Protecting and Restoring Fishing (Waw'aatamnima) Creek to Legendary Bear ('Imnaamatnoon) Creek Watersheds Analysis Area

Annual Report
2003 - 2004

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Watershed Restoration in the Upper Lochsa River Basin

Protecting and Restoring Fishing (Waw'aatamnima) Creek[1] to Legendary Bear ('Imnaamatnoon) Creek[2] Watersheds Analysis Area

Annual Progress Report

June 2003 – May 2004

Prepared by

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Department of Fisheries and Resource Management

Watershed Program

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May 2004

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[1] ***formerly Squaw Creek***
[2] ***formerly Papoose Creek***

1.0 INTRODUCTION

The watersheds included in the project Analysis Area drain into the Upper Lochsa River, together the Lochsa and these tributaries contain critical spawning and rearing habitat for anadromous and resident fish in the state of Idaho (Clearwater National Forest 1999). Species that depend on the tributary habitat include spring chinook salmon, Snake River summer steelhead, bull trout, and westslope cutthroat trout. Steelhead and bull trout populations are currently listed as Threatened under the Endangered Species Act (ESA), and westslope cutthroat trout has been petitioned for listing. Both out-of-basin and in-basin factors threaten fish populations in the Lochsa Drainage (Clearwater Subbasin Plan 2003). Out-of-basin factors include the hydroelectric system and ocean conditions, while in-basin factors include a variety of management activities leading to habitat degradation.

Location of Analysis Area:
The Waw'aatamnima to 'Imnaamatnoon Analysis Area is located in the Clearwater Subbasin within the Lochsa River Drainage. The analysis area contains five fifth order watersheds a total of nearly 60 mi^2.

