

**UPPER BASIN EROSION CONTROL
1992 Progress Report
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Introduction

The 1978 expansion of Redwood National Park (RNP) resulted in a major rehabilitation effort to control erosion and restore disturbed lands within the 48,000 acre expansion area. It was also recognized that much of the sediment which can impact park resources may be derived from lands upstream of the park. Accordingly, the expansion legislation provided authorization for erosion control projects to be implemented on lands upstream of the park to protect downstream park resources by reducing sedimentation (PL-95-250).

The Redwood Creek basin upstream of RNP contains an extensive network of roads in various states of maintenance and abandonment. An inventory from aerial photographs showed that 960 miles of road were constructed in the Redwood Creek basin upstream of the park between 1958 and 1978. Total road mileage constructed since 1978 has not been measured, but is estimated at about 100 miles. These roads, which consist mostly of logging roads, represent potential sediment sources to Redwood Creek and, cumulatively, are the most significant controllable threat to downstream park resources.

Objectives for roads in RNP differ significantly from roads located upstream of the park. The park contains many miles of former logging roads which are incompatible with park objectives. Erosion control work on these roads consists of complete removal of road fill where they cross streams, large excavations of fill which are judged unstable, and reshaping of the road bench to obliterate the road alignment. In contrast, roads located on lands upstream of the park are typically viewed by landowners as assets in terms of land values and are essential for access to their lands for future management activities. Erosion control work performed on upper basin roads will consist primarily of work designed to make the roads much smaller potential sediment sources. The primary methods of accomplishing this will be to improve culverts and modify the roads using methods outlined by Weaver and others (1987) to prevent diversion of stream flow when culverts eventually become plugged and fail.

Gullies which result from diversion of streams by roads are major sources for sediment in the Redwood Creek basin and can far exceed the amount of sediment derived from erosion of road fill (Hagans and Weaver, 1987). The amount of sediment saved by prevention of numerous diversions on highly erodible ground upstream from the park may make work performed in this area more

cost-effective at reducing sediment impacts to Redwood Creek than in the park.

The ultimate goal for erosion control work on areas upstream of the park is to reduce the potential for damage to resources from erosion and sedimentation. Ideally, landowners would be responsible for performing needed work on their own lands. However, the lack of funds available for many landowners to perform such work, combined with a lack of expertise required to recognize and appropriately treat potential problems, impedes the ability for such work to occur. Therefore, the objectives of this project are: 1) to plan and implement demonstration erosion control projects on roads in the upper basin, 2) to inventory roads in the upper basin and prioritize them in terms of erosional threats, 3) to help landowners identify project sites and develop prescriptions on high priority roads on their property, and 4) help to locate and secure funding for the needed work.

Study Area

The study area includes those lands within the Redwood Creek basin upstream of Redwood National Park (Figure 1). Most of the area consists of timberlands, but a small portion is used for rangeland grazing of sheep and cattle.

Results to Date

A pilot erosion control project for an existing road in the Park Protection Zone was accomplished in the summer of 1991 (BLM Road, Figure 1). The project, located in the Lacks Creek drainage, treated about four miles of road on property managed by the Bureau of Land Management (BLM). This project was funded jointly by the National Park Service (NPS) and BLM, with nearly all the project planning and implementation work performed by NPS. The project will be used as an example to demonstrate methods which can greatly reduce the potential amount of sediment delivery to the stream system from an existing road which must retain its function for vehicle access. Spur roads off this road are also in need of treatment, and this work is planned but not yet scheduled.

Preliminary work has begun on a project on Garrett Creek in the PPZ. The Mainline Road on the Stover Ranch (Stover Ranch Project, Figure 1), which has been documented in RNP studies to have contributed most of the sediment from this watershed, is planned for work in the summer of 1992. Prescriptions have been developed cooperatively by the landowner, his forester, and RNP staff. Funding for the project is being sought from the California Forest Improvement Program (CFIP). A letter of support has been drafted to accompany the CFIP application package, and RNP has made a verbal commitment to supply about \$6000 in culverts.

