head end of Spruce Creek.

More monitoring information for the Great Burn area is located in the Wilderness section and below under the Accomplishments/Findings section.

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. Additionally, with completion of the Upper Palouse ATV Project Environmental Assessment, cross country travel is prohibited throughout the district, both providing visitors with clear direction on legal routes and recreation staff with a tool for effective enforcement.

Response To Demands For OHV Opportunities

Construction of OHV system loop routes has taken place on the North Fork and Palouse Ranger districts. NEPA has been completed 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. Approximately 55 miles of this trail system has been completed as of the end of the 2008 field season. Plans call for completion of the remainder of the system in 2009.

Table 14: Law Enforcement Statistics Relating to OHV Use

Violations*	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
OHV Speeding	0	0	0	0	0	0	3	0	0	2
OHV Road Closure Citations	2	2	0	0	5	2	4	3	0	5
OHV Off Road Citations	0	0	0	0	2	0	1	1	0	2
OHV Trail Closure Citations	0	0	0	6	1	2	0	6	0	0
Unauthorized Trail Building Citations	0	0	0	0	0	1	0	0	0	0
Incident Reports of Related to OHV Use	188	190	107	72	96	110	127	75	52	79
Damaging a Natural Feature	0	1	0	0	4	0	0	0	0	0
OHV Parking Citations*		2	0	0	0	0	0	0	0	0
No Registration for ATV Citations*					2	1	5	8	3	24
No Registration for Snowmobile Citations*					1	1	4	0	1	2
No Registration for Motorcycle Citations					0	0	0	0	0	7
No State OHV Sticker on ATV Citations*		3	0	0	1	0	4	0	4	0
No State OHV Sticker on MC Citations*					1	0	4	1	1	0
No State OHV Sticker on ATV Incidents*		20	0	0	0	30	25	6	39	9
No State OHV Sticker on Snowmobiles*			5	1	0	45	36	0	4	0
4Operating MC on road with suspended license*				1	0	0	0	0	0	1
Snowmobile Fatality					2	0	0	0	1	0
Operating OHV in unsafe manner Citations								2	5	8
Total	**190**	**218**	**112**	**80**	**115**	**192**	**213**	**102**	**110**	**139**

*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

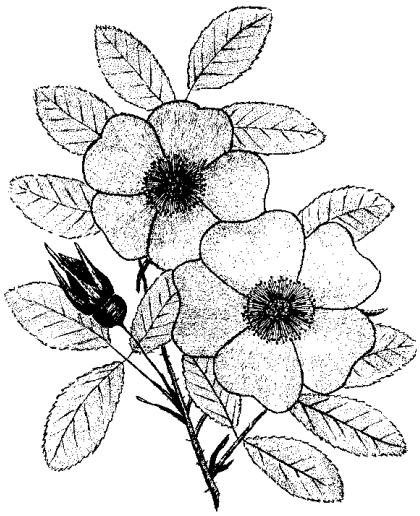
Identify and manage unique and/or outstanding botanical, geological and historical areas of the Forest for public enjoyment and use.

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 and Rhodes Peak. 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 FY09 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 FY09.

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 and stream channel 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 natural.

Instream sediment was analyzed using the Wolman pebble count technique. Wolman pebble counts classify the size of the stream substrate. Additional channel stability testing was accomplished using the Riffle Stability Index (RSI) procedure.[15] With this procedure, the mobile fraction of the riffle can be estimated by comparing the relative abundance of various particle sizes present on the riffle with the dominant large particles on an adjacent bar. Riffle particles smaller than the dominant large particles on the bar are interpreted as mobile. The mobile percentile of particles on the riffle is termed "Riffle Stability Index" and provides a useful estimate of the degree of increased sediment supply to riffles in mountain streams. The RSI procedure can also be used as an indicator of stream reach, watershed condition, and aquatic habitat quality. From RSI measurements in numerous streams in Northern Idaho and Virginia, Kappesser has determined that values less than 70 generally indicate a stream is in dynamic equilibrium with good channel and

[15] Gary B. Kappesser. A Rifle Stability Index to Evaluate Sediment Loading to Streams. In Journal of the American Water Resources Association, August 2002.

watershed stability. Values between 70 and 85 generally indicate watersheds and stream channels in fair condition with some aggradation occurring and possible degradation of fish habitat quality. Values greater than 85 indicate widespread channel instability (i.e. aggradation, sedimentation), probable loss of fish habitat, and watersheds in poor condition. Channel cross-sections were also measured to determine changes in deposition (sediment deposits) or scour (removal of channel rock) over time.

In 2009, the Forest measured channel geometry and instream sediment in3 streams, all on the Palouse district. Table 14 lists these monitoring sites. Data collected at each site may be obtained by contacting the Forest Hydrologist at the Supervisor's Office.

Table 15: Channel Morphology Sites - 2009

Sub-basin	Stream	Beneficial Uses*	Activities	Year(s) Date Collected
Palouse River (17060108)	Little Sand Creek	Coldwater Aquatic Life, Salmonid Spawning, Secondary Contact Recreation	Timber Harvest, Grazing, Road Decommissioning	2004, 2009
Clearwater River (17060306)	Little Boulder Creek	Coldwater Aquatic Life, Salmonid Spawning, Secondary Contact Recreation	Timber Harvest, Grazing, Recreation	1994, 1997, 2004, 2009
Clearwater River (17060306)	East Fork Potlatch River	Coldwater Aquatic Life, Salmonid Spawning, Secondary Contact Recreation	Timber Harvest, Grazing	1989, 1997, 2004, 2009

*Beneficial Uses as listed in the *Idaho Department of Environmental Quality (IDEQ) 2008 Integrated (303[d]/305[b]) Report.*

Table 15 provides a summary of the Wolman pebble count data collected at the three monitoring sites visited in 2009.

Table 16: Summary Of Wolman Pebble Count Data Collected In 2009. 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]
Little Sand Creek	C4b	2.4	29.8	31.2	13 (Medium Gravel)	94 (Small Cobble)
Little Boulder Creek	B4	1.5	42.0	43.0	19 (Coarse Gravel)	161 (Large Cobble)
East Fork Potlatch River	F4	1.1	16.6	18.0	34 (Very Coarse Gravel)	128 (Small Cobble)

[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.

LITTLE SAND CREEK. In the 6,880 acre Little Sand Creek watershed, the Clearwater National Forest manages approximately half of the land, while the other half is owned by the state of Idaho or Potlach Corp. Timber harvest and grazing activities are common across the watershed. Approximately 74 miles of roads existed within the watershed (all ownerships) by the end of the 1990s (approx. 7 mi. road/mi^2), with three miles of stream adjacent gravel road existing to date.

Some additional roads have been constructed on other ownerships since this time; though there are no new roads on Forest Service. Approximately 6 miles of road were decommissioned in this watershed between 1006 – 2008; an additional 2.1 miles were decommissioned in 2009. The stream is currently supporting its designated beneficial uses (Table 14) according to the IDEQ 2008 Integrated (303[d]/305[b]) Report.

Wolman pebble count information was collected in Little Sand Creek in 1994, 2004, 2009. The original site in 1994 could not be located and the data from that year is not presented here. In 2004, the monitoring site was reestablished. A complete channel survey was completed in 1999[16]. The channel type is a C4b (broad valley, slightly entrenched, gravel substrate stream) with a gradient of 2.4 percent. In 1999, bank stability was measured at 2.6 and cobble embeddedness was 77 percent, which indicated a stream with poor stream bank stability and high levels of substrate sediment.

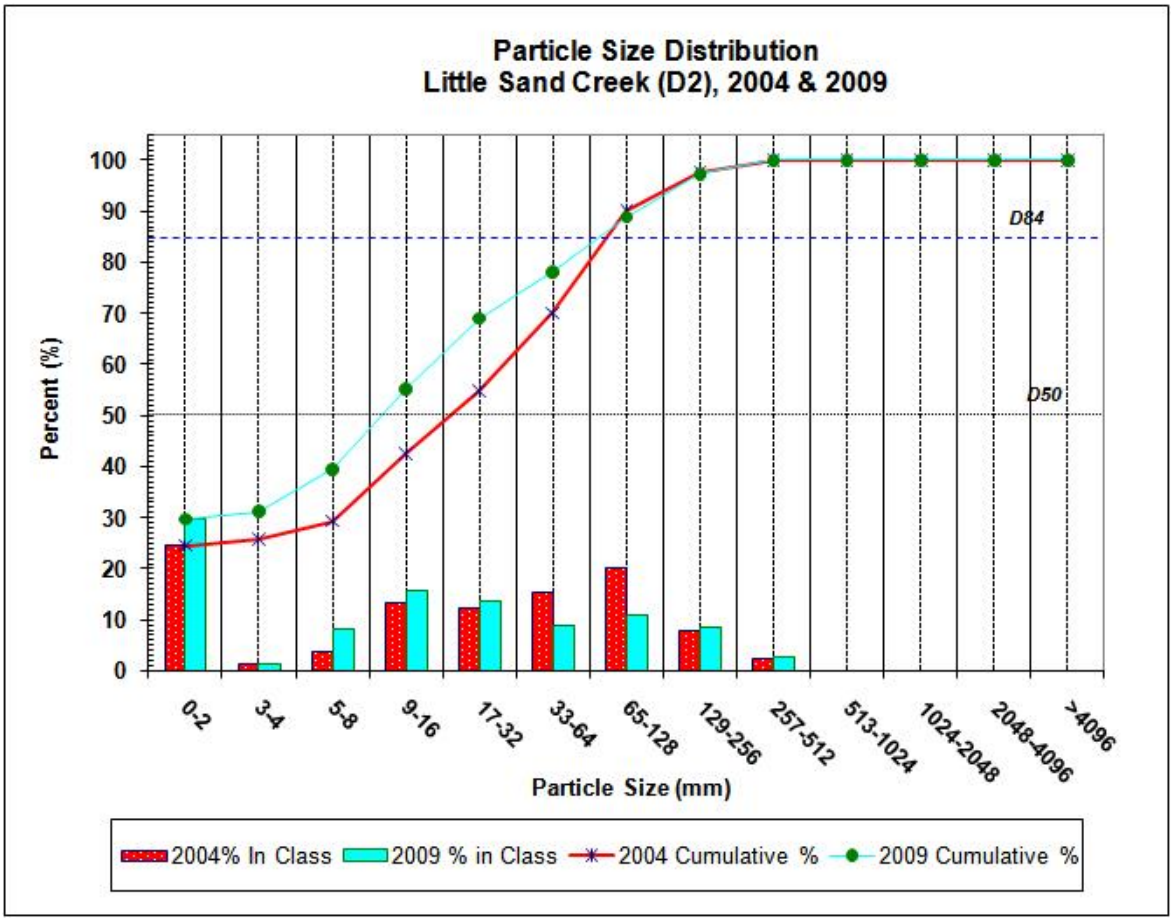
Wolman pebble count data for 2004 and 2009 are displayed in Table 16 and Figure 14. Percent fine particles slighlty increased from 2004 to 2009 and the mean particle size (D50) slightly decreased, no susbstantial changes in particle size distribution are evident in the pebble count data.

Table 17: Little Sand Creek Wolman Pebble Count Data; 2004, 2009

Year	% Fine Sediment 0-2 mm	% Fine Sediment 0-4mm	D50 in mm	D84 in mm
2004	24.6	25.7	24 (Medium Gravel)	104 (Small Cobble)
2009	29.8	31.2	13 (Medium Gravel)	94 (Small Cobble)
Mean	27.2	28.45	19 (Medium Gravel)	99 (Small Cobble)

[16] Isabella Wildlife Works, Post Falls, Idaho. Aquatic Survey Report: Palouse River Tributaries, Palouse Ranger District. March 1999.

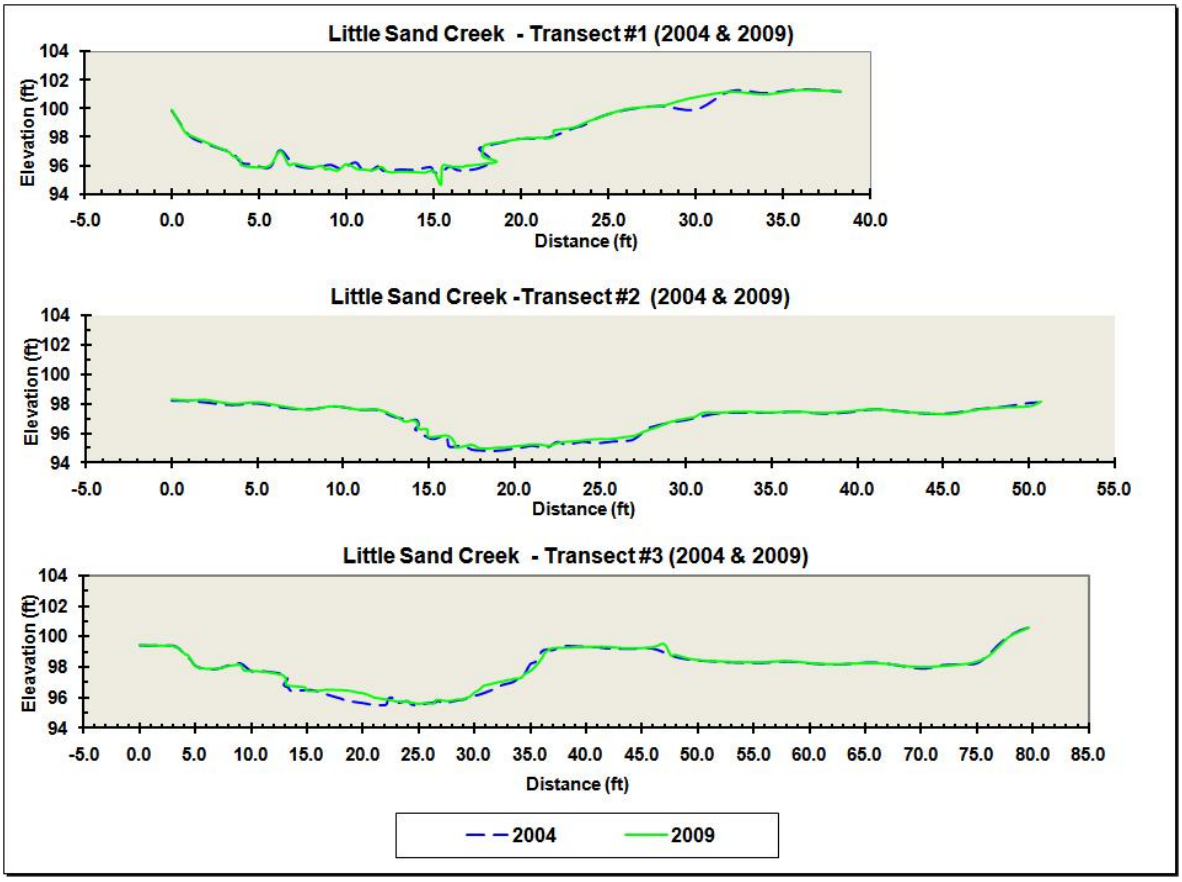
Figure 12: Little Sand Creek Wolman Pebble Count Data; 2004, 2009



The Riffle Stability Index (RSI) was determined on two riffles in Little Sand Creek in 2004 for an average RSI of 57 (i.e. approximately 57 percent of the channel substrate is mobile during bankfull streamflows). This 2004 RSI value indicated a stream in dynamic equilibrium with good channel and watershed stability (RSI < 70). The average RSI measured in 2009 was 70. The RSI of 70 is at the lowest end of the range of RSIs (70-85) that indicate channels in fair condition with some aggradation occurring and possible degradation of fish habitat quality. These RSI measurements suggest that the Little Sand Creek stream reach may be tending toward increased instability.

Figure 15 displays the stream cross-section profile data for the Little Sand Creek monitoring site. No changes in cross-section profiles from 2004 to 2009 are evident at this measuement scale.

