

UPPER BASIN EROSION CONTROL
1991 Progress Report
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I. INTRODUCTION:

The 1978 Congressional 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. Congress recognized that the much of the sediment which can impact park resources may be derived from lands upstream of the park and authorized that erosion control projects be implemented to reduce sediment input from these private and public lands upstream of the park to protect downstream park resources (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. These roads, which range from a highway to abandoned 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 and are desired for access. Erosion control work performed on upper basin roads will not necessarily eliminate them but, instead, will 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). Erosion control work performed on upper basin roads will not be as effective as road removal in the park for keeping erodible roadfill from streams, however, the amount of sediment saved by prevention of numerous diversions on highly erodible ground upstream from the park may equal or exceed the amount of sediment saved from work performed on the much

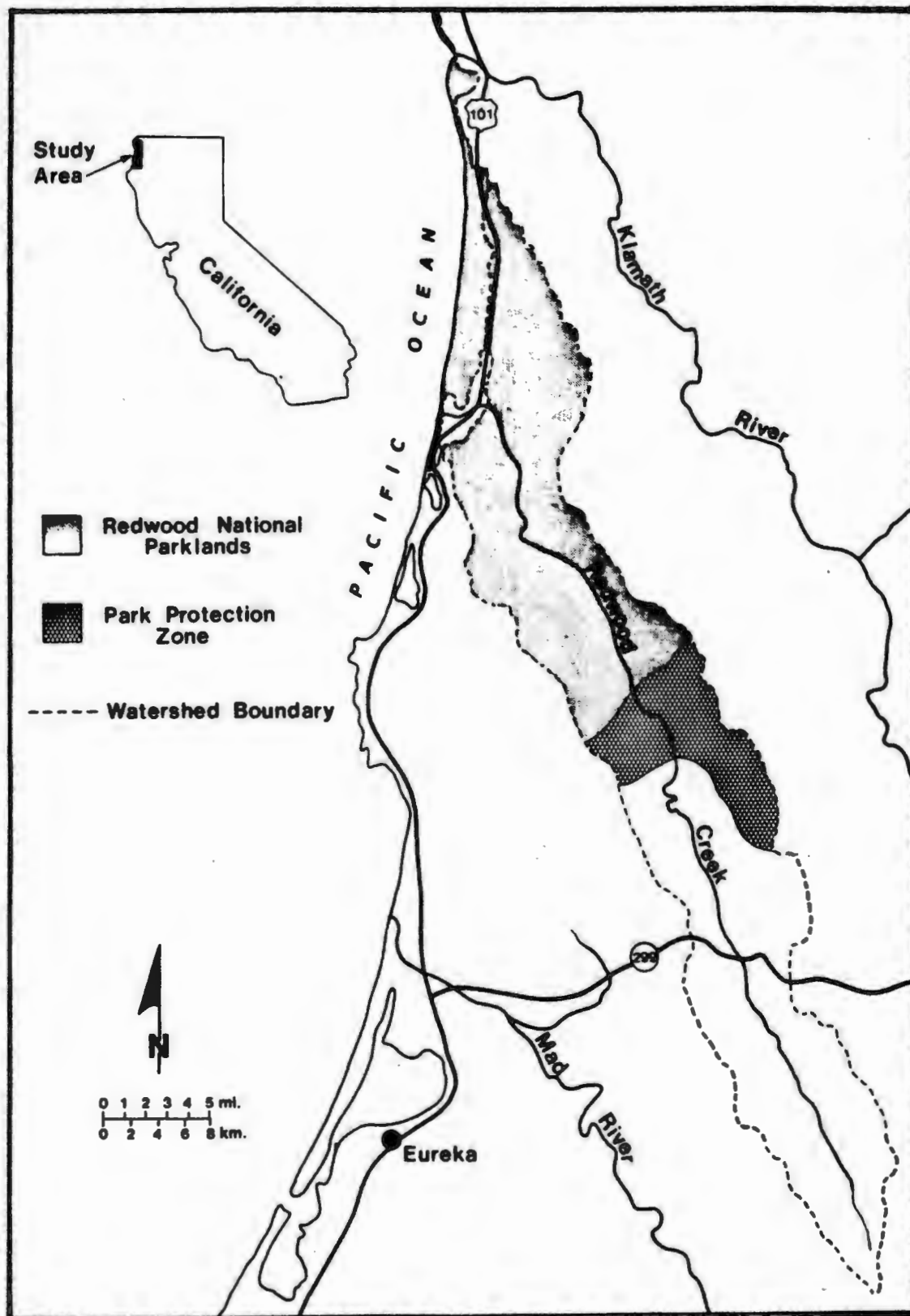


Figure 1. Location map showing the Redwood Creek watershed.

