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Fish Redwood

General Management Plan / General Plan

REDWOOD

National and State Parks

Humboldt and Del Norte Counties • California

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Approved:

California State Park and Recreation Commission — November 19, 1999

John Reynolds
Regional Director, National Park Service — April 6, 2000

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REDWOOD

National and State Parks

Humboldt and Del Norte Counties
California

United States Department of the Interior • National Park Service
California Department of Parks and Recreation

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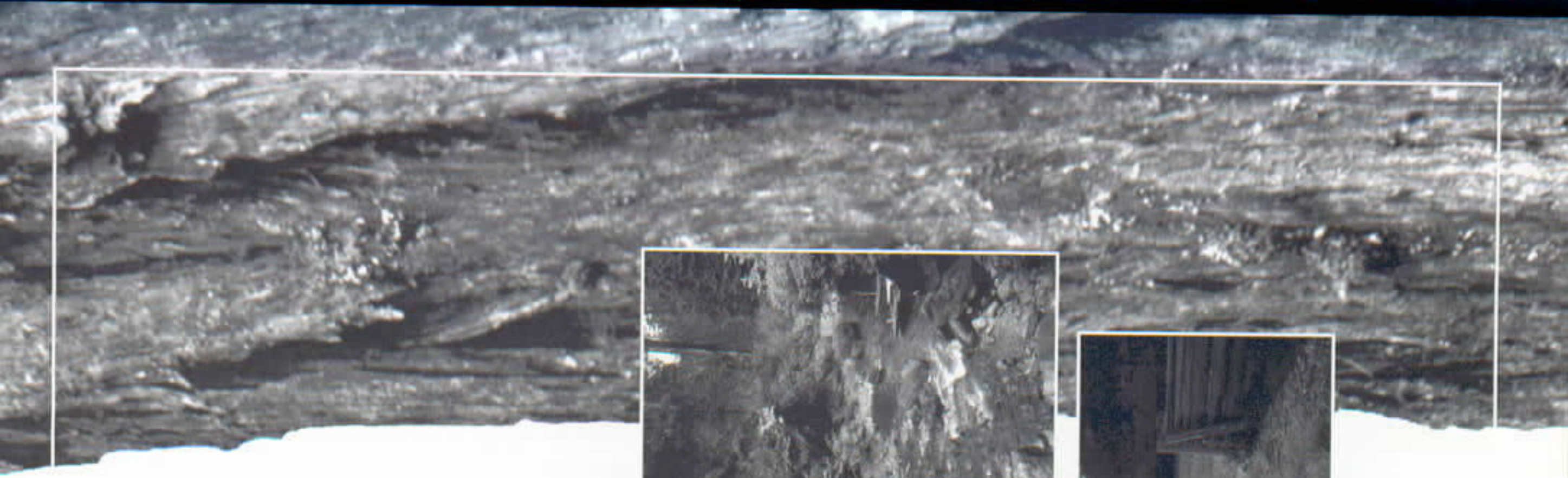
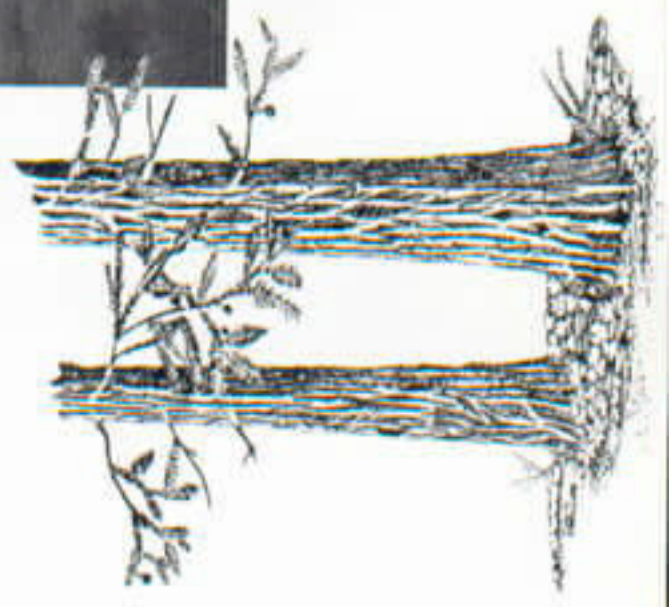




Region and Vicinity

Redwood National and State Parks • California
NPS • DSC • July 2000 • 167 • 20073B

WHAT IS A GENERAL MANAGEMENT PLAN / GENERAL PLAN?

Redwood National and State Parks in extreme northwestern California consist of four units — Redwood National Park, which is a federal park under the jurisdiction of the National Park Service (NPS), and three state parks — Prairie Creek Redwoods State Park, Del Norte Coast Redwoods State Park, and Jedediah Smith Redwoods State Park (see Region and Vicinity maps) — which are under the jurisdiction of the California Department of Parks and Recreation (CDPR). Together these parks, in Del Norte and Humboldt Counties, encompass some 105,516 acres. Guidance is needed for managing the parks. The national park is required to prepare a general management plan; the state parks are required to prepare a general plan. The purpose of a joint federal-state plan is to provide a clearly defined, coordinated direction for resource preservation and visitor use and a basic foundation for decision making and managing these four parks for the next 15 to 20 years.

Although the federal requirements for a general management plan differ somewhat from the state requirements for general plans, this joint general management plan / general plan (hereafter referred to as the plan or the management plan) has been developed through cooperative efforts between the federal and state agencies in an effort to manage this complex of parks as a whole. The plan was adopted by NPS leadership and the State Park and Recreation Commission after adequate analysis of the benefits, environmental impacts, and costs of alternative courses of action (see the cost analysis details in appendixes A and B).

The focus of this management plan is on *why* the parks were established and *what* resource conditions and visitor experiences should be achieved and retained over time. The plan takes a long-range view, which may be many years into the future when dealing with timeframes of natural and cultural processes. The plan considers the parks in their full ecological and cultural contexts — as units of the national and state park systems and as parts of the surrounding ecosystem and region. The connections among the various programs and management zones in the parks are identified, thus helping to avoid the potential for solving problems in one area but creating new problems in another as a result of not fully considering the broader implications of a specific decision.

The management plan constitutes the first phase of tiered planning and decision making. Because this plan is relatively general, more detailed, site-specific analyses of specific proposals in this approved plan will be required before undertaking any additional major federal or state actions.

STATE PARK POLICY DECLARATIONS

The *California Public Resources Code* (sec. 5002.2) requires that state park general plans contain certain elements and declarations. In accordance with that requirement, this plan establishes general management policies for Jedediah Smith Redwoods State Park, Del Norte Coast Redwoods State Park, and Prairie Creek Redwoods State Park. Their classification as state parks by the California State Park and Recreation Commission sets general management policies as provided for in section 5019.53 et seq., *California Public Resources Code*:

State parks consist of relatively spacious areas of outstanding scenic or natural character, oftentimes also containing significant historical, archeological, ecological, geological, or other such values. The purpose of state parks shall be to preserve outstanding natural, scenic, and cultural values, indigenous aquatic and terrestrial fauna and flora, and the most significant examples of such ecological regions of California as the Sierra Nevada,

northeast volcanic, great valley, coastal strip, Klamath-Siskiyou Mountains, southwest mountains and valleys, redwoods, foothills and low coastal mountains, and desert and desert mountains.

Each state park shall be managed as a composite whole in order to restore, protect, and maintain its native environmental complexes to the extent compatible with the primary purpose for which the park was established.

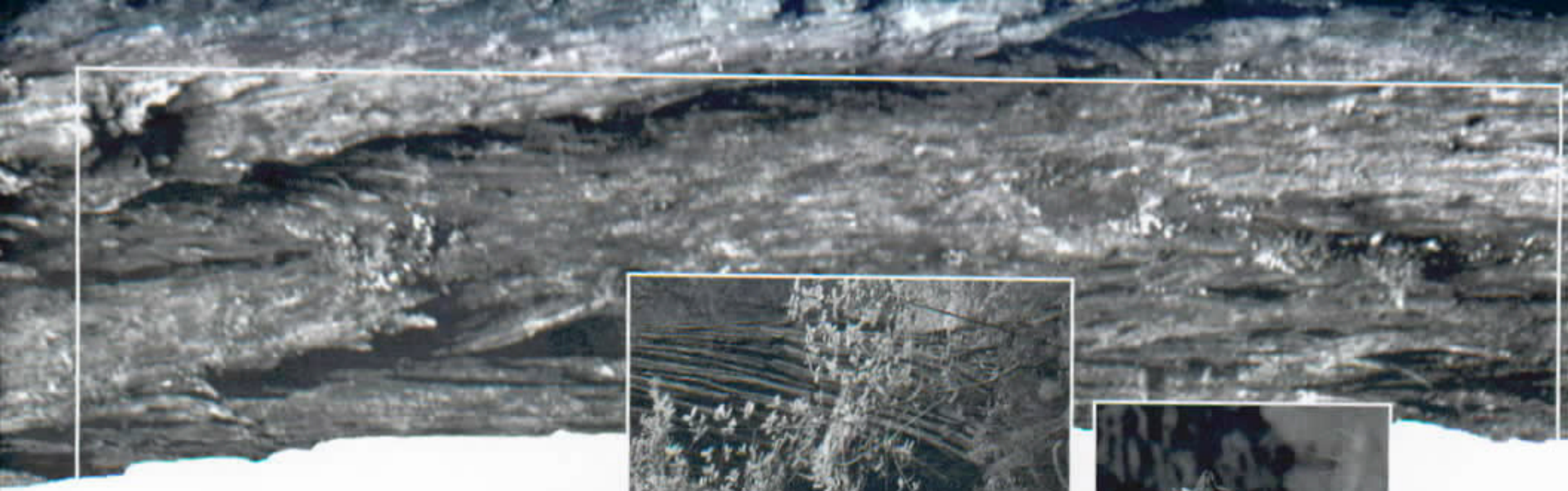
All elements required to be included in state park general plans are contained in this document. The statement of purpose for Redwood National and State Parks as set forth in this joint plan serves as the declared purpose for the three included state parks. The management of Redwood National and State Parks will be consistent with the requirements established for classified state parks. Further, the management zones, goals, strategies, and actions contained in this document serve as resource management policy as well as give general guidance for land use, facilities, concessions, and operation of the state parks as required by law.

PURPOSE OF AND NEED FOR THIS PLAN

The 1980 *General Management Plan* for Redwood National Park assumed that the three state parks, which were already within the congressionally designated national park boundary, would be transferred through donation to the National Park Service. This did not occur, which nullified portions of the 1980 management plan that applied to state park lands and meant that portions of the management plan that applied to state park lands were never implemented. The California Department of Parks and Recreation produced the *State Redwoods Parks, General Plan* in 1985. In 1994 the National Park Service and California Department of Parks and Recreation signed a memorandum of understanding (see appendix C) and agreed to cooperate in managing the four parks to improve the protection of the resources, better serve visitors, and realize fiscal benefits from reducing duplicated services. Both the National Park Service and the California Department of Parks and Recreation agreed that a new management plan was needed to define joint goals and strategies for managing the four parks as a whole and to coordinate the development of facilities and operations.

Significant portions of the parks are within the ancestral territory of the Yurok Tribe and other American Indian groups. Approximately 1,400 acres of land and waters within the Yurok Reservation are federal lands within the parks that are administered by the National Park Service. Although the Yurok Tribe has established a tribal government and a memorandum of understanding exists between the parks and the Yurok Tribe, this plan will help solidify the relationship and promote better understanding and communication.

This joint management plan replaces both the 1980 federal *General Management Plan* and the 1985 *State Redwoods Parks, General Plan* for these four parks.



THE PARKS

BRIEF DESCRIPTION OF THE PARKS

The four units of Redwood National and State Parks (RNSP) encompass about 105,516 acres, are about 50 miles in length with 35 miles of coastline, and vary in width from 0.5 mile to 8 miles. The legislated national park boundary includes federal and state park lands. RNSP headquarters are in Crescent City, California, which is equidistant (350 miles) from San Francisco, California, and Portland, Oregon. Redwood National Park was established in 1968 and expanded in 1978. Prairie Creek Redwoods State Park was established in 1923, Del Norte Coast Redwoods State Park in 1925, and Jedediah Smith Redwoods State Park in 1929. Some lands within the RNSP boundary are privately owned.

The north-south mostly two-lane U.S. Highway 101 is the main road through the parks, winding its way through forested hills and along the rugged coastline. A 12-mile bypass around Prairie Creek Redwoods State Park was completed in 1992. Three miles northeast of Crescent City, U.S. Highway 199 joins U.S. Highway 101 and provides an east–west route through Jedediah Smith Redwoods State Park. On its western side, the national park boundary extends 0.25 mile beyond the Pacific Ocean's mean high tide line, and the National Park Service exercises jurisdiction over the waters, intertidal lands, and submerged lands. The coastal jurisdiction of state park lands extends 1,000 feet west of the ordinary high-water mark.

Three major river systems and numerous coastal streams traverse the parks. These include portions of Redwood Creek and the Smith and Klamath Rivers. Within the parks, some of the alluvial valleys are relatively flat, with much steeper inner gorges in many of the river valleys. The Smith and Klamath Rivers are part of the federal and state wild and scenic river systems — the federal system since 1981 by congressional action and the state system since 1972 by an act of the state legislature.

BOUNDARY REFERENCES

The legislated Redwood National Park boundary includes national (federal) park lands and three state parks, each with its own boundary (as indicated on the general plan map in this document). Although the goal is to manage these federal and state lands as a single complex of parks, there are times in this document when differentiation between national park land and/or actions and state park land and/or actions becomes important — such as describing statutory authorities or requirements or permitting procedures that apply only to federal lands or state park lands.

For the purposes of this document, then, the term Redwood National and State Parks (RNSP) will be used when referring to state and federal park lands. The terms Redwood National Park, the national park, or national park lands will be references only to federal park lands. References to state parks or state park lands will be to the specific state park or a general reference to the state (CDPR) redwood parks.

Two distinctive physiographic provinces, the coast and the mountains, typify the parks. The 35-mile coastline is mostly rugged, rocky, and difficult to traverse, although there are some grass- and brush-covered rolling slopes. Broad beaches and nearly level uplifted marine terraces characterize the coastal areas around Crescent City. In the central and southern portions of the parks, there are broad alluvial valleys near the mouths of the Klamath River and Redwood Creek. Along the coast of Prairie Creek Redwoods State Park, the 8-mile stretch of Gold Bluffs Beach lies at the foot of the nearly vertical Gold Bluffs, rising 100–400 feet in height. Offshore there are numerous seastacks that provide habitat for various birds. Inland lie the north-northwest trending mountains of the Coast Ranges. Elevation in the parks varies between sea level to more than 3,000 feet. Rapid tectonic uplift, abundant, intense rainfall, and sheared bedrock make much of the parks highly erodible, deeply incised, and generally rugged. The

average slope in the park ranges between 40% and 70%.

A compilation of basic natural and cultural resource information and maps for the three state redwoods parks can be found in the *Inventory of Features*, which was developed for the 1985 *State Redwoods Parks, General Plan* (see appendix D).

The climate along the coast area is cool and moist, with only minor variations in temperature, and heavy fogs are nearly a daily occurrence during the summer. The densely forested (mostly redwoods and Douglas-fir) Coast Range receives the heaviest rainfall of any area in California — 60–100 inches annually.

The major natural resources are the coast redwood forest ecosystem, the coastline, the rivers, the oak woodlands, and the prairies and their associated plant and wildlife communities. Several species of plants, fish, and birds listed or proposed for listing as threatened or endangered are found in the parks. Critical habitat has been designated or proposed in the parks for some of these species.

The archeology of pre–European settlement within Redwood National and State Parks indicates about a 4,500-year continuous record of habitation extending to after European contact at about 1850. At the time of contact, the Yurok, Tolowa, and Chilula lived along the coast and rivers of what is now Redwood National and State Parks. They were not the only American Indians in northwest California, but they are the three groups that had territories that are now within the parks. There were also strong influences from the greater Northwest Coast Cultural Area to the north. Fish, game, and acorns were particularly significant foods. In addition to villages of wooden plank houses and sweathouses, there were temporary summer camps. Woodworking and basketry were important industries. There was an extensive trade network.

Today, the traditional territories of two American Indian peoples, the Yurok and the Tolowa, include lands now within the parks. The Chilula, whose territory included park lands in the Redwood Creek basin, were almost decimated; those who remained were assimilated by the Hupa to the east of the parks. Since 1978 RNSP staff has held regular consultations with local American Indians and tribal governments about a wide range of issues.

Although Europeans probably sighted the Humboldt coast as early as 1579, there were few sea and overland explorers until much later. In spring 1828 Jedediah Smith led the first overland party to penetrate the mountains of interior northwest California and traversed what is now the parks, reaching the coast near Crescent City before turning northward. In 1848 gold was discovered in the upper Trinity River area. American Indians were displaced by the incoming miners, and reservations were established.

A number of coastal towns were established as supply centers for the gold miners. Trails following routes established by the Indians led to the mines. Farmers and ranchers were soon attracted to the north coast. Commercial fisheries were established in the last quarter of the 19th century, and the dairy industry also became important. Toward the end of the 19th century, the timber industry was established in the area. This ended the era of economic self-sufficiency, because products were destined for the world beyond California.

Tourism became important to the economic base of the north coast region after the Old Redwood Highway (now portions of Highway 101) was completed in 1923. Construction of this highway coincided with the 1918 establishment of the Save-the-Redwoods League, a significant event in the history of conservation, not only along the north coast but also nationally. Prairie Creek, Jedediah Smith, and Del Norte Coast Redwoods State Parks were set aside as tree preserves in the 1920s. Significant development for visitor use in these parks was undertaken by the Civilian Conservation Corps in the 1930s.

In 1963 the National Park Service conducted a special study of the California coast redwoods. Five years later the 58,000-acre Redwood

National Park was established; it was expanded in 1978 to about 105,516 acres, which includes CDPR lands in the state parks.

PURPOSE OF THE PARKS — WHY THEY WERE SET ASIDE

The reason(s) for which the parks were established provides the most fundamental criterion for determining the appropriateness of actions set forth in this plan.

Through federal statutes and declarations of purpose, the U.S. Congress and the California Park and Recreation Commission, respectively, have established the individual purposes of the four parks that make up Redwood National and State Parks. These purposes are as follows:

♦ **Redwood National Park** was established "to preserve significant examples of the primeval coastal redwood *(Sequoia sempervirens)* forests and the streams and seashores with which they are associated, for purposes of public inspiration, enjoyment, and scientific study, there is hereby established a Redwood National Park in Del Norte and Humboldt Counties, California." (Public Law 90-545, October 2, 1968)

[I]n order to protect existing irreplaceable Redwood National Park resources from damaging upslope and upstream land uses, to provide a land base sufficient to insure preservation of significant examples of the coastal redwood in accordance with the original intent of Congress, and to establish a more meaningful Redwood National Park for the use and enjoyment of visitors. (PL 95-250, March 27, 1978)

♦ The purpose of **Jedediah Smith Redwoods State Park** is to make available to people forever, for their inspiration and enjoyment, in a condition of unimpaired ecological integrity, the great forests of lower Mill Creek and of the Smith River, together with all related scenic, historic, scientific, and recreational values and resources of the area. (July 1965 State Park and Recreation Commission Declaration of Purpose)

♦ **Del Norte Coast Redwoods State Park** is established "to make available to the people, for their inspiration and enjoyment forever, the scenic grandeur of the coast of Del Norte County from False Klamath Cove northward to Crescent Beach, where the coast redwood forest uniquely clothes the slopes directly facing the ocean; embracing also the important inland forests within the drainage of Mill Creek, adjoining Jedediah Smith Redwoods State Park; together with all scenic, historic, scientific, and recreational values and resources of the area." (November 1964 State Park and Recreation Commission Declaration of Purpose)

♦ The purpose of **Prairie Creek Redwoods State Park** is to "make available to people forever, for their inspiration and enjoyment, in a condition of unimpaired ecological integrity, the great forests of Prairie Creek Basin and adjacent areas west to the sea, including the wide ocean beach; together with all related scenic, historic, scientific, and recreational values and resources of the area." (July 1963 State Park and Recreation Commission Declaration of Purpose)

Based on these individual statements of purpose, the National Park Service and the California Department of Parks and Recreation have developed administratively the following statement of purpose to provide general guidance to the management of the complex of four parks that comprise Redwood National and State Parks:

♦ **Redwood National and State Parks** were established to preserve significant examples of the primeval coastal redwood forests and the prairies, streams, seashore, and woodlands with which they are associated for purposes of public inspiration, enjoyment, and scientific study, and to preserve all related scenic, historical, and recreational values.

SIGNIFICANCE OF THE PARKS — WHY THEY ARE SPECIAL AND IMPORTANT

The following statements define the significant attributes that relate to the parks' purpose and why the parks were established. Knowing the parks' significance helps managers set protection priorities and determine desirable visitor experiences.

♦ Redwood National and State Parks preserve the largest remaining contiguous section of ancient coast redwood forest. This ecosystem includes some of the world's tallest and oldest trees, and it is renowned for its biotic diversity and inspirational atmosphere. The forest community includes a number of rare and endangered species, dependent on the integrity of the whole for their survival.

♦ More than one-third of the lands within the parks have been heavily impacted by timber harvest and are the subject of an internationally recognized restoration program designed to restore integrity and recover lost values. Erosion related to logging roads is being reduced, natural topography is being restored to hillslopes crossed by roads, and topsoil is being returned to the surface to speed revegetation and retain genetic integrity of the vegetation.

♦ Redwood National and State Parks are near the junction of three active tectonic plates of the earth's crust. Steep, highly erodible landscapes and frequent earthquakes characterize the region and are all related to the geologic forces generated at plate boundaries. These forces influence not only the natural characteristics of the parks, but human use and habitation as well.

♦ Redwood National and State Parks contain a rich variety of biotic communities from the Pacific Coast to the interior mountains. The mosaic of habitats within the parks includes old-growth forests, prairies, oak woodlands, and riverine, coastal, littoral, and near-shore marine environments. These habitats are increasingly important refugia for rare and endangered species.

♦ Redwood National and State Parks contain 35 miles of scenic Pacific Ocean coastline and about 105,516 acres of coastal topography. The heavy rainfall and powerful rivers are part of the intricate and dynamic hydrologic system. This system, which includes portions of the watersheds of Redwood Creek, the Klamath River, and the Smith River as well as the Pacific Ocean, provides a rich diversity of aquatic and riparian habitats. The Klamath and Smith Rivers are designated federal and state wild and scenic rivers.

♦ Redwood National and State Parks preserve the legacy of 19th and 20th century conservation efforts that led to the establishment of three state parks in the 1920s, a national park in 1968, and an expansion of the national park in 1978. These federal and state lands are cooperatively managed to ensure the highest level of resource protection and visitor enjoyment. United Nations world heritage and international biosphere reserve status was granted in the 1980s.

♦ Four American Indian cultures with ties to Redwood National and State Park lands — the Tolowa, Yurok, Chilula, and Hupa peoples — represent a diverse indigenous presence. These groups maintain traditional lifeways, including arts, ceremonies, and methods of subsistence as well as three distinct languages. The archeological record of these peoples, extending back more than 4,500 years on RNSP lands, includes sites listed on the National Register of Historic Places. These resources are especially important because of their direct association with contemporary American Indian communities, who continue to rely on these resources for their spiritual, cultural, physical, and economic sustenance.

♦ RNSP landscapes represent more than 150 years of land use practices by non–Indian peoples, including exploration, mining, fishing, ranching, timber cutting, and settlement. Some historic structures, roads, trails, and railroad beds remain. Logging practices were developed here that permitted the cutting of timber on an unprecedented scale. The intensity of logging

spurred an environmental movement. The debate about land ethics continues today.

INTERPRETIVE THEMES — WHAT VISITORS SHOULD KNOW

Based on the parks' purpose, significance, and primary resources, the following primary interpretive themes are those ideas about RNSP resources that are so important that every visitor should have the opportunity to understand them. The primary themes below cover those ideas that are critical to a visitor's understanding of the parks' significance. (They are not a comprehensive list of everything there is to interpret in the parks.)

♦ The ancient coast redwood ecosystem preserved in Redwood National and State Parks protects some of the world's most majestic forests and is home to an interrelated biotic community. The coast redwood, a species that has produced some of the world's tallest individual trees, is well adapted to the environmental conditions of its range.

♦ The mosaic of habitats within Redwood National and State Parks, which includes ancient forest, prairies, oak woodlands, and coastal and near-shore marine environments, provides increasingly important refugia for a number of rare and endangered species.

♦ Steep, highly erodible landscapes and frequent earthquakes are related to local geologic forces generated near the junction of the three tectonic plates of the earth's crust that underlie the region.

♦ The Yurok, Tolowa, and Chilula Indians historically lived on lands now included in Redwood National and State Parks. The Chilula Indians were later assimilated into the inland Hupa culture, east of the parks. The diverse traditional lifeways of these indigenous groups continue today.

♦ Attracted by the diverse natural resources of the northern California coast, residents developed a number of industries including mining, farming, ranching, fishing, and logging.

♦ Redwood National and State Parks preserve the living legacy of 19th and 20th century conservation efforts, which helped spur a worldwide environmental movement and set aside diminishing redwood forests as parks, parks that now provide a testing ground for cooperative management and large-scale restoration of severely impacted forest lands.

PARKS' GOALS

Given the purpose, significance, and what visitors should have the opportunity to learn, goals were developed to provide guidance in preserving and protecting what is significant and communicating the primary themes to the visitor. These broad, conceptual goals focus on results and desired future conditions, not on efforts or actions. From these goals flow the management strategies and specific actions of the plan.

The goals, management strategies, and specific actions, together with the management zones, provide parkwide guidance for all programs, activities, and locations throughout the parks. The more specific management strategies are described in "The Plan" section according to specific topics (natural resource management, cultural resource management, education and interpretation, etc.). Please see those sections for the listings of management strategies.

Preserve and Protect the Parks' Resources

The natural and cultural resources of the parks are preserved and protected.

Lands, ecosystems, and processes that have been altered by modern human activities are restored or replicated.

Redwood National and State Parks serve as a laboratory for scientific study and research that promotes preservation, restoration, and understanding of the parks' resources. Management decisions about resources and visitor use are based on and supported by adequate scientific information.

Provide for the Public Enjoyment and Visitor Appreciation of the Parks

RNSP visitors and the general public experience, understand, and appreciate the parks' resources, and support their preservation.

RNSP visitors and the general public understand the significance of American Indian cultures in the history of the region and their historic and contemporary ties to park lands.

Visitors are satisfied with the availability, accessibility, diversity, and quality of RNSP facilities, services, and appropriate recreational opportunities.

Visitors experience the parks in a safe manner.

RNSP facilities serve ongoing needs and demands, are sustainably designed and constructed (see glossary), and are appropriately located and maintained.

Maintain Collaborative Relationships with Gateway Communities and Local American Indian Tribes

Relationships with gateway communities are founded in cooperation. Joint efforts are directed toward developing/strengthening facilities, services, and information delivery systems that facilitate public access to and appreciation for the resources and values of the parks and the surrounding region and that also enhance the economic well-being of local communities.

Formal government-to-government relationships with local American Indian tribes are based on applicable laws and regulations. Collaborative relationships are based on mutual interests in managing and protecting the lands, waters, and other resources within the parks and are guided by an understanding of and respect for the tribes' geographic, economic, and cultural ties to the parks' resources and values.

ISSUES AND CONCERNS

Having at least a broad understanding of why the parks have been set aside, what resources are significant, what the public should have the opportunity to learn, and what are the goals for the parks, managers can look at conditions and determine what the obstacles are to achieving those goals.

The issues and concerns are listed in the "The Plan" section according to specific topics (natural resource management, cultural resource management, education and interpretation, etc.). Please see that section for a discussion of the issues.

ISSUES BEYOND THE SCOPE OF THE JOINT PLAN

Other issues and concerns that were raised during the public involvement process were considered beyond the scope of this plan. Many of these issues are covered under existing more detailed planning documents or will be resolved in more detailed future planning that will tier off this plan.