Figure 13: Little Sand Creek Stream Cross-Section Profiles; 2004, 2009



Overall, based on two years on monitoring data that show a slight increase in % fine particles and increase in RSI value, the Little Sand Creek reach at our monitoring site appears to have some instability. However, these are inferences based on only two years of monitoring data, thus future monitoring is required to more accurately assess the condition of this stream. Continued monitoring of RSI values in addition to Wolman pebble counts and cross-section measurements is recommended.

LITTLE BOULDER CREEK. Eighty percent of the 3400 acre Little Boulder Creek watershed is in USFS ownership, with the remaining acreage, mostly on the ridgetops, owned by Potlach Corp. Timber and grazing activities have occurred throughout the watershed. By the end of the 1990s approximately 2300 acres in the watershed (all ownerships) were involved in timber harvests (regeneration or partial-cut), with approximately 27 miles of roads existing (approx. 5 mi. road/mi.^{2}). Cattle allotment numbers on USFS lands were decreased slightly in 1995. This stream is currently not assessed for support of designated beneficial uses (Table 14). Wolman pebble count and stream cross-section profile information was collected in Little Boulder Creek in 1994, 1997, 2004 and 2009. A complete channel survey was produced in the summer of 1993.[17] The channel type is a B4 (moderate gradient, moderately sinuous, and gravel substrate) with a gradient of 1.5 percent. In 1999, bank stability was measured at 4.8 on a scale of 1 (poor) to 5 (excellent) indicating moderate to good bank stability. Cobble embeddedness was 83 percent indicating high levels of substrate sediment.

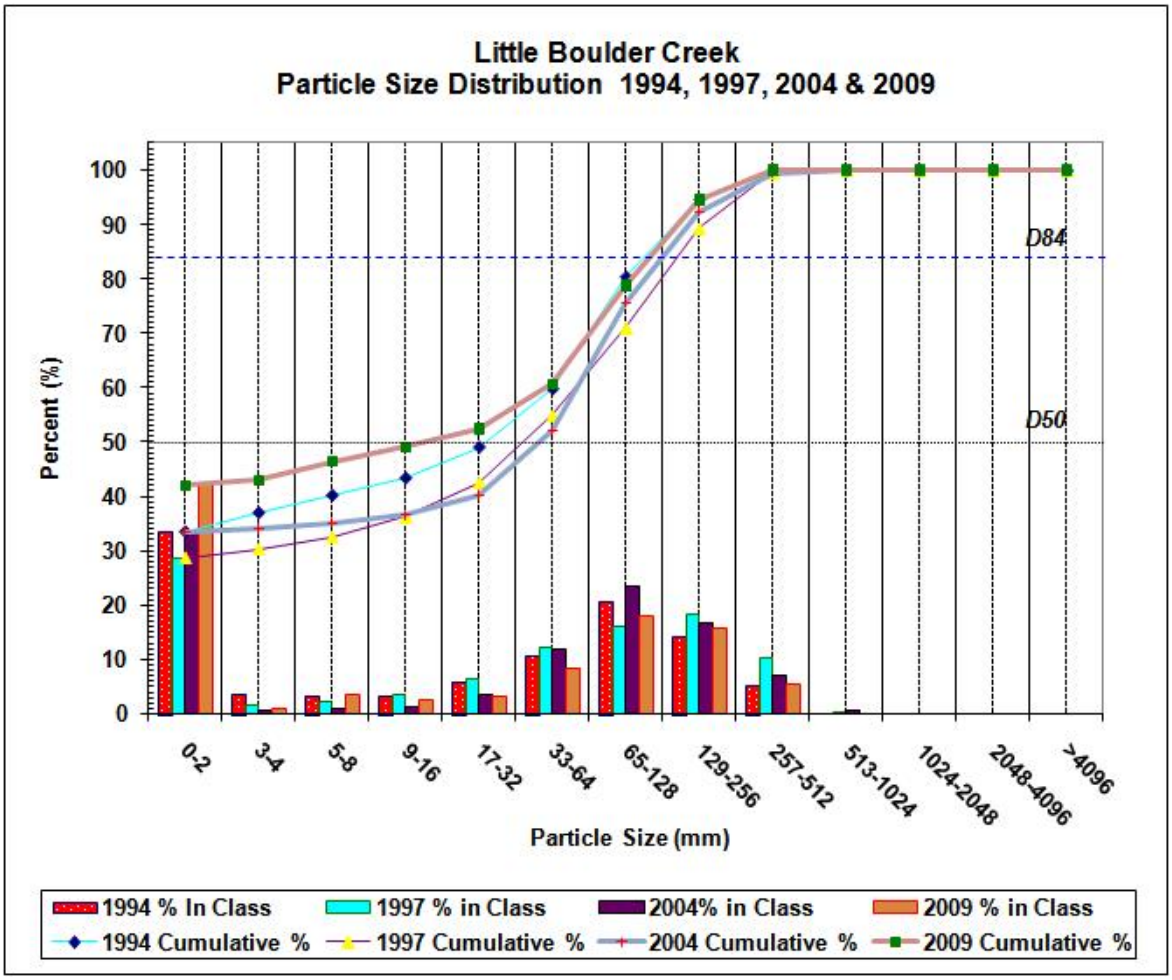
[17] Clearwater BioStudies, Inc., Canby, Oregon. Habitat Conditions and Salmonid Abundance in Little Boulder Creek and Two Unnamed Streams within the Potlatch Drainage, Potlatch Ranger District, Spring 1993. February 1994.

Table 17 and Figure 16 display the Wolman pebble count data for the four monitoring years. Based on data from three monitoring visits (1997, 2004, 2009), a trend is apparent for increasing fine sediment (<4 mm) in this stream reach, with 2009 percentages exceeding those measured in 1994 before the 1995-1996 flood events. Between 1994 and 1997, fine sediment decreased slightly in this reach, possibly due to scouring in the 1995-1996 flood events. There was also a substantial decrease in the mean particle size from 2004 to 2009.The post-95/96 flood trend for increasing fine sediment in this reach may be a result of natural channel deposition after scouring or a result of decades of impacts from cattle grazing, roads, and timber harvest on FS and Potlach Corp. lands in this watershed. Three miles of stream adjacent road also exists along this reach, and may contribute fine particles to the stream. All but the first mile of this road is to be decommissioned in 2010.

Table 18: Little Boulder Creek Wolman Pebble Count Data; 1994, 1997, 2004, 2009

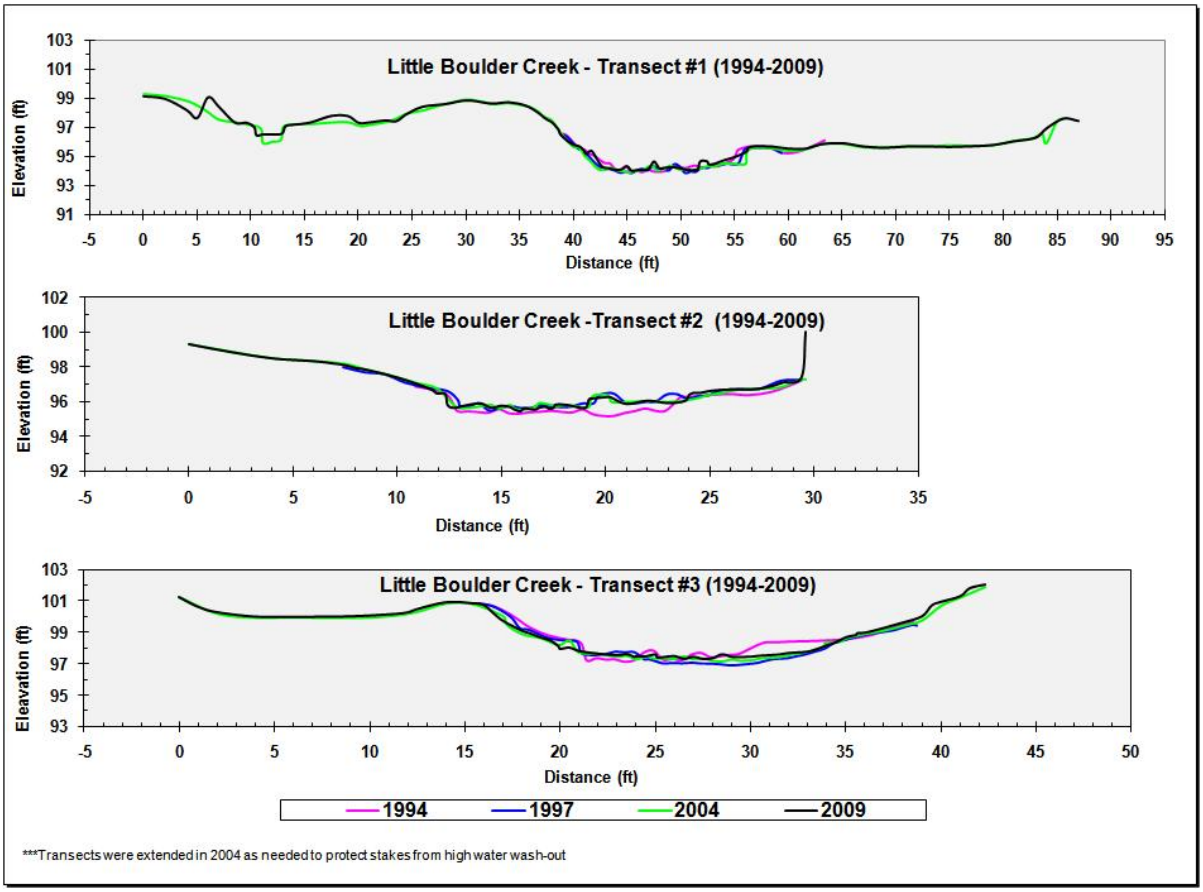
Year	% Fine Sediment 0-2 mm	% Fine Sediment 0-4mm	D50 in mm	D84 in mm
1994	33.4	36.9	36 (Very Coarse Gravel)	157 (Large Cobble)
1997	28.7	30.3	52 (Very Coarse Gravel)	220 (Large Cobble)
2004	33.5	34.1	58 (Very Coarse Gravel)	220 (Large Cobble)
2009	42.0	43.0	19 (Coarse Gravel)	161 (Large Cobble)
Mean	34.4	36.08	41 (Very Coarse Gravel)	190 (Large Cobble)

Figure 14: Little Boulder Creek Wolman Pebble Count Data; 1994, 1997, 2004, 2009



Stream cross-section profiles are displayed in Figure 17. Between 1994 and 1997, some substantial scouring (transect #3) and deposition (transect #2) occurred, possibly during the 1995-1996 flood events. Stream cross-section profiles for 1997, 2004, and 2009 are mostly similar, suggesting overall channel bed and bank stability at this reach since 1997.

Figure 15: Little Boulder Creek Stream Cross-Section Profiles; 1994, 1997, 2004, 2009



Overall, this reach of Little Boulder Creek is accumulating fine sediment, but not to the extent that major changes are detected in bed and bank profile. The observed increase in fine sediment can contribute to detrimental impacts on aquatic resources, thus further monitoring will be beneficial to determine the extent and cause of the observed increase in fine particles. Two miles of stream-adjacent road is to be decommissioned in 2010, and channel restoration projects are planned, including fencing of the lower 1.5 miles of stream. Monitoring the effects of these restoration activities on channel substrate condition may provide additional insight into the effects of land-use activities on riparian and stream substrate conditions.

EAST FORK POTLATCH RIVER. In the 40,000 acre watershed of the East Fork Potlach River , the Clearwater National Forest (CNF) manages the land adjacent to the lowest 6 miles of this stream. The dominant land-uses that can impact stream conditions here are timber harvest, roads, and grazing activities. The CNF installed 1.5 miles of riparian exclosures along 1.5 miles of stream near the mouth in the late 1980s, and cattle allotment numbers were reduced slightly in 1995. The land adjacent to the upper 25 miles of stream is in private and state ownership, with cattle grazing and timber harvest activities common on both state and Potlach Corp. lands. The lower 4.7 miles of this stream to its mouth are listed as not supporting designated beneficial uses (Table 14) in the IDEQ 2008 Integrated (303[d]/305[b]) Report. Flow regime and physical substrate habitat alterations listed as pollutants in this report.

Wolman pebble count information was collected on the East Fork of the Potlatch River in 1997, 2004, 2009. A complete channel survey was performed in the summer of 1994[18]. The channel type is a F4 (low gradient, high width to depth ratio, gravel substrate stream) with a gradient of 1.1 percent. In 1999, Bank stability was measured at 4.6 and cobble embeddedness was 54 percent. In 2005, selected reaches were re-surveyed; bank stability averaged 4.0, and embeddedness was 43. This is a decrease in bank stability from previous years.

RSI was measured in Riffle T2 in the East Fork of the Potlatch River in 2004, but no RSI measurements were made in 2009. The RSI was 66 in 2004 (i.e. approximately 66 percent of the channel substrate is mobile during bankfull streamflows). This 2004 RSI value indicated a stream in dynamic equilibrium with good channel and watershed stability (RSI < 70).

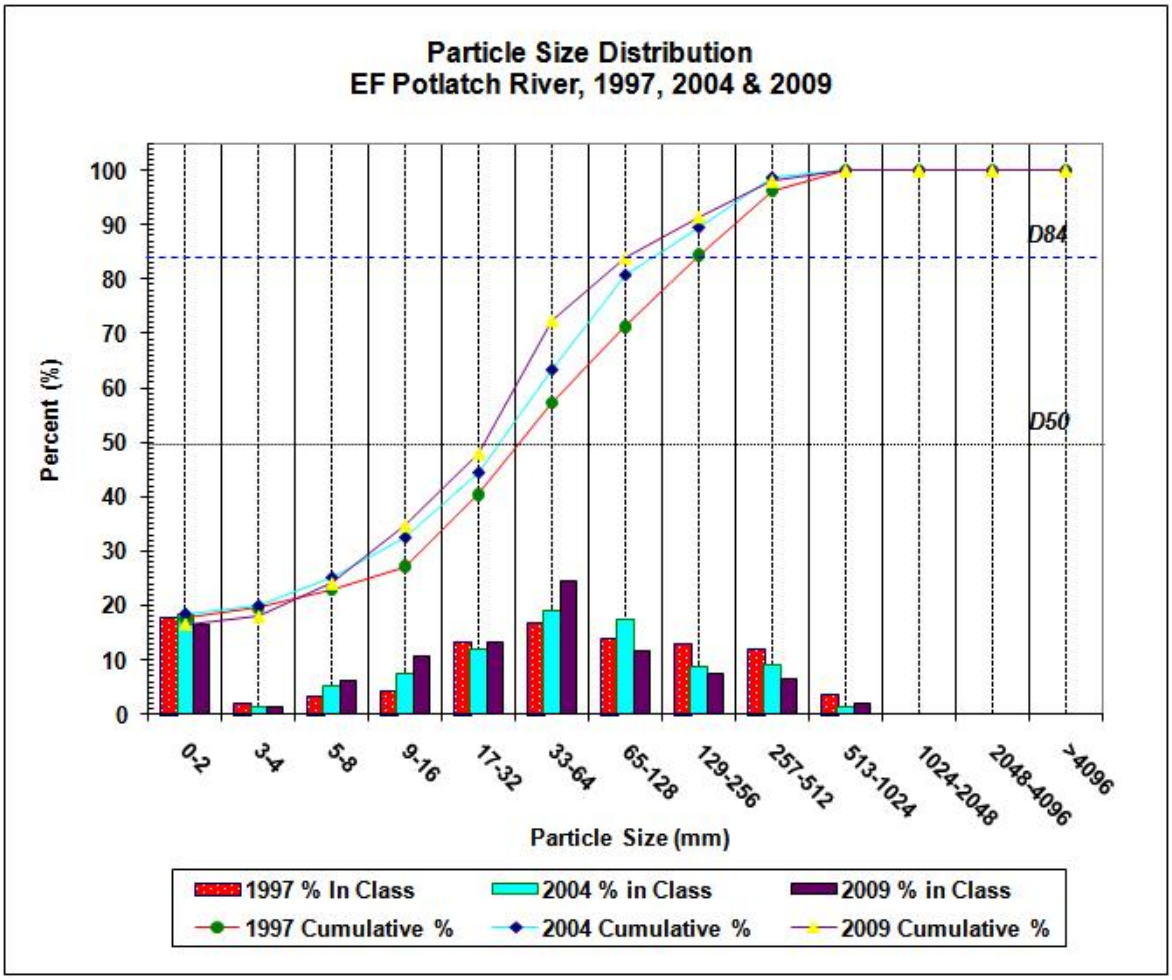
Table 18 and Figure 18 display the Wolman pebble count data for the three montoring years. The percent fine sediment (0-4 mm) in this reach was similar from 1997-2009 with a mean of 19%. There is a trend for decreasing mean particle size (D50) and the D84 particle size over the monitoring years. Additionally, the data in Figure 18 indicate a general decrease in the percentage of particles larger than 129 mm and a general increase in the percentage of 5-64 mm particles.

