

2007 Payment to Counties (RAC) Project Completion Report Rock Creek Large Wood Reintroduction



Figure 1: Helicopter utilized for 2007 wood placement.

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| National Forest: | Fremont-Winema National Forests |
| Ranger District: | Klamath Ranger District |
| Project Name: | Rock Creek – Large Wood Reintroduction |
| Project #: | WK-13-701 |
| 2007 Project Mgmt. Code: | RSF620 |

Table 1. Project Summary RAC RSF620

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| Ranger District | Klamath Ranger District |
| Contractor(s) | Carson Helicopters, 828 Brookside Blvd. Grants Pass, Oregon 97526 Threemile Sand and Gravel, LLC. P.O. Box 469, Ft. Klamath, OR 97626 |
| Contract # | AG-024B-C-07-9215 |
| Job Code | RSF620 |
| Title II Dollars (total project \$) | \$ 60,000 (see Table 2. below) |
| Federal Appropriated Dollars | \$ 46,081 (see Table 2. below) |
| Workers Employed | 11 |
| Total Worker Days | 33 |
| Total Local Workers | 3 |
| Total Local Worker Days | 9 |
| Accomplishment | 2 stream miles restored |

Table 2. Forest Service Reporting and Project Cost Data – FY 2007
Rock Creek Large Wood Reintroductions

| | # Miles Stream Restore | # Acres Lake Restore | # Miles Inven. | # Acres Inven. | # Monitor Plans | # Admin Studies | (a) NFWF Program Management Dollars | (b) NFWF Overhead Dollars | (c) NFWF Project Dollars | (d) Total NFWF Dollars (a)+(b)+(c) | (e) FS Other Resource (Non-NFWF) Dollars | (f) Partner Dollars | (g) Partner In-kind Dollar Value | (h) Total Partner Contribution (Dollars) (f)+(g) | (i) Total FS NFWF and Partner Partnership Dollars (g)+(h) |
|------------------|------------------------|----------------------|----------------|----------------|-----------------|-----------------|-------------------------------------|---------------------------|--------------------------|------------------------------------|--|---------------------|----------------------------------|--|---|
| Totals | 2 | 0 | 0 | 0 | 0 | 0 | 20,000 | 0 | 26,081 | 46,081 | 0 | 60,000 | 0 | 60,000 | 106,081 |
| Inland Coldwater | 2 | 0 | 0 | 0 | 0 | 0 | 20,000 | 0 | 26,081 | 46,081 | 0 | 60,000 | 0 | 60,000 | 106,081 |

For more information contact:

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Purpose and Need for the Project

The purpose of the project was to mitigate for impacts resulting from past land management activities. These past activities included the removal of nearly all large wood from stream channel. The removal of large wood has contributed to downcutting of the active stream channel, accelerating bedload transport, and degrading the overall quality of fish habitat, particularly for redband trout which occupies this portion of Rock Creek.

Activities conducted in 2007 were specifically designed to address the existing low frequency of large pieces of large wood in Rock Creek. The presence of sufficient numbers of large wood in the active stream channel is a critical element to overall habitat quality. Large wood replenishment is intended to improve streambank and channel stability, enhance cover for resident and juvenile fish, provide improved access for adult (adfluvial) redband trout through providing quality pools and protective cover, maintain a greater variety of habitat types (pools and riffles) throughout the stream reaches, and ultimately provide increased opportunities for sport fishing.

How the Project was Completed

Reintroduction of large wood to Rock Creek has been recommended by watershed analysis conducted by the Klamath Ranger District since 1996.