- Develop one or more transportation hubs.
- Provide shuttle service to various locations.
- Provide more frequent bus service.
- Develop management policies to resolve human/wildlife conflicts with mountain lions, elk, and other animals.

- Protect and restore natural dune communities.
- Review policy for allowing dogs on hiking trails.
- Explore better management practices with respect to dead and downed wood collection.

Other issues and concerns were inappropriate given the legislative or policy mandates for the state parks or the National Park Service.

- Manage Redwood Creek basin as a wilderness.
- Realign Highway 101 to improve the visitor experience.
- Remove trees along the highway so visitors can see the coast from more locations.

Also, the Yurok tribe expressed an interest in reestablishing traditional hunting activities on its ancestral lands within the parks. However, given that hunting in parks is prohibited by both federal and state laws, hunting is not discussed in this document.

Traditional baskets made by American Indians associated with the parks

DISTURBED LANDS

Past Commercial Logging and Park Expansion

Before 1978 much commercial logging and associated road building were done just upstream and upslope of the 1968 park lands. More than 38,000 acres (70%) of the expansion area added to the park in 1978 (in the Redwood Creek watershed) had already been logged. In timber harvest areas, road networks are the primary source of erosion. There were 415 miles of abandoned logging roads and 3,000 miles of skid roads in these cutover areas (see the Roads in Redwood Creek Basin map). The 1978 park expansion (PL 95-250) came about because of this extensive logging. The logging roads and post-logging exposed slopes were prone to erosion, and over time massive amounts of the eroded sediment washed into Redwood Creek and its tributaries in the national park.

The increased sediment caused the water in the creeks and tributaries to rise, eroding the streambanks and stream channel — carrying away soil that shallow-rooted streamside redwoods needed to keep them upright. The redwoods were being directly impacted and threatened by upstream logging outside the park, and in the early 1970s environmentalists were alarmed at the large trees that were falling because of the undermining erosion. The 1978 expansion (about 48,000 acres) increased the amount of federal/national park land along the Redwood Creek corridor, protecting more lands near the creek and its tributaries from logging, and included more land upslope within the national park so that it also would be protected from logging. The additional lands in this expansion area were logged (cutover) lands that will require extensive and expensive rehabilitation, a situation that was uncommon for national park system lands.

The initial watershed restoration (rehabilitation) program in the 1980s in the national park focused on erosion control efforts through road removal and removing fill from streams, and 190 miles of roads have been removed with these techniques. Over time, assessment of the restoration methods has resulted in improved treatments. The emphasis is now on watershed restoration rather than just road removal. The restoration goal is to restore watersheds to conditions that would have existed before logging occurred. For more information please see the discussion of erosion in the "Natural Resources" chapter of the "Affected Environment" in the *Final General Management Plan / General Plan / Environmental Impact Statement / Environmental Report.*

How Does Logging outside the Parks Affect Trees inside the Parks, Miles Away?

Erosion, a natural process, is yielding unnatural amounts of sediment into streams. Roads built to transport harvested trees are prone to erosion. There is some evidence that the brush cover and canopy of trees removed by logging no longer function to protect soils from erosion, although this source of sediment has decreased within the parks as vegetation has regrown. Through time, the sediment eroding from the slopes and roads washes into creeks and tributaries and moves downstream. Sediment fills the stream channels and they become shallower and wider. Trees that were growing near or on the banks — streamside environments are the places redwoods prefer and where they grow the best and the tallest — are now closer to the banks or even in the water. The soil around and under the relatively shallow redwood roots erodes, especially during floods. The wind can more easily topple the trees when soils are eroded from around the roots.

Tree roots must have ample oxygen for survival. The deposition of coarse sediment originating upstream results in moisture draining away from the roots, robbing them of oxygen held in the water. Streamside redwood and Douglas-fir cannot survive.

Past Logging in Old Growth

Old-growth redwood is significantly larger and heavier than other commercial timber species, and it requires bigger yarding (moving of trees from the point of felling to a landing where felled trees are concentrated before loading on trucks for transport to market) and hauling equipment. The result is large-scale land disturbance. At the time when much of what is now the national park was harvested, old-growth timber was still abundant, and much of the lower quality or less marketable wood was left where it fell, used to cushion the fall of other redwoods or to construct stream crossings in place of culverts. Some of these practices are not allowed under the state's current *Forest Practice Rules.*

The logging haul roads in the parks are 30–50 feet wide, closely spaced cut-and-fill roads; many are well armored with gravel or crushed rock. They were commonly used by "off highway" trucks, which carried much larger loads than those allowed on public roads. To minimize yarding distances, large landings (50–100 feet wide and long) that were used to stockpile and load logs onto trucks were frequently spaced along the haul roads. Many of the drainage structures installed along these old haul roads would not be allowed today. Most of the larger streams had culverts, but often there were logs, other woody debris, and fill placed in the channel beneath the culvert to reduce the length of culvert needed. Many culverts are undersized for a 50-year-return-interval storm. Where streams needed to be crossed, typically logs and other woody debris were placed in the channel, and then soil was pushed in on top, creating a Humboldt crossing. Some stream crossings had no drainage structures at all.

In tractor yarded areas, bulldozers were used to pull the logs of the individual trees to the landings on the haul roads; the routes they carved by cutting and filling are known as skid roads. Where a route was used repeatedly, or even just once with several old-growth logs dragging behind the bulldozer, the skid roads could become as wide as the smaller haul roads.

Layouts (beds onto which trees are felled) are unique to old-growth redwood logging. Old-growth redwood trees are very brittle and, to minimize breakage during falling, layouts are constructed for as many trees as possible. Before powerful bulldozers were developed in the late 1940s, or in cable-yarded areas, these beds were made of other less valuable trees. During the period when most of the parklands were logged, tractor yarding predominated and, in those areas, bulldozers were used to create the layouts. They were cut into the hillslopes, like a road, in whatever direction was most favorable for felling the tree. They are typically the width of a large bulldozer's blade (~15 feet) and the length of the tree's height (200 to 350+ feet), and they have a straight, even grade.

Where convenient, layouts might be later used as roads, and roads were sometimes made into layouts, only to be used as a skid road again. It is often difficult to distinguish between layouts and skid roads or between haul and skid roads. There are no consistent distinctions between the various uses of the roads/hillslope cuts that can be made simply in terms of their width. However, they all disrupt the natural drainage network.

As a consequence of the immense size and weight of the redwood timber and the equipment used to remove it, there has been a large amount of ground disturbance on the parks' logged lands, especially in those areas that were tractor-yarded. Ground disturbance to the hillslopes from cable yarding is significantly less because bulldozers were not used to cut layouts and skid roads and drag out the logs. Instead, a cable system was set up at the landings, the fall of the tree was cushioned by other trees or uphill falling, and then the logs were dragged to the landings using the cables. Because most of the parks' logged lands were tractor-yarded clear-cuts, the degree of disturbance is much greater than would be found in cable-yarded areas.

UPPER BASIN

LOWER BASIN

299

299

Park Protection Zone

Road Network

Redwood Creek

BOUNDARIES

Legislated Redwood National Park Boundary

Redwood Creek Basin Boundary

Boundary of National Park Land Acquired after Legislated Expansion of 1978

Prairie Creek Redwood State Park

To Klamath

Newton B. Drury Scenic Pkwy.

101 Bypass

Redwood Creek

Orick

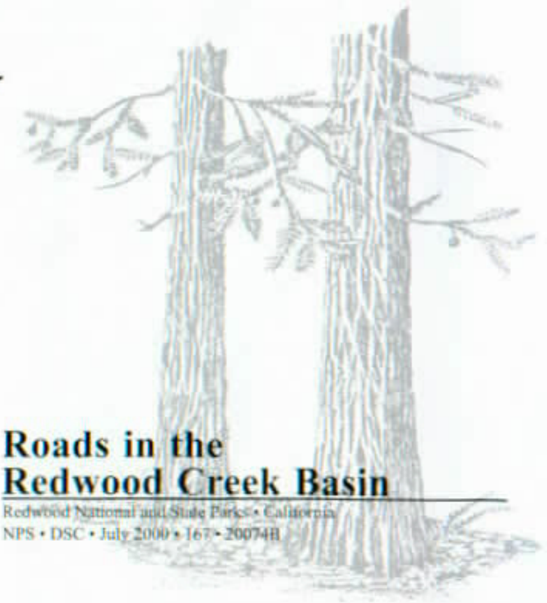
101

To Eureka

Pacific Ocean

North

0 1 2 3 4 Miles



Roads in the Redwood Creek Basin

Redwood National and State Parks • California

NPS • DSC • July 2000 • 167 • 20074B

THE PARK PROTECTION ZONE

A separate park protection zone (PPZ), a zone of about 33,000 acres of private land immediately upstream and upslope from the national park boundary, was also established as part of the 1978 expansion of the park (PL 95-250). RNSP staff has more review authority over plans for timber harvest in the park protection zone than in areas upstream from this zone. For example, the California Department of Forestry has always allowed RNSP staff to participate in preharvest inspections on PPZ lands. However, on private lands further upstream, the California Department of Forestry allows the landowner(s) to determine whether RNSP staff participate in these inspections.

A DEFINITION OF TERMS

A glossary of terms that are used in this document can be found just before the "Selected References" section at the end of this document. However, it may be helpful here to provide an understanding of the use of "sensitive resources" and "sensitive areas" in this document.

"Sensitive Resources" or "Sensitive Areas"

The terms sensitive resources and sensitive areas are used throughout this document. Sensitive resources are resources that are specifically protected by law, regulation, guideline, policy, or executive order; or resources that are easily damaged by use; or resources that are rare or unique in the parks and the region. The most common examples of sensitive resources or sensitive areas in the parks are the old-growth redwoods, the wetlands, the prairies, threatened and endangered species and their habitat, and cultural resources including archeological sites, ethnographic sites, and sites that are of importance to American Indians. Rather than repeat this list, these resources are referred to as sensitive resources or sensitive areas throughout the document.

Traditional Yurok dwelling made from split redwood logs. NPS photo.

THE PLAN

CONCEPT

Under the approved plan, the agencies will emphasize the protection of the parks' resources and values and will also provide a variety of opportunities for visitors to enjoy the parks' natural and cultural resources. In-depth interpretation will be provided both in facilities and onsite. Orientation will help visitors easily access both facility-based and resource-based interpretation and visitor opportunities. Major developments will be focused along U.S. Highways 101 and 199. However, new uses and facilities to enhance visitor experiences in sensitive resource areas of the parks will be required to be low impact. New visitor services and facilities in other areas of the parks will be provided to enhance visitor experiences if the services and facilities do not impact sensitive resources.

See appendixes A and B for costs for implementing the plan. Also, the General Plan map, at the end of this description of the plan, provides a visual summary of the major plan actions according to geographic locations.

MANAGEMENT ZONES

Management zones provide future guidance in managing areas of the parks for which there currently are no issues or action statements.

The parks are a mosaic of resources that are influenced by a variety of factors, including natural forces, how and when visitors use these resources, and how easily the resources can be changed by management activities and visitor use. Management zoning is a tool that is used to identify how different pieces of the mosaic will be managed to achieve the overall goal of the plan and the desired conditions in each zone. A particular combination of physical, biological, social, and management conditions is specified for each management zone. To achieve these conditions, different types and levels of use, management, and facilities are allowed in each management zone.

Nine zones are described (see appendix E) that apply to the approved plan. Five zones cover most of the parks — the development zone, the frontcountry zone, the two backcountry zones, and the primitive zone. The separate Bald Hills zone allows management of the complex interplay between the natural and cultural history of this area. A cultural resource zone, a transportation zone with two subzones, and a marine management zone cover the remaining portions of the parks.

Activities and facilities allowed in more restrictive zones, such as the primitive or backcountry zones, will also be allowed in less restrictive zones, such as the frontcountry or developed zones, but not vice versa. Not all activities or facilities allowed in a zone will be expected in all portions of a zone. For example, utility corridors are allowed in developed, frontcountry, and transportation zones, but not all of these zones contain utility corridors.

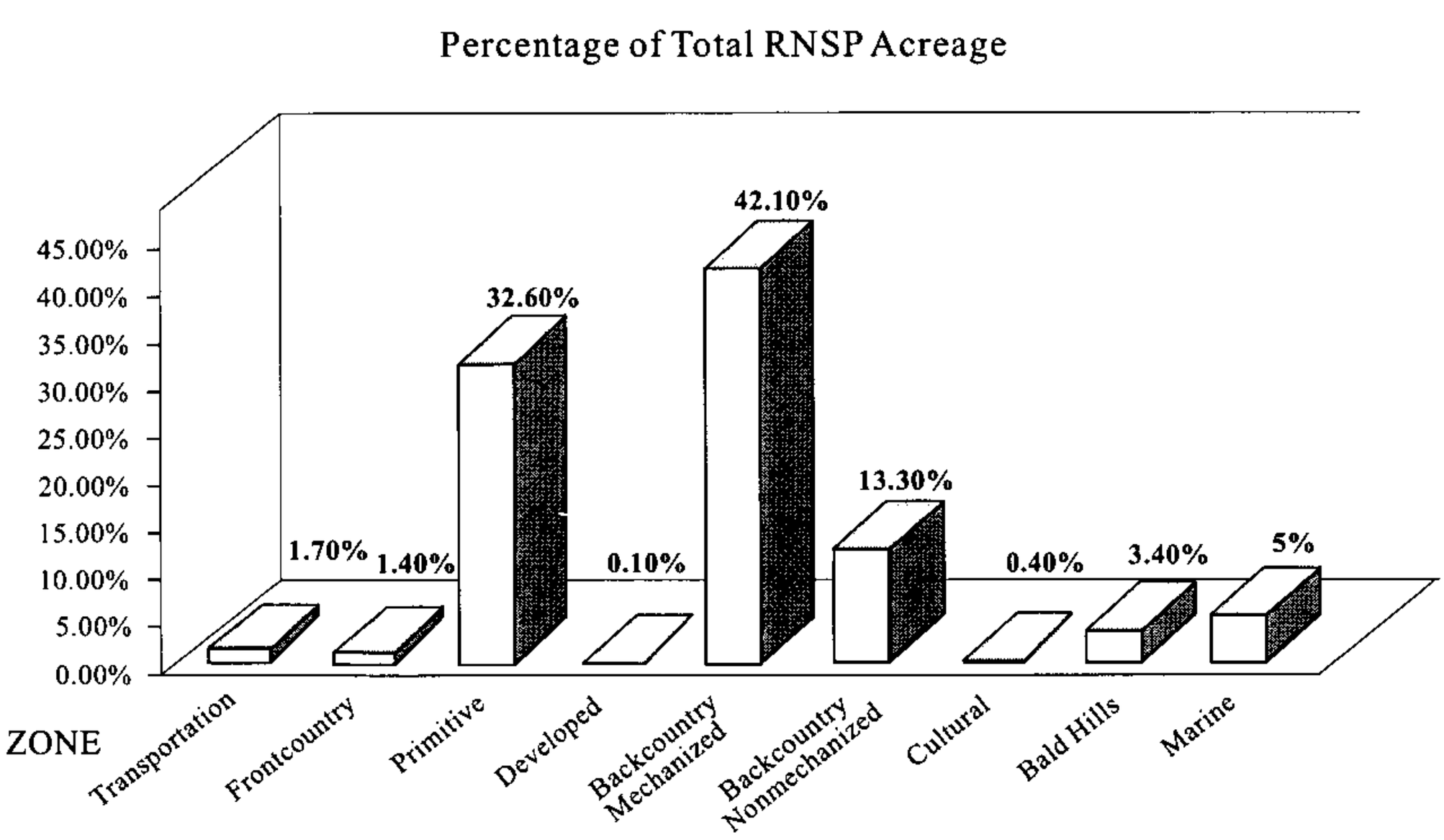
Visitors in areas near the edges of the more restrictive backcountry and primitive zones that are near higher use zones will have fewer opportunities for solitude. For example, the interior of the backcountry zone and the portion of the backcountry zone that borders a primitive zone will be expected to provide greater opportunities for solitude than the edge of the backcountry zone adjacent to a frontcountry zone.

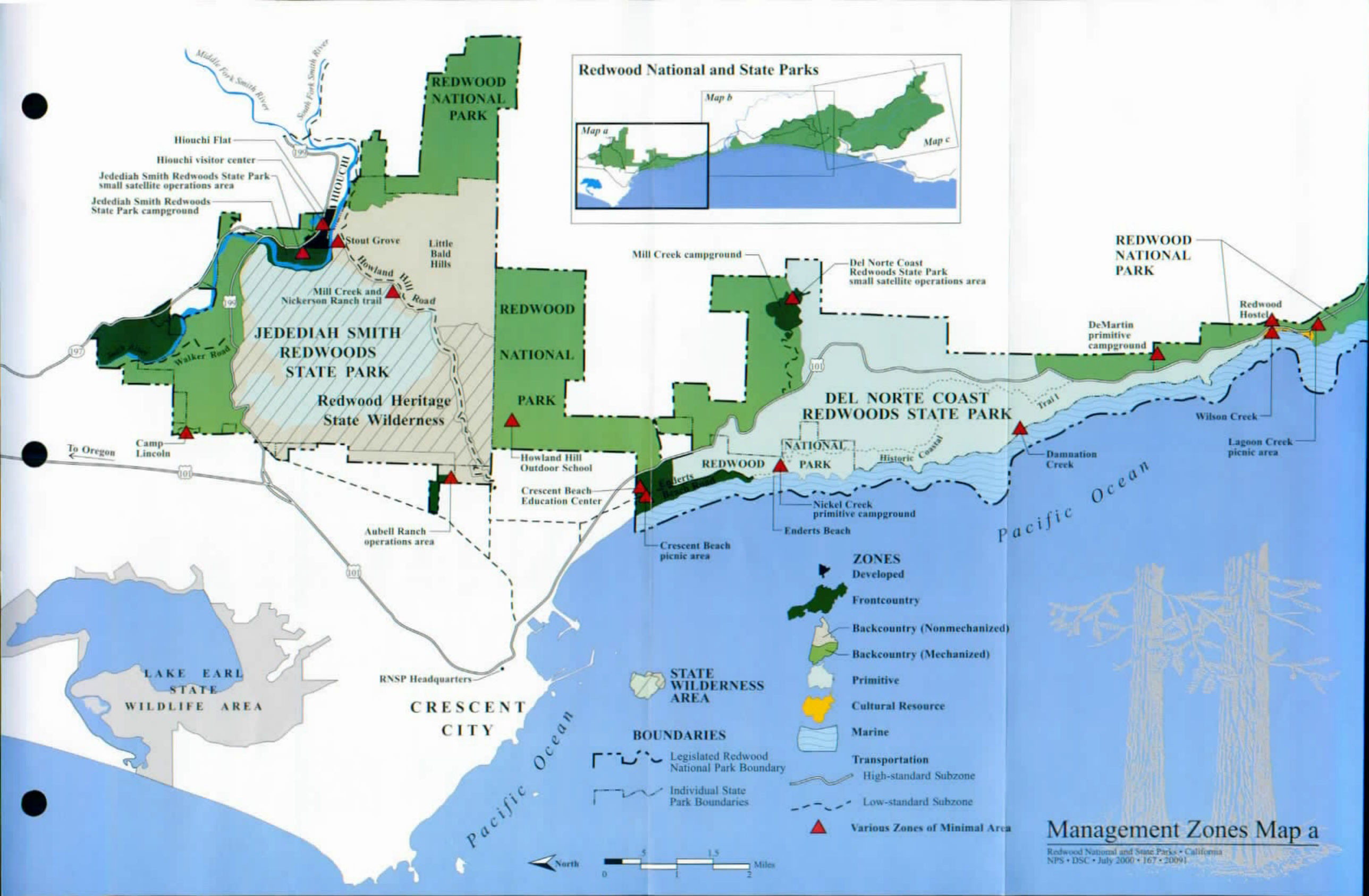
Areas zoned backcountry nonmechanized and primitive within the three state redwoods parks that are of sufficient size have been approved by the California State Park and Recreation Commission for classification as state wilderness in accordance with the state's *Public Resources Code*.

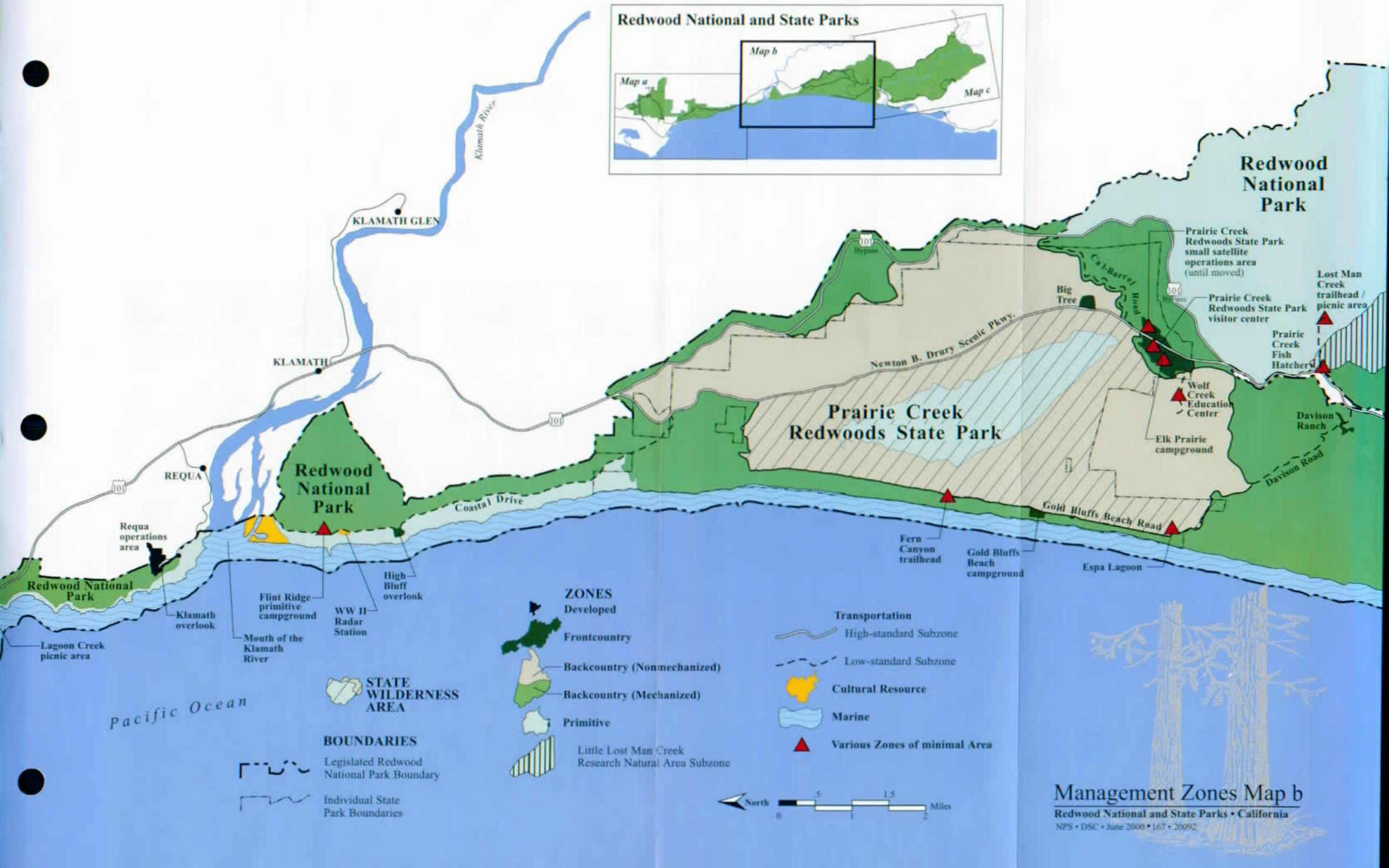
Reflecting the plan's goal of similar emphasis on both resource protection and visitor use, acreages of the developed, frontcountry, backcountry, and primitive zones in table 1 show the percentage of the parks within each management zone. About 13.6 miles of trails in the primitive zone will remain and will be maintained (and if seriously damaged, sections will be rerouted), and existing uses of those trails will continue unless shown to adversely affect resources, create significant public use conflicts, or endanger public safety. No new trails will be constructed in the primitive zone, including the 28 miles of trails that have been proposed in previous planning documents.

Zoning maps a, b, and c show the location, size and shape of management zones as they overlay on the parks. The boundaries on these zoning maps are approximate.

TABLE 1: MANAGEMENT ZONES — PERCENTAGES OF THE PARKS




Redwood National and State Parks
Map a
Map b
Map c
Middle Fork Smith River
South Fork Smith River
Hiouchi Flat
Hiouchi visitor center
Jedediah Smith Redwoods State Park small satellite operations area
Jedediah Smith Redwoods State Park campground
HIOUCHI
199
REDWOOD NATIONAL PARK
Stout Grove
Little Bald Hills
Howland Hill Road
Mill Creek and Nickerson Ranch trail
JEDEDIAH SMITH REDWOODS STATE PARK
Redwood Heritage State Wilderness
Walker Road
197
Camp Lincoln
To Oregon
101
Howland Hill Outdoor School
Crescent Beach Education Center
Aubell Ranch operations area
RNSP Headquarters
CRESCENT CITY
LAKE EARL STATE WILDLIFE AREA
Pacific Ocean
Mill Creek campground
Del Norte Coast Redwoods State Park small satellite operations area
DEL NORTE COAST REDWOODS STATE PARK
NATIONAL REDWOOD PARK
Historic Coastal Trail
Enderts Beach Road
Crescent Beach picnic area
Nickel Creek primitive campground
Enderts Beach
REDWOOD NATIONAL PARK
Redwood Hostel
DeMartin primitive campground
Wilson Creek
Lagoon Creek picnic area
Damnation Creek
Pacific Ocean
ZONES
Developed
Frontcountry
Backcountry (Nonmechanized)
Backcountry (Mechanized)
Primitive
Cultural Resource
Marine
Transportation
High-standard Subzone
Low-standard Subzone
Various Zones of Minimal Area
STATE WILDERNESS AREA
BOUNDARIES
Legislated Redwood National Park Boundary
Individual State Park Boundaries
North
0
1
2
Miles
Management Zones Map a
Redwood National and State Parks • California
NPS • DSC • July 2000 • 167 • 20091



Management Zones Map b

Redwood National and State Parks • California

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ZONES

- Frontcountry
- Backcountry (Mechanized)
- Bald Hills
- Marine
- Primitive
- Little Lost Man Creek Research Natural Area Subzone
- **Transportation**
  - High-standard Subzone
  - Low-standard Subzone
- Cultural Resource
- Various Zones of Minimal Area

Redwood National and State Parks

Coyote Creek primitive campground

Schoolhouse Peak

Lyons Ranch trailhead

Dolason Prairie trailhead

Bald Hills Road

Redwood Creek overlook

Tall Trees Grove parking

Prairie Creek Fish Hatchery

Lost Man Creek trailhead / picnic area

Tall Trees Access Road

Gans Prairie

Whiskey 40

Redwood Creek

Tall Trees Grove trailhead

Tall Trees Grove trail

Tall Trees Grove

Lady Bird Johnson Grove

Redwood Creek trailhead

Davison Ranch

Davison Road

101

REDWOOD NATIONAL PARK

ORICK

Radio repeater

South Operations Center (until moved)

West Side Access Road

Redwood Creek Estuary

Redwood Information Center

Freshwater Lagoon Spit

To Eureka

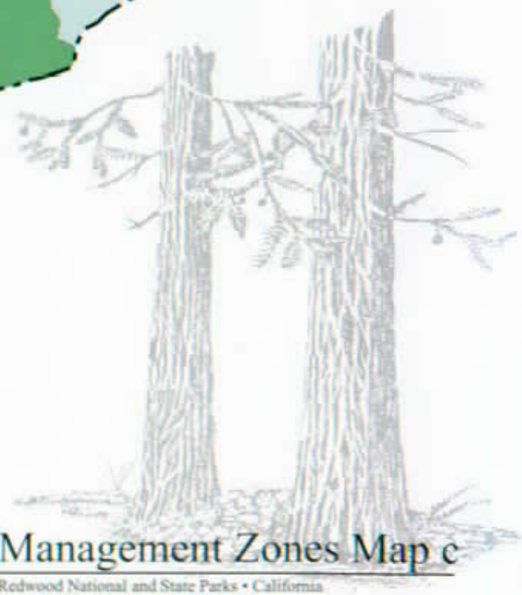
Pacific Ocean

North

0 .5 1 1.5 2 Miles

BOUNDARIES

- Legislated Redwood National Park Boundary
- Boundary of National Park Land Acquired after Legislated Expansion of 1978



Management Zones Map c

Redwood National and State Parks • California
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VARIOUS ZONES OF MINIMAL AREA

Some relatively small areas of the parks (shown as triangles on the previous management zone maps) have been zoned differently than their surrounding areas. To clearly identify these areas and make it easy to know what zone these small areas are in, the following list has been developed.