smaller area in the park. The lack of restoration as a goal for erosion control work in the upper basin can 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 for landowners to be responsible for performing needed work. 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. The objectives of this project are: 1) to plan and implement demonstration projects and develop techniques to make roads in the upper basin less erodible and have less potential impacts to the park, and 2) to help landowners identify work sites on their property and help to locate funding for the needed work.

II. STUDY AREA:

The study area includes those lands within the Redwood Creek basin upstream of Redwood National Park (Figure 1).

III. RESULTS TO DATE:

A pilot erosion control project for an existing road in the Park Protection Zone is planned for the summer of 1991. The project, located in the Lacks Creek drainage, will treat approximately 4 miles of road on property managed by the Bureau of Land Management (BLM). This project, funded jointly by the National Park Service and BLM, will be used to demonstrate methods which can make an existing road less of a potential sediment source but still maintain its function for vehicle access. The project is planned to last two years. The first phase of the project will concentrate on the main road and treat high priority work sites. The second phase, in 1992, will finish that part of the main road not completed in 1991 and also will address erosion problems on several spur roads which are not planned to be left as usable roads.

A listing of property owners and county parcel maps has been obtained for the Redwood Creek basin upstream of the park. This data base will help locate future project sites and provide the park with methods to identify and contact landowners concerning potential projects.

It is unclear how projects on private lands will be funded if landowners do not assume the responsibility to fund the work themselves. The California Forest Improvement Program (CFIP) is one possible funding source for eligible landowners. CFIP is a State funded, cost-sharing program designed to assist small, private land-holders develop and improve their forest resources. Because the program is restricted to landowners with less than 5000 acres, much of the industrial forest land in the upper Redwood Creek basin is not eligible.

The cost of approved CFIP projects is split 75% - 25% between the State and the private landowner, respectively. Money is available for such projects as tree planting, thinning, brush control, wildlife habitat improvement, fisheries restoration and erosion control. Improvements conducted on private lands upstream from the park can have beneficial effects on downstream resources through their contribution to re-vegetation and erosion control. In spite of the cost-sharing funding, Redwood Creek landowner participation in the CFIP program has been very limited. Only two small upper basin brush control projects were undertaken in 1986 and 1987.

In the early 1980's the State's cost share was 90%, and for plans in Redwood Creek, the National Park Service contributed the remaining 10% share. Unfortunately, very few landowners chose to participate in the program at the full reimbursement level. Each eligible landowner in the Redwood Creek watershed was personally contacted by CDF representatives regarding projects on their land, but the response was very low. One project, which occurred in 1981, involved work on a landslide near the mouth of Lacks Creek.

IV. PRELIMINARY CONCLUSIONS:

Lands in the Redwood Creek Basin upstream of Redwood National Park contain nearly 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 an equal or even greater sediment savings than work in the park.

A pilot erosion control project is scheduled to be implemented this summer on BLM lands in the PPZ. This project will be an example of methods which can be implemented to make roads less erodible and less of a threat to park resources, yet retain the their function to provide access for landowners and managers.

V. FUTURE WORK:

Future work will consist of finishing work the BLM road in Lacks Creek and identifying locations for future projects. Alternatives will be developed for various funding sources for future erosion control projects on private and public lands in the Redwood Creek basin upstream of the park. A map will be prepared showing roads and landownership upstream of the park and landowners throughout the PPZ and upper basin will be contacted concerning potential projects on their land.

VI. REFERENCES CITED:

- Hagans, Danny K. and W.E. Weaver, 1987. Magnitude, cause and basin response to fluvial erosion, Redwood Creek basin, northern California. In: R.L. Beschta, et al (eds). Erosion and sedimentation in the Pacific Rim (Corvallis, Oregon Symposium). August 1987. IAHS Publication No. 165, pp. 419-428.
- Weaver, William E., D.K. Hagans, and M.A. Madej. 1987. Managing forest roads to control cumulative erosion and sedimentation effects. In: Proceedings of the California watershed management conference. November 18-20, 1986. Sacramento, California. Report 11. Wildland Resources Center, University of California. Berkeley, California. 6 pp.