In 2004 the proposed treatment reach was reviewed by the Region 6 (USFS) Regional Assistance Team. This technical team, comprised of fisheries, hydrology, and geomorphology specialists and funded by the Region, was established to assist local forests in designing watershed restoration projects. This team made the following written recommendations which were subsequently adopted by the District in project planning:

- 1) increase large wood totals to a minimum of 60-80 log complexes per mile
- 2) within the treatment reach place additional pieces of smaller wood, striving for the creation of complex log jams containing multiple pieces of wood
- 3) in addition to the key (long) pieces, add shorter logs within each accumulation to collect finer organic materials, helping to seal the created structures
- 4) continue to use helicopter placement as the primary wood placement technique
- 5) develop partnership agreements with the individuals restoring the private portion of Rock Creek to efficiently and consistently assist in the upstream restoration of the Forest Service portion;
- 6) the upstream portion of Rock Creek on Forest Service land needs to occur before, or simultaneously with, the downstream landowner's activities in order to achieve the best success.

A signed partnership now exists between the FS, the private landowner, and the NRCS for restoration of downstream portions of Rock Creek and is scheduled to begin in 2008.

In anticipation of finding funding for the helicopter, the District staged 125 key pieces of large wood at the lower end of Rock Creek during the summer of 2005. These logs came from two sources: 1/ right-of-way felling for a widening of Hwy 140 near Rocky Point, and 2/ danger trees felled near recreation cabins at Lake of the Woods Recreation Area.



Figure 2: Key wood pieces staged at Rock Creek in 2005.

After receiving notification of RAC funding for this project, a helicopter task order was developed under the National Helicopter Fire Contract to lift and place 200+ pieces of large wood into Rock Creek during the 2007 field season. Utilization of this existing contract allowed us access to a medium-large helicopter at a greatly reduced daily rate, greatly leveraging our Title II funding. Additionally, all required state and federal permits were applied for and received before the project was implemented.

To assure the safety for all crews working under the heavy rotor wash, all potential hazard trees and snags within one and one-half tree lengths of the stream channel were felled by a contract timber feller prior to flight operations. Many of these pieces were subsequently used in the project.

Approximately 50 sites within Rock Creek were identified and flagged with florescent ribbon for aerial (helicopter) placement) of large wood in log jams (2-5 pieces at each location).

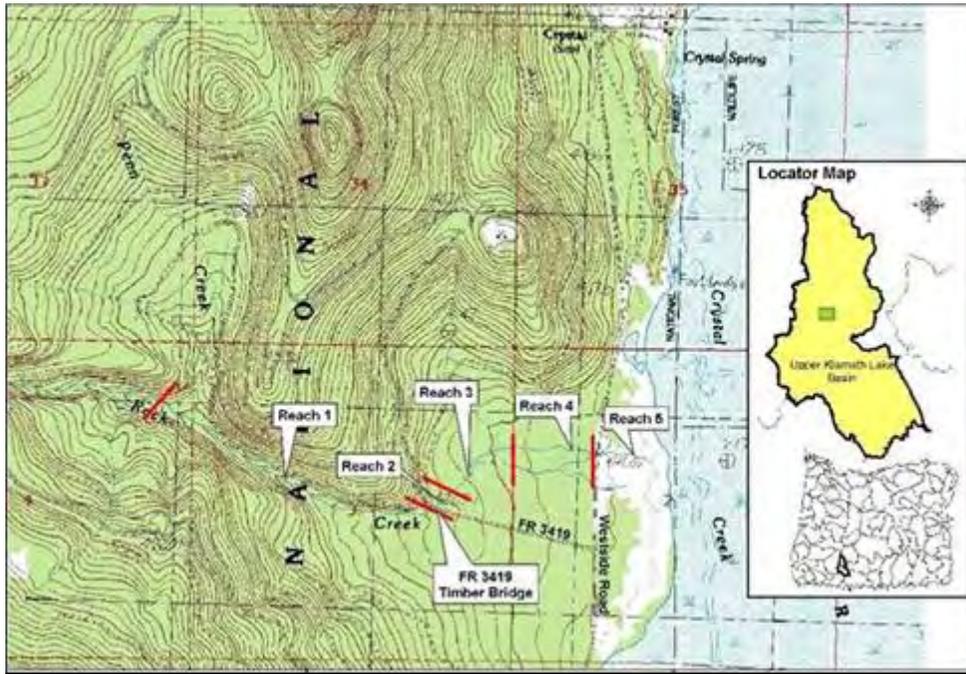


Figure 3: Reach 1 received the wood replenishment.