AREA	ZONE
Hiouchi visitor center	Developed
Jedediah Smith small satellite operations area	Developed
Stout Grove	Frontcountry
Mill Creek trail and Nickerson Ranch trail	Backcountry mechanized
Boy Scout Tree trail	Backcountry nonmechanized
Camp Lincoln	Frontcountry
Aubell Ranch	Developed
Howland Hill Outdoor School	Developed
Crescent Beach Education Center	Developed
Nickel Creek primitive campground and historic Coastal Trail	Backcountry mechanized
Del Norte Coast Redwoods State Park small satellite operations area	Developed
Damnation Creek	Cultural
DeMartin primitive campground	Backcountry mechanized
Redwood Hostel	Developed
Wilson Creek	Frontcountry
Lagoon Creek picnic area	Frontcountry
Flint Ridge primitive campground	Backcountry mechanized
Fern Canyon trailhead	Frontcountry
Espa Lagoon	Developed
Prairie Creek Redwoods State Park visitor center	Developed
Prairie Creek small satellite operations area (until moved)	Developed
Elk Prairie campground	Frontcountry
Wolf Creek Education Center	Developed
Prairie Creek Fish Hatchery	Cultural
Lost Man Creek trailhead/picnic area	Frontcountry
Lost Man Creek/Holter Ridge bike trail	Backcountry mechanized
Redwood Creek trailhead	Frontcountry
South Operations Center	Developed
Redwood Information Center	Developed
Redwood Creek overlook	Frontcountry
Gans Prairie	Cultural
Dolason trailhead	Frontcountry
Tall Trees Grove parking	Frontcountry
Tall Trees Grove trailhead	Frontcountry
Radio repeater	Developed
Lyons Ranch trailhead	Frontcountry
Schoolhouse Peak	Developed

NATURAL RESOURCE MANAGEMENT AND PROTECTION

Management Strategies

- Ensure that all resource management efforts are consistent with and supportive of the perpetuation of the redwood forest ecosystem as the prime resource of the parks.
- Restore and maintain the RNSP ecosystems as they would have evolved without human influences since 1850 and perpetuate ongoing natural processes.
- Actively participate in land use decisions for activities such as logging, mining, and the development of highways and subdivisions adjacent to the parks to minimize impacts on RNSP resources and values.
- Cooperate with the timber industry, private landowners, and other government agencies to accomplish long-range resource management planning and reduce threats to the RNSP resources.
- Acquire and analyze baseline inventory data to determine the nature and status of the natural resources under RNSP stewardship.
- Monitor selected resources and environmental factors to detect change and to distinguish natural variation from local and bioregional human-induced resource threats.
- Aggressively pursue strategies to prevent theft and commercial exploitation of RNSP resources.

Issues and Actions

Watershed Management and Restoration in the Redwood Creek Basin, in and upstream of the Park

Issues within the National Park. Erosion and sedimentation threaten the aquatic and riparian resources of certain streams within the parks, primarily Redwood Creek and its tributaries. Recent major storms and the resulting severe erosion and damage to the parks' resources have underscored the need to accelerate significantly the current rate of watershed restoration efforts within and upstream of the parks to prevent catastrophic resource degradation within the parks. Features of the landscape in the Redwood Creek basin that are most susceptible to erosion are a result of intense land use that preceded establishment and expansion of the national park and promulgation of California's *Forest Practice Rules*. Naturally high erosion rates were greatly accelerated by the combination of timber harvest, logging, road construction, and major storms.

Since 1978, erosion control efforts within the parks have focused on the removal of former logging roads because poorly located and designed roads are major contributors of sediment to downstream and downslope resources. Within the Redwood Creek basin alone, there were approximately 415 miles of former logging roads included within the national park boundary, and currently there are an estimated 1,110 miles of logging roads upstream of the national park. In 1978 it was anticipated that watershed restoration efforts within the national park would be completed by 1993. However, due to a shortage of resources, only 190 miles of roads have been removed to date, and the current rate of road removal averages about 2.5 miles per year. Of the remaining 225 miles of road, 155 miles are targeted for removal; decisions on removing the final 70 miles are pending evaluation of administrative needs for those roads weighed against their erosion potential and long-term maintenance costs.

Issues upstream of the National Park. About 85% of the 1,110 miles of logging roads located in the Redwood Creek basin upstream of the national park were constructed before the 1983 amendments to the state *Forest Practice Rules* were in effect, and more than 50% of these roads are currently not maintained. Of the total estimated erosion potential from all roads within the Redwood Creek basin (5,185,000 cubic yards of sediment), 85% is associated with roads upstream of the national park on private timberlands. These poorly constructed and maintained roads represent a major threat to resources along the main stem of Redwood Creek in the national park. To date, RNSP staff working with private landowners and staff from the Bureau of Land Management have treated about 24 miles of

logging roads upstream of the national park to eliminate erosion potential. The ability of RNSP staff to participate in further cooperative erosion control efforts is limited by the lack of resources.

Introduction to Actions — Restoring Disturbed Lands. The plan presents two approaches for treating abandoned logging and ranch roads — the **landform restoration approach** and the **road decommissioning approach** (see glossary and table 2). In Redwood National and State Parks, most of the abandoned logging and ranch roads are within the Redwood Creek basin. However, more roads needing treatment are outside of park boundaries — 1,110 miles of roads upstream of park boundaries compared to 155 miles slated for treatment within the park. There are two types of landform restoration — partial and complete. **Partial landform restoration** is the complete removal of all major logging roads and limited removal of minor logging roads (skid roads) that are the biggest threat to the parks' resources. Some minor roads remain after partial landform restoration. **Complete landform restoration** includes the complete removal of all major and minor logging roads. A road or portion of a road must be completely removed to reshape the landform to its original configuration.

The road decommissioning approach focuses on reducing the potential for erosion at stream crossings and unstable road segments. In contrast, the landform restoration approach focuses on the obliteration of roads and reshaping them to the prelogging configuration of the landscape. Some roads that do not pose serious threats to RNSP resources may be decommissioned under the landform restoration approach.

Common to both approaches are constructing rolling dips at stream crossings and minimal road maintenance until the roads are treated through the restoration program. Erosion prevention techniques that would be considered would include constructing rolling dips at stream crossings, replacing deteriorating or undersized culverts, and reconstructing unstable road fills. As much as possible, road maintenance and watershed restoration activities will be done before the rainy season or when areas have dried out.

Efforts to reduce erosion potential at stream crossings on national park lands are plan goals. The construction of rolling dips or drains at stream crossings will eliminate excess water from flowing down the road surfaces or inside drainage ditches and causing accelerated erosion, gullying, landslides, or road fill failure. These erosion control sites will be monitored and maintained, the road will remain drivable, and the treatment will not preclude more intensive restoration treatments in the future.

Restoring Disturbed Lands outside the Redwood Creek Basin

Throughout this document, the calculations, numbers, and miles of roads used in describing the watershed restoration program apply only to the Redwood Creek basin, the lower part of which is within the national park and the upper part of which is upstream (south) of the national park boundary. Because the most direct and extensive damage to what is now RNSP land occurred in the Redwood Creek basin, the inventory of needed restoration work has been done almost solely for this area.

Although the most substantial damage to RNSP resources from logging occurred in the Redwood Creek watershed, this is not the only watershed in or just outside the RNSP boundary that needs restoring or other treatment. For example, the Mill Creek basin in Jedediah Smith Redwoods State Park, the upper west branch of Mill Creek in Del Norte Coast Redwoods State Park, and those portions of the Prairie Creek watershed containing the headwaters of the east side tributaries in Prairie Creek Redwoods State Park have been impacted by past logging activities. These areas have not yet been inventoried to assess needed restoration.

Although the emphasis will continue to be on the Redwood Creek basin, RNSP staff will monitor the effects of activities in these other areas/watersheds, and RNSP watershed restoration staff will take appropriate steps if significant threats to resources are anticipated.

TABLE 2: COMPARISON OF METHODS OF TREATMENT FOR ABANDONED LOGGING ROADS

Method of *Treatment**	Road Decommissioning (primarily in the Redwood Creek Basin upstream of the National Park)	Landform Restoration (primarily in the Redwood Creek Basin within the National Park)
Summary	Reduces erosion potential at stream crossings, unstable road segments, and along steep, unstable hillslopes. Restores primary hydrologic patterns.	Reduces erosion potential at stream crossings and along all intervening road segments. Restores prelogging landforms and hydrologic patterns by reconstructing natural topography.
Treatments	Remove culverts, uncover buried stream channels, decompact road surfaces, and excavate only the unstable road fill. Configure the treated slopes for long-term drainage.	Remove culverts, uncover buried stream channels, pull back all road fill, and decompact road surfaces. Restore the shape of the original slope and original drainage patterns. Spread the original topsoil, forest duff, and organic matter on the finished surfaces.
Duration of Program	Will require less time for treatment of each road segment compared to landform restoration.	Will require more time for treatment of each road segment compared to road decommissioning.
Miles of Logging Roads to be Treated	911 miles upstream of the parks	155 miles in the parks
Benefits to Resources	More quickly protects a greater amount of aquatic habitat against immediate erosional threats. Can provide better overall protection in the event of a large storm occurring relatively soon. Minimizes new impacts on forest vegetation. Short-term protection is provided by erosion prevention including rolling dips.	Provides better long-term protection to a shorter length of aquatic habitat within a given period of time. More long-term stability with fewer failures after end of program. Faster reestablishment of soil and vegetation. Short-term protection provided by erosion prevention including rolling dips.
Threats to Resources during and after Treatments	Hillslope failures can occur after completion of the program, especially along road segments that were not fully restored. Failures before and after program completion could damage downslope and downstream resources.	Due to the slower treatment rate, more road mileage will be left untreated for a longer time and vulnerable to catastrophic erosion during a large storm. Failures from untreated roads, before completion of program, could damage downslope and downstream resources.
Cost per Mile Comparisons	Less than landform restoration.	More than road decommissioning.

* Methods vary by 25% to 40% per site in terms of cost and time required. Increased funding will speed the progress of either method of treatment and allow the RNSP staff to remove abandoned roads more quickly and completely.

PAST WATERSHED RESTORATION PROJECT SITES

BEFORE
Ah Pah Road
Before restoration — road crosses a stream channel.

DURING
Ah Pah Road
During restoration — excavation of road fill down to original stream channel.

AFTER
Ah Pah Road
After restoration — one year after reconfiguration, stream channel appearance is similar to what would occur with natural processes.

EXAMPLES OF ROAD FAILURES AND PROBLEMS

West Side Access Road
January 1997, the capacity of the drainage ditch on the side of the road next to the hillslope (the inboard ditch) was exceeded, resulting in flooding across the road and causing erosion of the outer edge of the road.

January 1997, road erosion caused by culvert failure from age-related problems.

M-8/M-Line Junction
Landslide January 1997, lower view of slide into Redwood Creek.

M-8/M-Line Junction
Landslide January 1997,
top view of slide above Redwood Creek.

Actions within (specific to) the National Park. Watershed restoration efforts will be increased so that an average of 9.5 miles of roads will be treated per year within the park. Partial landform restoration will be emphasized, with complete removal of all major logging roads and limited removal of minor logging roads that pose the greatest threat to the park's resources.

Landform restoration will be most comprehensive near high visitor use areas. In these areas, major roads and minor roads will be removed, restoring the natural shapes of hillslopes. Rolling dips will be constructed on all remaining roads as necessary to address short-term erosion hazards on roads until they are removed. This approach will require about 17 years to treat 155 miles of road. Accomplishing this will require a significant increase in funding, estimated to be about $640,000 annually for watershed restoration contracts.

At the discretion of RNSP managers and in consideration of available resources, the level of erosion control and restoration work within the national park might vary from the preferred technique of partial landform restoration to road decommissioning and erosion prevention. However, the preferred technique(s) will be implemented whenever possible given adequate fiscal and personnel resources. Similarly emphasis for specific projects might be directed at any time from erosion control work within the national park to erosion control or related efforts in the upper basin.

In the absence of increased funding, managers will retain and exercise the flexibility necessary to achieve the highest priority projects. A future erosion control and disturbed lands restoration plan will explore more detailed site-specific implementation priorities for watershed restoration activities.

Actions upstream of the National Park. The National Park Service will work cooperatively with upstream landowners and other agencies to address conditions that contribute to erosion potential. These cooperative activities may include, but will not be limited to, review of proposed timber harvest plans and activities; erosion prevention and road removal in cooperation with landowners; improvements in the location, design, and maintenance of active roads; and database development for cooperative basinwide resource management. Depending on opportunities offered by property owners and the availability of resources, up to 40 miles of roads will be treated per year upstream of the national park in the Redwood Creek basin. Road decommissioning (see table 2 and glossary) and erosion prevention will be emphasized. Erosion prevention techniques that would be considered would include constructing rolling dips at stream crossings, replacing deteriorating or undersized culverts, and reconstructing unstable road fills. Some road segments in the upper basin will be decommissioned, when agreed upon by the landowners. This work in the upper basin will protect downstream alluvial redwood groves and aquatic habitat in the main stem of Redwood Creek, including the reach within the national park. Assuming that approximately 85% of the 1,100 miles of roads in the upper Redwood Creek basin require treatment, and that 24 miles have been treated by 1998, this approach will require 17 years to treat the existing 911 miles of logging roads. Accomplishing this will also require a significant increase in funding, estimated to be about $536,000 annually for watershed restoration contracts in the upper Redwood Creek basin.

As directed by the 1978 legislation, RNSP staff will continue to monitor and study "erosion and sedimentation originating within the hydrographic basin of Redwood Creek with particular effort to identify sources and causes including differentiation between natural and man-aggravated conditions" (PL 95-250).

Watershed Management and Restoration in Redwood Creek Estuary

Issues. The Redwood Creek federal flood control project levees, which extend for 3.4 miles from just upstream from the town of Orick westward to about 1,000 feet from the Pacific Ocean, have altered the physical and biological functioning of

the Redwood Creek estuary. This has resulted in major adverse impacts such as decreased water circulation in the estuary and sloughs, fewer deepwater pools, decreased extent of wetlands and riparian habitat, deteriorated water quality, degraded juvenile rearing and adult holding habitat for fish, and reduced wildlife and invertebrate abundance and diversity in the lower Redwood Creek valley and estuary. The natural functioning of the Redwood Creek estuary is critical to the survival of anadromous fish such as salmon and steelhead.

The north and south slough channels to the embayment have become filled with sediment, and the sloughs are now isolated from the embayment except where the mouth closes and the water level rises and during extreme high tides. This has resulted in decreased dissolved oxygen and increased algal blooms and aquatic vegetation in the sloughs. Repeated uncontrolled artificial breaching of the natural sandbar to protect private and public property has adversely affected the biological and physical functioning of the estuary.

A way to ensure the natural ecological functioning of the Redwood Creek estuary needs to be determined. Because of the complex nature of the problem, it will require a collaborative effort among the National Park Service, other federal, state, and local agencies, conservation organizations, and affected landowners to address it.

Actions. The National Park Service will play a leadership role in organizing a multijurisdictional, multidisciplined approach to addressing the restoration of the estuary while seeking to retain the current land uses in the lower Redwood Creek valley. Efforts will involve private landowners, the Fish and Wildlife Service, the National Marine Fisheries Service, the California Department of Fish and Game, the Army Corps of Engineers, Humboldt County, the citizens of Orick, the Yurok Tribe, and other interested parties to develop a plan for restoring the estuary and associated fish and wildlife values. Strategies involving a combination of land acquisition, conservation easements, partial levee removal, and restructuring affected roads and drainage structures will be considered for restoring the estuary (see table 24 and the Expanded Floodplain/Levee Removal map in the *Final General Management Plan / General Plan / Environmental Impact Statement / Environmental Report*). The acquisition of land will be limited to willing sellers. A recommendation will be made as to how much of the federal flood control levees west of Orick will need to be removed to restore the estuary. Water level management (e.g., controlled breaching and channel manipulation) to conserve salmonid habitat by preventing the negative effects of an uncontrolled natural breach and to protect the Redwood Information Center will continue.

Wetlands

Areas in the parks that will be affected by soil or vegetation disturbance will be surveyed for the presence of wetlands as part of project planning. If areas are present that might be classified as wetlands under either the Army Corps of Engineers or NPS definitions, a more detailed wetland delineation (mapping) will be performed. The California Department of Parks and Recreation will use the broader NPS wetland definition and guidelines for protecting wetlands.

Wetlands that have been damaged or degraded by previous land use will be considered for restoration, either to mitigate adverse impacts or to meet the goals and intent of the NPS wetland protection guidelines. Original functions and values of each wetland will be restored to the greatest extent practicable.

Adverse impacts on wetlands from activities set forth in this plan will be avoided to the greatest extent possible. Any adverse impacts on wetlands for which mitigation is prescribed will be mitigated on at least a 1:1 ratio in the same drainage and as close as possible to the impacted area.

Threatened and Endangered Species

If any state or federally listed or proposed threatened or endangered species are found (see

appendix F), or if designated critical habitat exists in areas that will be affected by construction, visitor use, or restoration activities set forth in this plan, RNSP staff will first consult informally with the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and/or the California Department of Fish and Game. RNSP staff will attempt to avoid, minimize, rectify, reduce, compensate, or otherwise mitigate any potential adverse impacts on state or federally listed or proposed or candidate threatened or endangered species. Ongoing staff actions and RNSP operations will also be included in consultations. Should it be determined through informal consultation that an action or proposed project might adversely affect a listed or proposed species, RNSP staff will initiate formal consultation under section 7 of the Endangered Species Act or as required under the *California Fish and Game Code* and/or the California Endangered Species Act.

In 1999 a federally and state listed endangered plant was discovered at Freshwater Lagoon Spit. Staff botanists will continue to conduct surveys for this and other rare or sensitive species incidental to other projects. If sensitive plants are located, more intensive surveys of similar habitats will be conducted to determine the extent of rare plant populations in the project area. Management emphasis of sensitive plant species will be on the population level to ensure their survival within the parks. Should any sensitive plants be discovered in project areas, the plants will be protected from human-caused disturbance, and the project will be redesigned to avoid direct impacts on the plants and their specific habitat if possible.

Marine and Coastal Resources

RNSP managers will inventory marine plants and animals and tidepool and other intertidal communities and monitor their condition. If additional protection is necessary to preserve marine communities, RNSP staff will work with the California Department of Fish and Game to modify existing regulations that apply to offshore waters within RNSP boundaries and the overlapping area of special biological significance (see explanation in the "Water Resources/ Surface Water" section of the "Affected Environment" in the *Final General Management Plan / General Plan / Environmental Impact Statement / Environmental Report*

Federal and state legislation and regulations and also RNSP policies dictate complete protection of marine mammals and of seabirds and their nesting sites within the parks through cooperation with state and federal agencies. RNSP staff will cooperate with state and other agencies where marine interests might be related to RNSP lands and waters including reintroducing extirpated native species and protecting state and federally listed threatened or endangered species.

The National Park Service and the California Department of Parks and Recreation are concerned with the potential impact from offshore ship traffic. A major oil or hazardous material discharge from this activity poses a serious threat to RNSP resources. To ensure that marine and coastal resources are protected from this type of event, RNSP staff actively participated in the development of the *North Coast Area Contingency Plan* pursuant to the Oil Spill Act of 1990. The plan identifies sensitive coastal areas and habitats and delineates a protection and cleanup strategy should a major discharge of oil or a hazardous substance occur. RNSP staff will continue to participate on the North Coast Area Planning Committee to help ensure continued protection of resources from offshore shipping traffic.

Vegetation Management

Issues. Old-growth redwood forests are the primary resource and the purpose for establishment of these parks. The youngest second-growth forests are still recovering from timber harvest before the establishment of the parks. These forests are beginning to provide some watershed protection, but they still lack the old-growth qualities. Second-growth forests have been seeded with exotic tree species and are

regrowing in a manner in which they are not expected to achieve old-growth conditions or species composition for hundreds of years.

Managing second-growth forests, including restoring old-growth conditions in the shortest time period possible, reducing a potential fire hazard, and restoring habitat for threatened and endangered species and other wildlife could be achieved by using a variety of methods and techniques.

The prairies and oak woodlands exhibit both natural and cultural values. The current program of conifer removal and burning emphasizes restoring and preserving prairies and oak woodlands in the Bald Hills. The program needs to integrate other natural and cultural values into a more ambitious restoration approach that addresses historic natural and cultural processes and practices, and effects on wildlife, cultural landscapes, and traditional American Indian uses in prairies throughout the parks.

The extent to which fire will be managed both for safety and to ensure the perpetuation of RNSP ecosystems needs to be determined. A history of fire suppression, along with the development of effective fire suppression techniques, has interrupted the fire regimes that developed in the different RNSP vegetation types and ecosystems for many centuries. A better understanding of these fire regimes is needed to determine the extent to which fire should be restored in RNSP ecosystems and how this will be accomplished. Fire might also be needed as a tool to reduce fuels that have the potential to threaten developments, resources, or public safety.

Actions. Action items are as follows.

Second-Growth Forest Management — Silvicultural methods such as thinning, replanting, and burning will be used in second-growth forests to reduce the time in which the forests reattain characteristics and processes found in mature, naturally occurring forests. Managing those second-growth stands that are critical to ecosystem restoration will be emphasized. Managing second growth that will contribute to

visitor use and enjoyment of the parks will also be considered. A plan for managing second-growth forests will be prepared and accompanied by appropriate environmental compliance documents.

Prairie Restoration — After evaluation, selected naturally occurring prairies, as well as prairies and oak woodlands maintained by American Indians through burning, will be restored; they will be maintained by reestablishing a historic fire regime. Certain forest openings will be restored and/or maintained where appropriate for the resource values present (e.g., wildlife habitat, cultural landscapes, or aesthetics).

Fire Management — A fire management program will be established to support resource management strategies, including the restoration of fire in old-growth forests, prairies, oak woodlands, and coastal shrub communities as a natural process. The program will be based on sound

risk management, economic feasibility, the best science available, cooperation with other agencies and tribes, and consideration for public health and environmental quality. The program will allow for wildland fire suppression, prescribed fire, and, potentially, wildland fire use (allowing natural ignitions to achieve resource management strategies).

Techniques other than fire may also be used to reduce fuel hazards in second-growth and old-growth forests and around developments and structures to reduce the risks of damage from wildland fires. All prescribed fire and wildland fire use will be conducted under the approved *Fire Management Plan* (see appendix D) for the parks that will articulate management strategies and techniques and describe contingency plans should suppression action be needed. A wildland fire implementation plan that supplements the *Fire Management Plan* will be prepared as needed to identify specific actions and describe operational requirements for this type of fire.

Prescribed fire plans will be prepared for individual burns that will provide burn objectives, prescriptions, and contingency plans in case the prescription is exceeded or suppression action is needed. An interpretive program will be established to explain the benefits of the fire management program.

Artificial Impoundments

Issue. Under NPS and CDPR policies and directives, artificial impoundments should be removed from parks unless they are contributing elements to cultural landscapes. There are numerous artificial dams, ponds, and lagoons throughout the parks that have safety and resource management implications. Some artificial impoundments also have resource and recreational values.

Actions. Dams will be retained and maintained only where public safety or significant resources are at risk; otherwise, they will be removed. Recreational uses will continue until an impoundment was removed.

CULTURAL RESOURCE MANAGEMENT AND PROTECTION

Management Strategies

- Recognize the past and present existence of peoples in the region and the traces of their use as an important part of the environment to be preserved and interpreted.
- Expand the cultural resource program from one that is project and compliance based to one that includes comprehensive study.
- Integrate more closely the NPS and CDPR cultural resources management programs for the parks.
- Provide for more active integration of the cultural resources and interpretation functions. For example, explain the interplay through time between human activity and the environment and the effects of changes in technology on this interplay.
- Emphasize the development of publications for visitors that present the results of cultural resource studies.
- Actively pursue opportunities for the adaptive rehabilitation of the historic Prairie Creek Fish Hatchery.

Note: See also the following "Relationships with American Indians" section for additional related material.

The National Park Service, as caretaker of many of the nation's most significant cultural resources, is mandated by a variety of historic preservation laws, e.g., the National Historic Preservation Act (1966 and as amended, most recently, in 1992) and the Archeological Resources Protection Act (1979) to preserve, protect, and manage cultural resources under its jurisdiction for the enjoyment and enlightenment of present and future generations. According to the National Park Service's *Cultural Resource Management Guideline* (1997),

> [c]ultural resource management involves research — to identify, evaluate, document, register, and establish other basic information about cultural resources;

planning — to ensure that this information is well integrated into management processes for making decisions and setting priorities; and stewardship — under which planning decisions are carried out and resources are preserved, protected, and interpreted to the public.

Research

RNSP staff conducts research to support planning for and management of RNSP resources. Much research regarding these cultural resources has already been undertaken, including archeological surveys and excavations, historical studies, artifact analysis, and consultations with American Indians. To further the identification, evaluation, and documentation of cultural resources, the agencies propose to accomplish the following efforts.

- Continue to prepare archeological surveys and assessments of RNSP lands.
- Prepare cultural landscape inventories and/or cultural landscape reports for all landscapes potentially eligible for listing on the National Register of Historic Places.
- Initiate ethnographic overviews/traditional use studies of the parks.
- Prepare historic structure reports for buildings and structures, as necessary.
- Prepare an administrative history of Redwood National and State Parks.
- Continue to develop the parks' museum curatorial program.
- Maintain the List of Classified Structures, updating it to reflect changes in condition or management and to include new structures as they are placed on or become eligible for listing on the National Register of Historic Places.

Planning

General management planning for cultural resources is not only guided by research but also by the National Park Service's *Management Policies* (1988) and the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (1995). These policies and standards provide guidelines for preservation planning. The *Secretary's Standards* also provide guidelines for the treatment (preservation, rehabilitation, restoration, or reconstruction) of historic resources that are either listed on or eligible for listing on the National Register of Historic Places.

In addition, because political, social, and economic trends outside of a park's boundaries can profoundly affect managers' abilities to protect its cultural resources, RNSP staff seek to work with surrounding landowners and to actively participate in the planning processes of neighboring jurisdictions to help ensure that actions outside of the parks do not impair RNSP resources and values. Throughout the planning process, opportunities were also provided for other federal and state agencies, such as the U.S. Forest Service and the California Department of Parks and Recreation, Office of Historic Preservation, as well as American Indian tribes and the public at national, regional, and local levels, to voice their concerns about the management of the parks' cultural resources. Thus, this plan reflects an interdisciplinary effort that includes a cross section of national and state park personnel, including planners and resource specialists; representatives of state and local governments, agencies, and organizations; and other interested parties and members of the community-at-large.

In addition, further consultation with the California Department of Parks and Recreation, Office of Historic Preservation, the Yurok Heritage Preservation Officer, and the Advisory Council on Historic Preservation, as necessary, will be conducted for all actions described in the plan that might affect cultural resources, once plans for these actions become more specific (see appendix G).

