



World Heritage Sites

Protected Areas and World Heritage



REDWOOD NATIONAL & STATE PARKS UNITED STATES OF AMERICA

Redwood National Park in northern California is a long thin strip of coastal mountains and plain bordering the Pacific Ocean forested with some of the largest remaining groves of sequoia redwoods, the tallest and most impressive trees on earth. The marine and land life are also remarkable, in particular the sea lions, the bald eagle and the endangered California black pelican.

COUNTRY

United States of America

NAME

Redwood National and State Parks

NATURAL WORLD HERITAGE SERIAL SITE

1980: Inscribed on the World Heritage List under Natural Criteria vii and ix.

STATEMENT OF OUTSTANDING UNIVERSAL VALUE [pending]

The UNESCO World Heritage Committee issued the following statement at the time of inscription:

Statement of Significance

The park's primary feature is the coastal redwood forest, a surviving remnant of the group of trees that has existed for 160 million years and was once found throughout many of the moist temperate regions of the world, but is now confined to the wet regions of the west coast of North America. The park contains some of the tallest and oldest known trees in the world. Rich intertidal, marine and freshwater stream flora and fauna are also present in the two distinctive physiographic environments of coastline and coastal mountains that include the old growth forest and stream communities.

Criterion (vii): Redwood National Park comprises a region of coastal mountains bordering the Pacific Ocean, equidistant (560 kilometers or 350 miles) from San Francisco, California and Portland, Oregon. It is covered with a magnificent forest of Coast redwoods (*Sequoia sempervirens*), the tallest living things and among the most impressive trees in the world. Several of the world's tallest known trees grow within the property.

Criterion (ix): Redwood National Park preserves the largest remaining contiguous ancient coast redwood forest in the world in their original forest and streamside settings.

IUCN MANAGEMENT CATEGORY

Redwood National Park: II National Park
Prairie Creek Redwoods State Park: II National Park
Jedediah Smith Redwoods State Park: II National Park
Del Norte Coast Redwoods State Park: II National Park

INTERNATIONAL DESIGNATION

1983: The California Coastal Ranges designated a Biosphere Reserve under the UNESCO Man and Biosphere Programme (62,098 ha).

BIOGEOGRAPHICAL PROVINCE

Oregonian (1.2.2)

GEOGRAPHICAL LOCATION

In northwestern California 450 km north of San Francisco. The composite site parallels the coast for 85 km, varying in width between 0.3 km to 14 km. The boundary along the coast extends 0.4 km into the sea between 41°04' to 41°49' N by 123°53' to 124°10' W.

DATES AND HISTORY OF ESTABLISHMENT

1918: Save the Redwoods League founded to save the redwood forests from further logging;

1920s: Prairie Creek, Jedediah Smith and Del Norte Coast State Parks established;

1968: The three existing State Parks joined by Public Law 90-545 into Redwood National and State Parks and 11,340 ha of private land were added; 1978: 19,440 ha added;

1983: A UNESCO MAB Reserve designated over the area;

1994: A Memorandum of Understanding signed by the National Park Service and the California Department of Parks and Recreation for the cooperative management of the Redwood National and State Parks; 1999: renewed.

LAND TENURE

Redwood Park: 30,535 ha are in federal ownership, 14,075 ha in state ownership. The State Parks cover 12,273 ha, giving a total of 26,348 ha in state ownership. The eventual transfer of state lands to national status is provided for by an enabling act. The site is cooperatively managed by the National Park Service (NPS) and the California Department of Parks and Recreation.

AREA

Total area:	56,883 ha (140,558 acres)
Redwood National Park:	44,610 ha
Prairie Creek Redwoods State Park:	5,693 ha
Jedediah Smith Redwoods State Park:	4,002 ha
Del Norte Coast Redwoods State Park:	2,578 ha

ALTITUDE

Below sea-level to 837m (Rodgers Peak).

