1. Project Title

Clearwater Creek Instream Habitat Restoration

2. Project Manager

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3. Identification of problem or opportunity to be addressed

An opportunity to enhance approximately 1.7 miles of the mainstem Clearwater Creek, including two side channels exists.

Approximately 40 locations were identified that could be enhanced by additions of Large Woody Material (LWM). Approximately 800 pieces of LWM would be installed. Most of the wood for this project will come from USFS Peppercat Timber Sale, and will have rootwads attached, some supplemental wood may come from Swift Reservoir cleaning operations. Two existing side channels are included in the project proposal that will also have LWM placed instream.

There is also an opportunity to treat non native invasive weeds in the area as we rehabilitate access roads and sites.

4. Background

Reconnaissance surveys conducted for this project occurred on October 14 2011. Minimal instream LWM was observed during the survey.

The lack of large woody material in this section of creek appears to be the result of several factors including the residual effects from the 1980 eruption of Mt. St. Helens (fire), past timber harvest, effects of the 1996 floods and landslides caused by the floods in the headwaters of the creek, and a lahar flow in the confluence area.

The Lower Columbia Salmon Recovery Plan 2009 Six Year Habitat Work Schedule identifies this as a Tier 2 reach. For coho salmon it has an Overall Preservation rank of 4 of 100, and Overall Restoration rank of 21 of 103, this means it is highly valued and should respond very well to restoration efforts. An EDT analysis concludes there are high concerns from lack of habitat diversity and quantity, and altered thermal regimes as well as excessive sediment load and lack of food. Moderate concerns were identified for channel stability, hatchery fish competition, and water flow (EDT). This reach is also designated as a Primary Population for coho and has coho reach potential rating of High. It is designated a Primary Population for Chinook and has Chinook reach potential rating of Medium. It is also designated as a Contributing Population for Steelhead and has steelhead reach potential rating of Medium. Bull trout are not officially documented in

Clearwater Creek, although presence in Clearwater Creek exist in several anecdotal stories of their.

The Muddy River Watershed Analysis (GPNF 1997) identified High sediment issues and need of in stream large woody debris.
The ACC Synthesis Matrix rated this section of Clearwater Creek as having unknown restoration potential.

5. Project Objective(s)

GOAL:
Enhance the quality of fish habitat in Clearwater Creek by:

- Improving habitat complexity and diversity in the mainstem and side channels using LWM
- Providing refugia during winter flows for juvenile salmonids.
- Providing increased spawning opportunities for adult salmonids.

This project addresses the following Aquatic Fund priorities.

Priority 1: *Benefit fish recovery throughout the North Fork Lewis River, with priority to federal ESA-listed species.*
Chinook, coho and steelhead trout are listed as a threatened species under the ESA. This project will contribute to the recovery of these species by increasing the amount and quality of rearing pools in side channels. In addition, spawning areas will be associated with the log complexes. Coho and steelhead trout will likely benefit more from restoration efforts in Clearwater Creek than Chinook salmon, however there is suitable spawning habit for Chinook (EDT), and could also benefit from the restoration.

Lower Columbia ESU coho salmon are listed as a threatened species under the ESA
Lower Columbia ESU steelhead trout are listed as a threatened species under the ESA
Lower Columbia ESU Chinook Salmon are listed as a threatened species under the ESA

Priority 2: *Support the reintroduction of anadromous fish throughout the basin.*
Juvenile anadromous salmonids will have a quality rearing and refugia area when this project is complete, thus ensuring survival and promotion of the various species during reintroduction efforts. Adult fish will benefit by increased spawning habitat with associated pools and cover.

Priority 3*: Enhance fish habitat in the Lewis River Basin-, with priority given to the North Fork Lewis River.*
This project is located in the North Fork Lewis River basin. This project consists of large woody material placed instream in the mainstem and side channels, designed specifically to enhance and restore fish habitat. This project will increase instream habitat diversity, and in turn it is expected that this project will contribute to increasing fish production in this area.

6. Tasks:

Task 1: NEPA and required permits.

1) Complete NEPA documentation. Field work for this NEPA document would be completed during the summer and fall of 2012. The final document should be crafted and signed by March 2013, and the project would be implemented July 2013.

2) Instream restoration activities are covered within the WDFW-MOU, and the Regional Permit with the Army Corps of Engineers.

Task 2: Project Design.