Stewardship

Stewardship is the integration of research and planning to avoid or minimize adverse effects on cultural resources and to identify both the most appropriate uses of and treatment of cultural resources. The following is a list of strategies for managing the cultural resources of Redwood National and State Parks:

- Any action that affects cultural resources will be undertaken only if it is consistent with the parks' purposes and applicable NPS and CDPR policies, guidelines, and standards. Any preservation, rehabilitation, restoration, and reconstruction efforts, as well as the daily, cyclical, and seasonal maintenance of cultural resources, will be undertaken in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* and any applicable state regulations.
- The emphasis in actions involving both cultural and natural resources will be weighted toward the protection and preservation of the resource(s) that will be most easily damaged.
- The parks' archeological, historic, and ethnographic resources will continue to be identified, evaluated, and nominated, as appropriate, for listing on the National Register of Historic Places.
- Options for the parks' historic structures will include adaptive rehabilitation, the historic property leasing program, preservation, interpretation, and discovery sites. Nonhistoric noncontributing features will be removed from the parks' cultural landscapes.
- RNSP staff will continue to work in partnership with representatives of American Indian tribes and preservation interest groups to achieve an emphasis on the management of cultural resources similar to that for interpretation, education, and visitor use. Expertise available from sources outside the parks will be recruited on a cooperative, collaborative basis to expand RNSP staff capabilities and share information. In addition to the tribes, these sources could include professional and avocational organizations and societies, academic institutions, and qualified volunteers.
- The nature and extent of visitation and use will be managed in a manner that minimizes impacts on the parks' cultural resources.
- RNSP staff will work with neighboring landowners and jurisdictions to ensure that adjacent land management practices will not impair the parks' cultural resources, viewsheds, or distant vistas.
- RNSP staff will develop solutions to accessibility requirements that minimize impacts on cultural resources.

Issues and Actions

Historic Resources — Structures

Issues. Some of the parks' historic structures are inadequately preserved and protected. It is a challenge for RNSP staff to preserve and protect these historic resources while providing for their use and/or interpretation.

Actions. Historic structures will be stabilized, protected, and preserved as appropriate. Opportunities will be sought for adaptively rehabilitating the Prairie Creek Fish Hatchery, the complex of historic structures that is most suitable for the historic property leasing program. Options for the parks' other historic structures will include their preservation, maintenance, and active interpretation or use as discovery sites, with minimal or no onsite interpretation.

Historic Resources — Cultural Landscapes

Issues. The inventory, evaluation, and documentation of the parks' cultural landscapes are incomplete. The management of certain cultural landscapes, e.g., the Bald Hills, which encompasses the Lyons Ranches Rural Historic District

Demonstration of basket weaving using traditional materials. NPS photo.

and the Bald Hills Archeological District, is complex due primarily to the interrelationship between landform restoration, vegetation management programs, and the concerns of American Indians. In addition, the parks' cultural landscapes are not interpreted for and appreciated by visitors.

Actions. Seven cultural landscapes potentially eligible for listing on the National Register of Historic Places have been identified to date in Redwood National and State Parks, as follows:

Redwood National Park —

- Lyons Ranches Rural Historic District
- Bald Hills Archeological District
- the site of Radar Station B-71
- Prairie Creek Fish Hatchery

Jedediah Smith Redwoods State Park —

- Camp Lincoln
- Kelsey Trail

Prairie Creek Redwoods State Park —

- Prairie Creek Redwoods State Park headquarters complex

Cultural landscape inventories or cultural landscape reports will be prepared to document and evaluate the above landscapes, as well as to identify any other landscapes within the parks that will be eligible for listing on the national register. In addition, the inventories or reports will guide the preservation and management of the parks' cultural landscapes, and provide RNSP interpretive staff with the information necessary to interpret for visitors the effects over time of human actions upon the parks' natural landscapes. The cultural landscape inventories or reports will help RNSP managers decide whether or not to implement any of the actions in this plan that are in or near potential cultural landscapes.

Pending the completion of a cultural landscape report for the Bald Hills, this area will be managed in accordance with the NPS *Bald Hills Vegetation Management Plan* (1992), *Fire Management Plan* (1994), and the *Exotic Plant Management Plan* (1995a) (see appendix D); the monitoring of resource conditions in the Bald Hills area will continue. Watershed and prairie restoration activities in this area will be directed toward removing signs of recent human habitation and use, with the exception of those

Traditional Yurok dwelling made from split redwood logs. NPS photo.

resources that are either historically significant or required for RNSP operations.

A visitor use management plan will be developed for the Bald Hills. The primary emphasis of the plan will be to provide a quality visitor experience by interpreting the archeological sites, historic buildings and features, and associated landscapes and natural resources that collectively exhibit use by American Indians and Euro-Americans. The interpretive/educational component of the visitor use management plan, however, will achieve an emphasis on visitor use similar to that for the study, protection, and preservation of resources. Pedestrian access to selected sites will be encouraged, and some sites will be treated as discovery sites, with minimal or no onsite interpretation provided. The visitor use management plan will be periodically revised, as new information becomes available.

Many of the natural and cultural resources traditionally used by American Indians affiliated with the parks are contributing elements to the parks' historic and ethnographic cultural landscapes. The continued traditional use of these resources could be an integral component of the parks' management of these landscapes. In consultation with the local American Indian tribes, these traditional uses will be actively interpreted.

Ethnographic Resources

Issues. The lands comprising Redwood National and State Parks are part of the ancestral territories of the Tolowa, Yurok, and Chilula. The Chilula, who no longer exist as a group, became part of the Hupa Tribe, who are located immediately east of the parks. The parks contain numerous ethnographic resources, but few of these have been evaluated for listing on the National Register of Historic Places.

Actions. The historical presence of American Indians in the region will be recognized as an important cultural element of Redwood National and State Parks. Ethnographic resources will be protected from desecration and managed with an emphasis on research, inventory, evaluation, and preservation of both the resources and the practices traditionally associated with them. Opportunities for visitors to observe, experience, and learn about the traditional practices of

American Indians will be encouraged, to allow visitors to develop a greater appreciation for American Indian culture, although attention will not be drawn to the most sensitive of the parks' ethnographic resources. Many of the cultural resource studies completed for Redwood National and State Parks include ethnographic information, and ethnographic information is included in consultation records; a formal ethnographic overview and traditional use study of the parks will be completed. Recommendations concerning the national register eligibility of ethnographic resources will also be included. To make the ethnographic overview and traditional use study more useful to RNSP staff, it will also include contemporary use information. In addition, the overview will provide an inventory of ethnographic place names for use in naming developments in the parks and for describing study results (for example, soil names).

Redwood National and State Parks will develop a common understanding with the Yurok people regarding the preservation, management, interpretation, and use of the Brush Dance site. RNSP staff will facilitate the Yurok Tribe's long-term management and use of the site. Although the Brush Dance site is subject to erosion by the Klamath River during floods, no actions will be undertaken to protect the site from flooding.

Collections

Issue. Irreplaceable prehistoric and historic artifacts, natural history specimens, and archival materials, including NPS resource management *field records and data, are threatened with loss* because the parks lack specialized work/storage/study facilities critical to museum and archival resources preservation. Natural resource management data and specimens, collected since the establishment of Redwood National Park and only recently accessioned into the RNSP museum collection, require cataloging. Many RNSP resource-related collections, which have yet to be identified and properly researched, exist outside of the parks among nonprofit organizations or other government agencies.

Actions. Curatorial activities will be consolidated into an existing facility that provides adequate workspace, storage, and equipment for cultural and natural resource collections and archives. The location of the facility will be based on interpretive and research needs.

Collections will be aggressively developed. A survey of the external and internal collections associated with Redwood National and State Parks will be undertaken to develop a finding aid that lists the location and identity of park-related materials in outside collections.

A protocol for accessioning natural resource materials into the collection and an archival processing plan will be prepared to guide processing, maintenance, and access to archival materials in an orderly professional manner.

The parks' curatorial program will include the development of a process to provide access to museum collection research information related to RNSP ecosystems and natural and cultural resources, including computer-based access.

RELATIONSHIPS WITH AMERICAN INDIANS

Management Strategies

- Consult regularly and maintain government-to-government relations with American Indian tribes and groups who have traditional ties to resources within the parks to ensure productive, collaborative working relationships.
- Ensure the participation of American Indian tribes and groups in managing the parks' natural and cultural resources of interest and concern to them.
- Involve American Indian tribes and groups in the parks' interpretation program to promote the accuracy of information presented regarding American Indian cultural values and to enhance public appreciation of those values.
- Participate as partners with American Indian tribes and groups in planning and conducting projects and initiatives that have mutual benefit,

that enhance the quality of the experiences of visitors to the parks, or that enhance the levels of public appreciation of the parks' resources and values.

- Support sustainable economic development and the availability of appropriate visitor services in American Indian communities adjacent to the parks.
- Support the continuation of traditional American Indian activities on RNSP and aboriginal lands, to the extent allowed by applicable laws and regulations.
- Collaborate with the Yurok Tribe to resolve jurisdictional, resource management, and public use issues on lands and waters that are within both the Yurok Reservation and the national park.

Issues and Actions

Government-to-Government Relations/Consultations

Issue. American Indian tribes in general, and the Yurok Tribe in particular, are seeking more involvement in the planning and implementation of resource management actions on their ancestral lands. Federally recognized Indian tribes have unique legal relationships with the National Park Service and the California Department of Parks and Recreation, based on federal and state laws, regulations, and policies. These relationships are strengthened by the local American Indians' special geographic, economic, historical, and cultural ties to the lands and resources now within the parks. Federal and state legislation and NPS and CDPR policies all recognize these relationships and require consultations and government-to-government interactions. Other federal laws impose additional obligations on federal agencies and authorize additional activities that influence these relationships; they also provide opportunities to collaborate in managing and protecting the parks' resources and values. The 1996 memorandum of understanding for government-to-government relations, signed by the National Park Service, the California Department of Parks and Recreation, and the Yurok Tribe, reflects both the legislation and policies cited above and the actions described below.

Action. RNSP staff will continue to consult and collaborate with American Indian tribes and groups concerning all issues and proposed actions that might affect American Indian cultural or economic activities. RNSP staff will continue to meet regularly with the Yurok Tribal Council and, if requested, will meet with additional tribal governments on a regular or periodic basis. In addition, RNSP staff will work with tribal representatives to fulfill the intent of the Tribal Self-Governance Act (PL 103-413) and other applicable legislation, as well as to pursue agreements for the purposes of carrying out programs, services, and activities in or near the parks that are of mutual interest and benefit.

Interpretation

Issue. Visitors to the parks are generally unaware of the historical and contemporary connections that local American Indians have to the parks' lands and resources. Enhancing visitor understanding and appreciation of local American Indian cultures and their spiritual, cultural, and economic ties to the parks' lands and resources will promote a better public understanding of the parks' overall significance.

Action. Local tribes will assist in planning, and local American Indians will participate in and contribute to the parks' interpretation and education programs. Opportunities include providing training for RNSP staff, drafting and reviewing relevant exhibit and interpretive material, providing appropriate Indian-made items for sale or display in the parks' visitor centers, demonstrating American Indian traditional arts, and serving as presenters in special interpretive programs.

Traditional Activities on Park and Aboriginal Lands

Issue. Among the local Yurok, Tolowa, and Hupa, many aspects of the traditional lifeways continue, on both RNSP and adjacent lands. The parks contain sites that are integral to the practice of traditional American Indian spirituality. Certain dances are held, and others are being revived, that entail the maintenance of dance sites with their traditional structures and the fabrication of dance regalia. Many of the arts, such as canoe making and basket weaving, also are practiced, which require certain natural resources — many of which are found within the parks. These arts are sources of economic as well as spiritual sustenance.

Action. The National Park Service and California Department of Parks and Recreation will continue to support American Indian traditional activities within and adjacent to the parks. Access and privacy for traditional ceremonial purposes will be ensured. RNSP staff will notify tribal officials if downed old-growth redwood logs that are salvaged from administrative activities such as watershed rehabilitation or road repair projects are available to the tribes for cultural purposes such as constructing traditional structures and dugout canoes. Within the parks, the collection of certain natural materials by American Indians for traditional uses will be allowed in conjunction with the maintenance and interpretation of designated cultural and ethnographic landscapes and as otherwise authorized under applicable laws and regulations. Local tribes will be afforded the opportunity to participate in the identification, designation, and management of such cultural and ethnographic landscapes.

Resources Management Collaboration

Issue. The National Park Service, California Department of Parks and Recreation, and local American Indian tribes and groups share major interests in managing and protecting resources

Demonstration of basket weaving using traditional materials. NPS photo.

within and adjacent to the parks, and the potential for productive collaboration is high. There has been a comprehensive resources management program in the parks since the early 1980s. Professional staff includes geologists, hydrologists, botanists, fire specialists, fish and wildlife specialists, and a geographic information system office. The Yurok Tribe has also established a resources management program that includes fisheries, forestry, and watershed restoration specialists and a geographic information system. Both the Yurok Tribe and the parks have cultural resources staff, and the Yurok tribal heritage preservation officer has jurisdiction over all lands within the boundaries of the Yurok Reservation, including those within the parks that overlap. Other tribes with interests in park lands also have resources management staff.

Action. RNSP staff and the Yurok Tribe will share relevant, nonproprietary information pertaining to the inventory and management of resources within the parks. Research, transfer of technology, and technical assistance are important components of this government-to-government relationship. Natural and cultural resources management staff from the parks and the Yurok Tribe will collaborate on projects or programs of mutual interest and will meet on a regular basis to discuss various aspects of their programs including future plans, project results, staffing, and research data, particularly in watershed rehabilitation and vegetation management. Similar relationships will be established if additional tribes or groups also request collaboration or technical assistance.

EDUCATION AND INTERPRETATION

Management Strategies

- Provide in-depth interpretation of the parks' primary themes both in facilities and onsite through appropriate exhibits, waysides, publications, and visitor activities.
- Coordinate orientation and information services with those of other federal, state, and local government agencies and private organizations to enhance service to visitors to the area and improve operational efficiency.
- Support a broad spectrum of diverse educational opportunities at the outdoor schools and in local communities for students and adults within the parks' regional setting.
- Develop educational materials based on the park's primary themes for use by national and international visitors.
- Develop new visitor services and facilities in the parks in locations that will expand visitors' awareness of the parks' diverse resources and enhance visitors' abilities to gain access to resource and activity sites.
- Develop opportunities for visitors to participate in a variety of interpretive programs and activities to learn more about the parks' resources and to gain a broad understanding of visitors' roles in preserving those resources.

Issues and Actions

Orientation/Information

Issue. RNSP managers and staff need to assess, maintain, and improve how to meet visitor information and orientation requirements.

Actions. Interpretive waysides, directional signs, bulletin boards and orientation kiosks will be upgraded to improve visitor orientation to RNSP resources. Information services and facilities will be coordinated through partnerships with others inside and outside the parks. Where feasible, information services will be consolidated, and designated facilities will be expanded to provide

both area information and interpretation of natural and cultural resources.

Interpretation

Issue. The scope of the personal and nonpersonal services program, development of the parks' significant themes, and the types of facilities needed to provide access to resources need to be addressed.

Actions. Interpretive operations and media will be used to provide a similar emphasis on general and preservation information about natural and cultural history topics. Research and resource management actions will be explored in depth and fully supported.

Most of the parks' visitors will receive an in-depth interpretation of primary interpretive themes through additional facilities, publications, and programs. Additional opportunities will be provided for visitors to see and enjoy old-growth redwood forests, wetlands, prairies, and sites related to local American Indian cultures; however, visitor use of these sensitive resources will be carefully managed to protect resources.

Interpretive media will be used in the Bald Hills area to provide a similar emphasis on preservation and general information about old-growth forest management, second-growth forest management, watershed resources, prairie and oak woodland vegetation, and human use.

Information, Orientation, and Interpretive Centers

Issue. Almost none of the interpretive facilities in the parks were designed or constructed to present in-depth interpretation of significant RNSP resources or allow for the expansion of visitor services. Existing small interpretive facilities provide similar and often duplicative services. Their roles and functions need to be improved or changed.

Actions. Action items are as follows:

All functions at the Redwood Information Center will remain; interpretive facilities, exhibits, and sales areas will be upgraded as opportunities arise. However, the facility was constructed in an area where it is subject to severe damage or destruction. First, it is in a tsunami run-up zone. Redwood Information Center was approved for construction at its current location in 1983 based on scientific knowledge current at that time. Since the early 1980s, considerable advances in understanding the earthquake and tsunami potential in the area have been made. It is now recognized that a major 750-mile-long fault zone that runs just offshore of the parks could rupture along its entire length with a magnitude 9 earthquake. When an earthquake occurs along this fault zone, a tsunami could occur within minutes, possibly before the ground shaking stops, posing a considerable threat to life and property. Second, the center is in an area where it could be flooded or destroyed by the shifting of the mouth of Redwood Creek.

If the facility is significantly damaged by future events, the functions of Redwood Information Center will be relocated to a new primary visitor center that will be built outside the tsunami hazard zone between Orick and Prairie Creek and adjacent to U.S. Highway 101. Opportunities for constructing a new facility through public, private, and/or tribal partnerships will be sought. The visitor center will be constructed in an area that will not impact RNSP resources but that will provide direct access to the primary resources and the opportunity to interpret the park's primary interpretive themes. Services provided at the facility will be expanded and will include museum quality exhibits, a dedicated auditorium for multimedia presentations, book sales, and trip planning. A number of hiking and driving tours will originate here. Redwood Information Center will be removed, and the site will be converted to day use with interpretive opportunities including beach access, boardwalks, and wayside exhibits.

The functions of the Hiouchi Information Center and Jedediah Smith Redwoods State Park visitor center will be combined into a new facility that

will be built in the Hiouchi area. This facility will provide orientation information at the northern end of the parks and provide in-depth interpretation of the natural and cultural themes appropriate to the area. The center will include interior exhibits, a dedicated auditorium, book sales, campground information, and trip planning. A number of hiking and driving tours will originate here. The current Hiouchi Information Center site will be converted to another type of day use facility for visitors. The Jedediah Smith Redwoods State Park visitor center will be retained and used to support campground operations.

The information and orientation services at the Crescent City information center will continue until incorporated in a multiagency information center if one is developed in the Crescent City area. RNSP staff will participate in planning and operating this center. In the interim, the National Park Service and the California Department of Parks and Recreation will seek the assistance of local governments and organizations to address conditions in the vicinity of the Crescent City information center that detract from visitor enjoyment of that facility, including public safety and security issues, inadequate parking, and incompatible activities.

The Prairie Creek Redwoods State Park visitor center will be retained. The facility will continue to provide interpretation of and orientation to the resources of Prairie Creek Redwoods State Park —- Elk Prairie, Roosevelt elk, Prairie Creek, Gold Bluffs Beach, Fern Canyon, old-growth redwoods, and other resources within the parks.

Information about Del Norte Coast Redwoods State Park will be provided primarily through the Crescent City headquarters/information center until those functions were transferred to a new multiagency facility in the Crescent City area if one is built.

Outdoor Schools

Issue. Two outdoor schools are operated by RNSP staff as part of the core interpretive program for five months a year. The plan needs to consider the optimal level of direct RNSP operation of the schools, the year-round use of the facilities for education and other purposes, and the appropriate roles of partners to assist in this work.

Action. The two outdoor schools will continue to be operated, primarily in fall and spring, as an overnight facility for regional kindergarten through 12th-grade students. An expanded, revenue-generating use of the facility will be developed for winter and summer to include use for conferences and educational programming by community groups. As funding allows, the education program will also be expanded to include outreach to community schools and other educational groups. The focus of the education program will include both natural and cultural resources. Alternative ways of funding and staffing the operation will be explored.

PUBLIC USE, RECREATION, AND VISITOR SAFETY

Management Strategies

- Support and facilitate appropriate public use and enjoyment of the parks and participation in activities related to the parks' resources.
- Provide facilities in appropriate locations to support a variety of public uses and recreational activities.
- Provide opportunities for public access to the full range of RNSP resources and in a variety of locations.
- Manage recreational activities and settings to protect resources, promote public safety, and minimize public use conflicts.
- Ensure that public use activities are consistent with NPS and CDPR regulations and policies. Resolve situations where public use violates NPS or CDPR regulations or policies.

■ Conduct carrying capacity analyses and develop detailed action plans where necessary and appropriate to address specific public use conflicts or resource protection issues.
■ Develop a backcountry management plan and a comprehensive trail plan to manage public use of the parks' backcountry, including hiking, camping, and equestrian and mountain bike use, and to provide guidance concerning the development of a comprehensive trail system and other backcountry facilities.
■ In cooperation with local communities and adjacent jurisdictions, maintain a safe and healthful environment for visitors as well as a coordinated, professional, public safety program.
■ Where practicable, standardize and/or coordinate NPS and CDPR public use policies to avoid creating confusion for the public.
■ Authorize commercial services that enhance public access to or use and enjoyment of RNSP resources.
■ Provide facilities and services to a broad range of persons with different abilities in full compliance with federal and state mandates for access.

Issues and Actions

Visitor Use Levels

Issue. Public use, if not managed carefully, has the potential to damage natural and cultural resources. Concerns exist about the ability of certain sites and resources in the parks to accommodate current and future levels of visitation without resource degradation. Decisions must be made in the future whether to make site improvements, encourage or accommodate more visitors, limit visitation in certain areas, or redirect visitors to other sites.

Action. Visitor use will be limited to that which will result in no significant impacts on resources and their values. To determine the level of visitor use that will be allowed without adverse impacts on resources or visitor experience, a visitor carrying capacity analysis will be conducted, and carrying capacities will be established for several sites. These site-specific capacities will be based on standards and indicators of resource condition and visitor experiences. Indicators for resource condition and visitor experience will represent the desired conditions and will be measurable and quantifiable rather than subjective.

Some examples of indicators are the amount of vegetation on the ground within a 15-foot radius of a large redwood tree, the number of shortcut trails, or the number of other hikers a visitor may encounter on a weekend day. Examples of standards are 75%, 50%, and 25% of ground vegetation typically seen around a comparable redwood tree, or no more than zero, 10, or 20 visitors encountered on a weekend day. Conditions for each indicator will be monitored, and when an indicator exceeds the acceptable standard for a given level of use, predetermined management actions will be taken to bring the resource condition or visitor experience back to the accepted standard.

Also, all new and rehabilitated facilities will be designed to meet or exceed state and federal standards for accessibility and to encourage use by visitors of all abilities. Additional aspects of accessibility will be addressed during more detailed site planning and facility design.

A visitor carrying capacity analysis will be conducted for the Tall Trees Grove, Lady Bird Johnson Grove, Stout Grove, and Fern Canyon, and carrying capacities will be established.

Based on the results of carrying capacity analyses, the facilities and parking areas at Tall Trees Grove, Lady Bird Johnson Grove, Stout Grove, and Fern Canyon might be modified to ensure that there will be no adverse impacts on the sensitive resources in these areas.

In the Tall Trees Grove, the trailhead and parking area will be redesigned within the current limits of disturbance to improve the appearance and circulation patterns while retaining the current capacity.

In the Stout Grove, the construction of a pedestrian access from adjacent sites will be

considered, in conjunction with the carrying capacity analysis.

In Fern Canyon the parking area will be relocated out of the stream channel. The capacity of the parking area will be established based on the results of the carrying capacity analysis.

Enderts Beach road will continue to provide public access to the Crescent Beach overlook and the trailhead for the Coastal Trail leading to Nickel Creek campground. Gating the road and/or conversion to day use will occur only as a last resort if efforts to resolve resource degradation and public use issues are unsuccessful and only after thoroughly exploring alternatives.

The picnic area and beach access at Crescent Beach will be retained, but the access road, restroom, and parking will be relocated to protect wetlands. Options for retaining access to the site for visitors with disabilities will be considered during site planning.

Easily damaged cultural resource sites and sites that are important to American Indians will be treated as discovery sites. Visitor access to selected cultural sites will be on foot or managed to protect the resources.

Recreational Activities

Issue. Appropriate recreational activities, when managed to protect the parks' resources and values and to avoid public use conflicts, are important components of public enjoyment of the parks. The parks provide settings for a wide variety of high-quality hiking, biking, equestrian and camping opportunities. Campgrounds in the state parks provide excellent opportunities for visitors to enjoy traditional camping experiences in outstanding natural settings. The parks' hiking, biking, and equestrian trails provide the framework for the development of an outstanding trail system. Some primitive camping opportunities exist in the parks, but additional opportunities will be provided in conjunction with the expansion of the trail system. The Redwood Creek basin, more so than any other area of the parks, offers extensive opportunities for developing trails and primitive camping areas that are isolated from the sights and sounds of traffic and developments along local highways and access roads. The quality of these opportunities will only be enhanced through time as watershed rehabilitation projects in the basin are completed, resource conditions improve, and priority for use of the West Side Access Road shifts from exclusively administrative access to include public access as well.

Actions. A comprehensive RNSP trail plan and a RNSP backcountry management plan will be developed to guide the development of an expanded trail system for the parks, specify the location of primitive camping areas, and prescribe policies and regulations for the use of backcountry areas by hikers, bikers, and equestrians. The trail construction proposed in the 1984 *Redwood National Park Backcountry Trail Plan*, the 1985 *State Redwoods Parks General Plan* and previously approved NPS development concept plans (see appendix D) will be thoroughly considered in the development of the RNSP trail plan. However, the new plan will be developed in accordance with the priorities and guidance outlined below and will be consistent with the desired resource conditions and visitor experiences of the appropriate management zones. Plan development will also include an evaluation of the need for and the appropriateness of all of the parks' existing trails. Portions of existing trails that adversely affect sensitive resources will be considered for relocation or removal. The trail plan and backcountry management plan will also evaluate opportunities for developing trailheads, trails, and primitive camping areas along the West Side Access Road.

Campgrounds with Access by Vehicle — Visitor demand for campground facilities in the parks, including facilities to accommodate off-season use, will be evaluated periodically. If the need exists, a greater number and variety of campsites will be provided than currently exist. Such facilities will be located outside of sensitive resource areas. No campgrounds accessible by vehicles will be constructed in the Bald Hills.

Primitive Camping — A variety of primitive walk-in, backpacking, equestrian, and bicycle camping opportunities will be provided in the parks at sites and in areas where camping is consistent with the characteristics of the applicable management zone. Camping will be allowed along gravel bars in Redwood Creek and the designated horse camps on the west side of Redwood Creek. Additional primitive and/or walk-in camping opportunities will be provided along trails on both the east and west sides of the Redwood Creek basin and elsewhere in the parks, including the Coyote Creek basin.

Hiking, Biking, and Equestrian Trails — Current trails will serve as the nucleus for developing an expanded trail system in the parks. The parks' trail system will be linked to gateway communities and to trails managed by other jurisdictions, forming a regional system of hiking, bicycle, and equestrian trails. Consideration will also be given, where appropriate and in partnership with the private sector or American Indian tribes, to connecting the parks' trail system with public use facilities adjacent to the parks. Public safety and the protection of resources will be emphasized in the location, design, and construction of trails. The network of trails will serve visitors interested in day use opportunities as well as those who seek outstanding backcountry/overnight trip opportunities. The parks' trail system will provide visitors of all ages opportunities to enjoy examples of all of the parks' primary resource settings, including old-growth forests, second-growth forests, prairies, streams, shorelines, and cultural landscapes.

High priorities for new hiking trail construction will include completing the Coastal Trail; providing trail connections between major trails such as the Coastal Trail to the Redwood Creek basin, Jedediah Smith Redwoods State Park to the Coastal Trail, and the Coastal Trail to the Pacific Crest Trail; completing trail links between Crescent City and Jedediah Smith and Del Norte Coast Redwood State Parks; and establishing a trailhead on the Aubell property for trail access into the west side of Jedediah Smith Redwoods State Park. In addition, high priority will be placed on developing new hiking trails in the Redwood Creek basin, including the East Side Trail authorized in the national park's enabling legislation. A limited number of new mountain bike trails will be constructed or designated in areas of the parks where bicycle use will not damage resources and it meets federal and state policies for such use. Mountain bike loop trails opportunities will also be developed on existing roads in the Coyote Creek basin. In addition, the National Park Service and California Department of Parks and Recreation will pursue opportunities with state and local transportation agencies, where practicable, to provide lanes, trails, or routes for bicyclists as a safer alternative than the travel lanes of highways through the parks and gateway communities. No equestrian trails will be provided on the east side of the Redwood Creek basin.

Every effort will be made to avoid wetlands in the selection of trail routes, except for essential stream crossings and specifically selected areas where the interpretation of wetland resources will be enhanced through the construction of boardwalks.

Picnic Sites — Additional picnic opportunities will be provided, including along the Bald Hills Road.