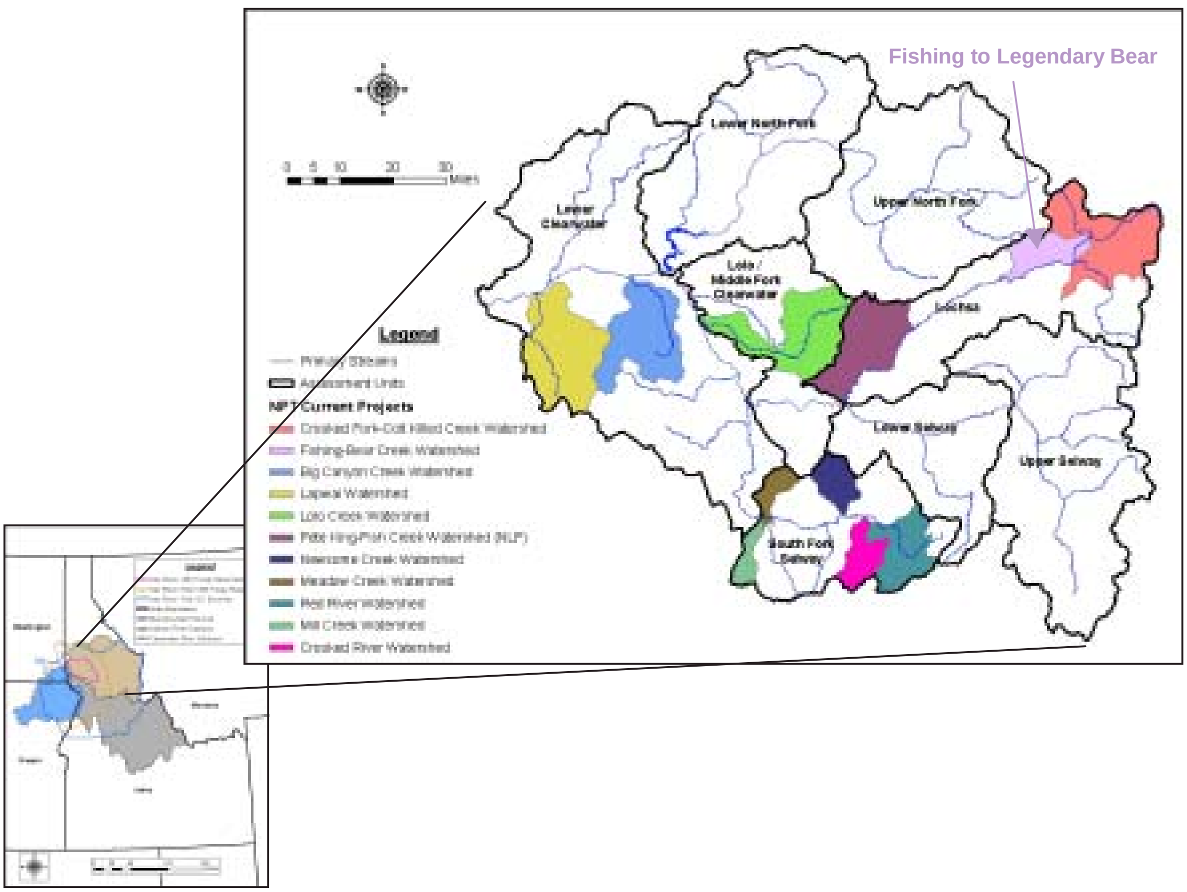

Figure 1. Location of Analysis Area.

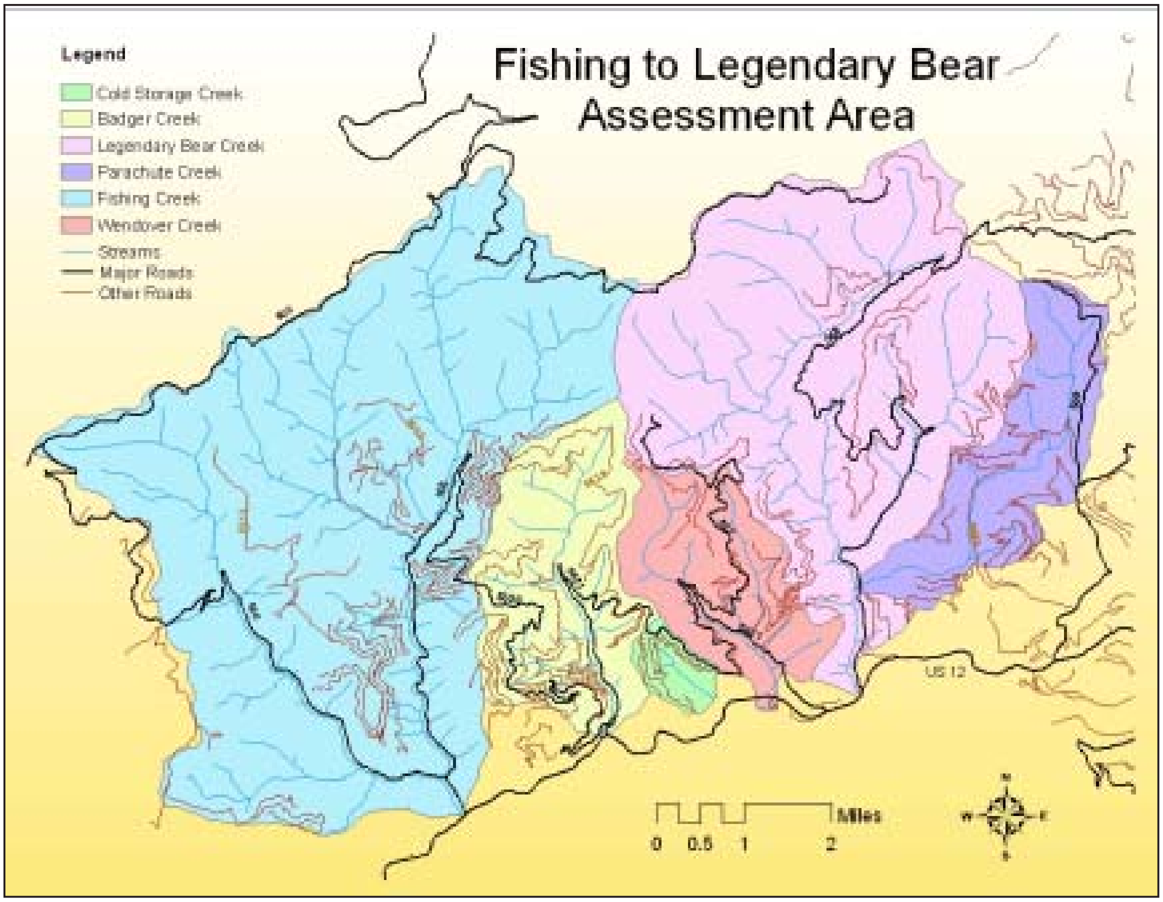

Figure 2. More detail of the Analysis Area watersheds. This year's road removal activity occurred in the Badger Creek Drainage and Parachute Creek Drainage. Culvert replacement occurred in the Legendary Bear Drainage. And, weed inventory occurred throughout.

