

Redwood

National Park
California

National Park Service
U.S. Department of the Interior

Redwood Renaissance

The Story of Reclaiming and Reforesting Logged-over Lands in Redwood National Park

Redwood forests have lived in the northern hemisphere since the time of the dinosaurs. Dramatic changes in geology and climate have reduced them to a present natural range extending from coastal northern California into coastal southern Oregon.

Man had little impact upon the majestic forests of the redwood region before 1850. When gold was discovered and the redwood region was settled, the need for wood products grew rapidly. Commercial logging came into its own—first employing horses, then oxen and then steam donkey engines and railroads.

As demands for wood products grew after World War II, logging activity greatly accelerated. New machinery, chain saws, large trucks, and the "modern ox"—the bulldozer—enabled industry to meet the needs of a growing and affluent nation. The old-growth, or "virgin" forests began to disappear with alarming speed during the 1950s and 1960s, leaving behind cutover, eroding landscapes.

Sensing the need for protection of rapidly diminishing redwood forests, concerned citizens became active in setting aside redwood lands as national, state, and local parks. One of these was Redwood National Park, established in 1968 to preserve a superlative example of prime coast redwood forests, coastline, and rivers in northern California. Here, in a narrow corridor of parklands along Redwood Creek, grow the world's tallest known trees.

After park establishment, extensive logging continued on private timberlands around this narrow corridor. Large scale logging of the unstable, highly erosive Redwood Creek water-

shed increased landsliding and surface erosion far above pre-logging levels. 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 jeopardized the associated plant and animal communities. Changes in the stream system directly threatened the Tall Trees Grove and other trees growing in alluvial flats adjacent to Redwood Creek.

As a result of these problems, in March 1978, Congress expanded the existing 58,000-acre Redwood National Park by an additional 48,000 acres. Realizing that land-use practices adjoining the park can damage resources within the park, Congress made a landmark decision by establishing a 30,000-acre "Park Protection Zone" upstream in the Redwood Creek watershed. Of the 48,000 acres of new park lands, only about 9,000 acres are old-growth redwoods, and the rest are recently logged forests. Roughly 200 to 300 miles of abandoned logging roads and 2,000 to 3,000 miles of tractor trails crisscross the hillsides of the cutover lands. As part of park expansion, Congress authorized \$33,000,000 for Redwood National Park to rehabilitate cutover forest lands, with a major emphasis on erosion control.

Redwood National Park's watershed rehabilitation program has a long-term goal of speeding the recovery of

natural forests, stream systems, and life communities, while protecting park values. Rehabilitation must begin with reducing excessive erosion and creek siltation resulting from past timber-harvesting and road building, and by replanting forests and shaping their regrowth.

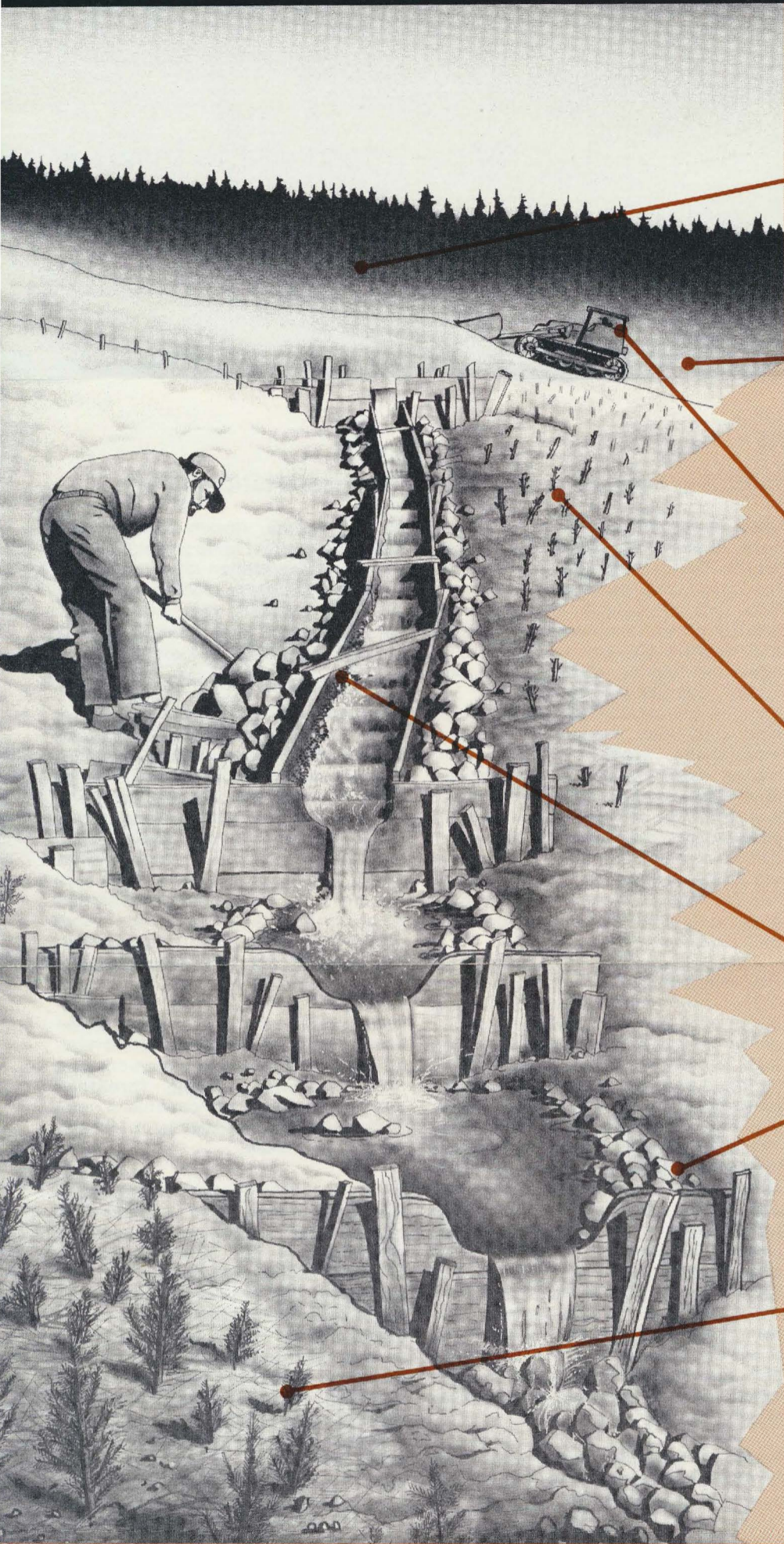
Rehabilitation work aimed at erosion control will concentrate on the approximately 30,000 acres of land logged in the past eight years. Erosion control efforts will be directed at four main problem areas: caterpillar tractor-logged hillslopes, logging haul roads, active landslides, and natural prairies that are now gullied because of road construction. A watershed-by-watershed program has begun with the most seriously eroding areas restored first. Unneeded roads will be eliminated, erosion will be reduced, and young forests will be established. As rehabilitation crews work their way out of the watershed, they will leave behind healed road scars, reduced erosion, and well-established young forests—and a living landscape capable of completing the long restoration job through natural processes.