1) Finalize project design and project preparation details. Preliminary designs have been planned during reconnaissance visits in 2011. We will use a laser level to run a longitudinal profile and collect cross-sectional information as we finalize designs.
2) Secure materials. We have a 35 acre Peppercat timber sale unit set aside to use for fish habitat restoration activities over the next ten years. We will layout an area within this stand to thin and prepare for harvest operations. Additional material may be acquired from PacifiCorp Swift Reservoir Cleaning operations.

Task 3: Project Implementation

1) Develop contract. A standard RFQ contract will be developed specifying the scope of the project and project requirements. We will use an equipment rental contract to perform the actual work, which will allows us the flexibility to make changes to the project as implementation is occurring.
2) Administer contract. A Fish Biologist or Fisheries Technician will administer the contract to ensure contract compliance and project specifications are met.

Task 4: Monitoring

1) Perform baseline monitoring. This monitoring will occur prior to project implementation and include a longitudinal profile, cross-sections, pebble counts, photo-documentation and snorkel surveys. Mount St. Helens Institute (MSHI) will provide two interns, ten volunteer youth from the youth stream team, and a supervisor to perform monitoring work. They will perform all aspects of the monitoring with supervision and training from the Forest Service.
2) Perform after project monitoring. This monitoring will occur following project implementation and will continue on an annual basis for several years following project completion. MSHI will provide two interns and ten volunteers for this portion of the work supervised by the Forest Service
3) Monitoring Report. A monitoring report will be written each year following project implementation. MSHI will provide raw data in excel format, the Forest Service will provide analysis of data and report.

7. Methods:

The Mount. St. Helens Fisheries department will oversee all phases of this project including project design, implementation and monitoring.

Approximately 800 pieces of LWM would be harvested during thinning operations from a timber sale unit which would allow us to use long stems (60+ feet) with attached rootwads. Woody material will be trucked to a staging area near the confluence of Muddy River and Clearwater Creek. From there, the wood will be moved to the project site via a skidder and excavator. Wood for this project would primarily come from USFS

lands, however if an opportunity exists to acquire large wood from Swift Reservoir cleaning operations, we may pursue that avenue as well.

Approximately 15 to 20 pieces of LWM will be used at each structure location to form complex habitat. Structures will protrude 1/2 to 1/3 of the way into the channel to minimize water shear stress and create a meandering thalweg. Key pieces of wood at each location will be anchored into the streambanks using an excavator to dig trenches up to 30 feet long, and bury the wood. Other pieces of LWM will be interwoven into these key pieces and riparian vegetation.

8. Specific Work Products

Deliverable 1: Completed project.

Deliverable 2: A report describing the project. Report to include project narrative, financial information, and photographs of completed projects.

Deliverable 3: Monitoring Report.

9. Project Duration

Monitoring for this project would begin during the summer of 2012, project implementation would occur July 15th 2013 and is expected to take one month to complete. 'As built' documents will be completed by December 31st, 2013. An initial report documenting fish response to the structures will be completed by December 31st, 2014. The first monitoring report with pre and post project data will be available December 31, 2014. If funding or other issues arise, project dates would be delayed by one year from above.

A project closeout meeting would occur at an ACC meeting following project completion.

10. Permits

NEPA- Field work will be completed during the summer of 2012, NEPA document will be completed Spring 2013.

The Gifford Pinchot National Forest has a Memorandum of Agreement with the Washington State Department of Ecology (DOE). The agreement recognizes the Forest Service will ensure that 1) all waters on National Forest lands meet or exceed water quality laws and regulations (Sections 301, 302, 303, 306 and 307) of the Clean Water Act and 2) activities on those lands are consistent with the level of protection of the Washington Administrative Code relevant to state and federal water quality requirements. This agreement is neither a fiscal nor a funds obligation document.

The Gifford Pinchot National Forest has a Memorandum of Understanding (MOU) with the Washington State Department of Fish and Wildlife Regarding Hydraulic Projects conducted by USDA Forest Service Northwest Region (2005). Compliance with the instream restoration provisions within this MOU replaces the need for an individual hydraulic project approval (HPA). This fish habitat enhancement project will be conducted within the provisions set forth in this MOU.

The Clean Water Act (as amended by the Water Quality Act of 1987, Public Law 100-4) authorizes the states to regulate the "fill and removal" activities of Federal agencies. In Washington, the Forest Service has authorization for its fill and removal projects through the MOU with WDFW when the projects comply with the provisions of the MOU.