Project Focus 2003:

This year's restoration projects focused on improving in-stream habitat conditions by addressing legacy management impacts associated with timber harvest and road systems. Roads built to support timber harvest and other management needs have many impacts on watershed condition with the greatest impacts to aquatics in the Lochsa being sedimentation to fisheries and passage barriers to various life stages of fish and invertebrates.

In the watersheds of the Lochsa, road derived sediment enters streams and riparian areas primarily from the following pathways: surface erosion, chronic mass failures (small, 10 yd^3 or less), and landslides (greater than 10 yd^3, which tend to be driven by heavy precipitation events). On the steep, dissected breakland slopes of the Upper Lochsa, landslides are of particular concern. Following two record level rain-on-snow events during the 1995-96 winter, landslides occurred across the Clearwater National Forest. A landslide analysis revealed that over half the landslides occurring in the Lochsa initiated from abandoned logging roads. After more detailed ground surveys, we learned these abandoned logging roads, despite being overgrown, proved to have many locations of significant surface erosion, smaller mass failures, and potential failure points. In general, our survey data found that older roads posed greater risk to the watersheds.

The project work this year continues implementation work started in 1997. After the flood events of 1995-96, the Nez Perce Tribe Department of Fisheries and Resource Management- Watershed Division (NPT-DFRM-Watershed) and the Clearwater National Forest (CNF) developed a watershed analysis and transportation plan during the first phase of project work. These documents identified over three hundred miles of unneeded roads in the Analysis Area and prioritized areas for road removal. Most of these three hundred miles of road were built on landslide prone slopes; data collected during road survey revealed them to be sediment sources, which if not mitigated would continue to degrade aquatic habitat.

The afore mentioned analysis document also identified impassable culverts on needed Forest Service system roads as a key limiting factor to spawning and rearing success in the tributaries. In the past two years we have begun addressing connectivity barriers created by roads that will remain on the Forest Service transportation system. In 2002, most of these culverts were replaced under a different BPA funded contract approved under high priority funding in 2001.

2.0 METHODS

There are 7 objectives listed for this year's project. The methods section addresses primarily the methods used in the implementation of project work. However, objectives include tasks for both planning *and* technical implementation.

Objective 1. Finalize 2003 Watershed Restoration Partnering Agreements with the Clearwater National Forest.

Objective 2. Reduce the risk of further aquatic habitat degradation as a result of sedimentation from road related sources.

Objective 3. Return habitat connectivity and reduce risk of road failure.

Objective 4. Monitor and evaluate success of road removal techniques.

Objective 5. Monitor and evaluate past culvert replacements in cooperation with the CNF.

Objective 6. Identify and evaluate other sources of sedimentation and watershed habitat degradation in the Analysis Area and prescribe restoration technique.

Objective 7: Data Management and Reporting to BPA

<u>2.1 Reducing Road Related Sedimentation (Objective 2)</u>

2.1.1 Implementation Under this Objective includes

- ***Road Removal (referred to as Decommissioning/Obliteration)***
- ***Risk Assessment of Roads and Culverts***

2.1.1.1. Road Removal Methods

Using the information available from other road stabilization/removal programs and anecdotal evidence from the Clearwater's fledgling road removal work in the early 1990's, the Clearwater National Forest/Nez Perce Tribe Partnership determined the most cost-effective and functional way to prevent continued erosion from these unneeded roads was by a prescription of removing the road prism from the hillside either by outsloping or recontouring the fillslope[3]. Our prescriptions are developed on site during intensive pre-work road survey and refined or adjusted during contract inspection.

[3] Definitions follow at end of section.

Figure 3. Pre-obliteration survey on over-grown road. Badger Creek summer 2003.