PHYSICAL FEATURES

The Park covers two distinct environments, a narrow coastal plain and the mountains of the Coast Range of northern California. Its 55 km coastline is one of steep rocky cliffs broken by rolling slopes and broad sandy beaches with occasional lagoons and marshes. The mountain section consists of three main northwest trending ridges and four stream valleys: small sections of the Smith and Klamath rivers and Mill Creek, and most of the catchment of Redwood Creek. The bedrock is mostly highly deformed Cretaceous deepwater marine sandstones, siltstones and shales of the Franciscan assemblage. Lesser amounts of chert, volcanic greenstone and metamorphic rocks occur as blocks in belts mixed with the Franciscan sedimentary rocks, some isolated as offshore stacks. In a few areas, the Franciscan rocks are overlain by a thin veneer of young Plio-Pleistocene shallow marine to fluvial sandstones, mudstones and conglomerates. The area is seismically active, being near the Cascadia subduction zone where the offshore Gorda plate is being driven beneath the North American plate. The Grogan fault, along which much of the main channel of Redwood Creek flows, is a major structural feature, separating well foliated meta-sedimentary schists and meta-basalts on the south-west of Redwood Creek from the unmetamorphosed Franciscan sedimentary rocks to the north-east. The South Fork fault cuts across the northeast corner of the Park in the Little Bald Hills east of Crescent City (Rasp, 1989). The rich periodically flooded valley alluvium is very well suited to the redwood forest.

CLIMATE

The climate is temperate maritime with cool wet winters with temperatures averaging between 4°C and 13°C and mild summers averaging between 11°C and 19°C. The annual precipitation is 2,540mm, occurring mainly during winter, with coastal fog frequent during the summer. Fog drip around the trees almost doubles the amount of precipitation from rainfall. Tsunamis are an occasional hazard.

VEGETATION

The Northern Californian coastal climate is defined by the persistent moisture from Pacific storms in winter and coastal fogs in summer. Behind the coastal bogs, marshes and scrub the dominant vegetation is redwood *Sequoia sempervirens* forest, typically found within 55km (35 miles) of the coast in rich soils at elevations between 30m and 610m. On the uplands where fires recur more often, it is patchily distributed among several other natural communities dominated by forests of Douglas fir and tanoak *Pseudotsuga menziesii-Lithocarpus densiflorus*, with woodlands of other trees such as western hemlock *Tsuga heterophylla* which could come to replace the present forest. The redwoods are survivors of an ancient forest type found even in Jurassic times in moist temperate regions but are now less than 4% of their original global cover, of which only 2.5% is protected. They are confined to this humid strip of coast where the site contains 45% of the trees remaining in California, since 96% of the original old-growth coast redwoods have been already logged. The trees can grow to 4.6m in diameter, over 60 metres high, and over 2,000 years old. One is the world's tallest known tree at 112m (365') high. They are slow growing but resilient, their thick sapless bark and high-branching foliage protecting them from fire. The wood's high tannin content reduces insect damage and it suckers freely from basal burls. They grow from a rich understory of herbs, shrubs, treelets, ferns and fungi. 15,776 ha of old growth redwood and 20,800 ha of post-harvest re-growth ranging from 20 to 50 years old stood in 1982 (Schrepfer, 1983). Only the giant sequoia *Sequoiadendron giganteum* groves of the Sierra Nevada, the Sitka spruce and Douglas fir forests of the Pacific Northwest, and the Alerce *Fitzroya cupressoides* forests of southern Chile are comparable in age, size, structure and biomass accumulation (NPS, 2007a).

The flora numbers 856 species, 699 of which are native. Mixed with the redwood groves are *Pseudotsuga menziesii-Lithocarpus densiflorus* forests of Douglas fir and tanoak, with woods of western hemlock *Tsuga heterophylla*, western red cedar *Thuja plicata*, grand fir *Abies grandis*, bigleaf maple, *Acer macrophyllum*, California bay *Umbellularia californica*, alder *Alnus rubra* and Port Orford cedar *Chamaecyparis lawsoniana*. In drier areas the Douglas fir-tanoak forest grows with madrone *Arbutus menziesii*, chinquapin *Chrysolepis chrysophylla*, Garry, black, interior live and canyon live oaks, *Quercus garryana*, *Q. velutina*, *Q. wislezeni* and *Q. chrysolepis*. Eight conifer species are endemic to the region. In the lowlands the tallest stands grow on the alluvial flats and terraces along the larger streams. Among the many shrubs Californian rhododendron *Rhododendron macrophyllum* is conspicuous. Further inland, on summits and south-facing slopes, the forest is replaced by grassland. The prairies which provide good elk and deer habitat, were created by the fires routinely set for thousands of years by American Indians, a practise to which the Park staff have returned in order to maintain the oak woodlands and grasses of this community. Minor associated plant communities include stands of Jeffrey pine *Pinus jeffreyi*, garry oak woodland and chaparral. Nearer the sea, wind-shaped Sitka spruce *Picea sitchensis* buffer the redwood groves from the salt ocean winds and the coastal Park also contains stands of closed-cone pines, bishop, knoblock and beach pines *Pinus muricata*, *P. attenuata* and *P. contorta*, which need fire to release their seeds, grasslands, shrubs, and a strand of intermixed freshwater marshes, sphagnum bogs, intertidal and marine plant communities behind sandy or rocky beaches.