Table 19: East Fork Potlach River Wolman Pebble Count Data; 1997, 2004, 2009

Year	% Fine Sediment 0-2 mm	% Fine Sediment 0-4mm	D50 in mm	D84 in mm
1997	17.7	19.5	48 (Very Coarse Gravel)	254 (Large Cobble)
2004	18.5	20.0	40 (Very Coarse Gravel)	167 (Small Cobble)
2009	16.6	18.0	34 (Very Coarse Gravel)	128 (Small Cobble)
Mean	17.77	19.03	41 (Very Coarse Gravel)	183 (Large Cobble)

[18] Isabella Wildlife Works, Viola, Idaho. Fisheries Survey Report: East Fork Potlatch River, Palouse Ranger District. February 1995.

Figure16: East Fork Potlach River Wolman Pebble Count Data; 1997, 2004, 2009



The changes in the distribution of particle sizes greater than 4 mm in size indicate some instability in this channel over the 12 years of monitoring. The predominant change at this time is toward an increase in medium to very coarse gravel (9 – 64 mm) that commonly support successful fish spawning. Continued monitoring in this stream and the contributing watershed is desirable to better assess the cause and extent of the observed instability. Monitoring results may also help guide management toward improving stream and riparian conditions that will potentially support designated beneficial uses.

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, outslope road surfaces, 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 650 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 1. Recontouring at the start of the road to restrict vehicle access.
- Level 2. Some work required to address mass failure or erosion risk factors.
- Level 3. Substantial work required along the full length of the road.
- Level 4. Recontouring of most of the road.

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 native grass mix, scattering duff from adjacent natural ground, 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.

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" (IS) 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.

Table 20: Miles of Road Reconstruction, New Construction, Decommissioning, and Intermittent Storage Since 1987

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
2008	27.5	0	37.9	6.4
2009	44.9	1.6	28.3	8.4
Total	**920.4**	**252.9**	**688.7**	**102.4**

In FY09, 28.3 miles of road were decommissioned at a cost of approximately $11,500 per mile. This cost includes contract cost and project administration and inspection. Additionally, 8.4 miles of road were stored for future use after treatment to increase hydrologic stability and lower the risk

of detrimental impacts to aquatic resources. The Nez Perce Tribe contributed funding and labor under a watershed restoration partnership for the decommissioning and storage of roads in Lolo Creek (Yakus and White-White projects) and in the Lochsa watershed (Lost Creek Road Decommissioning).

MONITORING ROAD DECOMMISSIONING

GOAL

The Clearwater National Forest and the Nez Perce Tribe cooperatively monitor road decommissioning projects to track the effectiveness of the road decommissioning program on the Forest. The monitoring crew is made up of a crew leader from the Tribe and a crew member from the Forest. Monitoring protocols are designed to answer questions pertinent to decommissioning goals (listed above) and provide feedback to the decommissioning program on treatment effectiveness.

Questions proposed within the road decommissioning monitoring programinclude the following:

- Is surface erosion associated with the decommissioned road segment present and, if so, to what extent?
- Are mass failures present?
- Are natural surface and subsurface drainage patterns restored?
- Is vegetative cover present? Is succession to native plant species occurring?
- Are stream channels restored and stabilized to the extent that subsequent adjustments are minimal?
- Was the decommissioning treatment appropriate for the specific site/landtype?

MONITORING ACTION

Field methods include both qualitative assessments and quantitative measurements on selected ¼ mile segments of decommissioned roads (Table 20). Approximately one monitoring segment is set up for every 10 miles of decommissioned road. 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 2009 (Table 15) with the exception of mass failures, which are reported annually for all monitoring segments. In addition, revegetation data on from past years was used in this year's analysis for comparison.

Table 21: Monitoring Segments visited in 2009

Date Monitored	Year of Decommissioning	Monitoring Year	Drainage	Road	Segment
30-Sep	2009	0	Musselshell	540C	1
21-Oct	2009	0	Yakus	5105	1
8-Oct	2009	0	Lolo	5146	1
13-Oct	2009	0	Lost	75756	1
26-Aug	2008	1	Pete King	75335	1
2-Sep	2008	1	Indian Graves	75741	1
2-Sep	2008	1	Indian Graves	75744	1
25-Aug	2008	1	Lolo	76035	1
9-Sep	2008	1	Geisel	810837	1
21-July	2007	2	Rock	860526	1
16-Sep	2004	5	Fan	5107A	1
11-Aug	2004	5	Fan	5107A	1
30-July	2004	5	Badger	75673	1
24-Aug	1999	10	Dewey	540T	1
24-Aug	1999	10	Sawmill	540W	1
23-Sep	1999	10	Doe	566 CT4	1
19-Aug	1999	10	Comet	729	1
19-Aug	1999	10	Comet	729A	1
12-Aug	1999	10	Cedar	5125A	1
14-July	1999	10	Musselshell	5204 A/F	1
14-July	1999	10	Musselshell	5204 DD	1
4-Aug	1999	10	Parachute	5647 T17	1
26-Aug	1999	10	April	73054	1
20-Aug	1999	10	TeePee	74278	1

ACCOMPLISHMENTS/FINDINGS

1. **Surface Erosion**: Is surface erosion associated with the decommissioned road segment present and to what extent? Define the feature or treatment associated with the observed erosion.

Any surface rilling, gullying or sheet erosion is noted and the dimensions recorded by quantitatively estimating the percent surface area of a feature that is affected by surface erosion. Mass failures less than 10 cubic yards are tracked as surface erosion.

Findings:

- 40% of segments monitored (8 of 20) exhibited at least one instance of surface erosion. This is somewhat lower than the 55% average for the previous six years. This decrese is likely due to the inclusion of 11 *year 10* segments in the 2009 monitoring. It is expected that these year 10 sites would exhibit more surface soil stability than sites more recently treated through decommissioning.
- Two *year 10* segments monitored exhibited erosion: One site displayed surface erosion at a cross-drain channel(CDC). It was apparent that this CDC was constructed with excessively steep channel-adjacent sideslopes which resulted in soil instability and and increased susceptibility to surface runoff and associated erosion. The other site at 73054 is an area subject to high levels of cattle traffic. It was determined that 100% of the erosion is a

result of the activity of cattle (hoof sheer, trail, and grazing) at the otherwise stable stream-grade channel (SGC) site.

- Three segments (20% of the segments with surface erosion) displayed surface erosion greater than 5%. This surface erosion was limited to the interfluvial zones (outside of the channel areas). Greater surface erosion in the interfluvial zones compared to surface erosion outside of the fluvial zones is the general condition at our monitoring sites, except in 2005 when 67% of surface erosion occurred outside the fluvial zones.

Discussion:

This is the second year that we've seen surface erosion associated with roads decommissioned ten or more years ago. High and average daily flows in both 2008 and 2009 were higher than average on most of the watersheds on the Forest. The energy associated with these sustained higher flows appears to be causing widening of steeper stream channels. Future emphasis should be put on reconstructing channel geometry including bankfull width plus banks where appropriate.

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.

The 2009 monitoring findings have shown positive results in the amount of erosion being exhibited on the decommissioned roads in all three areas monitored: Stream Grade Channels(Figures 21 and 22), Cross Drain Channels, and outside fluvial zones. It appears that the evolution of implementation techniques in decommissioning (recruiting duff, sprigging, brush blankets, and clump planting) has allowed the natural revegetation of decommissioned roads to significantly increase in a shorter period of time.

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 the failure increasing in size and extent. Decommissioned road segments with known mass failures aredesignated as monitoring segments or noted as sites to visit annually. Not all segments listed in this section are listed in Table 21.

Findings:

From a total of over 650 miles of road decommissioned on the Clearwater National Forest since 1996, there are 13 known mass failures over 10 cubic yards in size (Table 21). No new land slides were found on decommissioned roads outside of stream channels during the high flow years 2008 or 2009. However, in several areas there was streambank sloughing associated with high flows in newly constructed channels. While much of the stream bank adjustments and slumping was minor, there were several cases of more notable mass wasting including the Hook Creek crossing on the Clarke Mountain Road-to-Trail project and on Road 5649 at a tributary to Parachute Creek at Powell.

Table 22: Mass Failures

Road	Drainage	District	Year Decom.	Year 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 Grad 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 approx. 1100 cy
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
	Orogrande	N.F.	2005	2009	30	Stream channel changes causing bank failures

* Movement subsequent to decommissioning.

- 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 (Deception) placed in "intermittent storage" in 2003. The treatment at this site was a slight outslope. An additional 10 cubic yards of movement at the top of the existing failure was observed in 2008.
- One growing slump area was noted in 2003 on Road 564 (Post Office) of 26.6 cubic yards associated with unstable glacial deposits.
- Six mass failures are associated with historic or pre-existing landslides.
- 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.
- A fill failure was identified on an unmonitored portion of road 75675 in Badger in 2007. The treatment of the failed portion of road was strong outslope (rather than recontour) due to steepness of area, and previous fill failure (cutbank at site of failure is 30 feet).
- There was much adjustment within stream channels in 2009. The 2008 and 2009 flows were the largest that most of these newly constructed channels have experienced. Most of this is minor stream bank sloughing and is not being tracked as mass wasting.

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 with 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 (CDCs) 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 2009, 24 CDCs were monitored and the following was observed:

- 12 (50%) CDCs were in natural swales (draining primarily runoff and surface water)
- 12 (50%) CDCs were in seeps (draining primarily converted subsurface groundwater)

The following problems were associated with CDCs:Surface Erosion: 5 incidents (21%)

- Two (8%) CDCs that exhibited signs of surface erosion were associated with natural swales. In both instances the channel-adjacent sideslopes were constructed excessively steep, which resulted in rilling and pedestaling. Additionally, these swale CDC sites are relatively dry sites lacking abundant wet-site vegetation (moss, sedges) that commonly enhances the overall channel and sideslope stability.
- Three (13%) CDCs that exhibited signs of surface erosion were associated with seeps. The surface erosion at these sites appears to result from either a lack of vegetation mats or clump planting or the construction of the channel at an elevation higher than the stable grade. In one instance on road 5107A, soil movement was observed at the top of the decommissioned road where road fill material was not adequately removed adajcent to a seep. Insufficient drainage was occuring at this site resulting in soil slumping and rilling at the cutbank.

Discussion: Construction of cross drain channels (CDCs) provides drainage for seeps or saturated areas resulting from road construction. In addition, CDCs 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. Thus, a simple recontour or outslope of a road with a wet ditch and cutslope (converted subsurface water) 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.

Vegetation mats (previously referred to as 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 to transplant existing wetsite vegetation from the untreated road, ditch, 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 plant roots enhance soil structure and permeability, thus filtering suspended sediment and increasing infiltration. Mass wasting and surface erosion have been associated with CDCs. The mass failures tend to be associated with saturation, while the surface erosion is commonly observed with the occurrence of

concentrated overland flow. Surface erosion in CDCs is likely a result of concentrating flow in a feature of inadequate size, shape, and structure to accommodate concentrated flow. In 2009, monitoring results yielded a trend similar to that observed in 2008 where CDCs monitored displayed a decrease in surface erosion compared to prior years. In the previous 5 years, 37.4% of CDC sites monitored displayed signs of erosion, wheras only 21% of CDC sites monitored in 2009 exhibitied signs of surface erosion. This reduction in surface erosion at CDCs may be supported by the increased use of vegetation mats at CDCs in recent years. Monitoring results indicate that revegetation of CDCs to promote reinfiltration of converted subsurface water should continue to be emphasized in road decommissioning projects.

4. **Revegetation**: Is vegetative cover present? Is succession to native plants occurring? Are weed species establishing on the disturbed ground associated with decommissioned roads?

Revegetation goals are twofold: 1) Short-term erosion prevention and 2) long-term conversion to native vegetation. 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. In 2005, in response to monitoring data indicating clover and other non-native species are more persistent that anticipated, we switched to a native mix of bluebunch wheatgrass, mountain brome and Idaho fescue plus annual rye. All disturbed areas are seeded for short-term erosion prevention and to enhance soil properties (structure, permeability, nutrient and organic matter content).

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 and roadbeds,and uses the bucket and thumb to transplant the conserved vegetation, including the root mass and surrounding soil, to the treated prism. The excavator operator also scatters 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. Trees may be planted on roads subsequent to decommissioning. Tree planting is considered when: (1) the surrounding stand is understocked, (2) there is an extreme amount of disturbance such as fire (i.e. Rock Creek decommissioning) or high road density (i.e. Badger Creek Road Decommissioning) or wide roads or landings (Walde Road 460), (3) there is a threat of dominance by weeds.

Methods for monitoring vegetation and ground cover are borrowed from ECODATA (USDA Forest Service, 1992). The line intercept data is used to compare the type and amount of ground cover (none or bare ground; inert or rock/gravel/water; mulch or litter/wood; and vegetation). The density data breaks the vegetative component into grass, forbs, shrubs, trees and weeds and is used to track vegetative succession.

Findings:

Figure 17: Changes In Ground Cover Type By Percent On All Decommissioned Road Monitoring Segments. . Data Sets by Year Are Defined As Follows: Year One Includes Data From All 50 Sites With Vegetation Plots, Year Two Includes all Data From 44 Sites That Have Passed Or Just Reached Monitoring Year Two, Year Five Includes 37 Sites, and Year Ten Includes 17 Sites.

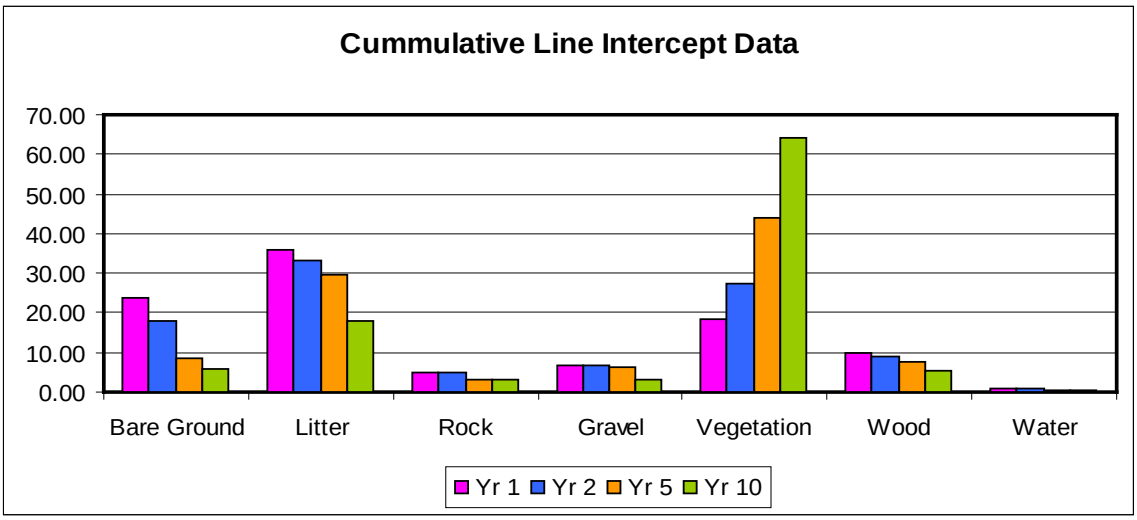


Figure 18: Vegetative Cover Type On All Segments Data Sets By Year Are Defined As In Figure 17.