We prescribe the minimum level of treatment required to reduce or eliminate mass failure risk, restore watershed hydrology, and restore land productivity. The Clearwater National Forest defines levels of road treatment as the following:

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

Because of the instability of roads in the Analysis Area, stabilization generally requires Level 3 or Level 4 treatment. The following kinds of work are involved in these levels of treatment. All culverts are removed. Fills are removed in the area around live streams and stream channels are restored to original grade. Ditches are eliminated and road surfaces are strongly outsloped or recontoured to provide continuous drainage. Road surfaces may be decompacted to promote tree growth. Erosion control blankets may be installed at sensitive locations to control surface erosion. Disturbed areas are mulched with straw, native woody debris, or a scattering of logs and stumps. Native shrubs and sod excavated during outsloping or recontouring are transplanted into disturbed areas. At completion, the area will no longer convey vehicle traffic, and requires no maintenance.

Successfully completing road treatments requires the use of excavators and in some cases, dozers.

Definitions for stabilization techniques:

Full recontour

A full recontour involves reestablishing the natural contours of the hillside, restoring the original topography. In full recontour sections, we pull up the entire fill, place it on the cut bench and blend to the top of the cut slope.

Partial recontour

A partial recontour involves removing fill and replacing cut material while leaving a flat or sloped section of the traveled way in tact, usually for use as a trail (USFS, 1996). Sometimes the term "partial recontour" is used to mean pulling some fill (usually that which can be easily reached) and placing in on the cut bench, creating a strong outslope.

Outslope

An outslope involves pulling up some fill, removing ditches, removing berms, and leaving a cross slope on the template that water will run off of. In road decommissioning, we construct a non-drivable 10% - 30% outslope. Often, a strong outslope is confused with a full or partial recontour. However, on outsloped sections we do not focus on blending the material to the top of the cut. On flat sideslopes, a strong outslope may be a recontour.

2.1.1.2 Road and Culvert Risk Assessment

Road related sedimentation occurs from all roads in the Analysis Area. In January of 2003 the Clearwater National Forest completed a forest wide Roads Analysis. Based on the failure prone landtypes within the Fishing to Legendary Bear Analysis Area nearly all the Forest System[4] roads were rated as High Risk. Almost 60% were rated as High Risk, Low Value making them candidates for road obliteration, but 23% were rated as High Risk, High Value. Value is defined for the purposes of this Analysis as some kind of management need, i.e., fire suppression, recreation, timber harvest, or other. The easiest way to reduce the risks of sedimentation from roads is to completely remove the road, but for roads that are needed there may be opportunity to upgrade roads in order to reduce the risks posed to the aquatic systems.

[4] System Roads are roads the Forest schedules for maintenance. Maintenance levels and schedules vary. Some system roads in the Analysis Area are maintained to a standard that allows most vehicles to travel on them; but, others are not maintained, and passable only by foot.

In order to identify and calculate risks from existing roads as well as have the data necessary to plan projects to reduce sediment sources from existing roads, we designed a road and culvert risk assessment to implement throughout the Analysis Area. Other National Forest conducted similar assessments and we adapted existing protocols to fit our project needs. The Nez Perce Tribe directions for Road and Culvert Risk Assessment were developed principally from procedures and protocols used by Pacific Watershed Associates and Six Rivers National Forest. Concepts and definitions were "borrowed" and modified from these sources: (1) Pacific Watershed Associates, 1997, *Field Training in Watershed/Road Sediment Source Assessment and Erosion Prevention*, and (2) Flanagan, Sam A., Michael J. Furniss, at al., 1998, *A Handbook for Inventory and Environmental Risk Assessment of Road Drainage*, working draft - 6/25/98. (3) Elder, Don. Klamath National Forest Road Sediment Source Field Guide. We gratefully acknowledge their contributions to the development of this process.

The information we collect includes identification information, general road prism information, and road drainage. Specifically we inventory: (1) all road/stream crossings (2) all cross drains (3) general character of all roadbed segments (4) Points of potential road failure located between crossings or drainage point sites. Road drainage pattern separates segments. Segments will begin and end at road grade reversals or drainage points (cross drains, stream crossings, gullies, etc). One segment will end where another begins. Segments may extend from grade change to drainage point, drainage point to grade change, or drainage point to drainage point. We are particularly concerned with hydrologically connected road segments as a risk factor.

General Field Procedure (from protocol adapted by Project Leader):

(1) Begin segments at recorded milepost. Travel road recording **Segment Characteristics**.