Freshwater Lagoon Spit Visitor Use

Issue. Freshwater Lagoon Spit serves as the southern gateway to the parks and is extremely popular with owners of recreational vehicles as an oceanside camping/rest area. The area is owned by Caltrans and leased by the National Park Service. Overnight use results in sanitation and public safety problems, adversely affects resources, and detracts significantly from the otherwise outstanding visual qualities of the area.

Facilities and services are inadequate to support current public use levels, and there are strong questions about whether the area is an appropriate site for a camping facility, particularly given the fact that it is in a high-hazard tsunami zone. This camping is perceived to provide

inappropriate competition for nearby privately owned facilities and services, although campers contribute to the economy of the town of Orick.

Actions. This site will be managed as a day use facility to provide visitors the opportunity to enjoy the outstanding scenic values of this gateway to the parks. The new facility will be developed to include structured parking, safe access from the highway, pedestrian access to the beach, and appropriate interpretive exhibits and support facilities. RNSP staff will coordinate changes in the management or design of the site with Caltrans. If necessary, the National Park Service will seek to acquire the area from Caltrans to develop the site and manage public use appropriately.

Overnight use will be phased out over a three-year period to allow the private sector the opportunity to develop replacement camping facilities elsewhere. An appropriate fee will be charged for overnight use during the phase-out period.

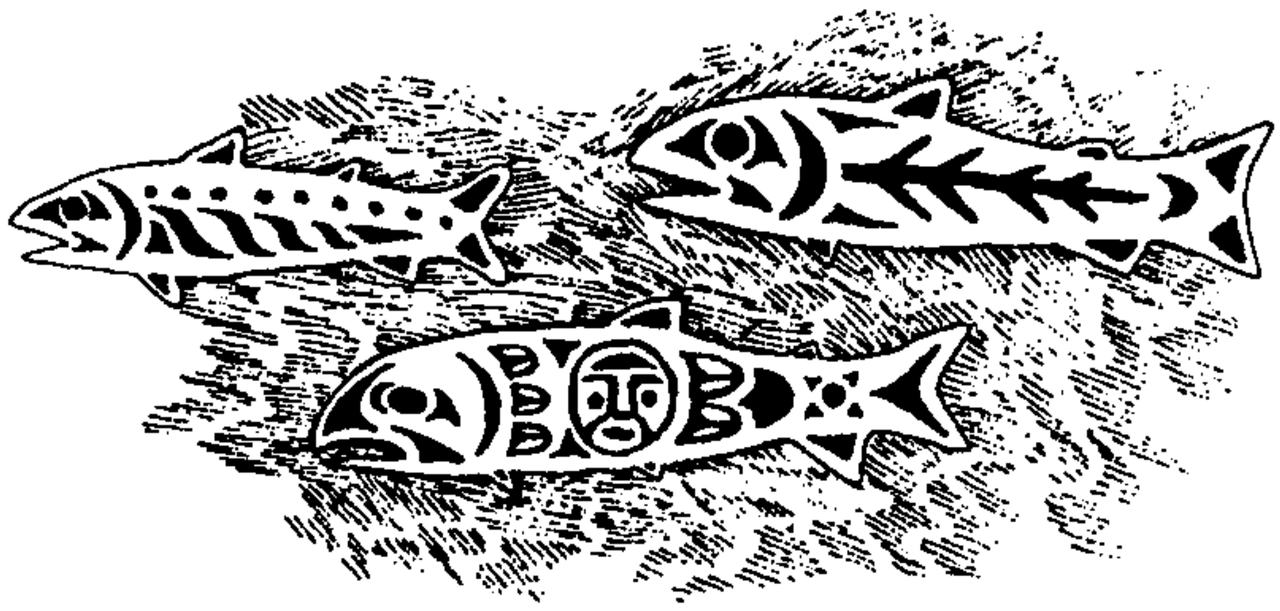
Public use of Freshwater Lagoon will be managed cooperatively with other agencies having jurisdiction over those waters.

Vehicles on the Beach

Issue. Vehicles are operated on beaches at Freshwater Lagoon Spit, Gold Bluffs Beach, Crescent Beach, and on the spit at the mouth of the Klamath River. Freshwater Lagoon Spit beach has three vehicle access points, which are also used for access to Hidden Beach north of the mouth of Redwood Creek. The beaches are open to all properly registered vehicles capable of driving on soft sand. Once on the beach, vehicles are required to stay below mean high tide line to avoid damaging native dune vegetation. Vehicles can cross Redwood Creek during those times when the sand berm prevents the creek from reaching the ocean or when the creek is low enough to allow safe crossing. Vehicles being used for commercial fishing at Gold Bluffs Beach are required to use specific access points.

Depending on locations, this off-road vehicle use occurs in connection with recreational activities such as sportfishing, beachcombing, and gathering wood; traditional activities conducted by American Indians; and commercial surf fishing activities, primarily for smelt, conducted in accordance with provisions of the legislative history of the 1968 Redwood National Park enabling legislation and the 1985 *General Plan for Prairie Creek Redwoods State Park.*

Vehicle use on Crescent Beach is subject to a Del Norte County permit system; vehicle use on Gold Bluffs Beach is subject to a CDPR permit system. Off-road vehicle use at Freshwater Lagoon Spit and at the mouth of the Klamath River is currently not subject to permit requirements. Off-road vehicle use on beaches within the parks is inconsistent with managing and



protecting these areas as nationally significant natural settings and results in public safety and public use conflicts. Also, the removal of large woody debris from the parks' beaches, which is facilitated by off-road vehicle access, is inappropriate because driftwood is an essential element of beach ecology in the parks and throughout the Northwest. Large woody debris provides shelter, nutrients, hiding places, perches, and nesting habitat for numerous species of wildlife. It also plays a key role in energy dissipation during storms and promotes the entrapment and retention of sand and the formation of dunes. This off-road vehicle use also violates NPS general regulations and statewide CDPR regulations that prohibit off-road vehicle use in national and state parks.

Off-Road Vehicle Use

Commercial surf fishing and the off-road vehicle use associated with this activity have been allowed to continue within Redwood National Park since its establishment because of language in the legislative history of the park's enabling legislation (*House of Representatives Conference Report No. 1890*, September 11, 1968) which states

> *The conference report recommends the* inclusion in the park boundaries of a strip of offshore submerged land one-quarter mile wide the full length of the park. This is done with the understanding that fishing, both sport and commercial, will be allowed to continue in the area involved and that the laws governing the same will be the laws of the State of California.

NPS and CDPR regulations prohibit off-road vehicle use in national parks and state parks. Pursuant to Executive Orders 11644 and 11989, NPS regulations codified at 36 CFR 4.10 limit off-road vehicle use to designated routes and areas in national recreational areas, national seashores, national lakeshores, and national preserves; these regulations apply to intertidal areas within the parks even though the submerged lands are not federally owned. CDPR regulations codified at section 5001.8 of the *Public Resources Code* restrict the use of motor vehicles in state parks to paved areas and other areas specifically designated and maintained for normal ingress, egress, and parking.

Actions. NPS and CDPR regulations prohibiting off-road vehicle use will be enforced throughout the parks, resulting in the elimination of all off-road vehicle use other than that which is essential to provide access for commercial surf fishing activities. Off-road vehicle use associated with commercial surf fishing at Freshwater Lagoon Spit, Gold Bluffs Beach, and Crescent Beach will continue by renewable, nontransferable annual permit only. However, only permits issued between March 1996 and September 1, 1999, will be renewed, no new permits will be issued, and any permit not renewed in a given year will be terminated. These actions will be taken, despite the provision in the national park's legislative history, to meet the NPS and CDPR statutory obligations to protect the RNSP resources and enhance public enjoyment of RNSP resources and values, and to provide consistent management of vehicle use on NPS- and CDPR-managed beaches. However, off-road vehicle use on beaches in connection with traditional American Indian cultural/religious activities that are consistent with the purposes of the parks will continue only at Gold Bluffs Beach under a CDPR permit system. Vehicle use will be managed to prevent resource damage and to minimize public use conflicts.

Concessions and Commercial Services for Visitors

Issue. Guidance is required to determine which types of commercial services are necessary and appropriate to provide for visitors to the parks. Should such services be provided by concessioners in the parks or by the private sector in the vicinity of the parks?

Action. Generally, commercial support services for visitors will be provided by the private sector through facilities outside the parks in gateway communities. Opportunities for the private sector and/or local American Indian tribes to provide visitor services could include bus tours, hiking tours, bicycle tours or rentals, horseback riding, outfitter and guide services, boat tours or rentals, shuttle services, and specialized interpretive or

ecotourism efforts that focus on natural or cultural resources within and/or near the parks.

The National Park Service and California Department of Parks and Recreation will encourage the development of services, based in gateway communities, that meet the general criteria below. All of the following criteria will be used to evaluate each proposal to provide commercial support services for visitors, whether based inside or outside of the parks.

1. The service is consistent with the mission and purposes of the parks, as described by law and applicable planning documents, and is consistent with NPS and CDPR policies.
2. The service is consistent with the preservation and conservation of the resources and values of the parks.
3. The service will enhance visitor enjoyment and understanding of the resources and values of the parks.
4. The service is necessary and appropriate for public use and enjoyment of the parks.
5. There is, or could be expected to be, sufficient public demand to support the service economically and to warrant having it.
6. The service is needed based on the quality and types of services already provided or expected to be provided in the parks' gateway communities in the timeframe required.

The existing hostel concession within the parks is a necessary and appropriate visitor service. Other commercial support services for visitors operating from facilities in the parks will be considered only if they meet the criteria above and show that facilities are required in the parks to meet NPS and CDPR visitor services goals efficiently and effectively.

All authorizations to provide commercial support services for visitors will be awarded in accordance with applicable laws and regulations, and appropriate fees will be charged.

VISITOR ACCESS AND CIRCULATION / ROADS

Management Strategies

- Administer the roads in the parks under NPS and CDPR jurisdiction to facilitate and enhance visitors' leisurely enjoyment of RNSP resources and public use facilities rather than catering to the needs of through traffic.
- Ensure that RNSP roads relate simply and harmoniously with the topography and surrounding environment; these roads will often be more narrow and winding and have lower speed limits than roads outside the parks.
- Provide safe opportunities for visitors to see scenic vistas and other points of interest, enjoy interpretive displays, and access trails, picnic areas, and other recreational facilities along RNSP roads.
- Provide distinctive and unobtrusive signs to orient, guide, and inform visitors.
- Provide bicycle lanes, alternative transportation systems, and one-way roads, and set vehicle size limits, as appropriate, to ensure public safety and visitor enjoyment.
- Use methods such as limiting the size of parking facilities, using mass transit, or establishing public use limits and permit systems to limit the number of persons or vehicles that will be allowed access to sensitive sites where the protection of fragile resources is of concern.
- Depend on U.S. highways in the parks to serve as the primary access routes to the parks, to be managed and maintained by state and federal transportation agencies.
- Depend on Del Norte and Humboldt Counties to manage and maintain county roads within the parks that provide access to nonpark lands that serve the general public in addition to RNSP visitors.
- Work cooperatively with the agencies having primary jurisdiction on these U.S., state, and county roadways throughout the parks to promote public safety, to enhance opportunities for travelers to enjoy scenic vistas and gain access to RNSP resources and facilities, and to protect RNSP resources that are adjacent to the roadways.

■ Consider entering into agreements for RNSP ownership, management, and/or maintenance of all or portions of the county roads in the parks that are in good structural condition, that provide access primarily to park lands, and that serve primarily park visitors.
■ Design, construct, and maintain RNSP roads that provide access from state highways or county roads to RNSP facilities so that they are sustainable, provide safe access for visitors and employees, and minimize the disruption of traffic on through highways.

Issue

There are numerous roads in the parks; proposals for operation and maintenance of these roads sometimes conflict with the protection of RNSP resources and values. A long-term strategy for the operation and maintenance of these roads that ensures the protection of RNSP resources and values needs to be developed.

Actions

U.S. Highways 101 and 199

U.S. Highways 101 and 199 will remain the main access routes to and within the parks. Minor realignments might take place in the future, but the highways are expected to remain generally within current alignments over the life of this plan. If major realignments take place during the life of this plan, RNSP staff will work with the California Department of Transportation (Caltrans), the Federal Highway Administration, and the counties to ensure proper protection of the values and resources of the parks. RNSP staff will also work with these agencies to ensure environmentally sensitive efforts to remove major traffic impacts on the parks' resources and values from these highways.

RNSP staff will work with Caltrans, the Federal Highway Administration, and local government agencies to ensure that visitors will have a world-class scenic travel experience while traveling on the 101 and 199 highway corridors, and that these routes will convey to travelers a sense of being in a park environment. The visual qualities of the road corridors that have significant regional value will be identified and protected. Associated recreational activities, such as bicycle riding, will be accommodated within public safety and resource constraints. In all cases, the protection of ancient redwood forests will be of paramount importance. RNSP staff will work cooperatively with state, regional, and local transportation planning agencies to address issues related to future traffic needs and to foster improvements in tourism and travel information. RNSP staff will also work with federal, state, and county agencies to ensure that environmentally sensitive maintenance operations are used on portions of the highways and roads that pass through the parks.

Bald Hills Road

The National Park Service and California Department of Parks and Recreation recognize that a significant percentage of the traffic using this road is unrelated to the parks. The two agencies encourage Humboldt County to maintain the portion of this road that passes through the parks within the county's existing right-of-way in a manner that is consistent with the road's also serving as a rural gateway to an area of diverse natural and cultural landscapes. RNSP staff will work with county staff and local transportation authorities to develop or enhance opportunities for travelers to enjoy spectacular scenic vistas and pull off the road safely to hike, picnic, or enjoy interpretive exhibits. The National Park Service will provide opportunities for visitors to observe and appreciate a variety of natural and cultural resource management projects, such as prescribed fires, prairie restoration, and second-growth forest management. Through-travelers will enjoy a unique alternative route to the scenic Klamath and Trinity River corridors and the Hoopa Reservation.

Newton B. Drury Scenic Parkway

The road will be kept in its current alignment through the prairie unless a different alignment is recommended based on future planning efforts. The Newton B. Drury Scenic Parkway will continue to be operated by the California Department of Parks and Recreation, with special operational/maintenance requirements defined by Caltrans.

Jedediah Smith Redwoods State Park Entrance

The park entrance will be relocated to the Hiouchi area as part of the proposed new visitor center development.

Stout Grove

Based on the results of monitoring efforts and a carrying capacity study, minor improvements will be made to the access road and parking area to better protect the resources.

Del Norte Coast Redwoods State Park Entrance

The access road will be replaced with a new road and entrance station at a more geologically stable and environmentally prudent location. The current access road will be removed or converted to a trail.

Enderts Beach Road

Enderts Beach road will continue to provide public access to the Crescent Beach overlook and the trailhead for the Coastal Trail leading to Nickel Creek campground. Gating the road and/or conversion to day use will occur only as a last resort if efforts to resolve resource degradation and public use issues are unsuccessful and only after thoroughly exploring alternatives.

Alder Camp Road

This road will be improved to provide access to trails, a picnic area, and Alder Camp Conservation Center. Culverts will be replaced, and the road will receive routine and cyclic maintenance and repairs as appropriate. Note: All actions on the county portion of the road will depend on agreements with the county.

Roads in Redwood National and State Parks such as Davison, Cal-Barrel, and Howland Hill, provide an opportunity for those who are otherwise unable to visit less developed areas of these parks on foot to do so by motor vehicle. Some of these routes are historic and capture the feeling of how travel through this area occurred in the past. Current agency management includes reengineering these roads for safety and the prevention of erosion and stream sedimentation. Although the plan refers to certain actions, should future conditions warrant other options will be considered. These options could include changing these roads to one lane/one way. Various surface treatments will be evaluated. Widening or building new road connections that will require the removal of old-growth trees will not be considered.

Davison Road–Gold Bluffs Beach Road to Fern Canyon

Depending on a carrying capacity study, minor road improvements (see glossary) will be made to facilitate access to Gold Bluffs Beach/Fern Canyon. The road will not be paved west of the access road to B-mill deck. Other methods of access (e.g., a shuttle) to Fern Canyon will be evaluated. Note: All actions on the county portion of the road will depend on agreements with the county.

Cal-Barrel Road

This road will be kept as a narrow, unsurfaced dead-end park road. Drainage will be improved, and areas likely to fail will be treated to reduce

the threat of erosion. No trailers will be allowed on the road.

Howland Hill Road

The two-way unsurfaced park road will be retained and minor improvements will be made. This road will not be recommended for large trailers and motorhomes. If conditions change in the future, other maintenance and operational options will be considered, including paving the road and/or making it a one-way road.

Tall Trees Grove

This road will be kept as an unpaved road with public access by permit only until a carrying capacity study is completed. Based on the results of that study and monitoring efforts, public access to and use of the site could be managed using other strategies to protect resources and provide the desired visitor experience.

The Coastal Drive

Drainage and road surface improvements will continue to be made on this two-way unpaved park road. Major road failure will lead to its conversion to a trail.

INTERDEPENDENCE OF PARKS AND COMMUNITIES

Management Strategies

- Support sustainable economic development, the preservation of community values, and the availability of appropriate visitor services in local communities that serve as gateways to the parks.
- Participate as partners with those communities and local organizations in projects and initiatives that have mutual benefit, that enhance the quality of the overall experiences of visitors to the parks, or that enhance the levels of public appreciation and protection of RNSP resources.
- Encourage the development of appropriate sustainable visitor service facilities in the vicinity of the parks.
- Participate actively in local educational and public safety programs, and cooperate with local agencies and private interests in land use and transportation planning for areas adjacent to the parks.

Issues and Actions

Lodge/Accommodations

Issue. In recent years there has been a great deal of interest in building a lodge in or near the parks to serve as a destination resort to attract visitors. Based on NPS and CDPR policies, the

construction of such a facility within the parks is not appropriate. However, there are opportunities for the private sector or American Indian tribes to develop lodges or similar facilities near or adjacent to the parks that could meet many of the objectives sought by project proponents.

Actions. The National Park Service and the California Department of Parks and Recreation will support and actively participate with private sector and/or tribal partners in their planning and development of appropriate destination facilities, such as lodges, near or adjacent to the parks that include thematic and physical links to the resources and values of the parks.

Viewshed Protection

Issue. A strategy for viewshed protection needs to be developed to enhance and ensure quality visitor experiences.

Actions. Action items are as follows.

Scenic Corridor — The acquisition of lands or interests in lands within the scenic corridor along U.S. Highway 101 north of Orick will be pursued as lands become available and as funding permits to protect resource values and the viewshed along that portion of Highway 101 and in the vicinity of RNSP visitor facilities in that area.

Viewsheds — Important visual areas will be identified, and RNSP staff will work with local governments and conservation organizations to protect these areas. RNSP staff will also support efforts to improve visual quality, such as putting powerlines underground and initiating reforestation projects.

Adjacent Land Uses

Issue. There are some adjacent land uses, such as logging, land development, and agricultural practices, that have the potential to impact RNSP resources and the visitor experience. Strategies to minimize negative impacts need to be analyzed and incorporated into this plan as appropriate.

Actions. The National Park Service and the California Department of Parks and Recreation will actively participate in planning, zoning, and other land use activities that might affect RNSP resources. RNSP staff will support and promote, where feasible, land uses that are compatible with restoration, protection, and maintenance of RNSP resources and values.

Gateway Communities

Issues. Management plans, visitor services, and marketing efforts need to be coordinated with local interests to enhance the economic stability of local communities and to achieve mutual objectives in the areas of public services and facilities, tourism, and the preservation of community values.

Options for providing coordinated information/orientation services and facilities in the surrounding communities need to be evaluated.

Actions. RNSP management plans, visitor services, and marketing efforts will be coordinated with local interests to achieve mutual strategies and objectives in the areas of public services and facilities, tourism, and the preservation of community values. RNSP staff will actively support and assist local communities in efforts to foster appropriate and sustainable economic development, to develop infrastructure needed to serve community development and RNSP facilities, and to develop services and facilities, including transportation systems, that support tourism and recreation and provide connections between the communities and the parks. RNSP staff will also provide advice and technical assistance to communities, communicate support to agencies that authorize and/or fund development projects, and participate as partners with communities in situations where mutual conservation, visitor service, or development strategies and objectives will be achieved. RNSP staff will also provide technical assistance and advice to individuals or businesses interested

in developing appropriate/complementary visitor services in gateway communities.

RNSP staff will cooperate with local communities and organizations to ensure that public information and orientation services are coordinated and provided in convenient locations.

ADMINISTRATIVE FACILITIES

Management Strategies

- Adequately maintain facilities needed to support RNSP administration and operations to provide a safe, sanitary, and aesthetically pleasing environment for employees.
- Evaluate structures on newly acquired lands for adaptive use as administrative facilities or remove them.
- Sustainably design new or rehabilitated facilities, construct them in appropriate locations to minimize adverse resource impacts and visual intrusions, and operate and maintain them to minimize the consumption of energy and conserve nonrenewable fuels.
- Use renewable sources of energy and energy-efficiency technology where appropriate and cost-effective.
- Relocate administrative facilities from resource areas that are easily damaged or remove them when reasonable to do so.
- If additional or replacement administrative space is required, give preference to leasing facilities in communities that are adjacent to the parks.
- Consolidate or jointly locate CDPR and NPS facilities wherever operational efficiencies or savings will be achieved.
- Make facilities that become excess to RNSP needs available, if appropriate, for use by partners or cooperators, or remove those facilities.
- Provide housing for employees only where necessary for managing and protecting the parks.
- Dispose of housing on any newly acquired lands unless it is considered essential for operational purposes.

Issues and Actions

Operations Facilities (Maintenance, Ranger Activities, Fire Protection)

Issue. The National Park Service and California Department of Parks and Recreation maintain a variety of facilities to support RNSP management and operations. The partnership between the agencies provides an opportunity to evaluate existing facilities and to make decisions to eliminate, relocate, or consolidate these facilities or to construct new facilities in the interest of more efficient management of the parks and the protection of their resources.

Actions. NPS and CDPR facilities will be consolidated wherever it will be cost-effective to do so. RNSP headquarters will remain in the current facility in Crescent City. NPS primary maintenance facilities will continue to be in Requa, with some consolidation of CDPR maintenance facilities there; utilities and facilities at Requa will be upgraded and improved. However, a 1982 geological survey report documented complex landsliding and earth-flow movement at Requa. The primary NPS maintenance facility will be relocated when and if this activity threatens the structural integrity of the buildings or safety of their occupants. Any new facility will be planned and designed to meet both NPS and CDPR operational requirements and will have safe, dependable access to area highways and convenient access to RNSP facilities. CDPR primary maintenance facilities will remain at Aubell Ranch.

RNSP resource management employees will be located in a new facility to be constructed in the Orick area. To avoid diminishing established relationships between private and public entities and continue to enjoy mutual benefits from interagency coordination and cooperation, some employees and programs will remain in the Arcata area or alternate location to derive the greatest benefits to the parks. NPS and CDPR protection staff offices will be consolidated at the Aubell Ranch site in the north and, to the extent

practicable, at the facility in the Orick area in the south.

Fire protection facilities will continue to be at Hiouchi in the north and Wolf Creek in the south. Interpretation staff offices will remain in the Crescent Beach Education Center in the north, in the Redwood Information Center (until a new primary visitor center is built), and in the new facility that will be constructed in the Orick area. Small satellite facilities will continue in each state park unit to support operations in those areas.

CDPR administrative facilities in the northeast portion of Elk Prairie in Prairie Creek Redwoods State Park will be removed when the opportunity to relocate them to the Orick area and/or to consolidate them with NPS facilities arises, including two 1950s residences, a barn/shed used to house vehicles and supplies, some seasonal cabins, a shop, a maintenance office, a storage area, and a gas shed; one historic house will be kept as a ranger residence.

The Schoolhouse Peak fire lookout will be retained and operated for fire protection. If no longer needed for fire protection, the facility will be removed only if a site evaluation determined that there were no appropriate public use or administrative uses for the structure.

Housing

Issue. Employee housing requirements must be evaluated in accordance with current NPS and CDPR policies, and determinations must be made concerning the number and locations of housing units that are essential to managing and protecting the parks.

Actions. Generally, RNSP employees will live in local communities. In-park housing for permanent staff will be provided only for those needed to provide emergency services to the public or to protect RNSP resources and facilities. Otherwise, housing will be provided only for seasonal staff and volunteers essential to managing and protecting the parks. Efforts will be made to provide this housing outside the parks. NPS housing will continue to be retained in the Hiouchi, Requa, Wolf Creek, Orick, and Bald Hills areas; NPS housing at Crescent Beach will be removed when no longer needed as housing.

CDPR housing will continue to be at Jedediah Smith and Del Norte Coast Redwoods State Parks. The Boyes House at Prairie Creek Redwoods State Park will be retained for use by emergency services staff, and the Gold Bluffs Beach residence will remain as required housing (for the ranger assigned to Gold Bluffs Beach). Appropriate seasonal housing will be retained at Prairie Creek.

LAND ACQUISITION

Management Strategies

- Acquire the minimum interest in lands necessary to meet management strategies described under management zoning.
- Use the most practical and cost-effective method of acquisition to protect RNSP resources and values, including any combination of fee or less-than-fee options or cooperation with landowners; federal agencies, state, tribal, or local governments; and the private sector.
- Acquire lands necessary to preserve, protect, or restore significant RNSP resources and values and provide recreational opportunities that are consistent with RNSP purposes.
- Acquire those lands or interests in lands that are necessary to achieve RNSP purposes and minimize adverse impacts on RNSP resources that are the result of human activity outside the parks.
- Acquire interests in lands that are necessary to provide connections between coastal and inland trails in the parks.
- Acquire lands or interest in lands for the development of infrastructure needed for both RNSP and community uses.

Issue

PL 95-625 requires that NPS general management plans include measures for protecting park resources and "indications of potential modifications to the external boundaries of the unit and the reasons therefor."

Included among CDPR responsibilities is the requirement to acquire a balanced system of areas of outstanding scenic, recreational, and historic importance. And, representative examples of California's natural and cultural resources are to be protected and made available for the enjoyment and inspiration of the people.

Actions

Actions for Federal Lands

The current program to acquire lands or interests in lands with significant resource, scenic, or public use values will continue as opportunities arise. However, because the legislated Redwood National Park acreage is limited to 106,000 acres, exclusive of submerged lands and publicly owned highways and roads, future acquisitions cannot result in total acreage exceeding that figure without legislation authorizing an increase in the acreage ceiling. Any future federal land acquisitions will be analyzed according to relevant boundary revision criteria, which include any or all of the following:

•The proposed acquisition includes significant resources or opportunities for public enjoyment that are related to the purposes of the parks.
• The proposal addresses operational and management issues such as access and boundary identification by topographic or other natural features or roads.
• The potential acquisition protects RNSP resources that are critical to fulfilling the parks' purposes.

In addition, recommendations to expand the boundary and acquire additional lands will be preceded by determinations that the added lands will be feasible to administer considering size, configuration, ownership, costs, and other factors, and that other alternatives for management and resource protection are not adequate.

As stated in the following "Boundary Map Adjustments" section, future acquisitions will be included in the legislated national park boundary by publishing a revised drawing or boundary description in the *Federal Register.*

Actions for State Lands

The current program to acquire lands or interests in lands with significant resource, scenic, or public use values will continue as opportunities arise.

BOUNDARY MAP ADJUSTMENTS

Issue

The official legislated national park boundary map included in the 1978 Expansion Act does not accurately depict current landownership due to state and federal land acquisitions since the date of the act.

Action

The official map must be updated to reflect the changes that have occurred since 1978, and provisions will be made to keep the map current in light of expected future land acquisitions.

Recent NPS land acquisitions in the scenic corridor (16 U.S.C. 79[c][d]) between Orick and Prairie Creek Redwoods State Park, and in the park protection zone (16 U.S.C. 79[b][c]), and minor boundary adjustments elsewhere will be included in the legislated national park boundary by publishing a revised drawing or boundary description in the *Federal Register.* Recently acquired CDPR lands will also be included in the revised drawing. Future acquisitions of land or interests in lands will be included in the

boundary through a similar *Federal Register* notice.