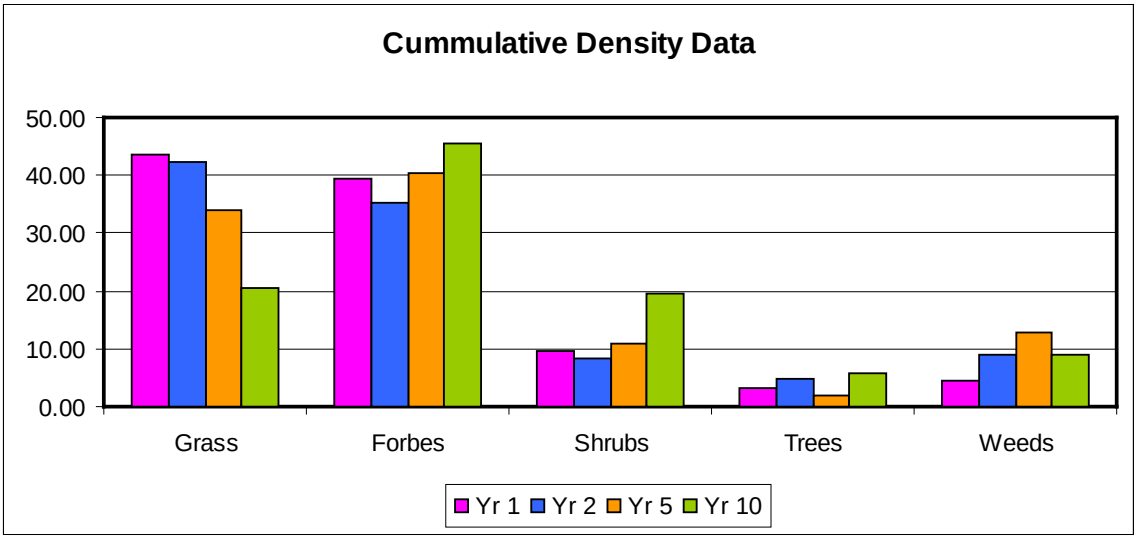


Figure 19: Ground Cover Type On All Segments Monitored In 2009.

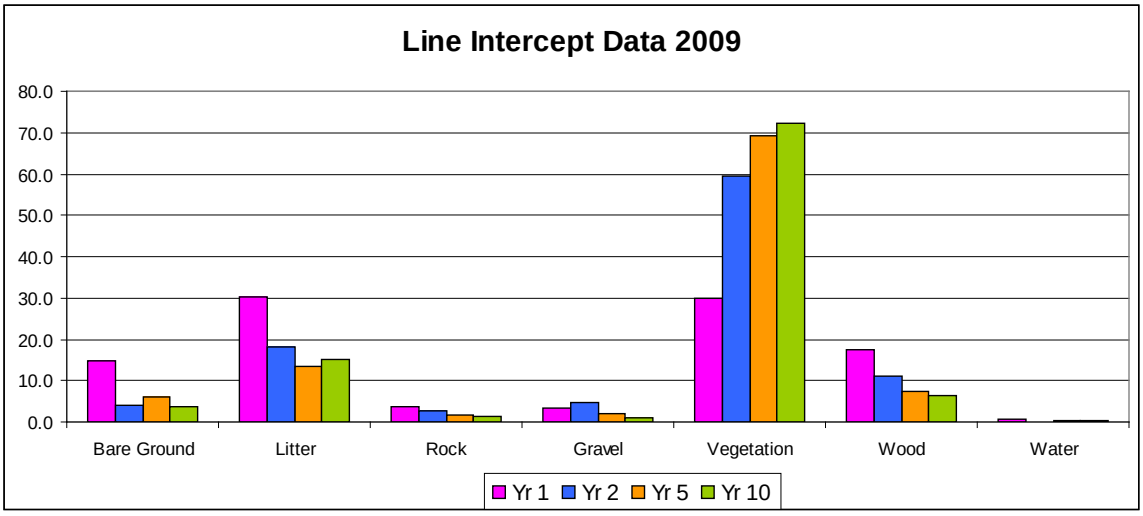
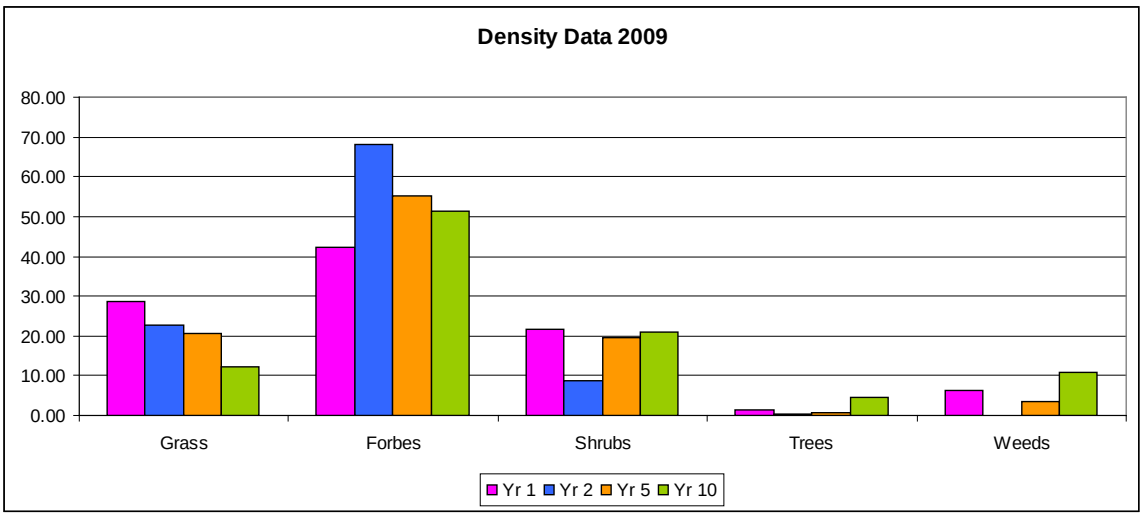


Figure 20: Change In Vegetative Cover Type On All Segments Monitored In 2009.



Discussion:

Cumulatively, the data indicate an average increase in vegetation cover from 18.18% at year 1 to 64.13% at year 10. Cumulative vegetation cover for year 10 increased from 55% last year (roads decommissioned in 2008)to 64.13% (roads decommissioned in 1999). Data collected from sites monitored in 2009 indicate an increase in vegetation cover of 30% to 72.2% from year 1 to year 10. In 2009, nine year 10 monitoring segments were monitored, thus a more accurate baseline of what is expected to occur on the decommissioned roads at each year in the monitoring cycle is established. Overall, these results are as expected: over time there is a decrease in bare ground and litter cover and an increase in vegetation cover. Rock, gravel, wood, and water cover remain relatively constant. The results are consistent whether the data analyzed includes only those sites monitored in 2009 or all data from all years.

Ground cover is important in controlling surface erosion. Immediately after decommissioning most ground cover is in the form of mulch or litter and there is more bare ground, indicating more erosion potential. Over time, the mulch/litter decays and the vegetation spreads, indicating less potential for erosion.

There appears to be moderate succession from grasses (many of which are nonnative) to forbs and shrubs and trees (mostly native species), although nonnative grasses are persistent to 10+ years (Figures 18 and 20). Weed species are ever present, though the data does not indicate that overall weeds are increasing substantially over time. There are specific sites (usually south facing, thin soiled sites) however, where weeds do appear to the dominate ground cover, increasing substantially over time.

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.

An excess of slash and mulch appears to inhibit revegetation. On road 75756 that was decommissioned this year, a technique was used to distribute the amount of slash placed on the road surface which we anticipate will support maximum revegetation potential. Past monitoring results suggest that the optimum amount of slash needed on the decommissioned road is between 40-60% to allow for optimum growth of native forbs and shrubs. Previously, on roads overgrown with abundant trees and shrubs, all slash was placed on the decommissioned road surface, but on road 75756, slash was distributed on the decommissioned road to cover approximately 50% of surface, while remaining slash was windrowed along the downslope edge of the disturbed decommissioned road corridor. The effects of this technique will be closely monitored to assess its applicability in future decommissioning projects.5. **Stream Grade Channel (SGCs)**: 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 live water crossings, usually where a culvert (metal, log, or slash) was removed. Restoration of channels includes: removal of structure, removal of fill to establish natural grade, recontour of adjacent slopes, installation of channel stabilization structures (weir and bank armor) and revegetation.

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:

In 2009, 27 SGC's were monitored and produced the following results:

- Nearly all channel cross sections show minor settlement over the first winter.
- Minor changes (primarily degradation, and less aggradation) occur on nearly every cross section from year to year.
- Year one through five, the cross sections tend to exhibit more vertical movement, while years five through ten tend to be more lateral movement.
- Longitudinal surveys indicate some minor changes to the stream channel including small headcuts, establishment of step/pool systems, and minor degradation.
- 5 channels (18.5%) monitored showed greater than 5% erosion adjacent to stream.
- 17 channels (63%) showed no sign of erosion.
- 5 channels (18.5%) showed 5% or less erosion.
- Four of the five channels that showed high erosion rates all had gradients over 20% and a wetted width of at least 2 feet, while the fifth channel is in a high traffic area for cattle with 100% of the erosion at that site attributed to cattle activity.

Discussion: In 2009, the majority of sites monitored (11) were in the last year of the monitoring cycle (yr 10) allowing establishment of a more accurate baseline for year 10 sites. Four SGCs monitored this year with high gradients (20%+) and at least 2 foot wetted width all displayed very high erosion percentages (40-90%) of the adjacent stream banks. These observations are similar to the 2008 observations. Usually channels that have been established for 10 years are mostly stable and erosion is minor. However, these wider, steeper, headwater stream channels are still adjusting after 10 years. This is partially due to higher than average stream flows in 2008 and 2009. In addition, in these deep steep valleys, it is more difficult to remove the large amounts of road fill and properly construct SGCs at the desired channel grade and with more stable, lower angle channel-adjacent sidelopes. In the future it is recommended that SGCs with the wetted width and gradient criteria listed above are constructed with wider channel bottoms to allow the stream more lateral migration. Additionally, more fill material should be removed from the channel-adjacent area to accommodate construction of lower-angle (less steep) sideslopes, therefore reducing the amount of sediment deposited into the stream when lateral movement of stream exceeds that of constructed channel bottom.

Figure 21. SGC on road 5204 A/F year 0.

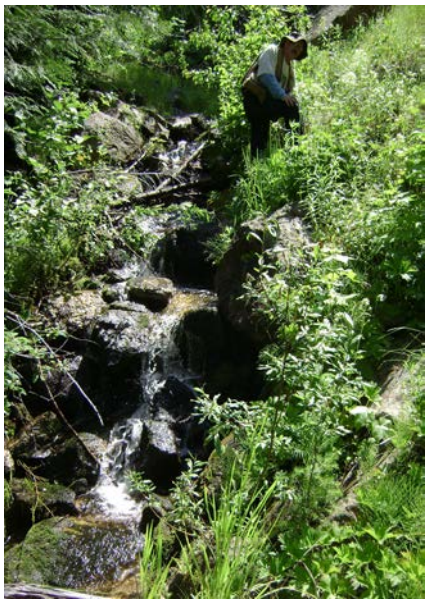


Figure 22. SGC on road 5204 A/F year 10.

SUMMARY

The road decommissioning 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 attained. In the future, we will continue to improve our decommissioning strategy by integrating techniques techniques identified through monitoring as effective and necessary.

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. Since 2006, the Nez Perce Tribe has led the analysis and summary of the data for 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 un-surfaced 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.

Table 23: Summary of Restricted Road Mileage

Restriction Groups Travel Codes	Miles	% of Total Designated Roads
CYA – Closed yearlong to all-wheeled vehicles	981.8	24.3
OSA – Open seasonally to all-wheeled vehicles	770.7	19.0
OSS - Open seasonally to small (motorcycle and ATV) but closed yearlong to full-sized vehicles	117.5	2.9
OYA – Open yearlong to all-wheeled vehicles	1,633.8	40.4
OYS – Open yearlong to small-wheeled vehicles (motorcycle and ATV)	537.5	13.3
Total Designated Road Mileage	**4,042.3**	**100.0%**

During 2008 timber sales constructed 1.6 miles of road, 45 miles of road were improved, five stream crossings were replaced for aquatic organism passage, 18 miles of road were obliterated, and 947 miles of road received recurrent maintenance.

There has also been some interest in how these roads are distributed across the Forest Landscapes. Due to unprecedented amount of American Recovery and Reinvestment Act projects in 2008 and 2009 the information for this table has not been updated and is not available but will be reported in the 2009-2010 Forest Plan update. Therefore, this display is of the miles of road per square mile in different Forest Land Management units in 2007.

Table 24: Road Density Per Square Mile in the Clearwater National Forest's Management Areas 2007

Management Areas		Management Area Size in Square Miles	Road Miles Per Square Mile
8S	Big Game Summer Range where there are high fishery stream values	472.73	0.35
A3	Dispersed Recreation Areas	116.31	0.08
A7	Middle Fork-Lochsa Recreation River Corridor	48.64	0.33
B1	Selway Bitterroot wilderness	409.85	0.00
B2	Recommended Wilderness Areas	312.81	0.04
C1	Big Game Summer Range	73.57	0.01
C3	Big Game Winter Range south aspect	34.94	0.50
C4	Big Game Winter Range north aspect	181.24	1.46
C6	Critical Watersheds with high fishery values	190.99	0.13
E1	Timber producing lands to be managed for healthy timber and optimal potential for timber growth	883.85	3.60
E3	Timber producing land located on steep unstable ground	25.14	0.49
M1	Existing and Proposed Natural Research areas	12.06	0.30
PVT	Private	77.88	2.38
US	Unsuitable Timber Management lands	118.44	0.63
	Forest wide	2958.47	1.39

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, wild and scenic rivers, high-use recreation areas and administrative sites.

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, wild and scenic rivers, high use recreation areas and administrative areas; and recommend actions that will meet Forest Plan *scenic integrity objectives* (formerly referred to as Visual Quality Objectives). Management activities will be monitored during implementation and at completion for success in meeting ***scenic integrity objectives*** (*SIOs*).

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, 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 2009 there were two timber sales completed and closed out. Both projects were located on the Palouse Ranger District.

- The Ruby Creek Restoration project is located adjacent to Highway 6 near Harvard, Idaho. There are views of one large opening, unit 4, which is seen in the background from Highway 6. This opening meets the SIO of low (VQO of Maximum Modification) for the background views from this travel corridor. There is a large commercial thinning unit and a pre-commercial thinning unit, but these activities are not visible in the middleground and background viewing areas of Highway 6.

- The White Pine Creek project is also located within the area surrounding Highway 6 north of Harvard, Idaho. This project can be seen in the background view from some private property prior to entry into the Forest boundary, but is not visible from the highway once it enters the Forest. There are isolated views of units from the Lower Blake's Fork Trail, but the units appear in the background and appear only as small ridgetop openings.

There were several prescribed fires on the Clearwater National Forest in FY 2009, mostly located on the North Fork Ranger District. The burns reduced the brush undergrowth, removed a few trees and darkened the bark on some larger trees, 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 and recreation improvements. There were two major recreation trail and campsite improvement projects during FY 2009. The Aquarius Campground expansion added two group campsites to the existing Aquarius Campground. The sites were constructed where there were two existing dispersed sites adjacent to the existing campground. Five picnic sites were also added. Some resource damage was occurring due to unregulated parking. Also, the existing site had been the location of a large log landing in the past so the parking was fairly open. The recreation site work upgraded the existing facilities and added some areas of grass that will actually enhance the scenic quality of the site in the long term. A second popular recreation site was improved on the Palouse Ranger District. At the Elk Creek Falls Trailhead the existing parking was expanded and the two existing toilets were replaced with a single concrete unit. All fencing and signs were replaced and picnic tables were added. All facilities installed used naturally colored materials and overall the improvements will enhance the scenic integrity of the site.