(2) STOP at **<u>all</u> DELIVERY POINTS** these include:

a) cross-drain structures (pipes and rolling dips).
b) stream crossings
c) include swales (ephemeral draws) with pipes and swales without pipes with clear evidence of road erosion.
d)**<u>all</u>** erosional features which function as cross-drains.

(3) STOP at **<u>all</u>** road grade reversals. Break the current segment, record milepost, GPS waypoint, and begin a new segment. Note: the upgrade terminus “<u>high point</u>” and downgrade terminus “<u>low point</u>” of segments will alternate depending on road grade changes and travel direction.

For all the above STOP points, break the current segment, record milepost, GPS waypoint, and begin a new segment.

(4) STOP at all **Potential Failure Points** between delivery points that meet the minimum size criteria :

a) slides, points of incipient failure, and stream undercuts greater than 10 y^3

b) gullies greater than 6" wide, 4" deep, and 15' long.

If significant erosional features (meeting size criteria above) occur at crossing sites, inventory them using a separate field form and mile post identication number from the crossing. **Map** (on topo base map or via GPS) these sites for later entry into GIS. Consider flagging those significant features that would be easy for someone else to miss. Flag gullies at the point at which they leave the road.

(5) For entry into GIS, locate all inventoried sites (delivery points and other break points) on topo base map and/or mylar overlay of air photo. Sites will also be located using GPS waypoints for downloading into GIS.

(6) This is a ROADS and CULVERT inventory - All features of interest should be observable from the road. No need to chase features very far from the road prism.

The Nez Perce Tribe did not have the field personnel to complete this work and advertised a contract for this project. The contract was awarded to Land and Water Consultants based in Missoula, MT. It is the contractor’s responsibility to develop the risk rating criteria and prioritization criteria based on the data they collect.

Road Removal Monitoring-Technique Evaluation (Objective 3)

The Clearwater National Forest and Nez Perce Tribe spent this year refining our monitoring protocols. Our primary goal monitoring program is to provide a feedback loop into the techniques of our program, with protocols being quantitative, non-subjective, and repeatable. Most of the revisions occurred during the winter season of 2002-2003 and will continue in the future; consequently, the field work accomplished was using a combination of old and new protocol. The objectives of our monitoring program correspond to the objectives of road obliteration.

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

- Are *there indications of surface erosion? If so how much?*
- *Are there mass failures present?*
- *Are natural surface and subsurface drainage patterns restored?*
- *Is there vegetation coverage? Is there a succession to native plants?*

- *Are stream channels restored to the point that subsequent adjustments are minimal?*
- *Are stream channels restored to the point that subsequent adjustments are minimal?*
- *Is the treatment appropriate for the site/landtype where is was used?*

To evaluate these questions, a quarter mile monitoring segment is established for every 10 miles of road decommissioned. At each segment the following are monitorined:

- Surface erosion-occular determination of presence and evaluation of quanity.
- Mass failures-if any new failures are found, the location, size, and cause are determined.
- If stream channels are present survey cross-sections are established with Wolman pebble counts.
- Vegetation transects to record type and percent cover of vegetation, protocols follow ECODATA (USDA USFS 1992).

Monitoring is completed for each segment immediately after decommissioning (year 0), the 1st and 2nd year after decommissioning, and again the 5th year after decommissioning.

2.2 Restoring Stream Habitat Connectivity - Objective 3

Existing culverts are considered fish barriers if they prove a barrier to fish passage at any life stage of anadromous fish or resident salmonid. Culvert replacements are designed on the principle of stream simulation rather than following a strictly hydraulic criteria design. All tasks to complete the project would be done in cooperation with the CNF.

Culvert replacements are designed by an interdisciplinary team. This experienced team includes biologists, hydrologists, and engineers. References used include the *Oregon Road/Stream Crossing Restoration Guide* (Allen, M., A. Mirati, and E.G. Robison, 1999), *Designing for Stream Simulation @ Road Crossing* (Porior, D., 2000), *Fish Passage Through Culverts* (Baker, C.O., and F.E. Votapka, 1990) and *Fish Passage Design at Road Culverts* (WDFW, 1999) documents.

