



# TRINITY COUNTY

## NATURAL RESOURCES & LONG RANGE PLANNING

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### **Final Project Report**

### **Big Creek Road Sediment Reduction Project, 03-DG-11051400-053**

#### **Introduction**

Big Creek Road (County Road 324) begins at Highway 3 approximately three miles east of Hayfork and runs north to the intersection of Forest Road 33N47, which in turn takes travelers to Highway 299. Big Creek Road is paved for the first 4.7 miles and is rocked after that. It runs through both privately owned and federally managed lands and is county maintained up to approximately mile post 8.1. From mile 8.1 to its intersection with Forest Road 33N47, it is designated Forest Road 16 and is maintained by the Forest Service's South Fork Management Unit. It is the most direct alternative route between HWY 299 and HWY 3 for the communities of Weaverville, Big Bar, Burnt Ranch and Hayfork. Snow at higher elevations can close the road periodically during the winter.

The road is located within the lower third of the 17,880 acre Big Creek watershed, a tributary to Hayfork Creek. Big Creek provides drinking water to ~1,000 residents in Hayfork and is an anadromous stream, supporting steelhead and resident rainbow trout and other fish and aquatic species. Big Creek Road was determined to be a high priority sediment reduction project area because the creek is a priority fisheries stream, is Hayfork's community's water source and the road is located in the lower portion of the watershed.

The road was inventoried to identify potential sediment sources in 2001, utilizing the "Direct Inventory of Roads and Treatments" (DIRT), a program designed to identify and prescribe treatments for significant sources of sediment from county roads that can reach streams. As a result of that inventory a total of 22 proposed road related sediment sources were selected to treat a minimum of 2,850 yd<sup>3</sup> of sediment and prevent it from reaching Big Creek. A Resource Advisory Council (RAC) grant was approved in 2003 the project was completed in 2005. The work was completed by the Trinity County Department of Transportation (TCDoT). It is part of a larger Five Counties Salmonid Conservation Program (5C) and TCDoT effort to restore anadromous salmonid fisheries and improve water quality through implementation of restoration work on county facilities and by improving county policies and practices (refer to [www.5counties.org](http://www.5counties.org) for additional information).

There have been a number of additional restoration efforts with the watershed subsequent to this work, including the Forest Service completing the Limestone Creek migration barrier removal project north of the county project in 2006. The Forest Service is currently working on the Packers Creek migration barrier removal project and it is scheduled to be constructed in 2009. The Watershed Research and Training Center and the Forest Service are working on a watershed assessment and management strategy for fuels reduction in the watershed.

#### **Timeframe**

This RAC grant became effective May 20, 2003 and on the ground work was completed in 2004, except road rocking which was completed in 2005. The grant expired on December 31, 2006.

## **Project Description**

The project treated the road surface and drainage from post mile ~4.8 to ~7.2. Complex projects proposed for the road system such as removal of undersized culverts that are fish migration barriers (Donaldson Creek and Packer's Creek) were deferred to future projects. Proposed treatment Site 1381 was dropped from the project and the work at Site 1383 was modified to remove spoils materials, but the remainder of the site treatment was deferred as it was determined that a much larger project would be undertaken to restore the road width. This project was completed in 2005 and used other funding sources (CA Office of Emergency Services and TCDOT funds).

The RAC and TCDOT funded project completed the following treatments:

- Out-sloped 9,932' of road, including segments where the ditch was retained in order to dewater slopes and retain the integrity of road base (Photos 1-6);
- Placed and compacted ~2,200 yd<sup>3</sup> of rock surfacing on ~13,000' of road (post mile 4.73 and 7.22). The original treatment included chip sealing the road, but there were insufficient funds in the grant to do that work;
- Improved 1240' of in-slope road segments
- In-sloped 150' of road within the Big Creek inner gorge area (Sites 1380-1383) to prevent runoff diversion over the roads edge causing road fill failure;
- Rock armored four culvert outlets;
- Installed 1 36" culvert drop inlet (Photo 5-8);
- Cleaned 2 culverts;
- Installed 5 18" diameter ditch relief culverts (Photos 9 and 10);
- Replaced 7 18" diameter ditch relief culverts (Photos 11-12);
- Installed 1 36" culvert
- Installed 1 rolling dip;
- Installed 1 critical dip;
- Removed berms and spoils at Sites 1370, 1383 (Photos 13 and 14) and in various small areas throughout the project site;