Additional information regarding effects on scenery of other FY 2009 management activities is available at the Supervisor's Office.

Soil and Water

Goal

Manage watersheds and soil resources to maintain Forest Plan water quality standards that meet or exceed State and Federal standards. Protect all beneficial uses of water, 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. Data collected at these stations will be used to determine trends or impacts of past and/or current road construction, timber harvesting, mining and other 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, road construction, and other activities 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 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. 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 is generally recorded from March until November or until freezing conditions; automatic samplers are normally in operation during times of peak flow, primarily from March through July.

Table 23 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. See the Fisheries section for more information on water temperature monitoring.

Table 25: Water Quality Monitoring Network

Basin	Watershed - Location	Years Of Monitoring[1]	Data Type	Period of Record
Palouse River (17060108)	Palouse River (Moscow Mountain)	53	Snow Course SNOTEL, Precipitation (NRCS)	1957-present 2000-present
	Palouse River	52	Discharge (USGS)	1914-1919 1966-present
Lochsa River (17060303)	Lochsa River (Near Lowell)	100	Discharge (USGS)	1910-present
	Pete King Creek (Walde Lookout)	43	Annual Precipitation	1966-present
	Pete King Creek (Mouth)	34	Discharge, Suspended Sediment	1976-present
	Canyon Creek (Mouth)	18	Discharge, Suspended Sediment	1992-present
	Deadman Creek (Mouth)	22	Discharge, Suspended Sediment	1988-present
	Fish Creek (Mouth)	42	Discharge, Suspended Sediment	1958-1966 1977-present
	Badger Creek (Mouth)	13	Discharge, Suspended Sediment	1983-1984 1988-1989 2001-present
	Crooked Fork (Crooked Fork)	58	Snow Course (FS and NRCS)	1961-present
	Crooked Fork (Lolo Pass)	54	Snow Course SNOTEL, Precipitation (NRCS)	1956-1997 1982-present
	White Sand Creek (Savage Pass)	73	Snow Course SNOTEL, Precipitation (NRCS)	1937-1997 1982-present
Clearwater River (17060306)	Potlatch River (Sherwin)	50	Snow Course SNOTEL, Precipitation (NRCS)	1960-1991 1979-present
	Potlatch River (Near Spalding)	7	Discharge (USGS)	2003-present
	Orofino Creek (Pierce R.S.)	59	Snow Course (FS and NRCS) SNOTEL, Precipitation (NRCS)	1951-2008 2009-present
	Orofino Creek (Shanghi Summit)	72	Snow Course SNOTEL, Precipitation (NRCS)	1938-1997 1982-present
	Lolo Creek (Mouth)	29	Discharge (USGS)	
	Lolo Creek (Hemlock Butte)	50	Snow Course SNOTEL, Precipitation (NRCS)	1960-1997 1982-present
	Lolo (Sec 6)	28	Discharge, Suspended Sediment (Bedload through 2007)	1982-present
Upper North Fork Clearwater River (17060307)	North Fork of the Clearwater River (Aquarius Bridge)	43	Discharge (USGS)	1967-present
	Quartz Creek (Mouth)	28	Discharge, Suspended	1982-present

Basin	Watershed - Location	Years Of Monitoring[1]	Data Type	Period of Record
			Sediment	
	Quartz Creek (Indian Henry Ridge)	11	Annual Precipitation	1999-present
	Cold Springs Creek (Mouth) [3]	17	Discharge, Suspended Sediment	1983-1992 2000-2006
	Cold Springs Creek (Cool Creek)	27	SNOTEL, Precipitation (NRCS)	1983-present
	Long Creek (Hoodoo Basin) [2]	49	Snow Course SNOTEL, Precipitation (NRCS)	1961-present 1979-present
	Cayuse Creek (Cayuse Landing)	44	Annual Precipitation	1966-present
	Weitas Creek (Doris Butte)[3]	43	Annual Precipitation	1966-2008
	Weitas Creek (Crator Meadows)	49	Snow Course SNOTEL, Precipitation (NRCS)	1961-1997 1983-2010
Lower North Fork Clearwater River (17060308)	Beaver Creek (Beaver Divide) [3]	43	Annual Precipitation	1966-2008
	Elk Creek (Elk Butte)	49	Snow Course SNOTEL, Precipitation (NRCS)	1961-1997 1982-2010
	Elk Creek (Road 1705)	28	Discharge and Suspended Sediment (Bedload through 2007)	1982-present

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.
3 Site was dropped from monitoring in 2009.

The Forest processed over 700 suspended sediment samples from 8 stations in 2009. Most of these samples were collected using an automated water sampler and then processed in the laboratory at the Clearwater National Forest Supervisor's Office. Bedload sediment samples were collected only at Pete King Creek in 2009. During the period 1983 to 1988, bedload was collected at all monitoring sites as part of the Snake River adjudication process. Relationships between suspended sediment and bedloadwere established for each site based on past dataTotal sediment load can be determined for the watershed using the suspended sediment measurements and the historic relationships between bedload and suspended. At present, bedload is being collected at one site per year in order to verify that the established relationships are valid. The 2009 data below reflects only the measured data and does not include estimated data from periods when the gage was not operating.

Total estimated annual sediment loads are useful for determining the effects of activities and calibrating watershed models. Stream discharge and suspended sediment data is summarized in Table 24.

Table 24 displays the period of record; mean daily discharge through 2008; mean daily discharge in 2009; mean daily suspended sediment through 2008 and mean daily suspended sediment in 2009. Mean daily discharge is calculated from 12 flow measurements per day and mean daily suspended sediment is a composite of four sediment samples.

Table 26: Water Quality Monitoring Results

Station	Period Of Record Used In Analysis	Mean Daily Discharge (Cfs) Through 2008	2009 Mean Daily Discharge (Cfs)	% Over Historic Average	Mean Daily Suspended Sediment (Mg/L) Through 2008	2009 Mean Daily Suspended Sediment (Mg/L)	% Over Historic Average
Pete King Creek (Mouth)	1976-2009	43	37	-14%	17.9	18.0	1%
Canyon Creek (Mouth)	1992-2009	43	46	7%	10.4	9.2	-12%
Deadman Creek (Mouth)	1988-2009	No DATA YET					
FishCreek[1] (Mouth)	1958-1966 1976-2009	219	254	16%	8.0	8.4	5%
Badger Creek (Mouth)	1983-1984 1988-1989 2001-2009	12	13	8%	5.4	17.1	217%
Lolo Creek (Section 6)	1982-2009	94	114	21%	11.0	13.8	25%
Quartz Creek (Mouth)	1982 1984-2008 2000-2009	149	124	-17%	12.5	184.5	1376%
Elk Creek (Road 1705)	1982-2009	76	69	-9%	9.3	2.4	-74%
Mean of all stations				4%	9.8	14.6	

[1] Suspended sediment in Fish Creek is representative of a granitic geology watershed with little or no timber harvesting and roads.

Flows in 2009 were an average of 4% higher than the historic means; however, they ranged from 17% below the mean to 21% above the historic mean. Only Pete King, Quartz, and Elk Creeks have 2009 mean daily discharges below the historic average. There was a corresponding response in suspended sediment concentrations at most stations. Both Fish Creek, which has had very little management activity, and most of the more heavily managed watersheds exhibited higher than historic mean suspended sediment. Canyon and Elk Creek were the exceptions ,with 12% and 74% lower main daily suspended sediment than the historic.

Pete King Creek appears to have some historical high flow years that result in a high mean daily discharge. Notably, in 1976 the mean daily discharge was 96.1 cfs, more than twice the historic mean. The mean daily discharge at Pete king has been below the historic average since the high flows of 1995 – 1997.

Similarly, Elk Creek has had some extremely high suspended sediment years that sway the mean. For example, in 1986, the mean daily suspended sediment in Elk Creek was 42.8, more than four times the historic mean. The Elk Creek site may be subject to high suspended sediment in certain years due to its proximity to a well used dispersed site on the Creek.

Badger Creek had very high suspended sediment measurements for the second year in a row. Between 2001 and 2006, over 60 miles of road have been decommissioned in the Badger Creek watershed including the removal of over 100 headwater stream channel crossings. An increase in sediment due to this activity was expected but in the long term a decrease in sediment should occur. Mean daily suspended sediment in Quartz creek was highly influenced by several extremely high values in late May 2009, ranging from 1000 mg/L to 8,655 mg/L. This is the fourth 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. The high suspended sediment measurements may be due to downcutting or adjustment in the 1995 landslide that dammed the creek. The increase of sediment warrants field verification.

Discharge measurements at all stations showed a spike on November 11, 2008 when several days of heavy rainfall across the forest resulted in runoff and high flow. No water samples were collected at this time, but several small landslides associated with roads are known to have occurred.

Generally, monitoring of suspended sediment has shown a recovery trend forest-wide from past management practices. Suspended sediment concentrations have overall tended to be less in the 2000s and the 1990s than in the 1980s.Much of the recovery is believed to be the result of less land disturbing activities, better application of BMPs, PACFISH and INFISH buffers, and better road location and design.

Turbidity has been monitored at ten to twenty stations before 1991 and after 1997. The results of turbidity monitoring in 2009 are presented in Table 25.

Table 27: Turbidity Monitoring Results - Period Of Record, Mean Daily Turbidity Through 2008, Maximum Turbidity Period Of Record, Mean Daily Turbidity In 2009 And Maximum Turbidity In 2009

Station	Period of Record	Mean Daily Turbidity (ntu) Through 2008	Maximum Turbidity (ntu) Period of Record	Mean Daily Turbidity (ntu) 2009	Maximum Turbidity (ntu) 2009
Pete King Creek (Mouth)	1978-1990 1998-2009	3.5	99.9	8.4	99.9
Canyon Creek (Mouth)	1998-2009	2.4	48.5	3.5	19.3
Deadman Creek (Mouth)	1988-1990 1998-2009	NO DATA YET			
Fish Creek (Mouth)	1998-2009	1.8	26.6	1.8	12.5
Badger Creek (Mouth)	1983-1984 1988-1989 2001-2009	2.9	39.8	2.9	11.9
Lolo Creek (Sec 6)	1985-1988 1990, 1998-2009	2.5	19.0	2.5	7.3
Quartz Creek (Mouth)	1988-1990 1998-2009	2.8	60.5	3.7	29.6
Elk Creek (Road 1705)	1982-1987 1990 1998-2009	2.7	87.0	2.4	4.2
Mean of all stations		2.6		3.6	--

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

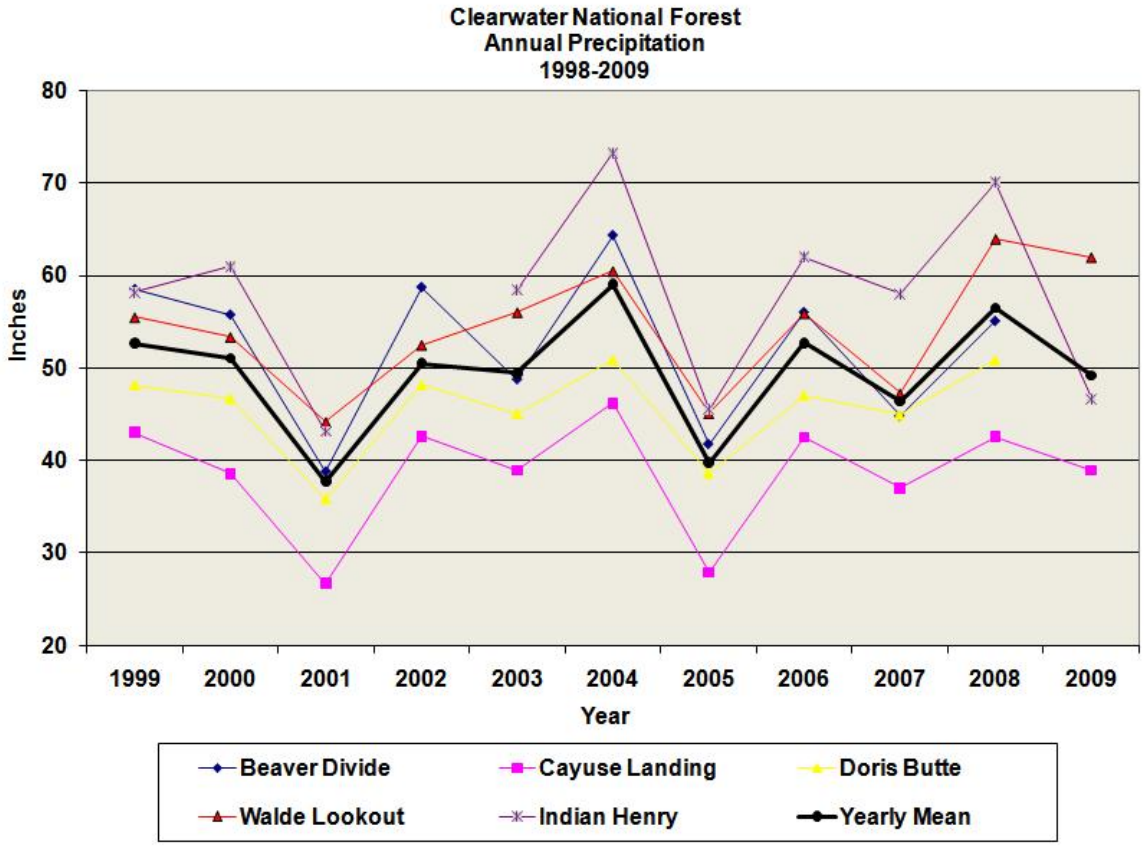
> *Turbidity, below any applicable mixing zone set by the Department, shall not exceed background turbidity by more than fifty (50) NTU instantaneously or more than twenty-five (25) NTU for more than ten (10) consecutive days.*

At eight Clearwater National Forest water quality monitoring stations, over 700 turbidity samples were collected and analyzed in 2009. Mean daily turbidity was generally higher than the mean daily turbidity for the period of record due to higher than average flows. Turbidity in Pete King Creek on June 5, 6 and 15 exceeded both the state criteria and the capacity of the monitor. This peak in turbidity occurred during the falling limb of the spring hydrograph and probably coincides

with some mass wasting in the watershed, associated with roads. No other samples exceeded the State turbidity criteria. The maximum turbidity measurement in Quartz Creek was the next highest at 29.6 ntu, approaching the turbidity threshold.

2009 Precipitation Measurements: The Forest has maintained yearlycatch precipitation stations for the purpose of assisting the State Climatologist in developing isohyetal maps (maps of equal rainfall areas). Four precipitation stations were in operation in most water years (WY: Oct. 1-Sept. 30) from 1966-1998 (Beaver Divide, Cayuse Landing, Doris Creek, and Walde Lookout) and five in operation from 1999-2008 (Beaver Divide, Cayuse Landing, Doris Creek, Walde Lookout and Indian Henry Ridge). In WY 2009, three precipitation stations were in operation (Cayuse Landing, Walde Lookout and Indian Henry Ridge). Data for WY 2009 and the previous 10 water years is displayed in Figure 24..

Figure 21: Clearwater National Forest Precipitation 1998-2009



Average precipitation (from three stations) in WY 2009 (50 in.) was 7% greater than the mean (46 in.) for the 42-yr period of record (data from all stations) and was similar to the previous 10-yr mean (all stations) (2009: 49 in.; 10-yr mean 50 in).

By station, 2009 precipitation was as follows:

- Cayuse Landing: 34 in.(98% of mean for 42 yr period of record at this station)
- Walde Lookout: 62in. (127% of mean for 42 yr period of record at this station)
- Indian Henry: 47 in. (81% of mean for 10 yr period of record at this station)

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.

