

REDWOOD NATIONAL PARK

WATERSHED
REHABILITATION
PROGRAM

NOVEMBER 1978

UNITED STATES DEPARTMENT OF THE INTERIOR /
NATIONAL PARK SERVICE

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IN REPLY REFER TO:

United States Department of the Interior

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November 1978

Dear Friend:

Many of you indicated an interest in receiving more information about the rehabilitation program for Redwood National Park. The enclosed newsletter provides a background to the effort, explains where we are now in the rehabilitation of the Redwood Creek watershed, and outlines what we intend to do over the next few years to carry out the rehabilitation program.

Thanks again for your interest in Redwood National Park.

Sincerely yours,

Robert D. Barbee
Superintendent

Enclosure



WATERSHED REHABILITATION PROGRAM

INTRODUCTION

The creation and later expansion of Redwood National Park resulted in the acquisition of approximately 48,000 acres of cutover timberlands. These lands, representing nearly 45% of the 106,000-acre national park, were intensively modified by logging activities, including the construction of approximately 300 miles of truck roads and 3,500 miles of tractor trails. Besides directly altering the landscape and causing soil compaction, loss of topsoil, destruction of ground cover, elimination of shade, and massive changes to small drainages, the logging activities also produced cumulative downstream impacts. These include increased streamside landslides, elevated and wider streambeds, greater bank erosion, higher winter stream discharge, and lower summer discharge. These physical changes of the stream system have been accompanied by modification of aquatic biota and streamside vegetation.

The problems associated with cutover lands were addressed directly in the legislation which expanded the park. Section 101(a)(6) of Public Law 95-250, March 27, 1978, authorized "the development and implementation of a program for the rehabilitation of areas within and upstream from the Park contributing significant sedimentation because of past logging disturbances and road conditions and, to the extent feasible, to reduce risk of damage to streamside areas adjacent to Redwood Creek." Section 105 of the public law authorized \$33 million to be appropriated as of October 1, 1978, to carry out the rehabilitation provisions of the act.

GOALS AND OBJECTIVES

As a result of this legislative mandate, a number of goals and objectives have been established for the rehabilitation program. The long-term goal is to return the downstream portion of the Redwood Creek drainage basin that is within the national park to a reasonable facsimile of its natural state, keeping in mind that some man-induced erosion from upstream land practices will continue. The immediate goal is to minimize continuing and future man-induced inputs of sediment to the Redwood Creek stream system and to manage the existing stream sediment load to reduce its impact on the resources of Redwood National Park.

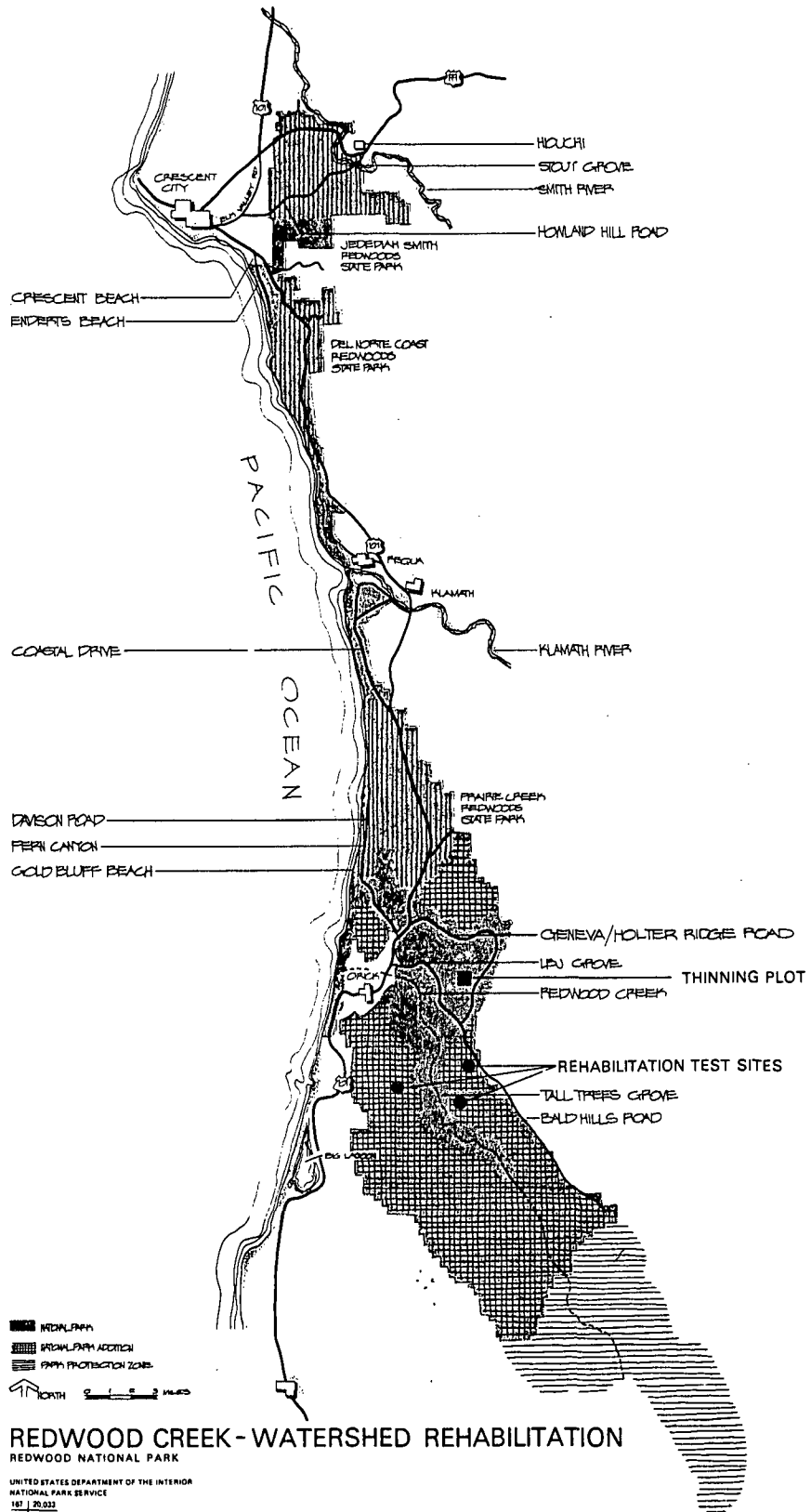
There are three objectives in meeting the immediate goal of the rehabilitation program. The first is to minimize man-induced erosion in the national park while encouraging the return of a natural pattern of vegetation. The second objective is to minimize man-induced erosion and to stabilize natural erosional processes upstream from the national park within the park protection zone, while still fostering the productivity of commercial forestland in the protection zone. The third objective is to enhance local employment, in keeping with the provisions of section 103 of PL 95-250.