WILDERNESS

Management Strategies

• Evaluate lands for designation as wilderness consistent with and supportive of the perpetuation of the redwood forest ecosystem as the prime resource of the parks.

Issue

The California Wilderness Act of 1975 directs the consideration of roadless areas of the parks for inclusion in the state wilderness system.

Actions

The Redwood Heritage State Wilderness has been approved for a portion of Jedediah Smith Redwoods State Park to conform to the general boundary described as south of U.S. Highway 199 and Hatton Trail, west of Hiouchi and Mill Creek Trails, north of the southern park boundary, and east of the western park boundary. A transportation corridor for the Howland Hill Road will be excepted from this general boundary.

The Murrelet State Wilderness has been approved for a portion of Prairie Creek Redwoods State Park to conform to the general boundary described as south of the Ossagon Trail, west of the Newton B. Drury Scenic Parkway, north of the southern boundary of Prairie Creek Redwoods State Park, and east of Davison Road–Gold Bluffs Beach Road and the Coastal Trail.

The lands in the Redwood Creek basin within the national park represent the largest block of contiguous federal lands within Redwood National and State Parks. However, no wilderness area will be proposed for these federal lands because it is anticipated that, for the life of this plan, the National Park Service will be required to maintain access roads and use heavy equipment throughout the Redwood Creek basin to carry out its watershed restoration activities. These activities are inconsistent with wilderness designation.

FUTURE ACTION PLANS NEEDED

The development of this plan sets the overall vision and direction for the parks and identifies future planning needs and a sequencing strategy for those needs. However, the following studies will be needed to fully implement the approved final plan for managing the parks. New or updated plans will cover both national and state parks. These plans will be accompanied by an appropriate environmental compliance document as required by NPS and/or CDPR policies and guidelines. The list below is not intended to show priority order or exclude other planning needs that might be identified in the future. These plans will be done in a logical sequence to ensure that there is consistency of implementation among plans and consistent tiering down from this *General Management Plan / General Plan.*

Backcountry Management Plan: The goal of backcountry management will be to develop flexible strategies to protect the parks' resources while providing visitors with a safe, high-quality experience. This plan will address campsite locations and other backcountry facilities, campsite size limits, reservation and permit systems, stock use, trash and sanitation, and emergency services. This plan will also address use of the primitive zone as well as hiking, camping, and equestrian and mountain bike use. The backcountry management plan will be guided by the desired resource conditions and visitor experiences of the appropriate management zones.

Redwood Creek Estuary Aquatic Resource Management Plan: This plan will outline issues, resource conditions, and threats to aquatic habitats in the estuary, summarize past research, and describe alternatives for restoring natural processes and physical conditions. It will update the 1983 *Management Alternatives for the Redwood Creek Estuary* (NPS 1983b; see appendix D).

Second-Growth Forest Management Plan: This plan will identify management alternatives to speed the return of ancient forest structure and functions on the approximately 50,000 acres of previously harvested forest in the parks.

Vegetation Management Plan: This plan will identify and describe the parks' vegetation communities, and alternatives for protecting, restoring, and maintaining these communities.

Erosion Control and Disturbed Lands Restoration Plan: This plan will list the priorities for restoration treatments in RNSP watersheds to minimize erosion and restore lands disturbed by past logging and describe the criteria used to establish the priorities. Criteria include sensitivity of threatened resources, degree of threat, and the cost-effectiveness of timely treatment. This plan will update the 1981 *Watershed Rehabilitation Plan* (see appendix D).

Coordinated Resource Management Plan: This plan will analyze the physical and biological conditions within watersheds upstream of the parks, describe the concerns and objectives of landowners, and translate these analyses and concerns into a set of recommended land management practices for each watershed.

Comprehensive RNSP Trail Plan: This plan will describe trails and associated facilities needed to provide recreational opportunities for hikers, equestrians, and bicyclists in the parks. Trails and facilities will be consistent with the resource conditions and visitor experiences set forth in the management zones established in this plan.

Land Protection Plan: As required by its *Management Policies*, the National Park Service will complete this plan to guide future federal land acquisition in the parks. The plan will identify the alternative land protection methods to be used for the protection of resources, for visitor use, and for development; identify the minimum interests necessary to acquire for those purposes; and establish priorities for the acquisition of land or interests in land.

Wildland Fire Implementation Plan: This plan will identify specific actions needed to implement the appropriate management response to wildland fires. It will describe operational activities; funding, equipment, and personnel needed to control wildland fires; and timeframes and conditions for taking action. The plan will contain information to evaluate strategic management alternatives against safety, environmental, social, economic, political, and resource management criteria. This plan will be a supplement to the next revision of the 1995 *Fire Management Plan* (see appendix D).

Alternative Transportation Plan: This plan will assess the need to develop, and opportunities to provide, methods and systems of transportation that enhance visitor access and circulation within and adjacent to the parks and that also reduce impacts on the parks' resources and values.

Circulation and Access Plan at Prairie Creek Redwoods State Park: This plan will examine vehicle circulation in the Elk Prairie area. Alternative circulation patterns and alignments of the road will be presented.

Bald Hills Visitor Use Management Plan: This plan will guide development of appropriate visitor facilities and visitor use in the Bald Hills and along Bald Hills Road. The

plan will address protection and interpretation of viewsheds and other cultural and natural resources. The plan will specify interpretive themes to be presented at various locations throughout the Bald Hills and describe the media used to convey the information to visitors. Visitor uses of the Bald Hills, visitor access to the Bald Hills, and the development of recreational opportunities such as overnight camping, scenic overlooks, picnicking, interpretive trails, and vehicle parking areas and pullouts along the Bald Hills Road will be included in the plan. Planning for visitor use of the Bald Hills will be coordinated with the proposals in the backcountry management and the comprehensive trail plans and will be consistent with the resource conditions and visitor experiences set forth in the management zones established in this plan.

RNSP Architectural and Design Guidelines: This plan will provide the basis for managing the visual resources of the parks, including construction materials and design details, plant materials, and architectural features. The plan will include an inventory of the natural and cultural features unique to the parks and the region, identify the most significant visual characteristics, and provide specific suggestions on how to reinforce and incorporate those characteristics into facility design. The guidelines will also address environmentally sound construction methods, materials, and maintenance techniques, and accessibility for all RNSP users.

MITIGATION MEASURES FOR FACILITY CONSTRUCTION

Most construction activities will be done in areas that have already been disturbed by facilities, roads, parking areas, and trails. Mitigation measures will be employed to minimize temporary impacts from construction on soils, streams, wildlife, fisheries, vegetation, riparian zones, and other resources. Such measures will include silt fences, erosion control blankets, sand bags, mulch, and reseeding where appropriate and necessary. Topsoil and vegetation will be salvaged from the construction area and stockpiled for later use in revegetation efforts. Efforts will be made to prevent contamination of the soils with subsoil layers, gravels, or other construction materials. All utilities will be placed underground where practicable.

An undisturbed natural vegetation buffer zone will be maintained along streambanks to protect the riparian zone and aquatic resources from adverse impacts. To minimize contamination from petrochemicals from construction equipment seeping into the soil, vehicles and other machinery will be maintained and checked frequently to identify and repair any leaks. Appropriate restrictions will be imposed on construction and restoration activities in areas that have occupied habitat or unsurveyed suitable habitat for northern spotted owls or marbled murrelets. (For more information see the discussion of rare, threatened, and endangered species in the "Affected Environment" part of the *Final General Management Plan / General Plan / Environmental Impact Statement / Environmental Report.*)

NORTH AREA

- **Jedediah Smith Redwoods State Park:**
  Park Entrance: Relocate park entrance to Hiouchi area as part of proposed new visitor center.
  Campground: If needed, provide a greater number and variety of developed campsites.
  Howland Hill Road: Keep as two-way, unsurfaced road.
  Aubell Ranch: Relocate some NPS and CDPR protection operations here; keep CDPR maintenance operations.
  Stout Grove: Make minor improvements to access road and parking. Possibly construct pedestrian access from adjacent sites.
  State Park Wilderness: Create wilderness area for portions of Jedediah Smith Redwoods State Park.
  Visitor Facilities: Combine Jedediah Smith and Hiouchi functions in a new facility in the Hiouchi area.
- **Camping:** Provide additional primitive campsites where consistent with management zoning.

PRAIRIE CREEK AREA

- **Prairie Creek Redwoods State Park:**
  Elk Prairie Campground: If needed, provide a greater number and variety of developed campsites.
  CDPR Facilities: Remove facilities from northeast portion of Elk Prairie when opportunity arises to relocate.
  Cal-Barrel Road: Keep narrow, unsurfaced road. Improve drainage and treat erosion areas.
  Gold Bluffs Beach: Enforce regulations prohibiting off-road recreational vehicle use. Continue off-road vehicle use for commercial surf fishing by nontransferable annual permit only. Renew only permits issued between March 1996 and September 1, 1999, and issue no new permits. Terminate any permit not renewed. Continue permits for traditional Native American use in connection with cultural/religious activities.
  Fern Canyon: Manage visitor use and relocate parking out of stream channel.
  Newton B. Drury Scenic Parkway: No change unless recommended by future planning efforts.
  State Park Wilderness: Create wilderness area for part of Prairie Creek Redwoods State Park.
- **Camping:** Provide additional primitive campsites where consistent with management zoning.
- **Primary Visitor Center:** If the Redwood Information Center is significantly damaged, construct a new primary visitor center between Orick and Prairie Creek along U.S. Highway 101.
- **Davison Road-Gold Bluffs Beach Road:** Make minor improvements but keep as unpaved road. Evaluate alternative access such as a shuttle service.
- **Coastal Drive:** Keep as two-way, unpaved road. Convert to trail if major road failure occurs.

BALD HILLS AREA

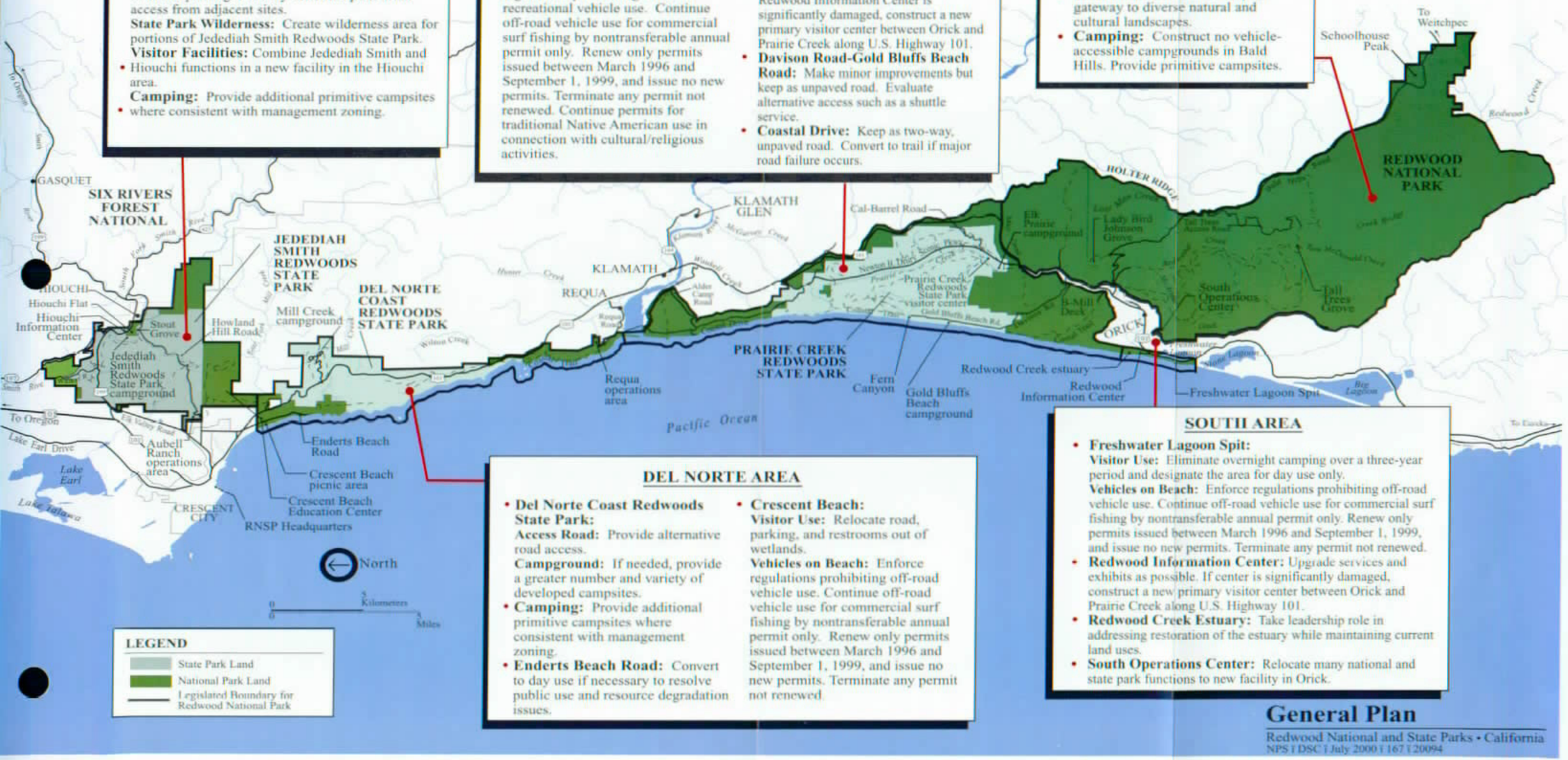
- **Tall Trees Grove and Lady Bird Johnson Grove:** Redesign parking area and trailhead in Tall Trees Grove to correct aesthetic problems but retain current capacity. Manage visitor use in both groves.
- **Tall Trees Access Road:** Keep as unpaved road with access only by permit until carrying capacity study is completed.
- **Bald Hills Road:** Develop as gateway to diverse natural and cultural landscapes.
- **Camping:** Construct no vehicle-accessible campgrounds in Bald Hills. Provide primitive campsites.

DEL NORTE AREA

- **Del Norte Coast Redwoods State Park:**
  Access Road: Provide alternative road access.
  Campground: If needed, provide a greater number and variety of developed campsites.
- **Camping:** Provide additional primitive campsites where consistent with management zoning.
- **Enderts Beach Road:** Convert to day use if necessary to resolve public use and resource degradation issues.
- **Crescent Beach:**
  Visitor Use: Relocate road, parking, and restrooms out of wetlands.
  Vehicles on Beach: Enforce regulations prohibiting off-road vehicle use. Continue off-road vehicle use for commercial surf fishing by nontransferable annual permit only. Renew only permits issued between March 1996 and September 1, 1999, and issue no new permits. Terminate any permit not renewed.

SOUTH AREA

- **Freshwater Lagoon Spit:**
  Visitor Use: Eliminate overnight camping over a three-year period and designate the area for day use only.
  Vehicles on Beach: Enforce regulations prohibiting off-road vehicle use. Continue off-road vehicle use for commercial surf fishing by nontransferable annual permit only. Renew only permits issued between March 1996 and September 1, 1999, and issue no new permits. Terminate any permit not renewed.
- **Redwood Information Center:** Upgrade services and exhibits as possible. If center is significantly damaged, construct a new primary visitor center between Orick and Prairie Creek along U.S. Highway 101.
- **Redwood Creek Estuary:** Take leadership role in addressing restoration of the estuary while maintaining current land uses.
- **South Operations Center:** Relocate many national and state park functions to new facility in Orick.



General Plan

Redwood National and State Parks • California

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APPENDIX A: DEVELOPMENT COST ESTIMATES

Following are development cost estimates for the plan as of June 1998. These cost estimates are rough NPS class C estimates based on the costs of similar facilities constructed by the Park Service in the Pacific west area through federal government contracts. Actual costs may be higher or lower depending on the final design, site conditions, and the contracting agency. Facilities may be constructed by the National Park Service, the California Department of Parks and Recreation, or some other entity such as a private or nonprofit corporation. Day labor projects using RNSP staff or volunteers will have lower costs than those shown below. Many assumptions on sizes and quantities had to be made to develop this cost estimate. These quantities will be refined during follow-up site-specific planning and design efforts and may be different than those used for this estimate.

Project planning includes surveys, more detailed site planning, facility design, construction documents, and additional project compliance activities (25% of net). Facility costs were developed using the NPS Denver Service Center cost estimating database.

> These estimates are not intended for use in developing budget requests without some additional planning or design work. Some figures also may not add up due to rounding.

Funding for many elements of the plan, including most items in this appendix, is subject to the limited in-park capabilities, agency priorities on a national and statewide basis, uncertainties in the legislative appropriation process, and unknowns related to donated funds.

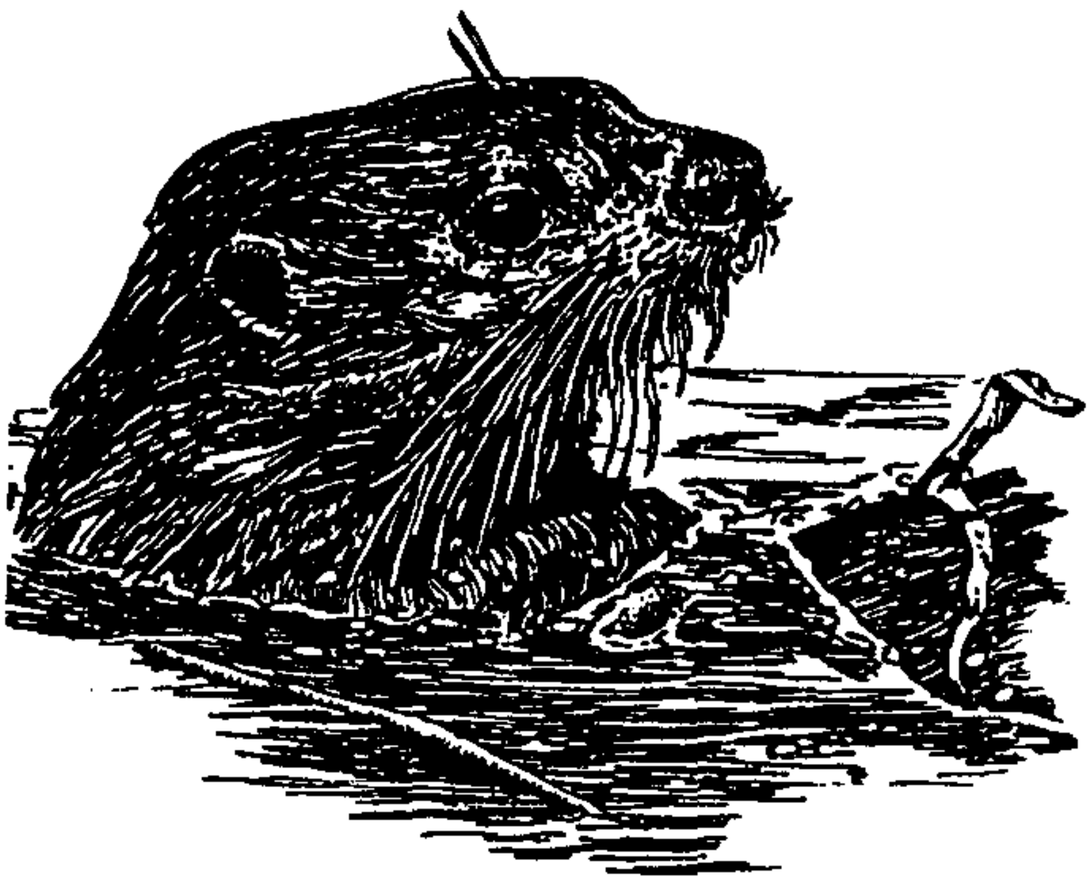

TABLE A-1: DEVELOPMENT COSTS, JUNE 1998

Item	Gross Construction Cost	Construction Planning	Total Cost
PUBLIC USE, RECREATION, AND VISITOR SAFETY			
Tall Trees			
Redesign parking area (20 cars)	$27,000	$5,000	$32,000
Fern Canyon			
Relocate parking area			
25-car parking area (gravel)	$34,000	$6,000	$40,000
50' access road (gravel)	7,000	1,000	8,000
gate	3,000	1,000	4,000
vault toilet (large)	68,000	13,000	81,000
site restoration (.5 acre)	29,000	6,000	35,000
Crescent Beach			
Relocate parking area			
25-car parking area (paved)	$83,000	$16,000	$99,000
100' access road (paved)	25,000	5,000	30,000
gate	3,000	1,000	4,000
vault toilet (large)	68,000	13,000	81,000
site restoration (.5 acre)	29,000	6,000	35,000
Bald Hills			
Add 5 waysides			
15-car parking area (total) (paved)	$50,000	$9,000	$59,000
5 wayside exhibits	23,000	4,000	27,000
200' access roads (paved)	50,000	10,000	60,000
Subtotal	$499,000	$96,000	$595,000
RECREATIONAL ACTIVITIES			
Camping			
Provide additional campsites in campgrounds: 75 new sites (complete with comfort stations, roads, parking, and utilities)	$737,000	$141,000	$878,000
Picnic Sites at Bald Hills			
30 picnic sites (total)	$197,000	$38,000	$235,000
30 parking spaces (in 5 areas) (paved)	99,000	19,000	118,000
200' access roads (paved)	50,000	10,000	60,000
5 vault toilets (standard)	151,000	29,000	180,000
Subtotal	$1,234,000	$237,000	$1,471,000
ACCESS AND CIRCULATION			
Jedediah Smith Redwoods State Park Entrance			
600' paved access road	$149,000	$29,000	$178,000
8-car parking area (paved)	27,000	5,000	32,000
entrance kiosk (100 sf)	11,000	2,000	13,000
utilities connection (200')	11,000	2,000	13,000
Stout Grove			
Resurface parking area (15 cars)	$15,000	$3,000	$18,000
Minor road upgrades (500')	39,000	8,000	47,000
Del Norte Coast Redwoods State Park Entrance			
Construct new 2-mile paved access road	$2,620,000	$500,000	$3,120,000
8-car parking area (paved)	27,000	5,000	32,000
entrance kiosk (100 sf)	11,000	2,000	13,000
connect utilities (200')	11,000	2,000	13,000
Obliterate existing road (1 mile)	255,000	49,000	304,000
Alder Camp Road			
Minor upgrade of 2.2 miles	$778,000	$148,000	$926,000
Davison Road			
Minor upgrade (includes surface improvements, straightening some curves, widening short sections, installing turnouts), 3 miles (gravel)	$1,061,000	$203,000	$1,264,000

Item	Gross Construction Cost	Construction Planning	Total Cost
Cal-Barrel Road Minor upgrade, 2.5 miles (gravel)	$884,000	$169,000	$1,053,000
Howland Hill Road Minor upgrade, 4 miles (gravel)	$1,415,000	$270,000	$1,685,000
Subtotal	$7,314, 000	$1,397, 000	$8,711, 000
FACILITIES			
Primary Visitor Center			
Construct center (4,000 sf)	$1,362,000	$260,000	$1,622,000
interpretive media (1,000 sf)	328,000	63,000	391,000
60-car parking area (paved)	199,000	38,000	237,000
access road (100') (paved)	25,000	5,000	30,000
water connection (100')	4,000	1,000	5,000
septic system	66,000	13,000	79,000
landscape development (25% of net bldg cost)	341,000	65,000	406,000
Hiouchi Information Center			
Construct center (2000 sf)	$681,000	$130,000	$811,000
interpretive media (400 sf)	131,000	25,000	156,000
30-car parking area (paved)	99,000	19,000	118,000
access road (300') (paved)	75,000	14,000	89,000
water connection (300')	12,000	2,000	14,000
septic system	39,000	8,000	47,000
landscape development (25% of net building cost)	170,000	33,000	203,000
Operational Facilities			
Aubell:			
Construct shop/office (900 sf)	$177,000	$34,000	$211,000
Expand vehicle/equipment storage yard (1,000 sf)	20,000	4,000	24,000
Requa Maintenance Facilities:*			
Upgrade utility systems (water, sewer, & electric)	1,572,000	300,000	1,872,000
Stabilize existing structures	1,179,000	225,000	1,404,000
Construct support facilities (parking, storage, etc.)	328,000	62,000	390,000
Subtotal	$6,808,000	$1,301,000	$8,109,000
GRAND TOTAL	**$15,855,000**	**$3,031,000**	**$18,886,000**

* These figures do not include costs for new facilities if the current facilities are threatened by landslides and earthflow.

APPENDIX B: RNSP OPERATIONS AND MAINTENANCE COSTS

TABLE B-1: STAFFING COSTS

Function	Number	Appointment	Estimated Cost
Park Management	4	Full-time	$ 260,000
Administration	16	Full-time	603,000
Administration	2	Temporary	32,000
Interpretation	13	Full-time	543,300
Interpretation	31	Seasonal	300,800
Resource Protection and Visitor Services	16	Full-time	932,400
Resource Protection and Visitor Services	25	Seasonal	228,000
Natural & Cultural Resource Management	45	Full-time	1,427,200
Natural & Cultural Resource Management	17	Seasonal	180,100
Maintenance	33	Full-time	1,486,600
Maintenance	53	Seasonal	461,200
Planner/Landscape Architecture	1	Full-time	55,100
TOTAL			$ 6,509,700

TABLE B-2 :OPERATIONS AND MAINTENANCE COSTS

Facility/Operation	Estimated Total Cost Per Year
Travel/training	$ 75,000
Vehicles	276,300
Utilities	282,000
Contracting Services	1,472,000
Supplies and Materials	105,000
Capitalized Equipment	56,000
Cyclic Maintenance & Equipment Replacement Program	681,000
Interpretive Media Equipment	60,000
Total	$ 3,007,300
GRAND TOTAL	**$ 9,517,000**

United States Department of the Interior
California Department of Parks and Recreation
Redwood National and State Parks

Agreement No. CA8480-4-9003

MEMORANDUM OF UNDERSTANDING
between
NATIONAL PARK SERVICE
and
CALIFORNIA DEPARTMENT OF PARKS AND RECREATION

for

THE COOPERATIVE MANAGEMENT OF
THE REDWOOD NATIONAL AND STATE PARKS

THIS MEMORANDUM OF UNDERSTANDING is made and entered into this 13th day of April, 1994, by and between the STATE OF CALIFORNIA, acting through the California Department of Parks and Recreation, hereinafter called "CDPR", and the UNITED STATES OF AMERICA, acting through the National Park Service, hereinafter called "NPS".

Article I. Background and Authority

WHEREAS, The Report of the California Coordinating Committee on Operational Efficiencies, representing the combined recommendations of the CDPR and the NPS, concludes that Jedediah Smith Redwoods State Park, Del Norte Coast Redwoods State Park, Prairie Creek Redwoods State Park and Redwood National Park, all located within the congressionally authorized boundary of the national park, should be cooperatively managed by both agencies under a Memorandum of

Understanding and collectively referred to as "Redwood National and State Parks"; and

WHEREAS, The Committee concludes such cooperative management would allow the identification, development and implementation of operational efficiencies resulting in enhanced protection of park resources and improved service to the public; and

WHEREAS, pursuant to the provisions of Section 5080.30 of the Public Resources Code of the State of California, CDPR may enter into agreements with agencies of the United States for the care, maintenance, administration and control of lands under the jurisdiction of CDPR by any party of the agreement for the purposes of the State Park System; and

WHEREAS, NPS may contract for the use and management of CDPR lands pursuant to "an Act to establish a Redwood National Park..." approved October 2, 1968 (P.L. 90-545: 82 Stat. 931, 16 USC 79a, 79c), as amended by the Act of March 27, 1978 (P.L. 95-250: 92 Stat. 163); and

WHEREAS, NPS is authorized to aid in planning and cooperating with CDPR for the purpose of developing coordinated and adequate public park facilities, pursuant to the Act of June 23, 1936 (ch. 735, sec. 2: 49 Stat. 1894), and

WHEREAS, NPS has acquired for park and recreational purposes certain real property generally referred to and known as Redwood National Park; and

WHEREAS, CDPR and NPS desire to enter into an agreement to provide for cooperative management of all CDPR and NPS lands within the congressionally authorized boundaries of Redwood National Park;

NOW THEREFORE, in consideration of the foregoing, the parties hereto do hereby covenant and agree as follows:

Article II. Statement of Objectives

1. NPS and CDPR do mutually adopt the designation "Redwood National and State Parks", hereinafter referred to as PARKS, for use by both agencies in referring to the area within the congressionally authorized boundary of Redwood National Park.

