

**California Regional Water Quality Control Board
North Coast Region
Upper Redwood Creek Watershed Improvement Project**

The total maximum daily load (TMDL) for sediment for the Redwood Creek watershed, approved by the U.S. Environmental Protection Agency in 1998, calls for significant reduction in road-related sediment sources within the watershed in order to achieve existing water quality objectives necessary to protect beneficial uses of the basin, particularly the cold water fishery.

Nonpoint source erosion from over 1,000 miles of logging and ranching roads in the upper Redwood Creek watershed remains the single largest threat to the water resources and ancient streamside redwoods in Redwood Creek. The waters of the Redwood Creek watershed have a number of beneficial uses, including providing critical habitat for threatened species of salmon and steelhead, numerous recreational opportunities and terrestrial wildlife habitat associated with ancient redwood forests along the banks of Redwood Creek.

Roads in the Redwood Creek watershed were primarily constructed to support timber harvesting as areas were entered for first and second cycle logging. Many routes were aligned across steep inner gorge slopes using Humboldt stream crossings and sidecast construction techniques.

The purpose of the Upper Redwood Creek Watershed Improvement Project was to prevent sediment from eroding from sites along the O-3 Road and entering Redwood Creek and its tributaries; the initial inventory estimated that more than 7,700 cubic yards of sediment had the potential to erode from these sites.



Site #8, a stream crossing on the O-3 Road, pre-treatment. The photo was taken from the right side of the stream valley a short distance upstream of the road, looking downstream. Note the person standing on the road in the upper middle of the picture.

Prior to decommissioning, the 0-3 Road was an abandoned truck road that terminated near the Redwood National and State Parks property boundary. The Road included 14 small to large stream crossings, long segments showing fill slope instabilities and multiple ditch relief culverts.

A single excavator and bulldozer crew treated all sections of the 0-3 Road. Because the road had not been used for some time, the crew first had to open the road in order to reach the treatment sites.

Pacific Watershed Associates supervised treatment of approximately 1.75 miles of road and 27 sites along the 0-3 Road. The McCullough Construction crew spent approximately 20 working days and 223 hours for the excavator, 204 hours for the bulldozer and 425 hours for dump trucks treating and repairing the sites along the road; this does not include the time that was necessary to install road drainage treatments. All decommissioned stream crossings and disturbed areas with potential for sediment delivery were seeded and straw mulched to help prevent surface erosion. The 0-3 Road included extensive unstable fill slopes along many sections, especially adjacent to stream crossings. Identified and treated sites included 6 stream crossings, 8 landslides, and 13 "other" sites.



Site #8, the same stream crossing, post-treatment. The view is approximately the same as in the previous photo. Note the side slopes have been excavated back to the natural hillslope and mulched with straw. A tall stump approximately 18' high was unearthed during the excavation and is visible in the center of the photo.

With the extensive restoration of these 27 specific sites, the threat of sediment delivery to salmon bearing streams in the watershed has been significantly diminished. Although it is difficult to assess the immediate benefits of the erosion prevention project to fish habitat, the lasting benefit of removing over 14,000 cubic yards of material, and preventing the delivery of over 7,700 cubic yards to the Redwood Creek system should help to promote habitat recovery over the next several decades.

The California Department of Fish and Game applied \$170,000 in matching funds. Cooperative partnerships between Pacific Coast Fish, Wildlife and Wetlands Restoration Association, Redwood National and State Parks, and various private landowners have continued to seek funding for watershed restoration in the Redwood Creek basin. The State Water Resources Control Board has approved nearly \$2,000,000 in grant funding aimed at sediment reduction in the Redwood Creek watershed. With the basin-wide, road-related sediment reduction plan in place, watershed stakeholders have the information necessary to implement prioritized watershed restoration as funding sources become available in the future.

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