Each culvert is sized first for the active stream channel and checked for the 100-yr. flood event, if the two are different, the larger is accepted as design size. When sizing the culvert and designing the grade, consideration will be given to embedding the culvert to ensure substrate will fill the bottom of the culvert. Because of the configuration of Legendary Bear Creek at mile post 3.2, this year's culvert replacement required a bridge. We selected a bridge with pre-cast concrete footings for ease of installation and reduction of costs.

Figure 4. West Fork of Fishing Creek culvert replacement, before and after, a pipe arch replaced with a bottomless.

Culvert Replacement Monitoring and Evaluation (Objective 5)

Like the road removal monitoring protocol our program is working on revising and standardizing culvert replacement monitoring. Our focus on the protocol revision will take place during the 2003-04 winter season. Monitoring during 2003 focused on evaluation whether the culvert met stream simulation objectives and achieved the goal of fish passage. Parameters monitor include the following:

- *Spawning surveys.*
  Conduct redd counts for Chinook salmon, bull trout, and steelhead trout. Redds of these species should be easy to detect in our tributary systems. Redd counts will be conducted at least three times each spawning season. If one redd is found above a culvert, the replacement will be judged a success for adult fish passage.

- *Physical condition surveys*
  Surveys completed one year after implementation to evaluate whether the culvert outlet is in contact with the stream and what percentage of substrate has colonized the culvert bottom. Stream bottom contact and 100% substrate colonization indicate that the culvert is achieving stream simulation and that passage for all aquatic organisms is achieved.

Long-term Monitoring and Evaluation (Objective 7)

Protocols for this objective are tiered to BPA project number 2002-068-00 *Evaluating Stream Habitat*… and a project designed by USFS Rocky Mountain Research Station in Moscow, ID. The project began in the year 2000 in Badger Creek and its tributaries with the goal of evaluating how reconstructing multiple stream channel crossings affects mainstem water temperature and in-stream habitat. Parameters to monitor include water temperature, suspended sediment, channel morphology, stream hydrograph, and stream substrate condition.

3.0 RESULTS

3.1 Road Removal Results

Drainage	Miles Completed
Parachute Creek	3
Badger Creek	15
Total	**18**

All roads were treated with recontour and outslope. Two excavators and one D6 size dozer worked in these drainages. The 18 miles of road removed were far short of our target miles. We failed to reach our targets this year as a result of Powell Ranger District being closed to contract work for two months of the field season. In addition, shortened hours reduced productivity. For one month of the field season (July) our hours were restricted under a “Hoot Owl” policy which allows contract work to occur between the hours of 1 a.m. and noon. As our work must occur during daylight our days were shortened to 7 and 8 hours. Powell Ranger District closed in response to a large number of fires on the Lochsa. The District reopened at the end of September with the end of fire danger.

Figure 5. A completed stream crossing reconstruction after pulling a log culvert. Parachute Creek, 2003.

3.2 Culvert Replacement Results

We replaced an undersized culvert at the 3.2 mile post on Forest Road #568 (Legendary Bear Creek) with a bridge. The bridge was built at a 17' span to accommodate a 14' wide active channel; this replaced an 11' wide structural plate pipe arch culvert. During the fall of 2003, NPT and CNF worked together with a local non-profit organization's volunteers to plant the disturbed soil around the bridge. The area was planted with sprigs of willow and rooted stock of native brush species.

Figure 6. Legendary Bear Bridge nears completion, September 2003.

3.3 Road and Culvert Risk Assessment

The protocols were developed during 2002-3. This contract was written during the winter season and awarded June of 2003. Land and Water Consulting, Inc won the contract. Unfortunately, because the Powell District closed down to contract work last field season soon after the award was made very little was accomplished. We post-poned the contract work until field season 2004.

3.4 Road Removal Monitoring-Technique Evaluation

The Clearwater National Forest and Nez Perce Tribe monitoring crew visited nine monitoring segments in the Analysis Area and established two new monitoring segments. No new mass failures were recorded. The project manager is still waiting for a final draft of the 2003 monitoring report with more detailed results for vegetation surveys and channel cross-sections.

3.5 Culvert Replacement Monitoring

The project manager is still waiting for the final report of the culvert monitoring visits from the spring of 2003. While, no written results have been turned in, the verbal discussion on monitoring results has taken place. All culverts appear to be passing anadromous fish and bull trout, as adult spawners or redds have been observed above each culvert replaced. Due to time and personnel shortages this year the larger Culvert Monitoring report will be deferred. Project staff worked on refining the protocol for culvert evaluations and developed the following form (draft) which will help detail information required for collection.