2. To the extent practicable, NPS and CDPR mutually agree to commit the respective resources, staff, equipment and facilities assigned to the PARKS to the common protection of all resources contained within the PARKS, as well as for the appropriate enjoyment and appreciation of the same by the public, without regard to governmental ownership.

3. CDPR shall identify and staff a position to serve as a liaison with Redwood National Park and the three aforementioned State Park units on a day-to-day basis. This person will be duty-stationed at the Redwood National Park Headquarters in Crescent City, with responsibility over the three state parks and decision-making powers on their behalf. NPS will provide office space and support for the CDPR liaison. A CDPR resources management liaison will be established to work cooperatively with Redwood National Park in implementing and coordinating resource management projects.

4. NPS and CDPR shall seek to attain cooperative operating procedures and practices that result in efficiencies and cost savings accruing to both partners. Budget records of expenses and revenues shall be maintained for each agency's PARKS operation and it is the parties intent that all savings accruing therefrom shall be utilized for the enhanced protection of PARKS resources and service to the PARKS visitors.

5. Operating procedures and standards for the PARKS shall be developed by NPS and CDPR, to ensure joint accomplishments of PARKS activities, including but not limited to: visitor protection and public safety, public information, interpretation and publications, resource management, maintenance, design and construction, planning, signing, and the development of policies. To the extent practicable and maintaining agency identity, work performed in the PARKS will be conducted by personnel without respect to agency affiliation. Through signing, publications and other instruments of communication with the public, the

cooperative management of the PARKS by CDPR and NPS should be projected to visitors, park neighbors and governmental agencies.

6. Both NPS and CDPR shall work with the PARKS to provide flexibility and latitude in policy and direction to promote cooperative operations and efficiencies in the best interests of the PARKS.

7. PARKS staff shall cooperatively prepare an annual workplan that identifies common projects resulting in interagency cost efficiencies. The workplan will contain specific goals, actions and target completion dates, to be incorporated in the performance standards of the responsible NPS and CDPR PARKS Superintendents. The workplan will be an annual amendment to this agreement.

8. To the extent practicable PARKS planning will be cooperatively produced, reviewed and approved. Ongoing planning efforts will be modified to accommodate the participation of both CDPR and NPS. Existing plans will serve as current direction, pending their revision or replacement. The agencies shall speak with one voice in the review of non-PARKS plans that affect PARKS interests. NPS and CDPR shall work toward the development of a new General Management Plan for the PARKS, to provide a blueprint for the future of the coordinated PARKS operations. NPS will seek funds and assistance for the development of this Plan.

Article III. Term of Agreement

This Memorandum of Understanding hereby made shall terminate five (5) years from the effective date hereof, unless prior thereto it is relinquished, abandoned, or otherwise terminated pursuant to the provision of this agreement or of any applicable Federal or State law or regulation. This agreement may be renewed or otherwise amended by the mutual written agreement of the parties. The effective date of this agreement shall be the date when appropriate signatures are obtained.

Article IV. Key Officials

Superintendent
Redwood National Park
1111 Second Street
Crescent City, California 95531

Regional Director
National Park Service
Western Regional Office
600 Harrison Street
San Francisco, California 94107-1372

Superintendent
North Coast Redwoods District
600-A West Clark Street
Eureka, California 95501

Director
Department of Parks and Recreation
State of California
1416 9th Street
Sacramento, California 94926-0001

Article V. Expenses

Nothing in this agreement shall be construed as obligating NPS or CDPR to expend any funds in excess of appropriations authorized by law. The commitment of funds in furtherance of this Memorandum of Understanding shall be authorized by individual amendments. When the work to be accomplished and the work program are mutually agreed upon by both parties, an appropriate agreement with specifying its authority, shall be consummated obligating funds where necessary.

Article VI. Reports

A cooperative one-year workplan for the PARKS will be submitted for final approval to the NPS Regional Director and the CDPR Director no later than 120 days from the signing of this agreement and annually thereafter.

As specified in the CDPR-NPS headquarters MOU signed by the NPS Regional Director and CDPR Director, a status report on progress and accomplishment by the PARKS will be submitted to both Directors on a six-month basis.

At the end of the first three years from the approval date of the CDPR-NPS headquarters interagency MOU, the PARKS will provide requested input to the analysis of the overall success of this cooperative effort and modification needed to improve the effort.

Article VII. Property Utilization and Disposition

Any tools, equipment, material or other property supplied by NPS shall remain the property of the NPS. Similarly, any tools, equipment, material or other property supplied by CDPR shall remain the property of the State of California.

Article VIII. Termination

Either party may terminate this Memorandum of Understanding earlier by providing sixty (60) days written notice to the other, following an analysis and review by the NPS Regional Director and the CDPR Director of the rationales for seeking termination.

Article IX. Required Clauses

1. During the performance of this agreement, the participants agree to abide by the terms of Executive Order 11246 on nondiscrimination and will not discriminate against any person because of race, color, religion, sex or national origin. The participants will take affirmative action to ensure that applicants are employed without regard to their race, color, religion, sex or national origin.

2. No member or delegate to Congress or resident commissioner shall be admitted to any share or part of this agreement or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this agreement if made with a corporation for its general benefit.

Signature blocks:

William H. Ehorn Date 4-14-94
Superintendent
Redwood National Park

W. Thomas R. Leal Date 4-19-94
Superintendent
North Coast Redwoods District

I concur.

Stanley T. Albright 5/2/94
Regional Director Date
Western Region
National Park Service

I concur.

Donald N Murphy 5/16/94
Director Date
California Department of Parks
and Recreation

APPENDIX D: SUMMARY OF REFERENCED PLANS

INVENTORY OF FEATURES: JEDEDIAH SMITH REDWOODS STATE PARK, DEL NORTE COAST REDWOODS STATE PARK, PRAIRIE CREEK REDWOODS STATE PARK

This document, done by the California Department of Parks and Recreation in 1982 and 1983, summarizes all of information on the natural, cultural, aesthetic, and recreational resources of the three state redwood parks known at the time. It was compiled before the preparation of the *State Redwoods General Plan* (1984). The information provides a foundation of knowledge for the development of resource management goals, objectives, policies, and programs. It has served as the basis for general planning and facility development, for development of interpretive programs, and as background information for maintenance and operations. The *Inventory* also functions as a historical document that represents the knowledge that contributed to decision making in the *General Plan*.

BALD HILLS VEGETATION MANAGEMENT PLAN

Redwood National Park prepared the *Bald Hills Vegetation Management Plan and Environmental Assessment* in 1992. The park is implementing the plan through a combination of prescribed fires and cutting to remove Douglas-fir from 660 acres of Oregon white oak woodlands and 1,700 acres of existing prairies in the Bald Hills area of the national park.

The objective of Bald Hills vegetation management is to retain the diversity of plants and animals that prevailed in 1850 when Euro-American settlers first moved into the Redwood Creek basin. Since that time, livestock grazing, cultivation, introduction of exotic plants, and fire suppression reduced many of the once dominant native grassland species, and allowed Douglas-fir to encroach on the open prairies and oak woodlands. A long-term goal of vegetation management in the Bald Hills is to increase the size of the remaining prairies by 25%, which will better reflect their extent in 1850.

FIRE MANAGEMENT PLAN

In 1994 Redwood National Park prepared a *Draft Fire Management Plan* and a *Draft Environmental Assessment* on the plan. Following public comment, a *Final Fire Management Plan* and a "Finding of No Significant Impact" were issued in 1995. The plan calls for a program of prescribed fires to create a mosaic of burned and unburned areas, reduce unnatural fuel concentrations, and restore native plant communities. Prescribed fires conducted under the plan will be concentrated in the Bald Hills prairies and oak woodlands and may include up to 3,000 acres in any one year. Burn prescriptions will define the appropriate climatic and fuel conditions and necessary fire-control personnel and equipment needed to ensure that burns are controlled and confined to the designated burn area.

The plan also proposes that the park's vegetation management program investigate the outcomes and the effectiveness of small burns in other vegetation types, including old-growth redwood forest. In 1995 the assessment began by burning 10 acres of old growth at the base of Elk Camp Prairie on the east side of the Redwood Creek basin to evaluate the effects of fires in old growth.

Finally, the plan requires that all wildfires, whether human caused or natural, be suppressed using techniques that minimize adverse impacts on sensitive cultural and natural resources.

EXOTIC PLANT MANAGEMENT PLAN

Redwood National Park issued a *Draft Exotic Plant Management Plan and Environmental Assessment* in 1994. The " Finding of No Significant Impact," which served to finalize the plan according to public comment on the draft plan, was issued in 1995. RNSP staff control exotic plant species through a combination of mechanical (physical removal), cultural (attempts to alter human behavior), biological (use of pathogens or ecological succession), and chemical (herbicides) methods. The plan lists target species to be controlled, describes a method for determining whether control will be effective, and assigns a priority for control. Techniques are recommended for controlling the 13 species that are con-

sidered to represent the greatest threat to park resources and ecological communities.

1984 REDWOOD NATIONAL PARK BACKCOUNTRY TRAIL PLAN

Completed in March 1984, this plan guides the implementation of the backcountry trail actions proposed in the 1980 *General Management Plan.* The trail plan was designed to keep total trail mileage to the minimum necessary to provide adequate recreational access to the Redwood Creek and Skunk Cabbage Creek areas of Redwood National Park. The plan proposed almost 144 miles of hiking and horse trails, of which about 68 miles have been constructed.

1995 DAVISON RANCH DEVELOPMENT CONCEPT PLAN

The *Davison Ranch Development Concept Plan* describes facilities for visitor use that will be constructed in and around Davison Ranch and the B-mill deck. The plan calls for 22 miles of new hiking, bicycling, and equestrian trails in the area west of Highway 101, north of Skunk Cabbage Creek, and south of Prairie Creek Redwoods State Park. A paved trail for hikers and bicyclists will be constructed parallel to Prairie Creek on an old logging road, beginning near the south end of Elk Prairie, running through the B-mill trailhead, and continuing across Prairie Creek to rejoin Highway 101 across from Berry Glen. A trailhead, picnic area, and restrooms will be constructed on the B-mill deck. The large area of asphalt on the deck will be removed, and an old stream channel will be restored. Parking areas will be constructed along both sides of Davison Road east of the Prairie Creek bridge to provide a safe place from which to see elk in the pastures.

1981 WATERSHED REHABILITATION PLAN

This plan, accompanied by an environmental assessment, addresses a rehabilitation program for up to 30,000 acres in the Redwood Creek basin that have been subjected to extensive timber harvest and logging road development. The major objectives of the program are to minimize human-induced erosion and to encourage the return of the area to a mature redwood forest ecosystem. The program described in the plan consists of several interrelated projects to be carried out over 15 years. The projects include erosion control, the planting of forest vegetation, and the removal of roads not needed for access to rehabilitation sites or for future park management. The plan identifies sites for treatment, including roads to be removed, and establishes the priorities among sites.

1983 MANAGEMENT ALTERNATIVES FOR THE REDWOOD CREEK ESTUARY

This document summarizes the research on the physical and biological functioning of the estuary and presents and analyzes interim and long-term management alternatives for the estuary. The research included seasonal patterns of changes in water quality; determination and comparison of present patterns of inundation, seasonal morphological changes, and sediment sources with historic information; and a determination of abundance, distribution, and seasonal patterns of estuary use by fish. An environmental assessment accompanied the plan to facilitate public input on how the estuary should be managed and/or rehabilitated.

APPENDIX E: THE MANAGEMENT ZONES

TABLE E-1. MANAGEMENT ZONE DEFINITIONS

Zone	Resource Condition or Character	Visitor Experience	Appropriate Kinds of Activities or Facilities
Developed Zone	• Facilities and other signs of human activity rather than resources will be the dominant features in this zone, but natural elements will also be present. • Resources will be intensively managed for visitor use and RNSP operational needs. Visitors and facilities will be intensively managed for resource protection and public safety. • Visitors may see resources that receive special protection by law or that are easily damaged from this zone, but these resources will generally not be included within this zone. • This zone will be restricted to as small an area as necessary to provide essential services.	• Facilities will be convenient and designed to harmonize and blend with the adjacent resources. • These areas will provide opportunities for many social interactions, and the probability of encountering other visitors or RNSP staff will be very high. • There will be little need for visitors to physically exert themselves, apply outdoor skills, or make a long time commitment to see an area of interest once they have arrived there. • Opportunities for adventure or solitude will not be emphasized. • Quiet will not be expected, and noise levels will occasionally be high.	• visitor centers • large parking lots • picnic areas in heavily impacted areas away from primary resources and where *infrastructure may be provided* • administrative facilities including housing, maintenance shops, offices, and storage areas • use of motorized equipment
Frontcountry Zone	• Zone will contain predominantly natural features, but structures and the sights and sounds of people will be evident. • Visitors, sites, and facilities will be intensively managed to ensure resource protection and public safety. • The natural environment will be modified for essential visitor and RNSP operational needs, but only in a way that harmonizes with the setting and retains the dominant characteristics of the surrounding *environment.*	• Visitors will feel that they were in a natural park setting, but development will be evident. • There will be easy access to developed or transportation zones. • There will be ample opportunity for social interaction. • At certain times of day or season, there will be opportunities for solitude, but in general the probability of encountering other visitors will be high. The probability of encountering RNSP staff will be moderate. • This zone will offer a fairly structured experience, with onsite interpretation and education. • Visitors might be required to make a short time commitment and might need to physically exert themselves to a very small degree. • There will be limited challenge or adventure and little need for outdoor skills. • Quiet will not be required as an essential part of visitor enjoyment, but moderate to low noise levels will be desirable.	• trailhead parking • high-standard and high-use trail corridors that access prime features such as cultural sites or scenic areas • trails that are accessible to visitors with disabilities • scenic overlooks off transportation corridors • picnic areas with limited infrastructure • large, drive-in campgrounds and associated administrative facilities • utility corridors in otherwise natural areas • hardened trail surfaces, interpretive facilities and signs, and limited infrastructure will be allowed • use of motorized equipment

Zone	Resource Condition or Character	Visitor Experience	Appropriate Kinds of Activities or Facilities
Backcountry Zone, Mechanized	•This zone will appear mostly natural, containing natural areas with generally pristine conditions and previously disturbed areas that have been or will be restored to natural conditions, as well as areas containing facilities of a more primitive nature than those in the frontcountry zone. • Resource modification and degradation from visitor use will be low in this zone.	• This zone will provide visitors a sense of being immersed in a natural landscape. • The visitor experience will emphasize discovery. • Visitors will feel somewhat distant from most comforts, conveniences, and facilities. • The chance of solitary experiences will increase with increasing distance from transportation, developed, or frontcountry zones. The chance of encountering visitors or RNSP staff will be very low in most of the zone. • Visitors will generally have to commit a block of time, have outdoor skills, and exert themselves to use areas in this zone. There will be possibilities for challenge and adventure. • Quiet will generally be expected, but occasional moderate noise levels, especially near transportation and frontcountry zones and primarily from other visitors and maintenance activities, will be tolerated. • Visitors might periodically encounter ongoing rehabilitation and restoration projects.	• Essential facilities will be evident, but the facilities will be very limited and will harmonize with the natural environment. Mechanized forms of visitor transport for recreation, such as bicycles, will be allowed on trails designated for such use. Motor vehicles (as defined by 36 CFR 1.4) for visitor recreation will be prohibited. • Facilities or structures will not be placed near easily damaged resources unless the resources could be protected and the facility was unobtrusive. • Facilities will be more rustic, in harmony with the less developed nature of this zone, and could include • small walk-in or equestrian campgrounds with water and compost or pit toilets • small designated camping areas with no amenities • designated unpaved hiking or equestrian trails or designated biking trails with bridges • trails with no improvements • walk-in picnic areas • small signs for visitor safety and resource protection. • A moderate level of management of both resources and visitors will be provided for visitor safety and resource protection, e.g., restricting off-trail use. • The parts of this zone that are adjacent to frontcountry zones will be expected to contain greater levels of development than the interior of this zone or than areas adjacent to primitive zones. The parts of this zone that are adjacent to primitive zones will be less suitable for the development of facilities or for recreational uses that involve mechanized equipment (such as mountain bikes).

Zone	Resource Condition or Character	Visitor Experience	Appropriate Kinds of Activities or Facilities
Backcountry Zone, Nonmechanized	• Same as backcountry mechanized subzone, but no noise from use of mechanical forms of transportation will be allowed within the zone.	• Visitor experiences in these areas will be similar to the description for the backcountry mechanized zone, with gradually less noise and intrusion as visitors move through this zone toward the primitive zone. • Visitors might periodically encounter ongoing rehabilitation and restoration projects.	• Facilities will be more primitive than those allowed in the backcountry mechanized zone. After disturbed areas in this zone have been restored, no form of mechanical transport for visitor recreation such as bicycles will be allowed. Other activities or facilities allowed could be • hiking or equestrian trails • generally unimproved stream crossings with infrequent trail bridges only where needed for public safety • designated areas for camping, normally without facilities • small signs essential for visitor safety

Zone	Resource Condition or Character	Visitor Experience	Appropriate Kinds of Activities or Facilities
Primitive Zone	• This zone will be the most natural of all the zones, and will have areas with pristine conditions as well as areas with dense vegetation that are extremely difficult to enter or move through without trails; thus this zone is unlikely to be visited by most RNSP visitors. • This zone includes areas where very low use is desirable to protect certain resources. • The tolerance for resource degradation from visitor use will be low. • A low noise level from human-caused sources will be an essential resource condition in the interior of the zone.	•Visitors to the primitive zone will experience a natural setting, with the least evidence of development of any of the zones. • The primary experience will be one of discovery only, in an area that will be difficult to walk through. • Human use after the restoration of lands damaged by previous land use will likely be extremely low, either due to management restrictions or physical difficulty for human access. • Evidence of impacts from others will be minimal. • Chances for social interaction or encounters with RNSP staff or other visitors will be extremely low. •Opportunities for independence, closeness to nature, tranquility, and solitude will be ample. • There will be many opportunities for challenge and adventure. Visitors will have to exert themselves physically and perhaps mentally, and commit a relatively large block of time to explore in this zone because of the generally difficult topography, dense vegetation, and lack of developed access. Outdoor skills such as route-finding will be necessary. • Visitors might periodically encounter ongoing rehabilitation and restoration projects.	• No facilities or development will be allowed in this zone other than existing trails. • No new trails will be constructed in this zone. • Only foot access will be permitted. • Heavy equipment will be needed temporarily to restore natural conditions in damaged watersheds included in this zone. • Following the restoration of previously disturbed areas, management will be limited to those actions necessary to protect human health and safety and to restore natural processes that have been or continue to be altered by modern human influences. Onsite management and restrictions will be minimized and will be subtle.
Little Lost Man Creek Research Natural Area Subzone[1]	•This research natural area will be intended to be the most pristine area within the national park. •Natural processes will be allowed to continue unhindered by any management action. • A low noise level from unnatural or human sources will be essential in the interior of the zone.	•Visitors will not be encouraged to enter this zone. • Evidence of modern human presence will be limited to unobtrusive equipment for scientific research. •The probability of encountering other visitors or NPS staff will be very low. • Visitors will need to physically exert themselves and apply outdoor and route-finding skills to make their way in this zone. They might need to make a long time commitment to see the area. • Opportunities for solitude will be excellent.	• No permanent structure or modification or facilities will be appropriate except the minimum necessary to conduct nonmanipulative scientific research. • By NPS policy, activities in resource natural areas are restricted to nonmanipulative research, education, and other activities that will not detract from the area's research values.

1. The **Little Lost Man Creek Research Natural Area** will be a subzone of the primitive zone. This zone encompasses 2,250 acres of largely unmodified forested stream basin. Because public entry is assumed to be extremely low because of the difficulty of walking through this zone, special or intensive management will be unnecessary at this time. A research natural area is defined under NPS management policy as a special designation granted by the NPS director and applied to prime examples of natural ecosystems and areas with significant genetic resources with value for long-term baseline observational studies or as control areas for comparative studies involving manipulative research outside the national park. These areas are to be managed to provide the greatest possible protection of site integrity.

Zone	Resource Condition or Character	Visitor Experience	Appropriate Kinds of Activities or Facilities
Transportation Zone			

High-Standard Subzone — covers paved state highways	• U.S. Highways 101 and 199 and State Highway 197 are in this zone and are under the control of the California Department of Transportation (Caltrans).
	• The desired conditions for RNSP resources in this zone must be integrated with the requirements to provide safe and efficient transportation for highway users.
	• Resources might be highly modified within this narrow corridor for operational and safety needs.
	• Adjacent RNSP resources and the visual qualities of the road corridor will be recognized as having significant regional value and will be protected accordingly.
	• The protection of ancient redwood forests will be of paramount importance.
	• This subzone will be made as narrow as possible to allow for the protection of the resources adjacent to the subzone and to limit the intrusion on RNSP resources and visitor enjoyment of the parks. However, this subzone will be wide enough to accommodate the development of safety pullouts, scenic overlooks, trailheads, and interpretive exhibits where appropriate.
	• Noise generated by traffic in this zone might affect the resources, particularly wildlife, in adjacent zones.
		• The highway corridors should provide a world-class transportation experience.
		• All travelers should have a sense of being in a park environment. The experience will be primarily visual or vicarious.
		• The subzone will be used by visitors for touring the parks, enjoying scenic overlooks, and gaining access to other zones.
		• The visitor experience will depend on a motorized vehicle or bicycle and involve driving or bicycling along well-maintained paved roads. Portions of the highways, particularly Highway 101, are not well suited to safe and leisurely bicycling because of the speed and size of motorized vehicles on the highways and because the shoulders are narrow or absent.
		• Facilities for basic visitor orientation and signs will create a sense of arrival and awareness of being in a park.
		• Visitor attractions will be convenient, but visitors unfamiliar with the area might have difficulty identifying and stopping at attractions along Highway 101 because of the speed of travel.
		• The probability of encountering other users will be very high.
		• There will be no need for visitors to exert themselves, apply outdoor skills, or spend a long time in the zone.
		• Noise generated by traffic and maintenance activities in this zone might compromise resource values in adjacent zones, particularly quiet and a sense of solitude.
			• The placement of signs and facilities will require the approval of Caltrans.
			• Recreational activities such as bicycle riding will be accommodated within public safety and resource constraints.
			• Visitor use and operational facilities will be intensively managed for safety of all users.
			• Activities and facilities could include
			  • paved roadways with associated signs, barriers, and traffic control devices
			  • law enforcement and other restrictions on visitor activity
			  • interpretive media
			  • utility corridors
			  • scenic overlooks, trailheads, and safety pullouts

Zone	Resource Condition or Character	Visitor Experience	Appropriate Kinds of Activities or Facilities
Low-Standard Subzone –– applies to most other roads in the parks	• Some low-standard roads are under county control. • A moderate amount of resource modification will be necessary to provide for RNSP operational needs, public safety, and administrative access. •This subzone will be as narrow as possible to allow for the protection of adjacent resources. • Noise in this subzone will be less than in the high-standard subzone because of the lower traffic speeds and volume. • There will be correspondingly less effect on the wildlife in adjacent zones.	• The visitor experience will be primarily visual within this subzone and will depend on driving a motorized vehicle or bicycling along a paved or unpaved road. • This subzone will be used by visitors for touring the parks, seeing resources, enjoying scenic overlooks and interpretive media, and gaining access to other zones in the parks. • Visitor attractions will be convenient and might be easier to stop at than in the high-standard subzone because of the generally lower speed of travel. • Bicycling along these roads will be safer than in the high-standard subzone because of less traffic and lower speeds. • Chances to observe the natural environment will be important. • There might be a sense of adventure, but there will generally be little need for visitors to exert themselves, apply outdoor skills, or spend a long time in the area. • The probability of encountering other visitors or RNSP staff will be moderate to low. •Some roads in this zone will be closed to visitors in motorized vehicles. • Noise generated by traffic and maintenance in this subzone might compromise resource values in adjacent zones, particularly quiet and a sense of solitude, but the impact on visitors will be much less than in the high-standard subzone.	• Activities and facilities could include • paved or unpaved roads and associated signs, barriers, and other traffic control devices • paved or unpaved pullouts • interpretive media • roadside parking and picnic areas with comfort stations • utility corridors • scenic overlooks, trailheads, and safety pullouts • Visitors and facilities will be intensively managed for safety.

Zone	Resource Condition or Character	Visitor Experience	Appropriate Kinds of Activities or Facilities
Bald Hills Zone	• The Bald Hills contain a unique mixture of cultural influence on an uncommon natural resource. Although the natural resources might be the most prominent feature, the existence of the Bald Hills can be attributed to a long history of cultural effects. Within this zone, cultural resources and their protection might take precedence over natural resources or vice versa. • The contributing elements of the historic and archeological national register districts, such as structures, orchards, roads, water systems, and archeological sites, will be preserved. Vegetation management will be implemented according to the *Bald Hills Vegetation Management Plan* (1992; see appendix D). • Essential facilities will be evident, but the facilities will be limited and will harmonize with the natural and cultural environment. • Resource modification and degradation from visitor use will be low in this zone. • This zone will include recently disturbed areas with processes that have been or will be restored to near natural conditions.	• The Bald Hills zone will provide visitors with a sense of being immersed in a natural landscape with opportunities to appreciate the cultural history of the area. Awareness of the natural environment might be a prominent part of the experience in portions of this zone, while in other areas the cultural environment might be the prominent experience. • The visitor experience will emphasize discovery. • Visitors will feel somewhat distant from most modern comforts, conveniences, and facilities. Some facilities will be provided for visitor support and enjoyment of the resources. • The chance of solitary experiences will increase with increasing distance from the transportation zone. The chance of encountering visitors or RNSP staff will be low in most of the zone, although visitors might encounter staff engaged in various resource management activities. • Visitors will generally have to commit a block of time, and exert themselves in some areas, to visit this zone. In general, there will be possibilities for challenge and adventure, and learning about of past human influence in a seemingly natural landscape. • Quiet will generally be expected, but occasional moderate noise levels, especially near transportation zones and primarily from other visitors and maintenance activities, will be experienced.	• Appropriate facilities in this zone are those that will harmonize with the essential characteristics of the natural and cultural resources and that will be critical to visitor enjoyment and understanding of the zone, including • small walk-in campgrounds with water and compost or pit toilets • primitive trails with no improvements • walk-in and roadside picnic areas • small signs or appropriate wayside exhibits for visitor interpretation and safety and resource protection • self-guiding tours • Facilities or structures will not be placed near easily damaged resources unless the facility was unobtrusive and the resources could be protected. • Special emphasis will be placed on the protection of American Indian sacred and ethnographic sites. • A moderate level of management will be provided for visitor safety and resource protection, e.g., restricting off-trail use, fire line construction around barns, etc.

Zone	Resource Condition or Character	Visitor Experience	Appropriate Kinds of Activities or Facilities
Cultural Resource Zone[2] — includes cultural roads and trails	• Within this zone, cultural resources might take precedence over natural resources. • The desired character or condition of resources in this zone will depend on the specific resource. • The surrounding areas, and in certain cases the resources themselves, might be modified for resource protection and visitor safety. However, the modification of the essential or defining characteristics of the resource will generally only be allowed with research and extensive documentation. Some of these resources might be in areas that are substantially developed, but the resources themselves will be protected through sometimes intensive management of visitor use.	• A broad spectrum of visitor experiences will be available in this zone. • The visitor experience will vary with the type and sensitivity of the resource. In some cases, visitors will be able to experience the site as the original human users did; entry to other sites will be subtly discouraged, prohibited, or intensively managed to protect the resource. • Awareness of the natural environment might be a prominent part of the experience in much of this zone; however, this awareness might be an almost insignificant part of the experience at other sites in this zone. • The probability of encountering other visitors or RNSP staff will vary substantially for different sites. • Generally, there will be little need for visitors to exert themselves, apply outdoor skills, or spend a long time in the zone. • Opportunities for solitude and tranquility will not be critical to the primary experience in most areas within the zone.	• Appropriate facilities in this zone are those that will harmonize with the essential characteristics of the resource and that will be critical to visitor enjoyment and understanding of the site. • The nature and location of the resource with respect to other zones will partly determine what activities or facilities were appropriate. • Low-standard roads, trailheads and trails, picnic areas, vault toilets, fencing, signs, and interpretive media will be appropriate in some areas. In other areas such as sites sacred to American Indians, no structure that will draw unwanted attention to the site or facilities will be provided. Facilities that divert visitor attention from sacred sites might be appropriate.