The US Forest Service has a state wide Regional General Permit (RGP) with the Army Corps of Engineers to perform aquatic restoration activities in waterways. Permit CENWS-OD-RG-RGP-8 authorizes the USFS to perform 13 restoration activity types including Large Wood, Boulder and Gravel Placement on National Forest Lands.

Land ownership in this section of the Clearwater Creek is comprised of public lands. The project is wholly on public lands,

11. Matching Funds and In-kind Contributions

Partner	Contribution	Funds
Forest Service	Project development, Contracting, Permitting, Monitoring	$17,000 In-kind
Materials from USFS	Trees with rootwads	$120,000 In-kind
Mt. St. Helens Institute	Monitoring	$4,000 In-kind

12. Professional Review of Proposed Project

This project proposal was reviewed by Gifford Pinchot National Forest (GPNF) Soil and Water program manager, Ruth Tracy and GPNF Fisheries program manager, Dave Hu.

13. Budget

	NEPA	Final designs	Project Mgmt	Construction	Monitoring/Labor /Reporting/Coord.
Personnel Costs					
FS - Zone Team or Contract	$8,000 (ACC)				
FS –Fish Bio and Hydrologist		$5,000 (IK) $2,000 (ACC)			
FS - Fish Bio and Hydrologist			$6,000 (IK) $4,000 (ACC)		$1,000 (ACC)
FS - Contract administrator -				$3,000 (IK) $5,000 (ACC)	
FS - Contract Specialist				$3,000 (IK)	
Mt St. Helens Institute					$4,000 (IK)
Mt. St. Helens Institute Community Education					$4,000 (ACC)
Materials					
Forest Service 160 Pieces of LWM with rootwads				$120,000 (IK)	
Contract Payables					
Excavator and Skidder Contract				$63,000 (ACC)	
Logging and hauling of trees				$40,000 (ACC)	
Materials and Supplies			$ 2,000(ACC)		

Total ACC Funds	**$128,000**	**$8,000**	**$2,000**	**$6,000**	**$108,000**	**$4,000**
Total FS Funds	*$137,000*		*$5,000*	*$6,000*	*$126,000*	
Total Partner Funds	*$4,000*					*$4,000*
Project Total	***$269,000***					

FS personnel estimated as $300/day.

Clearwater Creek expanded budget 2012

Item	Personnel	Estimated Days/units*	Cost Per Unit	Total*
NEPA Environmental Assessment required by Federal Law	Fish Biologist Wildlife Biologist Hydrologist Botanist Archeologist Soil Scientist Recreation Forester NEPA Coordinator	4 2 4 4 4 1 0.5 0.5 3	$350 per day per person	$8,000 (ACC)
Final Designs	Fish Biologist Hydrologist Fish Technician	11 3 9	$300 per day per person	$5,000 (IK) $2,000 (ACC)
Project Management	Fish Biologist Fish Technician Mileage	19 11 2000 miles	$300 per day per person $0.50	$5,000 (IK) $4,000 (ACC) $1,000 (IK)
Construction	Contract Administration/Prep Transportation Logging Equipment	28 **1**,000 miles	$300 per day per person $0.50	$5,500 (IK) $5,000 (ACC) $500 (IK) $40,000 (ACC) $63,000 (ACC)
Materials & Supplies	Field Equipment, Sorbent booms, Misc Supplies			$2,000 (ACC)
Trees with rootwads		800		$120,000 (IK)
Monitoring *MSHI* *USFS*	 Supervisor Assistant Fish Biologist Volunteers Transportation	 23 25 1,000	 $300 per day per person $20 $0.50	 $3,500 (IK) $3,500 (ACC) $500 (IK) $500 (ACC)
Total				**$269,000**

*Values are rounded up or down as need to display whole number and days

Clearwater Creek Equipment Budget 2012

Item	Cost per unit	Number of units	ACC cost	Total Cost
Excavator Operator/Fuel/ Supplies, misc	$125 hour	338	$42, 250	$42,250
Excavator Move in/out	$1,000	1	$1,000	$1,000
Skidder	$125/Hour	150	$6,750	$18,750
Skidder Move in/out	$1,000	1	$1,000	$1,000
Logging and Hauling cost: Based on Previous Contract	$40,000	1	$40,000	$40,000
Total			**$30,000**	**$103,000**