NPT CULVERT MONITORING FORM
STREAM SIMULATION

SITE

Stream name: ____ Field date: ___ / ____ / ____

Surveyor names: _______________________________________

Forest ______________ District _____________Route number: __________ INFRA milepost: _________

7.5-minute quad name: ______________________________ Date of Installation: ____________________

Legal description: T. _ _ S / N, R. _ _ E / W, Sec. _ _, _ _ ¼ of _ _ ¼ Principal meridian______________

Land ownership: U/S - NF _______ County _____________ other _______________________________

D/S - NF _______ County _____________ Other ________________________________

AS-BUILT DIMENSIONS

An as-built survey will be completed after each culvert replacement project. The survey will include a longitudinal profile, cross-sections, pebble counts and be tied into the construction benchmarks. The LP will follow standard NPT protocol. Be sure to locate both ends of the cmp on the LP to be used as known points to measure distance from. The monitoring LP should extend upstream and downstream to document if any head cutting has occurred.

Shape **Dimensions (inches)**

☐ Circular width: _________ height: _________ length (ft): _______
☐ Box
☐ Open-bottom arch Rust / Stain line: __________ (feet)
☐ Pipe-arch
☐ Bridge

☐ Shape comments____
Other: ____

Structure
Structure material

☐ Spiral CMP
☐ Annular CMP } ☐ Steel ☐ Aluminum
☐ Structural plate
☐ Concrete

☐ PVC
☐ Wood or log
☐ Other: ________________________

Inlet type
☐ Projecting
☐ Mitered
☐ Wingwall 10-30°
☐ Wingwall 30-70°
☐ Headwall
☐ Apron
☐ Trash rack
☐ Other: ________________
Describe: ________________
____

Outlet configuration
☐ at stream grade
☐ cascade over riprap
☐ freefall into pool
☐ freefall onto riprap
☐ outlet apron
☐ Other: ________________________
Describe: ________________________
____
____
____

BAFFLES, WEIRS, VANES OR OTHER INTERNAL STRUCTURES (CIRCLE ONE)

Other ________________________ Material used ________________________

Height of structures ________________________ Length of structures ________________________

Do they span the width of the cmp________________ are they lower in the center of the pipe ______________

Are structures exposed or covered with substrate ________________________

Describe and sketch structures (page 4, plan-view diagram) - Take additional photos

PIPE CONDITION

☐ Breaks inside culvert (Location (locate on LP) ________________________

☐ Fill eroding ☐ Debris plugging inlet (% blockage___________ ☐ Bent inlet ☐ Bottom worn through

☐ Poor alignment with stream ☐ Debris in culvert (rock or wood) ☐ Bottom rusted through

☐ Water flowing under culvert ☐ Other ________________________

Describe overall condition ________________________

____

STREAMBED SUBSTRATE RETENTION IN STRUCTURE

☐ No substrate in structure
☐ Discontinuous layer of substrate in structure begins at _______ ft; ends at ________ft (measured from inlet, from LP)
☐ Substrate is continuous throughout structure

If present,

Substrate depth at inlet ___________ft (substrate depth information is collected at time of cross-sectional survey)

Substrate depth at outlet __________ ft

Substrate depth in center __________ ft.

Was cmp seeded after installation ____Y _____ N
Were banks and channel built _____Y ____ N, or were only grade controls installed_________________________
If so what size material or mix was used to construct:
Banks __________________________________ Channel Bottom ______________________________________
Method for Seeding CMP - machinery _____ hand labor ______ Other (explain) ____________________________
Approximate amount of material placed inside the CMP _______________________________________(cy)

SUBSTRATE DISTRIBUTION IN STRUCTURE

Survey each cross section with a laser or total station, and included in the file with this form. Depth of substrate in pipe can be measured along the cross-section to get an average. If surveying is not possible, draw substrate in the cross-sections below and show the dimensions for each.

Cross Section at Inlet

Cross Section at Midpoint

Cross Section at Outlet

Notes:

If the LP is extended through the cmp, these drawings are not needed. Extra survey points could be taken to show the top and bottom of cmp at inlet/outlet, the bank height, thalweg, grade structures etc. and then printed out on the LP.