Redwood
National
Park

Study
Area

Pacific Ocean

Highway 101

Orick

Bridge

Taylor

Garrett

Stover Ranch
Project

Laurel

BLM Road

Park
Protection
Zone

Redwood
Creek

Highway 299

Old Hwy
299

Legend



Upper Basin Erosion
Control Projects



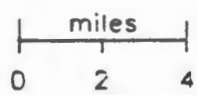
Park Protection Zone



Watershed Boundary



R.N.P. Boundary



Landowners near Berry Summit on the east side of the upper basin have been contacted regarding possible work on an abandoned, eroding section of old State Highway 299 which crosses their properties (Old Hwy 299, Figure 1). Several of these people have expressed great interest in developing erosion control projects with assistance from RNP.

A listing of property owners and county parcel maps has been obtained for the Redwood Creek basin upstream of the park. Nearly all of this information was digitized in 1991 for use in the park's GIS. This data base will help locate future project sites and provide the park with methods to identify and contact landowners concerning potential projects.

Preliminary Conclusions

Lands in the Redwood Creek Basin upstream of Redwood National Park contain about 1000 miles of road. Cumulatively, these roads represent a major potential sediment source to Redwood Creek. Erosion control projects on these roads, through prevention of stream diversions, can prevent large amounts of sediment from entering Redwood Creek and impacting downstream park resources. This work will complement ongoing and past erosion control work performed in the park and has the potential to result in greater sediment savings than work in the park.

Thus far, the only funding sources which have been pursued for upper basin erosion control work have been through CFIP and money from the RNP watershed rehabilitation budget. CFIP is a State funded cost-sharing program designed to assist small, private land-holders develop and improve their forest resources. While CFIP is the most obvious funding source for erosion control work, the program is restricted to landowners with less than 5000 acres. With this restriction, most of the industrial forest land in the upper Redwood Creek basin is not eligible.

Another hindrance to erosion control projects in the upper basin is that the cost of approved CFIP projects is split 75% - 25% between the State and the private landowner, respectively. Even with the major share of funding to come from the State, many of the smaller landowners who may qualify for the program cannot afford their cost-share. Consequently, Redwood Creek landowner participation in the CFIP program has been very limited thus far.

In the early 1980's the State's cost share was 90%, and for projects in Redwood Creek, the National Park Service contributed the remaining 10% share for the landowner. Each eligible landowner in the Redwood Creek watershed was personally contacted by CDF representatives regarding projects on their land, but even at the full reimbursement level, very few landowners chose to participate in the program.

In the last decade, there has been a growing awareness on the part of private landowners about the environmental effects of

timber harvest practices and how to minimize those effects. These days, it seems money has replaced lack of awareness or concern as the largest obstacle preventing many landowners from initiating erosion control projects. This suggests that there would be a much greater response now should the NPS renew the cost-share reimbursement offer. Unfortunately, it is possible that the State may have no funds at all available for the CFIP program this year. Funding from both CFIP, if available, and other sources must be facilitated by RNP to substantially reduce the threat of future sedimentation within Redwood Creek.

Future Work

As soon as possible, work on the spur roads off the BLM road in Lacks Creek will be completed. The inventory of upper basin roads using both aerial photos and the park's GIS will be completed. Erosional history, our best index of potential future erosion, will be used to prioritize roads for treatment. A map will be prepared showing road prioritization and land ownership upstream of the park. Owners of these roads will be contacted to initiate planning for future projects. A field trip will be conducted for interested landowners to visit the Stover Ranch project (if and when it happens) to increase awareness of state-of-the-art treatments on permanent roads and to demonstrate a cooperative effort between a private landowner, the State of California, and the NPS. To help make the upper basin erosion control program to realize its potential, additional sources of funding will be investigated and assistance will be given to interested landowners for securing funds.