FAUNA

The 75 mammal species include Townsend's big-eared bat *Plecotus townsendii* (VU), grey fox *Urocyon cinereoargenteus*, black bear *Ursus americanus*, North American otter *Lontra canadensis*, skunk *Mephitis mephites*, fisher *Martes pennanti*, bobcat *Lynx rufus*, cougar *Puma concolor cougar*, harbour seal *Phoca vitulina*, sea lion *Zalophus californianus*, Roosevelt elk *Cervus elaphus roosevelti*, now restricted to limited areas, and California mule-deer *Odocoileus hemionus*. Gray whales *Eschrichtius robustus* migrate past the coast in winter and spring on the way to and from their breeding lagoons in Baja California.

The region's avifauna exceeds 400 species (398 native and 35 non-native species). Freshwater marshes, ponds, and streams provide valuable nesting and feeding areas for several migratory waterfowl species. The offshore stacks are important nesting sites for a high proportion of California's seabirds, including common guillemot *Uria aalge*, western gull *Larus occidentalis* and three species of cormorant *Phalacrocorax*: pelagic, double-crested and spectacled *P. pelagicus*, *P. auritus* and *P. perspicillatus*. Nationally threatened birds include brown pelican *Pelecanus occidentalis*, bald eagle *Haliaeetus leucocephalus*, peregrine falcon *Falcon peregrinus*, marbled murrelet *Brachyramphus*

marmoratus (EN), northern spotted owl *Strix occidentalis*, and possibly western snowy plover *Charadrius alexandrius*.

Silver salmon *Oncorhynchus kisutch*, and steelhead trout *O. mykiss*, breed in coastal rivers and streams. Also present are coastal cutthroat trout *Oncorhynchus clarki*, chinook salmon *O. tshawytscha*, Pacific herring *Clupea harengus*, surf smelt *Hypomesus pretiosus*, night smelt *Spirinchus starksi*, staghorn sculpin *Leptocottus armatus*, shiner surfperch *Cymatogaster aggregata* and the endangered tidewater goby *Eucyclogobius newberryi* (VU). Fifteen of western North America's 22 salamander species are found in the area including the Pacific giant salamander *Dicamptodon ensatus*, redbelly newt *Taricha rivularis*, and coastal tailed frog *Ascaphus truei*. Of the 15, three are Category II candidates for Federal and State listing, and three are species of special concern to the State of California. Also found here is the bright yellow-orange banana slug *Ariolimax columbianus*, a mature forest specialist. A number of other invertebrate species, including beetles, harvestman, spiders, millipedes, and freshwater mussels are specialists in habitats modified by old Redwood and other conifer forests. 168 invertebrate species have been recorded in the intertidal zone.

CULTURAL HERITAGE

Prehistoric sites 4,500 years old have been uncovered in the Bald Hills, and there are sites of later settlement and subsistence systems. Some villages, cemeteries, sacred or ceremonial sites and natural resource use areas remain places of importance to contemporary Native Americans with traditional ties to Park lands who used to use fallen redwood trees to build canoes and houses (W. Ehorn, pers. comm., 1989). The Park managers work with both Native American Heritage Advisory Committees and Tribal governments on the use of these resources and on issues of concern. Archaeological and cultural resources listed or eligible for listing on the National Register of Historic Places include three coastal archaeological sites, 26 inland archaeological sites in the Bald Hills, and three historic resources: a World War II radar site, a portion of the Redwood Highway and the Lyons Ranches Rural Historic District. Jedediah Smith of the park was an early explorer. Other historic resources include examples of early trails, homesteads and ranching, gold mining sites, fish hatcheries, logging, military structures such as Camp Lincoln and the work of the Civilian Conservation Corps of the 1930s (NPS, 2007a).

LOCAL HUMAN POPULATION

American Indians in and around the Park form almost 10% of the region's population. These native peoples belong to a number of linked village communities rather than tribes, which formerly lined the coast and major rivers, each with a different language and culture. The three main local groups are the Tolowa in the north, Yurok in the centre and the Chiluli in the far south (NPS, 2007a). Commercial logging remains a major industry begun during gold rush times. The logging of redwoods continues up to the Park boundaries, vigorously debated between the timber industry and conservationists.