1978 PROJECTS

The first steps to meet these goals and objectives are to find out the magnitude of the problem and to determine the best rehabilitation methods to apply in the watershed. One key difficulty is the lack of knowledge about rehabilitation techniques that are applicable to the steep, unstable conditions found in the Redwood Creek watershed. Although four previous test projects have provided some information regarding methods, there is still a relative lack of data on the subject.

To gain a better understanding of the problem and to develop possible solutions, the Redwood National Park staff held a workshop in March 1978 regarding "Techniques of Rehabilitation and Erosion Control in Recently Logged Watersheds." The workshop brought together many professionals who are working in rehabilitation and erosion control from throughout California and Oregon. During this past summer, aerial photographs of the lower basin were obtained to help set priorities for rehabilitating areas where sediment-yield problems are most critical. In addition, an onsite survey of roads within the basin has been undertaken to determine ongoing maintenance needs and to make preliminary judgments about the viability of certain roads.

To test and evaluate rehabilitation techniques, the National Park Service has begun five projects in the Redwood Creek watershed: upper Miller Creek (80 acres), lower Weir Creek (80 acres), upper Bond Creek (85 acres), lower Bond Creek (7 acres), and on a landing along the C-line road (see map). The projects are designed to control further erosion by attempting to reestablish natural drainage patterns on tractor-yarded clearcuts, by removing stream crossings and culverts that are failing, by reshaping road surfaces, and by planting exposed soil surfaces to control surface erosion. Planting will include spreading grass seed to assure a rapid recovery of ground cover and



utilizing willow cuttings bundled into wattles, which will sprout in the spring. Native conifer tree species will also be planted to assure the reestablishment of native forests. Brush thinning for tree release will be done as needed.

The test sites were chosen because they are representative of logged-over portions of the watershed. In each area, existing conditions were thoroughly documented prior to rehabilitation efforts; once the rehabilitation work is complete, the results will again be recorded. Each site will be carefully monitored throughout this winter and next summer to ensure that the work has been effective. The evaluation of this year's test projects will provide vital information in determining programs for succeeding years. The majority of the work is being accomplished under contract with the National Park Service and is being supervised by the Natural Resources Division staff at the park.

OTHER PROGRAMS

Land rehabilitation is only one part of the effort to restore the park to near pre-logging conditions. Thinning dense stands of young, second-growth trees will also be undertaken to return the stands to a more natural composition, similar to what existed prior to logging and reforestation. The thinning will stimulate growth of the remaining trees, reduce fuel loads for wildfires, and eliminate exotic species. This summer and fall, approximately 220 acres of national park land on the west side of Holter Ridge (see map) have been thinned by locally hired park crews and contractors.

The National Park Service staff is continuing to monitor timber harvesting in the park protection zone by reviewing timber harvest plans with the respective timber companies. The reviews are in accordance with section 101(a)(2)(c) of PL 95-250 and are intended to ensure that harvesting practices do not result in physical damage to park resources downstream.

Although the most attention to date has been focused on protecting the forests within the park, ways to control gullying in the prairies will also be investigated by the park staff. The prairie soils tend to erode easily when their grass cover is removed and they are subjected to concentrated runoff from winter storms. The problem is most pronounced along the Bald Hills road.

FUTURE REHABILITATION

The rehabilitation program will be expanded greatly in succeeding years, as more knowledge of rehabilitation techniques is gained through evaluation of this year's program. A variety of techniques will have to be tried at appropriate sites, followed by long-term monitoring, before the full rehabilitation program can be implemented. It is expected that annual revisions will occur and that future actions will be based on the successes or failures of actions taken during previous years.

As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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