Questions from ACC members to address in this proposal

1. In the pre-proposal USFS suggests that this project will benefit coho, steelhead, Chinook and bull trout. There is no mention of benefit to bull trout in the proposal and WDFW does not believe this project will provide much, if any, benefit to Chinook or bull trout. Final proposal should focus on benefits to steelhead and coho, which WDFW believes will occur. Final proposal should clearly articulate costs requested and how in-kind costs are calculated. *This is addressed in "Background" section of the proposal.*

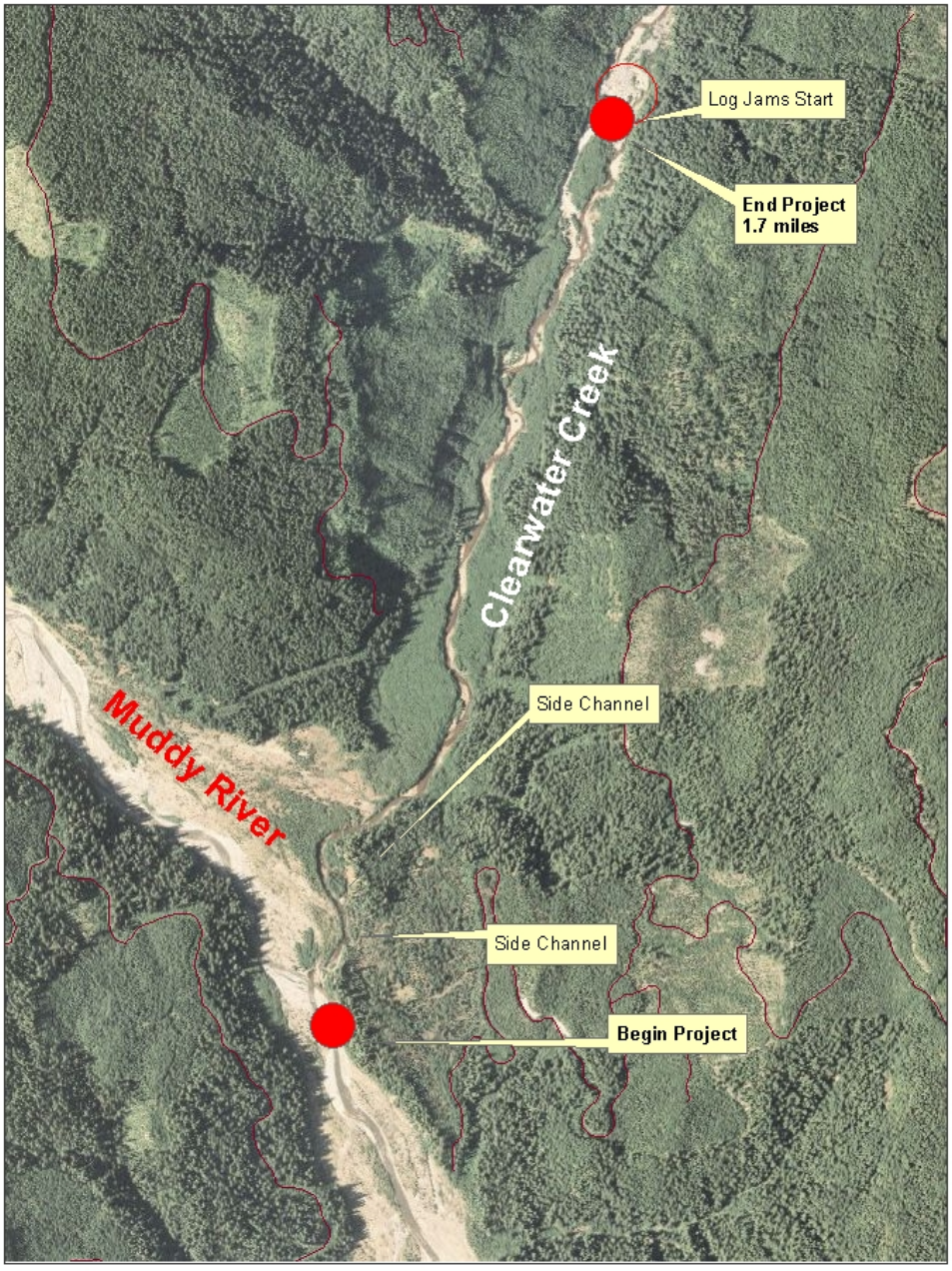
2. Wood placement seems to be an appropriate approach to increase habitat complexity in the stream, but the application does not explain the reason for the lack of wood structure. Was Clearwater Creek affected by lahars? What is the long-term potential for natural wood recruitment after the project is implemented? Is any riparian enhancement planned (including invasive species management)? Has other habitat work been implemented in the creek? Additional information on current and historic fish use in the reach would be helpful to support the relatively large scope and request, and its location in a tier-2 reach. Clarification of the number and type and layout of structures being proposed would be helpful. *Lack of wood is addressed in the "Background" Section of the proposal. This area was harvested prior to the 1980 Eruption of Mt. St. Helens. The riparian area has young conifers growing that will eventually recruit to the stream. Much of the streamside adjacent vegetation is Alder established after the 1996 floods. Riparian work that is planned is invasive weed mgmt. No other habitat restoration/enhancement work has been implemented in Clearwater Creek. In 1956 surveys of the Upper North Fork Lewis River, including Clearwater Creek were made by John S. Chambers, an employee of WDFW. Results were published in 1957. In the report Chambers identifies Clearwater Creek as one of the top three coho spawning tributaries in the Upper North Fork Basin. In particular he describes the first 3 miles of Clearwater Creek as an*