ACCOMPLISHMENTS/FINDINGS

In 2009, the following timber sales were selected for BMP monitoring:

Table 28: Timber Sales Selected for BMP Monitoring in 2009

Sub-Basin	Timber Sale	Activity Harvest Unit/Road	BMP Review Date
Clearwater River (17060306)	Blown Feathers	Harvest Unit 1	10/08/2009
Clearwater River (17060306)	Dinner Bucket Stew	Harvest Units 5 and 10	10/08/2009
Clearwater River (17060306)	Gezel	Harvest Units 3, 11 Road Decommissioning	10/21/2009

Table 27 summarizes the 2008 Forest Practices Act Internal Audit and includes the following information, by column:

- FPA# refers to the rule number in Rules Pertaining to the Idaho Forest Practices Act (Title 38, Chapter 13, Idaho Code)19;
- Description of the FPA rule;

[19] April 1, 2000

- Number of BMPs that were observed Forest wide;
- Number of BMP observations that were in compliance with the FPA rules (Implementation);
- Percent of BMP compliance;
- Number of occurrences where sediment or other pollutants were not delivered to a stream or draw (effectiveness); and
- Percent of BMP effectiveness.

Table 29: 2009 Forest Practices Act Audit Summary

	Description	# of Inspections	Implemented	% Implemented	Effective	% Effective
030	TIMBER HARVEST	////////	////////	////////	////////	////////
030.03	SOIL PROTECTION	////////	////////	////////	////////	////////
a.	Skidding Erosion	3	3	100	3	100
b.	30% Limitation	3	3	100	3	100
c.1.	Number of Skid Trails	3	3	100	3	100
c.2.	Tractor Size Appropriate	3	3	100	3	100
d.	Cable Yarding	2	2	100	2	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	3	3	100	3	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	--	--	--	--	--
c.	Skidding in SPZ	--	--	--	--	--
d.	Cable Stream Crossing	--	--	--	--	--
e.1.	Hardwoods, Shrubs, Grasses, Rocks - Shade	3	3	100	3	100
e.2.	Class 1 - 75% Current Shade	3	3	100	3	100
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	3	3	100	3	100
030.08	**MAINTENANCE OF RELATED VALUES**	**////////**	**////////**	**////////**	**////////**	**////////**
c.	Wet Areas	3	3	100	3	100
040	**ROAD CONSTRUCTION AND MAINTENANCE**	**////////**	**////////**	**////////**	**////////**	**////////**

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

	Description	# of Inspections	Implemented	% Implemented	Effective	% Effective
g.5.	Cross Ditch or Outslope to Eliminate Ditches	1	1	100	1	100
g.6.	Seed, Mulch, Armor Bare Earth	1	1	100	1	100
040.05	**WINTER OPERATIONS**	//////////	//////////	//////////	//////////	//////////
a.	Adequate Cross Drainage	2	2	100	2	100
b.	Road Maintenance	2	2	100	2	100
	SUMMARY	**83**	**83**	**100 %**	**83**	**100%**

There were 83 BMP observations conducted last year with overall implementation of 100% and an effectiveness rate of 100%. Though the audits reflect a high rate of compliance with Forest Practices Act and Best Management Practices, the following BMP observations warrant additional discussion:

Timber Harvest

030.03.a: Skidding erosion. The skid trails and landings on the Blown Feathers unit were left in a compacted state resulting in rutting and erosion. Decompaction and muching of these temporary facilities would have reduced runoff and soil resource damage. No sediment appeared to be delivered to streams.

Road Maintenance

Although overall BMP implementation and effectiveness rates have been near 99 percent in recent years, road maintenance is the area where most noncompliance observations occur. This, we believe, is because the Forest has too many roads and insufficient funding to maintain them.

040.04.f3: Long Term Inactive Roads: Remove or maintain drainage structures. We looked at one stored road in the Dinner Bucket Unit 10. This road was effectively waterbarred and stabilized at the top of the unit. However, lower in the unit the road crosses a well defined intermittent stream. The culvert that was left in place needs maintenance and is likely undersized. Though there is no violation of FPA, the culvert probably should have been pulled or at least cleaned since there is no longer access for maintenance.

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 from FY 2004-2008 focused on assessing impacts of past management actions in proposed treatment units in new projects. In addition, soil scientists from a Forest Service Enterprise Team were contracted to conduct post-project monitoring reviews on four completed projects. Monitoring was also conducted in three BAER (burned area emergency response) projects for soil impacts caused by wildfires.

ACCOMPLISHMENTS/FINDINGS

Pre-project Monitoring: 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). Pre-project soil monitoring was conducted in nine proposed projects from FY 2004-2008: Cherry Dinner, Coralled Bear, Gold Bug, Gezel, Yakus, Johnson Thinning, Austin Thinning, Swede Fuels, and Beaver Triangle

In each project area, on-the-ground field soil reviews were conducted in each proposed treatment unit (with past management actions) to assess the areal extent of detrimental soil disturbances associated with those past actions. Examination of landtype maps, aerial photos, and project maps was used to determine areas of likely soil impacts. The following tables show the monitoring results for each project area:

Table 30: Areal Extent of Detrimental Soil Impacts within Proposed Cherry Dinner Treatment Units (Palouse District)

Unit	Previous Treatment Type and Year[1]	Unit Size (acres)	Primary Landtype(s)	% of Unit with Previous Detrimental Soil Impacts
1	none in database	68	11A40, 22A06	0.1%
3	CC, DP-1976, IMP-1977	36	11A40, 22A06	0%
4	none in database	27	22A00, 22A06	0%
5	CC-1935	76	22A00, 22A06	0.4%
6	none in database	10	22A00	1.5%
7	none in database	291	22A06	0.1%
9	CT, GP-1989	94	22A06	0.3%
10	none in database	25	22A06	1.4%
11	none in database	13	22A06	0%
12	none in database	19	22A06	0.5%
13	none in database	13	24S25, 24T25	0.3%
14	Sel,DP-1977	60	22A06, 24T25	3%
15	none in database	28	22A06	2.3%
16	Sel-1976	7	22A06, 31T25	0.6%
17	CC-1976	29	10A40, 22A06, 24T25, 61T20	30%
19	none in database	22	22U25, 24Q20, 31Q10	3.3%
20	none in database	64	22A00, 22U25, 24Q20, 24T25	0.6%
21	none in database	28	24Q20, 24Q25, 22A00	1.4%
22	none in database	108	22S00, 24S20, 24S25, 24S10, 31S10	1.6%
23	none in database	31	11A47, 22A01, 22A06	4.4%
24	none in database	149	10A40, 11A47, 22A07, 24T25, 31T25	1.9%
25	CC-1960, DP-1961, Imp-1962, CC-1981, DP-1982	41	24S25, 31S10, 31S25	3.2%
26	none in database	10	24S25, 31S25	1.9%
27	none in database	28	22A07, 22U25, 24S25	2.3%
28	CC-1965,DP-1966	26	22A07, 22U25, 31T26	1.3%
29	none in database	83	22U25, 24S25, 31S10	0.3%
30	CC-1993, DP-1994	79	22A07, 22U25, 31T26	2.5%
31	CC-1968, DP-1971	43	22A07, 31T26	4.1%

Unit	Previous Treatment Type and Year[1]	Unit Size (acres)	Primary Landtype(s)	% of Unit with Previous Detrimental Soil Impacts
36	ST-1996	91	22A06, 31S20	3.3%
37	none in database	40	11A40, 22A06	2%
39	none in database	154	11A40, 22A06	0.6%
40	none in database	24	22A06	0%
42	none in database	36	22A06	2.3%
45	none in database	43	22A06	0%
47	none in database	68	22A00, 22A06	0%
55	CC,DP-1982	18	31S10, 31U26	5.5%
57	none in database	57	22S00, 22U25, 24S20	0.4%
58	none in database	41	22U25, 24S10, 24S25, 31S10	0.6%
59	none in database	52	24S10, 24S20, 24S25, 31S10	1.5%
61	none in database	7	22A06	0%
63	none in database	13	22A06	0.9%

[1] Previous Treatment and Proposed Activity Type Codes: CC=clearcut harvest, CT=commercial thin, DP=dozer pile and burn, IMP=improvement harvest, GP=grapple pile and burn, Sel=selection harvest, ST=seed tree harvest

Table 31: Areal Extent of Detrimental Soil Impacts within Proposed Coralled Bear Treatment Units (Palouse District)

Unit	Previous Treatment Type and Year1	Unit Size (acres)	Primary Landtype(s)	% of Unit with Previous Detrimental Soil Impacts
1	SS-1997	86	22A06, 31Q20	2%
2	SS-1997	54	22A06, 24T11, 24T25, 31T10, 31T26	1%
3	none in database	40	22A06	0%
4	SS-1997	73	22A00, 22A06, 24T25	0%
5	none in database	16	22A06	2%
6	SS-1997	40	22A06	1%
7	SS-1997	65	11A40, 22A06	0%
8	none in database	22	11A40, 22A06	0%
9	none in database	56	22A00, 22A06	3%
10	none in database	60	22A06, 24G20, 24S25, 24G20	2%
11	ST-1961, SS-1997	166	22A06, 22U25, 24G20	1%
15	none in database	54	22A06, 22U25	2%
16	none in database	59	22A00, 22A06, 22U25, 22G01	8%
17	none in database	20	11A40, 22A06, 22G01, 22U25	9%
20	SS-1997	73	22A06	18%

[1] Previous Treatment and Proposed Activity Type Codes: SS=salvage sale, ST=seed tree harvest

Table 32: Areal Extent of Detrimental Soil Impacts within Proposed Gold Bug Treatment Units (Palouse District)

Unit	Previous Treatment Type and Year1	Unit Size (acres)	Primary Landtype(s)	% of Unit with Previous Detrimental Soil Impacts
1	none in database	32	22Q00, 24Q20, 31Q20	3
2	Sel-1965, burnpile=1967	72	31U26, 31Q20	10
3	Sel-1965, burn piles-1968	11	24Q25	3
4	none in database	25	24Q20, 31Q20	1
5	none in database	8	22Q00, 24Q20, 31Q20	2
6	none in database	21	31Q20	2

[1] Previous Treatment and Proposed Activity Type Codes: Sel=selection harvest

Table 33: Areal Extent of Detrimental Soil Impacts within Proposed Yakus Treatment Units (Lochsa District)

Unit	Year of past intermediate harvest[1]	Unit Size (acres)	Primary Landtype(s)	% of Unit with Previous Detrimental Soil Impacts
1	1965	113	22A01, 24S10, 31S10	5%
4	1959/1983	33	22A01, 24S10, 31S20	12%
5	1959/2000	22	22A01	13%
6	?	13	22A01, 22S00	1%
7	1973	39	22S00, 24S10, 24S20	2%
8	1997	39	22S00, 24S10	3%
9	1959/1967	13	22S00, 24S10	4%
10	1959	12	24S10	8%
20	Prior to 1973	36	22A01, 24S20	7%
22	1960/1997	42	22A01, 24S10, 24S20	6%
25	1978	37	22A01, 24S10	7%
26	1978	38	22A01, 22S00	16%
27	1978	34	22A01, 22S00	12%

[1] Intermediate harvest includes sanitation salvage, liberation, and improvement cuts.

Table 34: Areal Extent of Detrimental Soil Impacts within Proposed Gezel Treatment Units (Lochsa District).

Unit	Unit Size (acres)	Primary Landtype(s)	Percent of Unit with Previous Detrimental Soil Impacts
1	41	24G20, 24G95, 24S20	0.0%
2	17	24G10, 24G20	2.9%
3	12	24G10	5.0%
4	7	24G20, 24S20	7.1%

Unit	Unit Size (acres)	Primary Landtype(s)	Percent of Unit with Previous Detrimental Soil Impacts
5	10	24S20	0.0%
6	16	24S20	6.3%
7	16	24S10, 24S20	5.0%
8	23	22S00, 24S10, 24S20	2.2%
9	43	24G20, 31G20	0.0%
10	45	31G20	0.0%
11	18	31G20	1.0%
12	17	24G45, 31G20	2.8%
13	15	22G00, 24G45	14.1%
14	19	24G45, 31G45	5.8%
15	14	24G20, 24G45	4.3%
16	71	22S00, 24S20, 31S20	3.9%
20	31	24G95, 32U60, 32U70	4.0%

Table 35: Areal Extent of Detrimental Soil Impacts within Proposed Johnson Thinning Treatment Units (Lochsa District).

Unit	Year of Past Intermediate Harvest	Unit Size (acres)	Primary Landtype(s)	Percent of Unit With Previous Detrimental Soil Impacts
1	1981, 1987	55	22A01, 24A01	3%
2				6%

Table 36: Areal Extent of Detrimental Soil Impacts within Proposed Austin Thinning Treatment Units (Lochsa District).

Unit	Unit Size (acres)	Primary Landtype(s)	% of Unit with Previous Detrimental Soil Impacts
1	68	22G00, 24G10, 24G20	3%

Table 37: Areal Extent of Detrimental Soil Impacts within Proposed Swede Fuels Treatment Units (Lochsa District).

Unit	Year of Past Harvest[1]	Unit Size (acres)	Percent of Unit with Previous Detrimental Soil Impacts
1	1967, 1986	25	9%
2	1970	18	9%
3	1966	49	11%
4	1973	15	10%
5	1961, 1966, 1973	217	11.4%
6	1952, 1960, 1962, 1966, 1969, 1971, 1973, 1974, 1977	567	12.2%
7	1958	58	18%
8	1965	3	12%
9	1957	24	27%

Unit	Year of Past Harvest[1]	Unit Size (acres)	Percent of Unit with Previous Detrimental Soil Impacts
10	1958	85	14%
11	1951, 1958,1960, 1972	88	14%
12	1972	24	14%

[1]Past harvest includes sanitation salvage, liberation, improvement cuts, clearcuts, and seedtree cuts.

Table 38: Areal Extent of Detrimental Soil Impacts within Proposed Beaver Triangle Treatment Units (Powell District)

Unit	Previous Treatment Type and Year[1]	Unit Size (acres)	Primary Landtype(s)	Percent of Unit with Previous Detrimental Soil Impacts
5	None	6	32L91, 38U80	0%
6	SALV-79	12	32L91	<1%
8A	None	13	33U66, 38U80	0%
8B	SALV-?	29	38U80, 33U66	2%
8C	SWSC-81,SWFC-85	5	38U80	2%
8D	None	10	33U66, 38U80	0%
8E	SWSC-81,SWFC-85	56	33U66, 38U80	1%
9	SCC-73	9	38U80, 32U80	2%
11	SALV-80	21	33U80	2%
12A	SALV-?	36	33U80, 36U92	2%
12B	SALV-?			1%
14	SALV-?	9	33U80	1%
15	SALV-79	25	33U80	2%

[1] Previous Treatment and Proposed Activity Type Codes: CC=clearcut harvest, CT=commercial thin, DP=dozer pile and burn, IMP=improvement harvest, GP=grapple pile and burn, Sel=selection harvest, ST=seed tree harvest

A number of wildfires occurred on the Clearwater National Forest in from 2004-2008. BAER assessments were conducted on three wildfires during that time period to determine the need for rehab treatments. During the BAER surveys, burn severity/intensity impacts to the soil/vegetation were assessed. The following table shows the burn severities/intensities for the fires that BAER assessments were conducted in 2005 (Black Canyon Face) and 2007 (Boundary Junction and Bridge).

Table 39: Burn Severity/Intensity of Clearwater NF Wildfires as Developed from Satellite Imagery and Field Reviews

Fire	Burn Severity/Intensity				Area (acres)
	Percent Unburned or Underburned	Percent Low	Percent Moderate	Percent High	
Black Canyon Face (2005)	60.3%	25.2%	8.8%	5.7%	1951
Boundary Junction (2007)	38.2%	37.8%	18.7%	5.4%	5081
Bridge (2007)	39.6%	21.8%	34.5%	4.1%	42,101
Total BAER fires (2005 & 2007)	**40.3%**	**23.6%**	**31.8%**	**4.3%**	**49,133**

The relationship between burn severity (soil impacts) and burn intensity (vegetation impacts) is not necessarily a direct one. In areas where there is naturally little forest vegetation (meadows, rocky slopes, talus fields, etc.), the burn impacts picked up by satellite imagery will likely more reflect burn severity. Conversely, in areas with well developed forest canopies, satellite imagery may more accurately depict changes in vegetation caused by the fire. In developing the burn impact (severity/intensity) maps for the 2003 Clearwater NF fires, the classifications developed are interpreted as follows:

- Unburned/underburned: Low severity, low intensity. The fire did not actually burn through this class or burned at such low levels that there were minimal impacts to either the vegetation or the soil.
- Low: Low severity/low to moderate intensity. The fire generally burned in a mosaic pattern throughout these areas with low impacts to the soil and tree mortality was generally less than 25%.
- Moderate: Generally low to moderate soil impacts (severity), moderate to high vegetation impacts (intensity). The fire created a mosaic condition of varying intensity and severity. Tree mortality is moderate to high ranging from 50-100%, averaging 70-80%.
- High: Moderate to high soil impacts (severity), high vegetation impacts (intensity). Soil impacts can be high if sufficient surface fuels are present, but vegetation mortality is usually complete.