Fifty—a hundred—even more years may pass before most evidences of logging begin to disappear beneath the understory of the newly developing forests—before the streams are fully recovered, and the salmon and steelhead reach their former natural abundance. But the message is one of hope: as this work is begun, there is here in Redwood National Park the unique challenge and opportunity to perpetuate and restore one of nature's most majestic natural systems—the redwood forest.



Steam Donkey. Only a few hundred acres of forests in the Redwood Creek watershed were logged before World War II, using such early methods as the steam donkey cable system. The rate of logging was greatly accelerated with the invention of tractors and other modern equipment.

... a living landscape capable of completing the long restoration job through natural processes.



Reshaping Road Surfaces

Most logging roads on park lands will be "put to bed." This involves reshaping the road surface to the natural contour of the slope so that water runs across the former road bed rather than along it.

Tractor Trails

Tractor trails and roads divert surface water, disrupt watercourses, and expose tons of soil to rapid erosional losses. More than 7,500 tons of sediment per square mile erodes out of this 280-square-mile watershed every year.

Rehabilitation Equipment in Action

Heavy equipment reshapes old road surfaces and moves precariously perched soils away from streams. Exposed surfaces are planted to control erosion and re-establish forest trees.

Willow-Wattling

Willow-wattling is an old European method of providing erosion control and speeding up re-establishment of vegetation. Bundles of willow stems and other sprouting species are buried in terraced contour trenches on eroding slopes.

Water Ladders

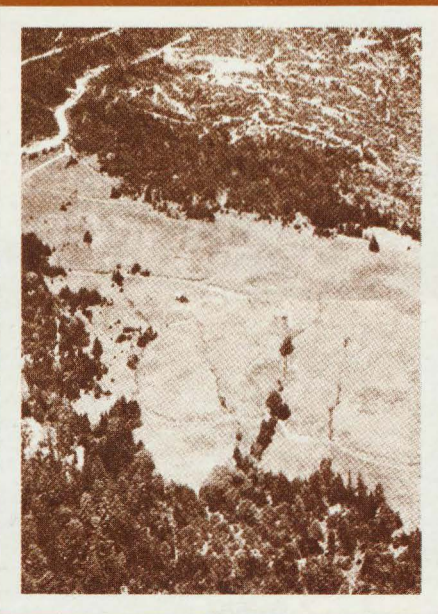
Water ladders are built to slow the erosive force of water. Boards are placed in the stream bed so that running water will not cut the bare soil underneath.

Check-dams

Hand-built check-dams are used to control downcutting by gullies and small seasonal streams, thereby reducing sediment loads on Redwood Creek and its tributaries during the critical years of the next several decades.

Planting Tree Seedlings

Coast redwood, Douglas-fir, and other native trees will be manually planted to ensure the speedy redevelopment of forests similar to those previously cut. Exotic trees like the Monterey pine will be removed.



Tall Trees Grove. The Tall Trees Grove includes the world's tallest tree, measured in 1963 at 367.8 feet. It is nearly 600 years old—about the average for redwoods. Although the tall trees and other streamside forests are naturally subjected to flooding, sediment deposition, and erosion, logging has increased the frequency and magnitude of these events and their impacts.

Prairies. Prairielands will be gradually restored to native conditions. Elk and deer are expected to reoccupy their native habitat, recreating an impressive scene against the backdrop of the redwood forests.