2. For their protection, archeological sites and some of the resources within this zone that are held as significant by American Indians will not be identified on maps or documents

Zone	Resource Condition or Character	Visitor Experience	Appropriate Kinds of Activities or Facilities
Marine Management Zone	• This zone is dominated by the intense physical forces of tides, waves, currents, winds, storms, and other ocean processes. Resources are pristine in those portions of the zone bounded by steep ocean bluffs and accessible to humans only at low tide or in watercraft. • Natural processes will continue unhindered by any management action in most of the zone. Management actions will be generally limited to the management of visitor use originating from the shoreline because management action will be ineffective at controlling the dominant physical processes in the zone. • Resource modification and degradation originating from human use along the shoreline within RNSP boundaries will be low. • Resource modification by human use will occasionally be overcome by physical processes originating outside RNSP boundaries. Physical processes will sometime return the resources to a natural state. • Resource extraction and public use in the zone will be consistent with applicable federal and state laws. • Sites and sounds of human use will be present in those portions of this zone adjacent to developments and roads, but along the undeveloped portions of this zone at the base of ocean cliffs evidence of human presence will be generally unnoticed.	• The visitor experience in this zone will be determined by the nearness to other zones. In those portions of the zone adjacent to developed zones, visitors will be able to see and hear evidence of occasionally intensive development. In portions of the zone accessible only by foot at low tide or by watercraft, visitors will experience the natural sights, sounds, and smells of the ocean and the rugged coastline. • Opportunities for social interaction will vary greatly in this zone. During some seasons and at some locations, visitors will have excellent opportunities for solitude. At other seasons and locations, visitors will have a very high probability of encountering other visitors or RNSP staff or people engaged in commercial or recreational fishing, beachcombing, or other recreational activities allowed under applicable regulations. • Visitors might be able to experience this zone with minimal effort, e.g., as a view, or with great effort and some challenge and adventure, e.g., a hike beneath ocean cliffs only at low tide. • Onsite interpretation and education will greatly enhance visitor understanding of this zone. • Education about physical processes that dominate the zone will be essential to ensure safe visitor use in all parts of this zone. Access by land to portions of the zone might be prohibited temporarily to ensure visitor safety.	• Most facilities and structures will be unable to withstand the physical forces that dominate this zone. Facilities and signs that might be in this zone will be considered temporary because of the high probability of damage by the ocean. • Access will be by foot, motor vehicle, or watercraft, consistent with applicable regulations. • Tidelands and submerged lands within this zone may be owned by the state of California or its political subdivisions, and some management actions may be subject to the jurisdiction of other agencies.

APPENDIX F: THREATENED AND ENDANGERED SPECIES KNOWN TO OCCUR IN REDWOOD NATIONAL AND STATE PARKS

TABLE F-1. THREATENED AND ENDANGERED SPECIES KNOWN TO OCCUR IN REDWOOD NATIONAL AND STATE PARKS

NOTE: See the end of this appendix for definitions and abbreviations.

SPECIES	STATUS	KNOWN OR SUSPECTED OCCURRENCE IN PARKS	BREEDING OBSERVATIONS
		PLANTS	
Beach layia *Layia carnosa*	FE, SE	coastal dunes; confirmed from Freshwater Spit in 1999	surveys for additional flowering populations to commence in 2000
		BIRDS	
Northern Spotted Owl *Strix occidentalis caurina*	FT	uncommon resident in old-growth and mature second-growth forests throughout the parks	known to breed successfully in the parks
Marbled Murrelet *Brachyramphus marmoratus marmoratus*	FT, SE	common resident in old-growth forests throughout the parks; state parks are designated as critical habitat	assumed to breed successfully in the parks
Brown Pelican *Pelecanus occidentalis californicus*	FE, SE	common visitor on ocean shoreline throughout the parks	not known to breed in the parks
Western Snowy Plover *Charadrius alexandrinus nivosus*	FT	suspected uncommon visitor on sandy beaches and coastal dunes throughout the parks throughout the year; probable former resident	no record of nesting in the parks
American Peregrine Falcon *Falco peregrinum anatum*	SE	uncommon resident on steep coastal bluffs, cliffs, and high rocky outcrops	known to breed successfully in parks
Bald Eagle *Haliaeetus leococephalus*	FT, SE	uncommon resident along rivers, streams, and coastal lagoons	known to breed successfully in the parks
		FISH	
Tidewater Goby *Eucyclogobius newberryi*	FE	suspected coastal estuaries and lagoons (recorded in 1980 survey but not observed since)	assumed to have bred successfully in Redwood Creek estuary and Freshwater Lagoon at one time
Northern California Steelhead *Oncorhynchus mykiss*	FPT, CSC	streams south of the Klamath River	Redwood Creek, Prairie Creek, and tributaries
Klamath Mountains Province Steelhead *Oncorhynchus mykiss*	FC, CSC	streams north of and including the Klamath River	Klamath River, Smith River, Mill Creek, and coastal streams with suitable habitat in wet years
Coho Salmon, Southern Oregon / Northern California Coast *Oncorhynchus kisutch*	FT, CSC	streams between Cape Blanco, Curry County, Oregon, and Punta Gorda, Humboldt County, California; park streams are designated critical habitat	Smith River, Mill Creek, Redwood Creek, Prairie Creek, and larger tributaries
Chinook Salmon, Southern Oregon/California Coastal	FPT, CSC	streams from Elk River south through lower Klamath River	Mill Creek; Smith and Klamath Rivers
Chinook Salmon, California Coastal	FT, CSC	Redwood Creek south through Russian River	Redwood and Prairie Creeks
Coastal Cutthroat Trout	FC, CSC	small creek and tributaries of rivers and larger creeks	Klamath and Smith Rivers; Redwood, Prairie, and Mill Creeks, tributaries, and coastal creeks; Espa Lagoon

DEFINITIONS AND KEY TO ABBREVIATIONS

T = THREATENED = listed as threatened under the federal Endangered Species Act of 1973, as amended. The U.S. Fish and Wildlife Service defines threatened as any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range

E = ENDANGERED = listed as endangered under either the federal Endangered Species Act of 1973, as amended, or the California Endangered Species Act. The U.S. Fish and Wildlife Service defines endangered as any species that is in danger of extinction throughout all or a significant portion of its range

P = PROPOSED = Proposed for listing as threatened or endangered

C= CANDIDATE = Candidate species being reviewed by the U.S. Fish and Wildlife Service or National Marine Fisheries Service and under consideration for possible federal listing as threatened or endangered. Candidate species are those for which the U.S. Fish and Wildlife Service has enough information to propose listing

F = FEDERAL = U.S. Fish and Wildlife Service (50 CFR 17.11 and 17.12) or National Marine Fisheries Service (50 CFR Parts 222 and 227)

CSC= SPECIES OF SPECIAL CONCERN = Species about which the California Department of Fish and Game is concerned because of their limited numbers or because their breeding populations have declined in California so severely that they could become threatened or endangered

S = STATE = California Department of Fish and Game listing pursuant to Section 1904 (Native Plant Protection Act of 1977) and Section 2074.2 and 2075.5 (California Endangered Species Act of 1984) of the *California Fish and Game Code*

APPENDIX G: CULTURAL RESOURCE COMPLIANCE

Table G-1: Cultural Resource Section 106 Compliance Requirements for the Plan

Numbers in parentheses refer to the specific programmatic exclusion.

Constructing parks' primary visitor center, Del Norte Coast Redwoods State Park entrance station and access road, Hiouchi area visitor center, trailheads and trails; camping and picnicking sites Landform restoration within parks' boundaries Adaptive rehabilitation of Prairie Creek Fish Hatchery Removing nonhistoric, noncontributing features from parks' potential cultural landscapes Converting the Coastal Drive to trail Rehabilitation of historic structures to meet accessibility requirements	Requires further SHPO/ACHP review, as well as consultation with the Yurok Tribal Heritage Preservation Officer, for all undertakings within the boundaries of the Yurok Reservation.
Archeological monitoring and testing (4) Stabilization of historic structures (1) Preservation maintenance of cultural resources (1) Rehabilitative work to preserve and protect cultural resources (9) Leasing of Prairie Creek Fish Hatchery (13) Erection of wayside exhibits and signs (12) Acquisition of lands or interests in lands by RNSP (5)	Programmatic exclusion

ADAPTIVE USE: Use for a building, structure, or landscape other than its historic use, normally involving some modification of the building, structure, or landscape.

ADVISORY COUNCIL ON HISTORIC PRESERVATION: An independent federal agency with statutory authority to: review and comment on federal actions affecting properties listed in or eligible for listing on the National Register of Historic Places; advise the president and Congress on historic preservation matters; and recommend measures to coordinate activities of federal, state, and local agencies. Its members include Cabinet-level representatives from federal agencies and presidential appointees from outside the federal government.

CARRYING CAPACITY: The type and level of visitor use that can be accommodated while sustaining desired resource and social conditions that complement the purposes of the parks and their management strategies. Carrying capacity is affected by both physical constraints and the more subjective perceptions of what constitutes a high-quality recreation experience.

CONSERVATION EASEMENT: Legal agreement that property owners enter into to restrict certain uses of the land. It legally binds all current and future owners of the land to the specified restrictions, thus providing permanent or long-term protection. An easement may have a specified time period or may last in perpetuity. Conservation easements may be tailored to protect specific attributes of all or part of a piece of property such as protection of natural undeveloped conditions, scenic qualities, or wetlands.

CRITICAL HABITAT : As defined in 50 CFR section 402.2,

> the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of the Endangered Species Act, on which are found those physical or biological features (a) essential to the conservation of the species and (b) which may require special management considerations or protection, or specific areas outside the geographical area, occupied by the species at the time of listing, that the Secretary of the Interior determines are essential for the conservation of the species.

CULTURAL LANDSCAPE: A geographic area (including both cultural and natural resources and the wildlife or domestic animals therein) associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values.

CULTURAL RESOURCE: An aspect of a cultural system that is valued by or significantly representative of a culture or that contains significant information about a culture. A cultural resource may be a tangible entity or a cultural practice. Tangible cultural resources are categorized as districts, sites, buildings, structures, and objects for the National Register of Historic Places and as archeological resources, cultural landscapes, structures, museum objects, and ethnographic resources for RNSP management purposes.

CUTOVER LAND: Land that has borne a crop of commercial timber from which at least 70% of the merchantable original-growth timber stand has been removed by logging. The term is used interchangeably with second-growth forest.

DEGRADATION: The wearing down and general lowering of the Earth's surface by the natural processes of weathering and erosion, such as the vertical downcutting performed by a stream to establish or maintain uniformity of grade or slope.

DISCOVERY SITE: Cultural resource sites where visitation is not actively encouraged and there is minimal or no onsite interpretation.

DISTURBED LANDS RESTORATION: See **LANDFORM RESTORATION**

ENVIRONMENTALLY SENSITIVE HABITAT AREA AND ENVIRONMENTALLY SENSITIVE AREA: Any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments (defined in sections 30240 and 30107.5 of California Coastal Act).

EROSION CONTROL: See **EROSION PREVENTION**

EROSION PREVENTION, also called **EROSION CONTROL:** A systematic, ongoing program that improves and maintains the condition of roads to prevent erosion and sediment impacts on various natural resources. Erosion prevention is applied to roads that cannot be permanently closed because they are needed for current and future land management purposes. Where a road crosses a stream, some roadbed fill is excavated. The stream crossing fill is shaped to form a broad, permanent low point that is driveable by standard logging vehicles at reduced speeds. This broad low point (rolling dip) prevents a stream from diverting down the road should culverts plug with debris or be overwhelmed by torrents of water during major storms. Culverts at stream crossings are replaced if they are worn or undersized. Between stream crossings, road surfaces are drained by frequent rolling dips. Where inside road ditches can be eliminated, road surfaces are reshaped to provide a moderately, outward sloping surface that drains road surface runoff. Unstable fill is pulled back to prevent landslide erosion that could reach a stream channel or other critical areas. Erosion prevention requires ongoing road maintenance.

ESTUARY: Water at the mouths of streams that are usually semi-enclosed by land but has open, partly obstructed, or sporadic access to the open ocean. Estuaries serve as mixing zones for freshwater and seawater; and generally extend from the upstream limit of tidal action to a bay or open ocean.

ETHNOGRAPHIC RESOURCES: A site, structure, object, landscape, or natural resource feature assigned legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it.

EXOTIC SPECIES: Species not native to the area.

FEE OWNERSHIP: A category of landownership in which one person or agency owns all the rights associated with a parcel of land, in contrast to less-than-fee ownership.

FILL: Earthen material deposited in a depression to make a level surface or used to construct a level road surface or that is excavated in the course of road removal or treatment.

FINDING AID: A textual or electronic tool that assists researchers in locating or using archival and manuscript collections.

HILLSLOPE FAILURE: Rapid movement or collapse of a hillslope due to the loss of its structural cohesiveness on logged lands. Failure commonly occurs through the loss of vegetation and saturation of soils with water. Generic term that includes landslides, debris flows and slides, avalanches, etc.

HISTORIC DISTRICT: A geographically definable area, urban or rural, possessing a significant concentration, linkage, or continuity of sites, landscapes, structures, or objects, united by past events or aesthetically by plan or physical developments. A district may also be composed of individual elements separated geographically but linked by association or history.

INTEGRITY: The authenticity of a property's historic identity, evidenced by the survival of physical characteristics that existed during its historic or prehistoric period; the extent to which a property retains its historic appearance.

LAGOON: Lagoons are the drowned mouths of stream valleys that are separated from the ocean by wave-built sand spits.

LANDFORM RESTORATION, also called **COMPLETE ROAD REMOVAL OR DISTURBED LANDS RESTORATION:** A process that reshapes and recontours landforms after roads have been completely removed. In Redwood National and State Parks, landform restoration includes excavating road fill from stream channels, pulling back side-cast road fill, decompacting roads, retrieving and burying debris from logging and other activities (cable, abandoned vehicles, concrete foundations, etc.), restoring the original configuration of the land (ridges, stream valleys and swales) along the road corridor to the end of the road, and spreading the topsoil, forest duff, and organic matter encountered during excavations on the finished surfaces. Besides reestablishing the natural appearance and function of hillslope drainage patterns, this treatment also ensures all road sections capable of landslide erosion are treated. This is particularly important on roads that cross steep, potentially unstable hillsides, especially if organic debris was buried in the road fill during road construction because rotting organic debris increases the likelihood of landslides. Landform restoration as accomplished in the RNSP watershed restoration

program may be either partial or complete. In **partial landform restoration**, all major logging roads and a limited number of minor roads are completely removed, and these areas are reshaped and recontoured. Some individual minor roads, or portions of roads that are not completely removed, remain and are decommissioned under the partial landform restoration approach. In the **complete landform restoration** approach, all major and minor logging roads are completely removed and the areas are reshaped and recontoured.

LESS-THAN-FEE OWNERSHIP: A category of land-ownership in which one party owns one or more, but not all, of several separate rights to a property, in contrast to fee ownership. For example, the mineral or timber rights may have a different owner than the land itself.

LITTORAL: A coastal region, especially the shore zone between high and low watermarks.

MINOR ROAD IMPROVEMENTS: Those improvements that are required to ensure safe and adequate automobile and pedestrian circulation and resource protection. These improvements are usually specific to a certain areas of the road and completed as part of a program that extends over longer periods of time. Such improvements will be for visitor safety and improved automobile circulation, not for drastically increasing the traffic capacity on the road. Examples of minor road improvements include creating turn-outs, widening a specific area, straightening hazardous curves, improving intersection sight lines, and controlling erosion and dust.

MOTOR VEHICLE: As defined in 36 CFR 1.4, a motor vehicle means every vehicle that is self-propelled and every vehicle that is propelled by electric power, but not operated on rails or upon water, except snowmobiles and a motorized wheelchair. A motorized wheelchair means a self-propelled wheeled device, designed solely for and used by a mobility impaired person for locomotion, that is both capable of and suitable for use in indoor pedestrian areas.

NATIONAL REGISTER OF HISTORIC PLACES: The comprehensive list of districts, sites, buildings, structures, and objects of national, regional, state, and local significance in American history, architecture, archeology, engineering, and culture kept by the National Park Service under authority of the National Historic Preservation Act of 1966.

OLD-GROWTH FOREST: An older forest that differs significantly from younger forests in structure, ecological function, and species composition. Typically, these forests are stands that are at least 180 to 220 years old with moderate to high canopy closure; a multilayered, multispecies canopy dominated by large overstory trees; high incidence of large trees, some with broken tops and other indications of old and decaying wood (decadence); numerous large snags (a standing dead tree or standing dead section of a tree); and heavy accumulations of wood, including large logs on the ground.

PRESCRIBED FIRE: The intentional application of fire to accomplish specific planned management strategies.

PRESCRIPTION: As used in fire management, measurable criteria that guide the selection of appropriate management strategies and actions. Prescription criteria may include safety, economic, public health, environmental, geographic, administrative, social or legal considerations.

PRESERVATION: The act or process of applying measures to sustain the existing form, integrity, and material of a historic structure, landscape, or object. Work may include preliminary measures to protect and stabilize the property, but generally focuses upon the ongoing preservation maintenance and repair of historic materials and features rather than extensive replacement and new work.

PROTECTION: An action to safeguard a historic property by defending or guarding it from further deterioration, loss, or attack or shielding it from danger or injury. In the case of structures and landscapes, such action is generally of a temporary nature and anticipates future preservation treatment; in the case of archeological sites, the protective measure may be temporary or permanent. Protection in its broadest sense also includes long-term efforts to deter or prevent vandalism, theft, arson, and other criminal acts against cultural resources.

REHABILITATION: The act or process of making possible an efficient compatible use for a historic structure or landscape through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, and architectural values.

RIPARIAN: Typically refers to vegetation found along waterways and shorelines that is adapted to moist

growing conditions and occasional flooding. Riparian vegetation helps stabilize the streambanks, provides cover and food for fish, and intercepts solar radiation.

RIPARIAN AREA: Those terrestrial areas where the vegetation complex and microclimate conditions are products of the combined presence and influence of perennial and/or intermittent water, associated high water tables, and soils that exhibit some wetness characteristics. The term is normally used to refer to the zone within which plants grow rooted in the water table of rivers, streams, ponds, lakes, reservoirs, springs, marshes, seeps, bogs, or wet meadows.

ROAD DECOMMISSIONING: This action reduces the potential for erosion at stream crossings and unstable road segments.

Road sections without landslide potential do not receive extensive treatments. Instead, the road surface is decompacted to promote revegetation and permanent surface drainage is provided. Natural drainage patterns along these roads are reestablished by a minor reshaping of a road section or by improving drainage off the road through the construction of deep surface drains (ditches) excavated through the road prism. Because road decommissioning does not completely reshape and recontour all road sections between stream crossings, this treatment will decrease the potential for erosion and sedimentation from more roads faster than landform restoration methods. However, there is a possibility that sites with landslide potentials may not be recognized during road inventories and other field evaluations before treatment, and that sections could fail after treatment is completed.

ROAD FAILURE / ROAD FILL FAILURE: A general term used to indicate that erosion has damaged a section of a road. Where there are oversteepened road cuts and roads crossing stream courses, and in areas where fill has been used to construct the roads, the materials may erode and be transported downslope. Damage to the roads is normally caused by running water at stream crossings and on slopes adjacent to the roads.

ROAD REMOVAL: See **LANDFORM RESTORATION**

RUN-UP: The distance that water advances onto a beach or shoreline following a tsunami or the breaking of an ocean wave.

SECOND-GROWTH FOREST: A relatively young forest that has developed after a disturbance (e.g., wholesale cutting, serious fire, or insect attack) of the previous old-growth. Second-growth forest is used to refer to cutover lands, regardless of how many times the stand was logged.

SENSITIVE RESOURCES: Sensitive resources are resources that are specifically protected by law, regulation, guideline, policy, or executive order; or resources that are easily damaged by use; or resources that are rare or unique in the parks and the region. The most common examples of sensitive resources or sensitive areas in the parks are the old-growth redwoods, the wetlands, the prairies, threatened and endangered species and their habitat, and cultural resources including archeological sites, ethnographic sites, and sites that are of importance to American Indians.

SIDE-CAST FILLS: Materials such as soil, rock, and organic debris that have been excavated during the construction of logging roads and have been either discarded along the hillslopes and sides of the roads or used to construct the outboard edge of the road.

SILVICULTURAL PRESCRIPTION: A plan for controlling the establishment, composition, constitution, and growth of forests.

SLOUGH: A stagnant swamp, marsh, bog, or pond that is part of an inlet or backwater.

STAND: A community of trees or other vegetation sufficiently uniform in composition, constitution, age, spatial arrangement, or condition to be distinguishable from adjacent communities and so form a silvicultural or management entity.

STATE HISTORIC PRESERVATION OFFICER (SHPO): An official within each state appointed by the governor to administer the state historic preservation program and carry out certain responsibilities relating to federal undertakings within the state.

STREAM CROSSING: Where a road crosses a flow course. The crossing may be composed of road fill without a drainage structure or may be composed of buried logs (Humboldt crossing), a culvert, or a bridge.

SUBSISTENCE: The traditional use of natural plants and wild animals for personal or family consumption — such as making and selling handicraft articles out

of the nonedible byproducts of fish and wildlife resources that were taken for personal or family use or consumption and for customary trade. The legislation for some parks defines what constitutes subsistence there.

SUPPRESSION: A management action intended to protect identified values from a fire, extinguish a fire, or alter a fire's direction of spread.

SUSTAINABLE: Sustainable may be defined as the capability of natural and cultural systems to maintain themselves over time. Examples will include the Redwood Creek watershed ecosystem that is restored to the point that all components and processes of the watershed can sustain themselves indefinitely, changing only according to natural succession and processes. Components will include such things as large redwood trees along the main channel of Redwood Creek, historically occurring fish species in Redwood Creek and its tributaries, and marbled murrelets and northern spotted owls in the watershed forest, all with healthy reproducing populations and historical and prehistorical numbers.

Sustainably designed facilities might include buildings made of recycled materials that require minimum energy and no toxic materials to produce and that are themselves nontoxic to living systems. These materials will also be very long lasting and will perform very well. The buildings will function with a minimum amount of energy. Management actions consistent with sustainability will minimize impacts on natural and cultural systems over the long term.

TRADITIONAL USE: A subsistence or other consumptive use usually but not always based on customary low-energy technology. Ceremonial uses, involving particular places and plant and animal materials, may be private and individualized or restricted to designated groups. Use can be onsite and visible, inferred from effects, or offsite and referenced in traditional narratives.

TSUNAMI: An impulsively generated seawave of local or distant origin that results from large-scale sea floor displacements associated with large earthquakes, major submarine slides, or exploding volcanic islands.

UNDERSTORY: Vegetation (trees or shrubs) growing under the canopy formed by taller trees.

VIEWSHED: A total landscape seen or potentially seen from specific points on a specific part of a travel route or water body.

VISUAL RESOURCES: The composite of basic physiographic features and patterns and land use effects that typify a land unit and influence the visual appeal the unit may have to visitors.

WATERSHED RESTORATION: A scientifically based program that restores biological and physical elements of the watershed to improve its health. It greatly improves the elements of a watershed that have been impacted by past and current land management practices. Watershed elements are multidisciplinary and include biological and earth/physical resources. Improvements to these elements occur from the farthest reaches of headwater streams, throughout a watershed's tributaries, to the estuary and to the sea. Reducing accelerated rates of erosion and sedimentation from roads is only one element of watershed restoration. Sediment reduction occurs by various methods, including landform restoration, road decommissioning, and erosion prevention.

WETLAND: Areas that are inundated by surface or groundwater with a frequency sufficient to support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth or reproduction. Wetlands include swamps, marshes, bogs, wet meadows, river overflows, mud flats, sandy ocean shorelines, and natural ponds, among other types.

WILDFIRE: Any wildland fire that is not a prescribed fire.

WILDLAND FIRE: Any nonstructure fire, other than prescribed fire, that occurs in the wildland. This term encompasses fires previously called both wildfires and prescribed natural fires. Also, a fire management program in which natural ignitions are not suppressed under specific prescriptions to achieve preestablished resource management objectives.

California Department of Parks and Recreation
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Soils 12/82 Stephen J. Zembsch
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Geology 8/83 by Syd Willard
Cultural Resources 12/83 by Joe D. Hood and Carol Roland

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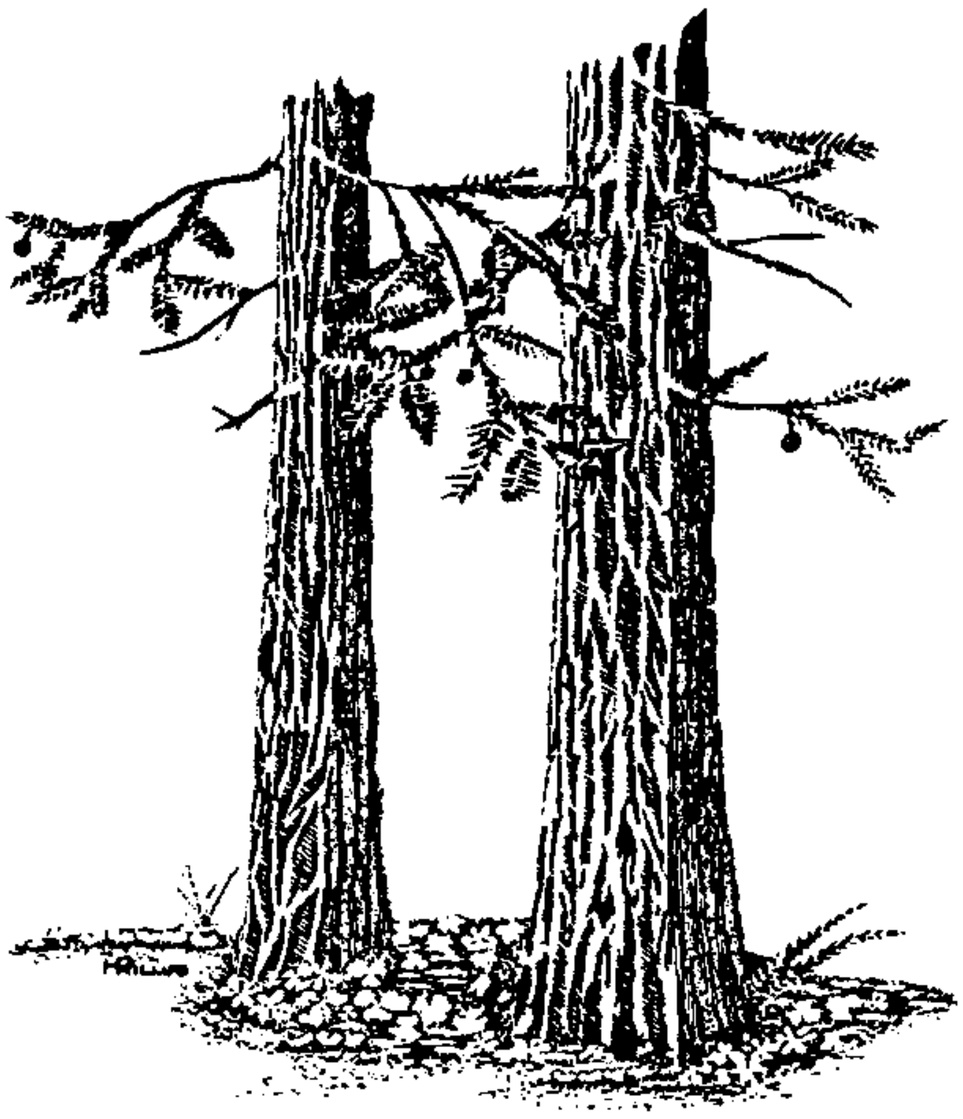

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CALIFORNIA STATE PARKS.

As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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