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 FY09, 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 four larger timber sales, 1200 firewood permits, 452 Christmas tree permits, and 50 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 FY04 are shown in Table 38 below.

Table 40: Annual Timber Volume Offered, Sold, Cut, and Under Contract (MMBF)

	FY05	FY06	FY07	FY08	FY09
Offer	27.4	1.6	19.8	41.1	*****
Sold	28.7	10.8	19.8	27.9	22.8
Cut	21.7	19.3	6.0	7.3	19.1
Contract	31.2	31.3	40.8	60.8	66.1

The total acres of timber sold by harvest method during the past five years are shown in Table 39 below.

Table 41: Total Acres of Timber Sold on the Forest by Harvest Method

	FY05	FY06	FY07	FY08	FY09
Clearcut and Clearcut with Reserves	153	0	491	627	231
Shelterwood and Seed Tree	502	0	146	335	166
Final Removal	0	0	0	0	0
Selection	0	0	26	0	42
Intermediate Harvest	79	113	499	480	485

Table 40 shows the volume of timber sold for the roaded and unroaded components of the Forest.

Table 42: Roaded and Unroaded Timber Sold

Year	Roaded Sawtimber	Roaded NIC*	Roaded Total	Unroaded Sawtimber	Unroaded NIC*	Unroaded Total	Forest Total
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**
08	25.3	2.6	**27.9**	0	0	**0**	**27.9**
09	*****	*****	**22.8**	0	0	**0**	**22.8**

*NIC = non-interchangeable component

Table 41 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 43: Comparison of Forest Plan Projections with Annual Acreage of Timber Sales, 1989-2009

Management Area	Forest Plan Acres	Forest Plan Volume Mmbf	Timber Sale Average Acres	Timber Sale Average Volume Mmbf
Timber Production	3,497	81.2	2,080	33.3
Road/Trail Corridors	125	.8	23	0.4
Big-Game Summer Range	3,099	62.5	23	0.4
Big-Game Winter Range	1,007	23.6	207	4.6
Riparian Areas	3,516	5.2	37	0.7
Middle Fork Clearwater Scenic Corridor	0	0	12	0.4

The difference between planned ASQ volume and the average annual volume sold shown in Table 41 is due, in large part, to not harvesting in the unroaded portion of the Forest.

Frequency of Measurement: Annual
Reporting Period: Five Years

MONITORING ACTION

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

ACCOMPLISHMENTS/FINDINGS

The National Forest Management Act of 1976 requires that when trees are cut on lands suitable for timber production, 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 2003 were compiled and the required percentages calculated. The data presented in Table 5 are based on the status of regeneration at the end of 2009. The time elapsed since harvest is five years but time elapsed since site preparation and planting is two to 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.

Table 44: 2009 Regeneration Harvests Adequately Restocked in Five Years

	Clearcut	Seedcut	Final	Selection	Total
Number of Stands	39	33		7	**79**
Number of Acres	480	523		271	**1,274**
Stand Status Certified	26/310	22/352		7/271	**55/933**
Stand Certified %	67%	67%		100%	**70%**
Acres Certified %	65%	67%			**73%**
Stand Status Progressing	12/156	9/154			**21/310**
Stand Progressing %	31%	27%			**27%**
Stand ac progressing%	33%	29%			**24%**

EVALUATION/CONCLUSIONS

Of the 79 stands that received regeneration harvests in 2003, site preparation and subsequent planting occurred from 2004 to 2009, which delays reforestation examination for certification by two to five years. There were no reforestation failures for these harvests.

1 clearcut (14 acr) and 2 seedcut units (17 acr) have not yet been burned/planted due to heavy accumulation of fuels on adjacent ownerships. They are planned for treatment this year.

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

In 2009, validation of suitability occurred during two NFMA projects (Powell Divide,Lochsa Thin) and three NEPA projects (Preacher Dewey, Saddle Camp, Coolwater Ridge Fuels). No changes in suitability occurred.

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

Direction in Forest Service Manual 2471.1 states that the size of openings created by even-aged silvicultural treatments in the Northern Rockies will normally be 40 acres or less, with certain exceptions. One of those exceptions includes catastrophic events such as fire, windstorms, or insect and disease attacks. In theses cases, the 40-acre limitation may be exceeded without 60-day public review and without Regional Forester approval, provided the public is notified and the environmental analysis supports the decisionTable 6a and 6b shows the acres reported as **accomplished**, which means the timber sale sold but the units haven't necessarily been harvested, in the FACTS database for fiscal year (FY) 2009 by district, type and size.

Table 45: FY08 Even-aged Regeneration Harvests Accomplished by Harvest Type and Size Category

District	Clearcut & Clearcut with Reserves		Seedtree & Shelterwood		Final Removal	
	#Stands/Total Acres <40 Acres	# Stands/Total Acres > 40 Acres	#Stands/Total Acres < 40 Acres	# Stands/Total Acres > 40 Acres	# Stands/Total Acres < 40 Acres	# Stands/ Total Acres > 40 Acres
Pierce	0	0	0	0	0	0
Palouse	2/55	0	15/248	4/307	0	0
North Fork	0	0	0	0	0	0
Lochsa	0	0	0	0	0	0
Powell	0	0	0	0	0	0
Total	**2/55**	**0**	**15/248**	**4/307**	**0**	**0**
Average Size	27 acres	0	17 Acres	77 acres	0	0

In addition to regeneration harvest units, selection or intermediate harvest units such as commercial thin or improvement cuts were accomplished in 2009.

Table 46: FY08 Selection and Intermediate Harvests Accomplished by Size

CategoryDistrict	Selction/Intermediate Harvest #Stands/Total Acres <40 Acres	Selection/Intermediate Harvest #Stands/Total Acres >40 Acres	Total
Pierce	2/55		2/55
Palouse	14/200	6/481	20/681
Total	**16/255**	**6/481**	**22/736**
Average Size	16 acres	80 acres	33 acres

Table 47: FY08 Even-Aged Regeneration Harvests Completed by Harvest Type and Size Category

District	Clearcut and Clearcut with Reserves		Seedtree and Shelterwood		Final Removal	
	#Stands/Total Acres <40 Acres	#Stands/Total Acres >40 Acres	#Stands/Total Acres <40 Acres	#Stands/Total Acres >40 Acres	#Stands/Total Acres <40 Acres	#Stands/Total Acres >40 Acres
Pierce	7/84	0	3/36	0	0	0
Palouse	2/55	1/92	5/78	1/52	0	0
North Fork			0	0	0	0
Lochsa		0		0	0	0
Powell		0		0	0	0
Total	**9/139**	**1/92**	**8/114**	**1/52**	**0**	**0**
Average Size	15 acres	92 acres	14 acres	52 acres	0	0

In addition to regeneration harvest units, selection or intermediate harvest units such as commercial thin or improvement cuts were completed in 2008.

Table 48: FY08 Selection and Intermediate Harvests Completed by Size Category

District	Selection/Intermediate Harvest #Stands/Total Acres <40 Acres	Selection/Intermediate Harvest #Stands/Total Acres >40 Acres	Total
Palouse	5/74	5/382	10/456
North Fork	9/71	0	9/71
Total	**14/145**	**5/382**	**19/527**
Average Size	548 acres	76 acres	28 acres

EVALUATION/CONCLUSIONS

All units over the 40 acre limitation for even-aged regeneration were approved by the Regional Forester.

The type and amount of silvicultural prescriptions/systems written and implemented on the Clearwater NF shows a wide diversity. Almost as many acres of intermediate/selection harvest

(1,259 ac) were accomplished as even-age regeneration harvest (1,457 ac). Commercial thinning was used in those stands that were even-age regenerated in the 1950's and 1960's or older stands where stand density and species composition could be moved towards desired conditions. Stands with high levels of insect and disease occurance were regenerated in order to meet multiple objectives.

For evenage harvest, stand or patch size still trends to less than 40 acres which doesn't mimic fire disturbance patch. Patch size in the intermediate treatments accomplished this year is about equal acreage which helps meet the objective to mimic fire disturbance regimes by increasing stand or patch size.

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

Frequency of Measurement: Annual
Reporting Period: Five Years

MONITORING ACTION

Insect and disease status is evaluated during post-treatment stand exams. 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 FY 2009. Mapping of current tree mortality and damage occurred on all ranger districts exclusive of the Selway-Bitterroot Wilderness. Table 49 shows a comparison of mortality recorded in 2009 and 2008.

Table 49: FY08 Aerial Detection Flight of Insect and Disease Mortality by Acres

Insect/Pathogen/Disturbance	2009 acres	2009 Number of Trees	2008 acres
Western Pine beetle	483	222	1,958
Mountain Pine beetle	242,246	367,184	135,208
Douglas-fir beetle	1,071	3,220	4,640
Western balsam bark beetle			810
Pine engraver	7	30	
Fir engraver	4,459	2,173	7,659
Balsam woolly adelgid	2,370	3,095	40,370
Larch needle cast	410		
White pine blister rust	1,323	1,330	1,948
Winter Damage			39,899
Aspen decline			773
Total	**252,369**	**377,254**	**192,593**

EVALUATION/CONCLUSIONS

As in the past five to ten years of monitoring, drought and competition between trees for moisture and nutrients that are overly dense continues to result in high level of insects and disease. Mountain pine beetle epidemics have been recorded from British Columbia to the Southwest and is evident on the Clearwater NF, especially in the 1910 fire, lodgepole pine dominated landscapes. Downed, woody material is anticipated to continue to accumulate as dead trees fall. Wildland fire use and prescribed burning are the primary tools available as these lands are mainly allocated to roadless and wilderness.

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.

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 50: Miles of Trail Maintenance Accomplished*

	2004		2005		2006		2007		2008	
	Motorized	No Motor	Motorized	No Motor	Motorized	No Motor	Motorized	No Motor	Motorized	No Motor
Level I	**1025.08**		**851**		**651**		**822**		**927**	
	591.67	433.41	468	383	345	306	500	322	658	269
Level II	**45.10**		**58**		**42**		**40**		**69**	
	20.8	24.3	27	31	17	25	21	19	58	11
Level III	**82.87**		**24**		**38**		**26**		**70**	
	51.76	51.76	9	15	20	18	11	15	62	8
Total Maintained	1153.05		933		731		888		1066	
	664.23	488.82	504	429	382	349	532	356	778	288

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

Table 51: Trail Maintenance

Trail Maintenance Labor Type	2004	2005	2006	2007	2008
Force Account Maintenance	343	220	170	130	98
Volunteer Maintenance	230	394	240	336	503
Contract Maintenance	319	319	321	422	465

TRAIL RECONSTRUCTION

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 52: 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**

The Eagle Mountain (Roundtop) project was scheduled to be contracted, but was not due to funds needed for fire transfer. The Forest hopes to recover this funding and complete the project in 2009. Reconstruction work was completed on 2 trail and 1 trail bridge projects: Lochsa Peak, Palouse OHV System II and the Colt Killed Bridge. Work was also continued on the Camp 60/Sheep Mountain OHV system. The Lochsa Peak project was completed, with the exception of approximately .4 miles by a Student Conservation Association crew. It is expected that in 2009 a conservation crew will complete the reconstruction of this project. An excavator contract was used to complete culvert work on the Camp 60/Sheep Mountain OHV system.

Table 53: 2008 Trail Reconstruction Program

Projects Completed	Trail No.	Miles
Lochsa Peak	220	2.0
Palouse OHV System	Multi	19.0
Colt Killed Bridge		0.1
Deferred Maintenance	Various	1.0
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. 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.

River Administration

The Forest Service's Interface Fuels Phase II project was evaluated for compliance with the River Plan. Considerable time was allocated to coordinating with the Idaho Transportation Department on their Syringa Creek to Tumble Creek project.

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 Clearwater National Forests 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. The agencies developed an MOU to formalize the working relationship.

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. Rangers monitored 93 campsites in 2006, 55 campsites in 2007, 82 campsites in 2008, and 88 campsites in 2009.

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

Duck Lake Area

In 2009 two sites were moitored of these sites one was rated light and one was rated as not a site.

Porphry Lakes

In 2009 two sites were moitored of these sites one was rated light and one was rated as heavy. This was listed a problem area.

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. Only the sites at Florence Lake were monitored in 2008 and 2009. Of these sites, one was rated as light and nine were rated as not a site.

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.

Ranger Lake

This area was last monitored in 2006. One light site.

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

White Sand Lake

Five campsites are on record for the area. Campsite ratings in 2006 included three moderate, one heavy, and one not a site rating. The area has been receiving use and impacts have increased somewhat over the last few years. Campsite ratings in 2009 are now two moderate and one light rating.

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.

Clark Cabin/Trail 99

This area was last monitored in 2004. 2009 showed the area as being out of standard with one heavy site.

Maude Lake Area

This area was last monitored in 2006. Two sites one moderate and one light rating.

Bear Creek Pass/Packbox Pass

This area was last monitored in 2006. Two sites one moderate and one light rating.

Trail 939

2009 showed the area to have six sites. Five light and one not a site rating were found.

Light 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.

Monitoring was continued in 2008 and 2009. Campsite ratings included one six not a site, one light, three moderate and one heavy rating.

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. Twenty-two additional sites were monitored in 2008. Of the sites monitored, two could not be found, ten were rated as not a site, two as light, four as moderate, three as heavy and one as extreme.

Big Sand Lake

This area was last monitored in 2008. There are three campsites on record for the area, consisting of one site rating as not a site, one heavy and one extreme.

Blodgett Pass

Two sites were monitored in 2009. Both were given light ratings.

Little Dead Elk

Three sites were monitored in 2009. Two light and one moderate rating.

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.

Upper Sponge Creek

One campsite on record in 2009, with a light rating.

Fish Lake Meadows Area

This area was last monitored in 2006. There are two campsites on record, one heavy and one extreme rating. 2009 showed one moderate and one heavy rating.

Siha/Storm Lake Area

In 2009 seven sites were monitored. Two light, 1 heavy, and not a site ratings were given.

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 2009, two in 2008, one in 2007, two in 2006, one in 2005, one in 2004, and two in 2003. The rating in 2009 was heavy which was one of the extremes in 2005.

Volunteers obtained airstrip use data from 2002-2009.

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 – 2008 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 2009 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.

Status Reports

Noxious Weeds DEIS

Noxious Weeds – Noxious and invasive weeds continue to exist along travel routes, in suitable habitat, and along rivers and streams. Weed seed free feed is required on all Forestlands in both Montana and Idaho.

The spread of noxious weeds continues to be a concern on the Clearwater NF. Spotted Knapweed is the most common weed below 4,000 ft and is at the greatest risk of spreading to the interior of the wilderness from wilderness portals along Hwy 12. A variety of thistles, Sulfur Cinquefoil, Spotted knapweed, Hounds tongue, St. John's Wort and Oxeye Daisy were also noted by Wilderness Rangers along certain trail segments and heavily used campsites. When rangers and volunteers encountered small concentrations of weeds the patches were hand grubbed and recorded for future monitoring. All Clearwater employees are encouraged to record/report weed sightings when working in the Wilderness.