A few days prior to operations, the project area was reviewed on the ground with the contract helicopter manager. On the morning activities began, a pre-flight briefing was held and pilots were advised of the desired arrangement of log pieces at the flagged sites. Each flagged site was to receive a minimum of two key pieces from the staged log deck. When the log deck was emptied, additional log pieces of varying lengths were gathered from the riparian area adjacent to the treatment reach (these were the felled hazard trees). When visibility of the sites from the air was restricted, ground support crews directed placement of the pieces via radio contact with the pilots.



Figure 4: Excavator arranges log pieces for helicopter pickup.



Figure 5: Helicopter moves into position to lift log.



Figure 6: Logs are flown off landing area.



Figure 7: Hydraulic grapple used to grasp and lift logs.



Figure 8: Grapple holds log as helicopter heads to stream.



Figure 9: Existing condition - low wood numbers and large substrate size.



Figure 10: Log jam created by helicopter placement of large wood.



Figure 11: Log jam - Rock Creek 2007.



Figure 12: Log jam - Rock Creek 2007.

Monitoring Plan. [Sec. 203 (b) (6)]**A. What measures or evaluations will be made to determine how well the proposed project meets the desired ecological conditions?**

Watershed analysis (1996) and the most current habitat inventories (2003/2004) show the existing condition as one of marginal fish habitat quality. There is low habitat complexity (lack of large wood and few deep pools); spawning sized substrates rarely accumulate in sufficient quantities; and instream cover is limited. Large woody material does not meet the regional recommendations, and hydrologic connectivity to lake rearing populations of redband trout is limited at best. Rock creek is not providing suitable opportunities for recreational fishing. Desired conditions are that there is adequate habitat for viable populations of native fish; large woody debris and pool-to-riffle ratios meet the minimal Regional recommendations; and the lake-rearing life history form of redband trout is reestablished as the hydrologic connection between Rock Creek and upper Klamath Lake is restored.

Implementation Monitoring. The objective of implementation monitoring is to assure that the correct number of pieces/log complexes have been placed in the marked locations and are within the bankfull elevations so that they will interact with high flows. This was achieved during implementation as flight hours and logs flown to the creek were recorded for each of the three days activities occurred. Photos were taken of portions of the creek immediately after flight operations ended. After one winter's high flows, additional photos will be taken of the entire treatment reach by a District fisheries biologist or hydrologist.

Effectiveness Monitoring. The required joint DSL/COE permit and RAC application specified that 3-6 permanent channel cross-sections locations would be established along the treated reach and monitored annually. This data was intended to allow managers to determine whether desired changes in channel form and bed elevations are met. The District intends to drop this monitoring requirement through consultation with DSL/COE as it has not proven to be a good effectiveness monitoring tool on Threemile Creek which received similar treatments in 2004. Streams draining the east flank of the Cascades are not prone to significant cross-sectional changes, even in response to large flow events, as they are deeply incised. We now believe that approximately three years (and again within ten years) after implementation a full stream survey (Region 6 Level II) should be performed. This will determine trend in habitat types and quality, pool volumes, streambed substrates, and whether the large wood is active in the stream channel. Level II surveys also provide information on fish distribution and abundance. We believe these are the most appropriate measures to monitor and will best prove the effectiveness of treatments. These surveys are regularly scheduled.

B. How well did the project contribute towards local employment?

Log placement occurred over three consecutive days. Eight out-of-town (non-local) workers provided the flight services (fuel trucks, helicopter mechanics, and pilots). They accounted for 24 worker days and \$55,000 in costs. A local LLC provided three employees for a total of 9 worker days while operating heavy equipment (excavator for log sorting and water trucks for dust abatement). They accounted for approximately \$3,000 in costs.