The project's total costs were \$146,599 of which \$105,584 was provided by the RAC grant and \$41,016 was provided through TCDOT labor, equipment and materials.

## **Attachments**

### **Appendix A – Project Photo Log**

## APPENDIX "A" Project Photo Log

All pre project photos were taken in May 2003 and all post project photos were taken in June 2008\*.



Photo1 (above). Site 1371 Showing in-sloped road draining to ditch and culvert. Photo 2 (below). Post treatment, road is outsloped to distribute road runoff into forest litter rather than into the ditch.



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\* Post project photos reflect road conditions after the significant storm flows of December 2005.



Photo 3 (above). Site 1374 (before project), showing segment of in-sloped road that was outsloped with retention of the ditch segment (Photo 4, below).





Photo 5 (above). Site 1376 consisted of 880' of ditch system delivering from both directions to an 18" ditch relief culvert (above). This culvert had a "shot gun" outlet. Photo 6 (below). The site treatment included installation of a drop inlet on the culvert to prevent plugging from cutbank sluff, outsloping the road, cutting the shot gun culvert and installing rock armor outlet.





Photo 7 (above). Site 1376. Looking from the other side of the ditch from Photo 5, Photo 8 (below) showing drop inlet and outsloped road segment.



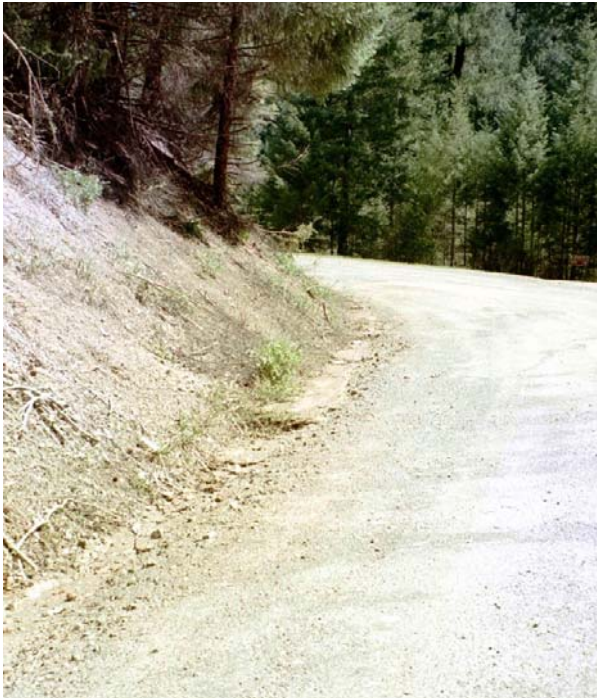


Photo 9 (above left). Site 1377B. This site had a 1,000' long ditch and insloped road concentrating water into the ditch and contributing to bank and ditch downcutting (left). The 1000' of ditch and cutbank area combined with road related sediment were estimated to deliver ~160 yd<sup>3</sup> to Big Creek per decade from chronic erosion. The treatment included outsloping the road and installation of two ditch relief culverts (Photo 10, above right) to reduce water concentration and it's erosive and downcutting force.

Photo 11 (below left) Site 1377D. A rusted, damaged and plugged ditch relief culvert that was replaced with an HDPE culvert (Photo 12 below right).





Photo 13 (above left). An extremely narrow road segment with a large berm and spoils area near Big Creek (Site 1383). Photo 14 (above right) shows the spoils removed. Photo 14 also shows the road improvement and widening which was done as a separate project.