"excellent" silver spawning stream. Juvenile coho 2 ½ to 3 ¾ inches were also observed by Chambers in Clearwater Creek, "This indicates a good growth rate for these streams as rearing areas". Numerous coho redds were observed by Chambers in Clearwater Creek in November and December 1956.

3. The application materials indicate that additional funding may be sought from the Whole Watershed Joint Venture Fund, but it is unclear how the additional grant monies would be used. *Additional monies in the amount of $22,000 are being sought from the Whole Watershed Joint Venture program. If successful the funds will allow us to install approximately 100 more pieces of wood in another 10 structures at the upper end of the project.*

4. Please make it clearer as to what the $128,000 is applied to. Are log costs a part of the proposal funding? *The $128,000 will be applied as described in the expanded budget and equipment budget sections of the grant proposal.*

2012 Clearwater Creek Project



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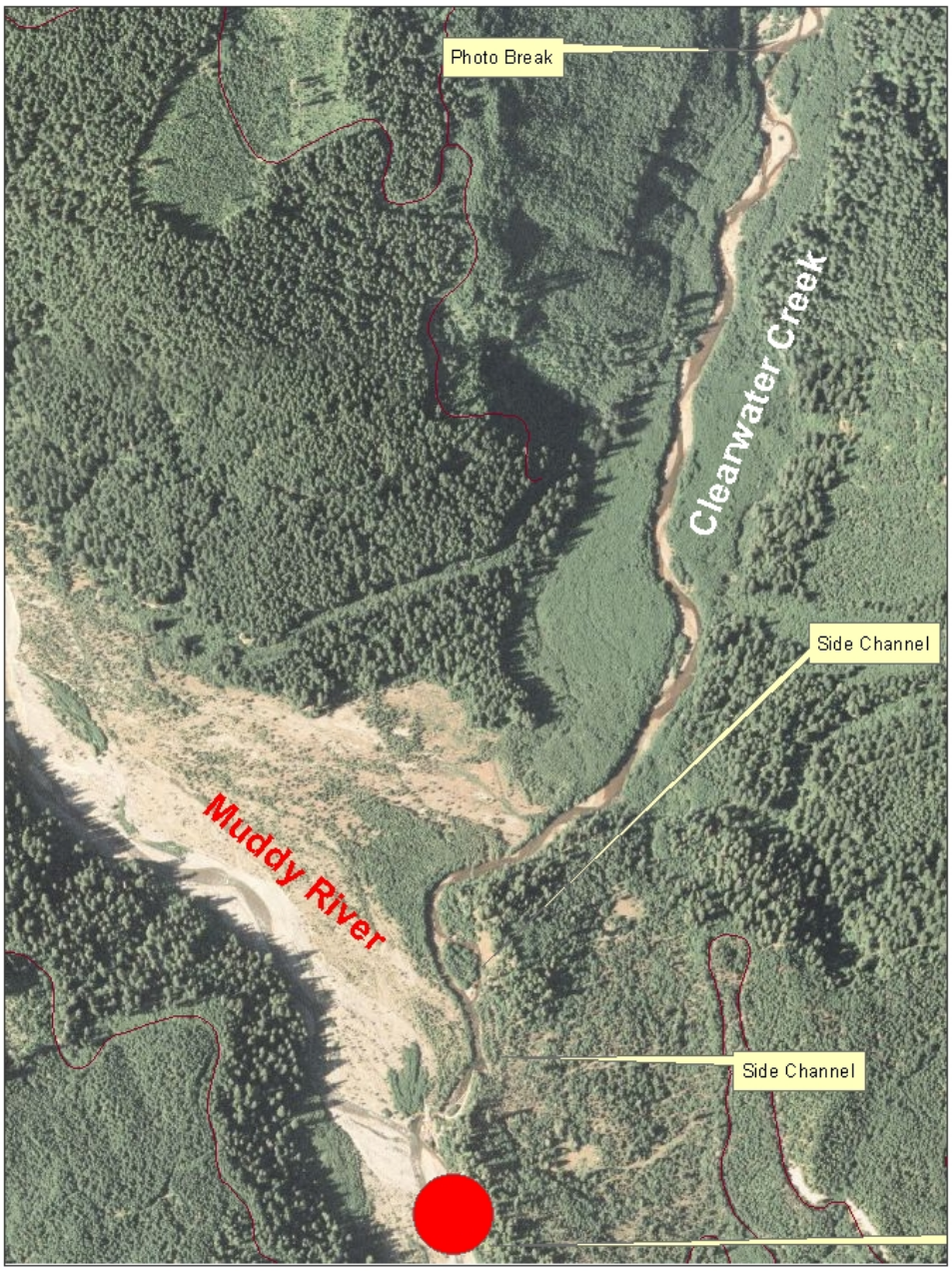
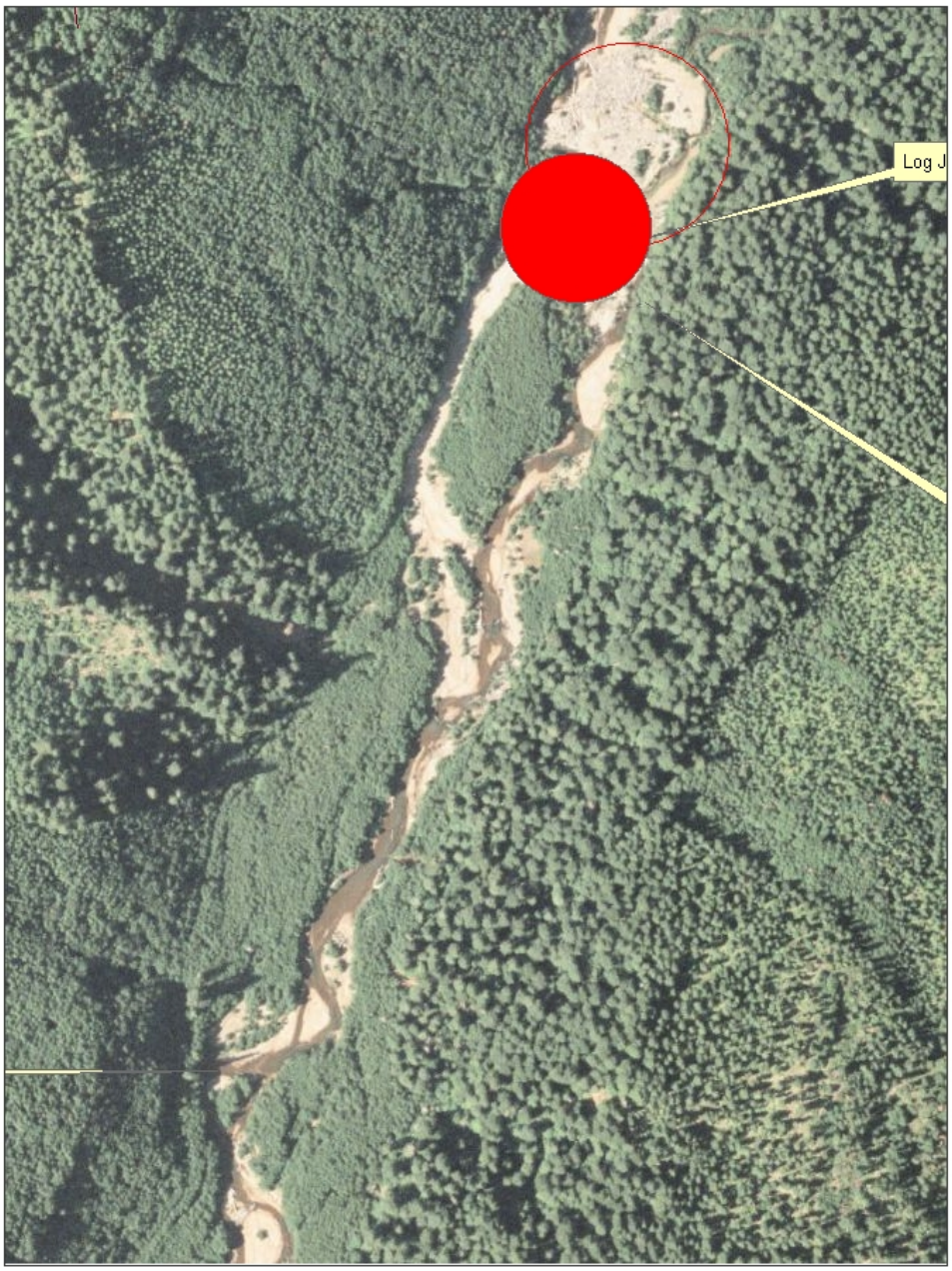
2012 Clearwater Creek Project Lower Photo