Plan view- show substrate in plan view with dimensions and any features installed or occurring within the structure that function as grade control

Profile view- draw profile of substrate and any features installed or occurring within the structure including grade control structures at the inlet or outlet with dimensions

SUBSTRATE PARTICLE SIZES

Using NPT protocol, conduct 2 pebble counts; one upstream, and one inside the culvert.

2004 NPT/Watershed		**Wolman Pebble Count**					
SUBSTRATE		**Size Class (mm)**		**Upstream**		**Culvert**	
Silt/Clay		<.062					
Sand	Very Fine	0.062-0.125					
	Fine	0.125-0.25					
	Medium	0.25-0.5					
	Coarse	0.5-1.0					
	Very Coarse	1.0-2.0					
Gravels	Very Fine	2.0-4.0					
	Fine	4.0-8.0					
	Medium	8.0-16					
	Coarse	16-32					
	Very Coarse	32-64					
Cobbles	Small	64-90					
	Medium	90-128					
	Large	128-180					
	Very Large	180-256					
Boulders	Small	256-512					
	Medium	512-1024					
	Large	1024-2048					
	Very Large	2048-4096					

STREAM CHANNEL DIMENSIONS- OUTSIDE OF ZONE OF INFLUENCE

Wetted width ________________ Bankfull Width______________ Flood prone width (est.) _____________

Channel slope ________________ Sinuosity (L/M/H) __________________ Entrenchment________________

Rosgen stream type _______________

INLET/OUTLET CONDITIONS

(Measurements taken from monitoring profile data)

Gradient above inlet ____________ Plunge at outlet? ___Y ___N Drop from culvert to water surface _______
Depth from water surface to bottom of scour pool_______ Total depth from culvert to bottom of scour pool________
Gradient below outlet________

Comments: (See instructions for list of potential items needing comments) ____
____
____
____
____
____

PHOTOGRAPHS

Identify and provide captions

Photo caption	**Number/ ID**	***Comments***
1. Beginning of LP, US		
2. Beginning of LP, DS		
3. Inlet from upstream		
4. At inlet Looking Upstream		
5. At inlet looking into pipe,		
6. Photos of grade controls in cmp working or not		
7. At outlet looking into pipe,		
8. At outlet looking		
9. Outlet from downstream		
10. Tailwater control		
11. Headcut U.S. or D.S.		

3.6 Long term Monitoring and Evaluation in Badger Creek

This year NPT and CNF divided responsibilities for monitoring by season. From March 2003 until late June 2003 NPT assumed monitoring responsibility. We collected suspended sediment data, turbidity, and flow at our treatment tributary in Badger and flow data in the main creek of Badger. CNF collected the same data as completed stream habitat monitoring and temperature monitoring in main Badger Creek. The Project Leader is still awaiting the final report with data summations from the Clearwater National Forest. The report is due out some time in May. Project implementation will continue in 2004.

3.7 Planning for 2004 Field Season

Planning activities have included prioritizing work for the 2004 field season. The focus of road removal work will be in Badger Creek and Parachute Creek Drainages. We will replace one culvert at the 3.7 mile marker on Forest Road #568 (Legendary Bear Creek). The NEPA for culvert replacement and contracting are already completed. We will pick-up work on two post-poned contracts: low elevation-high resolution aerial photos for monitoring and road and culvert risk assessment. We are working with Idaho County Resource Advisory Committee and University of Idaho Extension Office on funding and monitoring invasive weed treatment.

4.0 CONCLUSIONS

Having Powell Ranger District shut down to all project work outside of fire impacted virtually every aspect of work this summer with the exception of the culvert replacement. Our ability to implement road removal, road survey, and weed inventory were curtailed and eventually many members of seasonal project staff had to be laid off. In addition we were not able to implement two contracts, the low elevation aerial photos and the road and culvert risk assessment. A third contract, a small contract to develop a white paper on fire use within the Analysis Area was post-poned as many parts of the Analysis Area did have some burning of varying intensity during the 2003 field season and the original intent of the paper needed revision. We basically had a two and half month field season instead of a four to five month season. We are pleased with the work that was accomplished and implementation was successful outside of being short of our targets.