The Final Environmental Impact Statement for Selway-Bitterroot Wilderness Invasive Plant Management Project was completed in the winter/spring of 2009 and sent to U.S. Fish and Wildlife Service and the National Marine Fisheries section of NOAA for T, E, and S species review and concurrence. Concurrently,the FEIS package and Appendix of Responses to Comments on the Draft Environmental Impact Statement were sent to the Regional Office for final review and comment. Regional Office suggestions along with the regulatory agency comments and conditions for implementation were received and incorporated into the Record of Decision and FEIS during the summer/fall of 2009 in preparation for release of the decision in early FY 2010.

Wildland Fire

There were 42 fires on the Clearwater, Nez Perce, and Bitterroot National Forests in the summer of 2009 which were managed as Wilderness fire events for a total of 6739.4 acres burned. In 2009, trail access was not limited for either the public or Forest Service crews due to fire activity.

10-Year Wilderness Stewardship Challenge

Table 54: 10-Year Wilderness Stewardship Challenge Accomplishments

Accomplishment Level	Top Possible Score	2009	2008	2007
Fire Plans	10	10	10	10
Noxious/Invasive Weeds	10	5	5	5
Air Quality	10	10	10	10
Education	10	10	10	10
Solitude	10	6	6	6
Recreation Site Inventories	10	6	6	6
Outfitter & Guide Operations	10	8	8	8
Adequate Forest Plan Direction	10	8	6	6
Information Needs	6	6	4	2
Workforce	10	8	8	2
Total	**94**	**77**	**73**	**67**

In 2009, the Selway-Bitterroot Wilderness showed improvement in meeting the goals of the Stewardship Challenge, primarily due to the significant contribution of a dedicated and trained volunteer workforce. The score for adequate forest plan direction to prevent degradation of the wilderness resource increased by two for completing data entry on time and for volunteers making a significant contribution to the workforce. 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 protection of opportunities for solitude or primitive unconfined recreation (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 55: Wilderness Program Accomplishment Summary

Type of Activity	Unit of Measure	Clearwater NF 2009	Clearwater NF 2008
Field Presence	Wilderness Rangers (include River Rangers)	3	3.5
	Wilderness Ranger Field Days	147	171
	Volunteers	22	36
	Volunteer Hours	1,949	2,928
Education	Formal Education Programs	9	13
	Audience Members Reached	232	447
Trails	Miles of Trail Maintained	256.4	226.6
	Total Wilderness Trail Miles	325.3	325.3
Known Use / Visitation (Unknown # visitors not contacted or registered)	Individuals Contacted by Wilderness Rangers in the Field	161	100 groups 237 people
	Trailhead Registration (people)	929	306 cards 237 people
	Monitoring Days / Landings at Moose Cr. Airstrip	NA	NA
	Monitoring Days/ Landings at Shearer Airstrip	NA	NA
	Monitoring Days / Landings at Fish Lake Airstrip	5374	52 days 70 landings
O/G use	Outfitters	5	5
	Camps Used in the SBW	4	6
	Camps Inspected	6	20
Violations	Violations Recorded (incidents & citations combined)	2	14
Campsites	Total Existing Campsites/ Campsite Inventory Baseline Completed	328/328	328
	Campsites w/ Inventory Accomplished in 5 Year Cycle & (% of Total Campsites)	297 (90%)	297 (90%)
	Campsite Inventory Accomplished & (% of Total Campsites)	92 (28%)	82 (25%)
Fire	Wilderness Fire Events	24	1
	Wilderness Acres Burned	1,000.7	340
Authorizations	Mechanical Use Authorizations	3	3

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 2008.

1) Horse Camp: (W) Used through out the summer for wilderness rangers and trail crew.
2) Fish Lake: (W) Used throughout the summer for wilderness rangers, trail crew and volunteers.
3) Diablo Lookout: (W) Intact structure, not usually staffed.
4) McConnell Mountain Lookout: (W) Deteriorating structure, not staffed
5) Grave Peak Lookout: (W) Deteriorating structure, not staffed.
6) Hidden Peak Lookout: (W) Deteriorating structure, not staffed.
7) Bear Mountain Lookout: (A) Staffed in '08.
8) Beaver Ridge Lookout: (A) Staffed in '08.
9) Lochsa Historic Ranger Station: (A) Staffed by volunteers in the summer.
10) Elk Summit Guard Station: (A) Staffed by a volunteer for the summer. Trail crew use.
11) 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:

- 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 56: 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	24.5	0	.7	170.1	7.2	7.2	4	11.4	1.5	**226.6**
Total Miles	**9.1***			**35.9**			**259.3**			**23.5**			**328.1****

* Discrepancies in total miles recorded may vary slightly from year to year as a result of updated measurements from trail condition surveys.
** For 2008, 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.

In 2008, 226.6 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 volunteers. 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 old growth or late successional habitat. The primary cause for the declines of old growth was intensive timber harvesting.

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 57 provides a summarization 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 57: 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

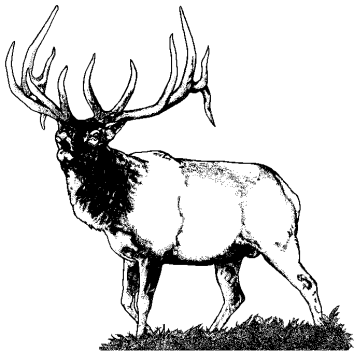
During project analysis individual stands within the project area are field checked and evaluated as to whether or not they meet the criteria from Appendix H of the Forest Plan and the Old Growth Forest Types for the Northern Region by Green et al.

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 FY09 approximately 3,500 acres of big game habitat was improved with prescribed fire across the forest in a variety of low to mid elevation habitat types . Additional accomplishment information can be found in the Fire section of the monitoring report. In addition, approximately 2,500 acres of wildlife habitat was improved from obilterating unneccessary roads across the forest. A total of 6,000 acres of habitat was improved in FY09.

Item No. 26, 27, 28, 29, 30, 33, 34, 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

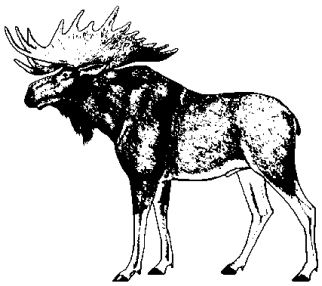
MANAGEMENT INDICATOR SPECIES

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 following species were selected in the Forest Plan as management indicator species: elk, moose, white-tailed deer, pileated woodpecker, goshawk, pine marten, belted kingfisher, and 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 5,000. The elk population trend is downward due to a variety factors such as

predation, habitat successional changes, climate change, recreational access, winter conditions, and hunting.



Moose

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. Anecdotal 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. The population trend appears stable with concern. General observational data may be indicating a decline.

Deer

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. 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 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. Additional data on local observations, frequency, and abundance can be found at ebird.com.

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 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 09.

Goshawk

The northern goshawk is a forest raptor occupying boreal and temperate forests throughout North America and around the globe (USDI-FWS 1998). USDI-FWS (1998) found that while forest management (e.g., timber harvest and fire exclusion) has changed the vegetation characteristics throughout much of the western United States, the goshawk continues to be well-distributed throughout its historic range. They found no evidence that the goshawk population is declining in the western United States, that habitat is limiting the overall population, that there are any significant areas of extirpation, or that a significant curtailment of the species' habitat or range is occurring. Kennedy (1997) conducted a review of available, peer-reviewed research, and found no evidence of a decline in goshawks in North America based on its range, demographics (density, fecundity, and survival), and population trends.

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. According to NatureServe 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 old growth habitat was harvested in FY 09. Additional data on local northern goshawk observations, frequency, and abundance can be found at ebird.com.In its population status review, the USDI-FWS (USDI-FWS 1998) determined that listing under the Endangered Species Act was not warranted and based on the best available science 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.

Habitat modeling done by the Northern Region, USDA Forest Service, based on research results involving goshawk nesting, post fledging, and foraging habitat, and using Forest Inventory and Analysis (FIA) information, produced a summary of habitat estimates for the northern goshawk by National Forest and aggregated to the Province and Regional levels (Samson 2005). The original Samson 2005 tables are replaced with updated numbers from USDA-FS (2008b) and shown in Table 58.

Table 58: Summary of Habitat Estimates for the Northern Goshawk by National Forest in the Northern Region Using the Northern Region Northern Goshawk Habitat Relationship models and FIA. The Ecological Province Habitat Estimates Include Only National Forest System Lands (Samson 2005)

		Model Results (acres)		
	National Forests	Nest	Post Fledging Area	Foraging
Northern Rocky Mtn. Ecol. Province	Idaho Panhandle, Clearwater, Flathead, Kootenai, Lolo Ecol. Province total	126,349	400,104	3,779,928
Middle rocky Mtn. Ecol. Province	Beaverhead-Deerlodge, Bitterroot, Helena, Lewis & Clark, Nez Perce Ecol. Province total	157,850	915,531	2,374,067
Southern Rocky Mtn. Ecol. Province	Custer, Gallatin Ecol. Province Total	11,565	145,391	406,434
USDA-FS Region 1	Regional Total: Due to Averaging Totals (Do Not Add Up)	314,419	1,590,589	6,565,805

Habitat for the northern goshawk is abundant in the Northern Region, and is abundant by National Forest and by Ecological Province. Based on this assessment, the Clearwater National Forest is estimated to have approximately 600,000 acres of suitable nesting habitat (Samson, 2006). In addition, the comparison of the relative forest composition and structure in 1938-1942 to current in the composition and structural (large tree) characteristics important to the northern goshawk show a major trend (or increase) favorable to the goshawk (Samson 2005). Another important component is distribution of habitat. Northern Region modeling (Samson 2005) demonstrated that northern goshawk habitat is well distributed by National Forest. A 2005 survey of the frequency of northern goshawk presence in the Northern Region showed there was a high rate of goshawk presence in the roaded portion of Region 1 (USDA-FS 2006b). The estimated proportional goshawk presence was 39%. The high rate of goshawk presence in the roaded part of R1 estimated as the result of this survey is consistent with Samson's (2005) review of short-term goshawk viability in R1. Samson (2006) showed that the Forests and the Region as a whole had not reached a critical 20-30% threshold of historic habitat remaining on the landscape and that forested ecosystems are more extensive now than in historic times.

Clough (2000, In: Hillis et al 2003) compared nest density between undeveloped landscapes and landscapes where past timber harvest had been heavy, and found no difference in nest density. Hillis et al (2003) identified the potential vegetation types, size classes, canopy closures, and elevations that best described 328 nests in USDA-FS Region 1. They then applied those criteria to remaining portions of Region 1 that had not been rigorously sampled. This suggested that out of 2,350 6th code hydrologic units (HUC6's) in the Region (watersheds 10,000 to 30,000 acres in size) no less than 1,599 or 68% had habitat sufficient to support at least one nesting territory. Fine-scale validation of random HUC6's showed substantially more goshawk nest habitat than predicted. The work of Kowalski (2006b) and Samson (2005) provided the data and evaluation on which to base reconsideration of the goshawk status as sensitive. Based on these works, the Forest Wildlife Biologists across the Region recommended the removal of the goshawk from the Region's Sensitive Species List in 2007 [USDA-FS 2007c (updated Dec 2009)].

Belted Kingfisher

According to the 2009 NatureServe the belted kingfisher has a conservation status rank of G5. This indicates the species is globally secure – common, widespread and abundant. The state conservation status rank is S5 indicating that in Idaho, the species is 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. Additional data on local observations, frequency, and abundance can be found at ebird.com Riparian habitats for kingfishers is protected via the implementation of PACfish and/or INfish riparian habitat buffers..

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. Harvest data indicates that 44 marten were trapped during FY 09 in the Clearwater basin. There is no limits to number of marten that can be trapped during the open season. Fish and Game estimates the harvest to be less than 1% of the existing population. Access during the trapping season to high elevation habitats is limited.

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. No pine marten habitat was harvested in FY 09.

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. As of December 31, 2009, there was a minimum estimate of 835 wolves in 94 packs and 49 documented breeding pairs in Idaho. Furthermore, as the Idaho wolf population continues to expand, the number of wolves observed and the number of documented breeding pairs continue to increase annually (Mack et al. 2010). The wolf was delisted in 2009 and is currently being managed by Idaho Fish and Game. Approximately 20 wolves were harvested in North Central Idaho in 2009. Additional information can be found at: http://www.r6.fws.gov/wolf.

Bald Eagle (Sensitive)

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 has been delisted to a FS sensitive speices. A trend in numbers of bald eagles over the past five years is increasing based on observations and annual surveys. Additional data on local observations, frequency, and abundance can be found at ebird.com.

Lynx (Threatened)

The Canada lynx was listed as a threatened species. A Conservation Strategy and Assessment and Forest Plan admendment have been approved. No new surveys have been conducted for lynx on the forest. Additional information on lynx management can be found at: http://www.fs.fed.us/r1/projects/lynx-index.shtml.

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 FY09 update for Appeals awill be included in the FY10 Clearwater National Forest Monitoring and Evaluation Report.

LITIGATION

The FY09 update for Litigation will be included in the FY10 Clearwater National Forest Monitoring and Evaluation Report.

SECTION 4 – IMPLEMENTED CHANGES

ECOSYSTEM MANAGEMENT

The FY09 update for Implemented Changes will be included in the FY10 Clearwater National Forest Monitoring and Evaluation Report.

FOREST PLAN REVISION

Revision of the Forest Plan was halted in FY 08 as a result of a lawsuit challenging the planning rule. It is likely work on Forest Plan Revision will resume in FY2012.

CLEARWATER NATIONAL FOREST AND NEZPERCE NATIONAL FOREST COMBINATION

Forest budgets have been declining steadily. During FY08, the Clearwater and Nezperce National Forests took advantage of opportunities to share resources and leadership skills. Starting in Fy08, the two Forests agreed to share the Safety Officer and the Fleet Manager positions. In August 2008, the Clearwater Forest Supervisor was assigned as the Acting Forest Supervisor for the Nezperce National Forest. Other Staff and Line positions will be shared between the two Forests as opportunities to do so arise. Continuing through FY09 and FY10, the two Forests will hold monthly joint Forest Leadership Team meetings.

FOREST PLAN AMENDMENTS

The FY09 update for Forest Plan Amendments will be included in the FY10 Clearwater National Forest Monitoring and Evaluation Report.

SECTION 5 – PLANNED ACTIONS

The FY09 update for Planned Actions will be included in the FY10 Clearwater National Forest Monitoring and Evaluation Report.

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
Anne Connor	208-476-8235	Soil and Water, Road Decommissioning, Riparian
Mark Craig	208-476-8291	Timber Targets, Timber Outputs
Dan Davis	208-476-8353	Wildlife, Wildlife Outputs
Lori Deford	208-983-4059	Law Enforcement, LEMARS
Bruce Ellis	208-476-8350	Heritage
Colleen Fahy	208-476-8278	GIS, Database
Susan Graves	208-476-8207	Roads
Carol Hennessey	208-935-4270	Trails
Lois Hill	208-935-4258	Writer Editor, Economic Modeling, Effects, Appeals/Litigation, Implemented Changes, Planned Changes
Clinton Hughes	208-983-4099	Minerals, Mineral Outputs
Patti Johnston	208-983-4012	Wilderness, Recreation
Diana Jones	208-476-8239	Scenic Resources
Rick Kusicko	208-476-8374	Timber
Roberta Morin	208-476-8354	Lands
Pat Murphy	208-476-8208	Range, Fisheries, Fisheries and Range Outputs
Debbie Phillips	208-476-8282	Economic Model Budget Information, Target Accomplishment
Molly Puchlerz	208-942-0303	Recreation
Andre Snyder	208-476-8316	Soil and Water, Riparian
Lynne Swayne	208-476-8233	Economic Model Budget Information
Vice/Jim Mital	208-476-8348	Soils, RNA, New Research
Randall Walker	208-983-7016	Timber, Silviculture, TSI, Reforestation, Outputs

SECTION 7 – FOREST SUPERVISOR APPROVAL

Approval

I have reviewed this annual Forest Plan Monitoring and Evaluation Report for FY09. This report meets the intent of the Clearwater 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.

Date: 5-13-11

Rick Brazell
Forest Supervisor
Nez Perce and Clearwater National Forests