2012 Clearwater Creek Project Upper Photo



Clearwater Creek-Typical Slow-water found.

Clearwater Creek- Top of Side Channel

Cutthroat Trout Clearwater Creek October 2011

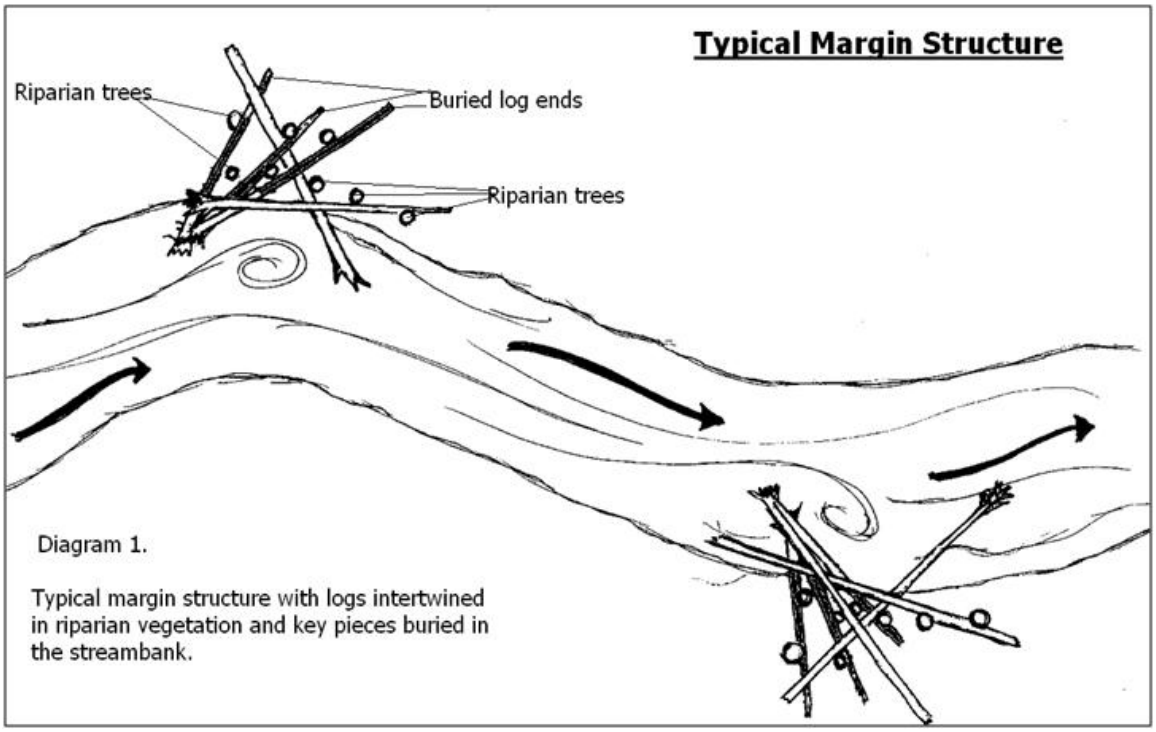


Diagram 1.

Typical margin structure with logs intertwined in riparian vegetation and key pieces buried in the streambank.