VISITORS AND VISITOR FACILITIES

More than 1.25 million people visited Redwood National and State Parks annually in the 1990s. In 1993 15% were from foreign countries with some 42% of these coming from Germany (Littlejohn, 1994). The Park offers camping, picnicking, hiking, kayaking, horseback and bicycle riding, guided tours, outdoor exhibits, scenic drives and some 370 km (200 miles) of trails. There are five Visitors' Centres with educational materials and shops, four well serviced campgrounds and one youth hostel. Two Indian dance ceremonies are mounted once a year. The length of the Park is linked by a state highway 101 and there are several hotels along the route. The nearest airport is at Crescent City at the north end. A visitors' guide is published annually.

SCIENTIFIC RESEARCH AND FACILITIES

Archaeological surveys, test excavations, research and consultations conducted over the past 30 years have resulted in the recording of many prehistoric archaeological sites, historic sites and ethnographic resources (Eidsness, 1988). Research is carried out by a Park interdisciplinary team, supplemented by other federal and state agencies and several universities, notably Humboldt State University. The June 1989 bibliography of Redwood National Park publications (Anon., 1989) includes approximately 170 titles, under the headings of technical reports, watershed rehabilitation and resources management, conference papers, geology, management reports and cultural

resources. The Park has a well developed Geographic Information System. There are no facilities devoted solely to research but two outdoor schools offer practical educational courses (NPS, 2007a).

CONSERVATION VALUE

Redwood National Park preserves unique groves of the world's tallest trees. These are 42% of the remaining old growth stands of redwood, but are only a small fragment of a once very extensive ecosystem. The Park is also of importance for its prehistoric and historic cultural remains with several sites listed on the National Register of Historic Places. It lies within a Conservation International-designated Conservation Hotspot, WWF marine and freshwater Global 200 Eco-regions, a WWF/IUCN Centre of Plant Diversity, a BirdLife-designated Endemic Bird Area and in a UNESCO Biosphere Reserve.

CONSERVATION MANAGEMENT

In 1994, renewed in 1999, a Memorandum of Understanding was signed by the National Park Service and the California Department of Parks and Recreation for the cooperative management of the Redwood National and State Parks which has ensured successful joint operation of the parks, as intended by Congress in 1968. The Park is under strict protection, although sport fishing is allowed. A 12,150 ha buffer zone is provided under Public Law No. 95-250. Administratively the zoning is covered in a series of zones: Developed, Front Country, Back Country, Primitive, Research sub-zone, Transportation, Bald Hills, Cultural Resource and Minimum Management, each with their regulations (NPS, 2000). Management objectives can be summarised as follows: to restore the natural ecosystems of the Park; minimise human impacts; preserve historic and prehistoric features; eliminate non-conforming uses; provide reasonable and safe public access; provide visitors with an appreciation and understanding of park values; restrict visitor uses as necessary to fulfil resource protection objectives; and protect visual resources.

In 2002, 10,117 ha (25,000 acres) of clear-cut forest in Mill Creek watershed adjoining Del Norte State Park was sold to the Save the Redwoods League and ceded to the State of California for reforestation; in 2005 the park (but not the World Heritage site) was expanded to take in this area (Wheeler, 2006). A multi-year land rehabilitation scheme was set up to protect the trees by restoring cut-over parklands and reducing sediment delivery to park streams. In Redwood Creek which entered the system as a logged-over area, a watershed rehabilitation program started to return the downstream part of the basin to a reasonable reconstruction of its natural state. Fires are a hazard, but the 20th century suppression of fire has resulted in the spread of Douglas-fir at the expense of open grassland, so Park staff have returned to using fire to maintain the oak woodlands and prairie grasses. A General Management Plan was developed in 2000, replacing the 1995 plan, supported by a Business Plan and annual Performance Plans. A Resource Management Plan and environmental impact assessments have been published and commented on by the public. A compendium of regulations, requirements and restrictions is issued annually. A Strategic Plan for 2005-8 has been drawn up (NPS, 2007b). There is regular monitoring of all the aspects of the Park's work: watershed and forest restoration, fire, resource protection, exotic plants, threatened and endangered species, historic structures, cultural landscapes, archaeological sites, visitors and the workforce (NPS, 2004).

MANAGEMENT CONSTRAINTS

Much of the federal land in the Park has been logged, including almost all of the upstream watershed of Redwood Creek where major storms have become an unpredictable hazard on the destabilised slopes. Most remnant old growth stands outside the Park were threatened by logging by the end of the 1980s (Schrepfer, 1983), and second growth harvests have begun on lands outside the Park. This logging has been carried out on some of the world's most erodible soils, and groves at low elevations are frequently deluged by the flooding and sedimentation caused by the logging upstream despite the cooperative agreements between the Park authorities and upstream landowners to control erosion. Other proposed developments - offshore oil and gas exploitation and the building of subdivisions - have threatened the Park. During the 1990s the greatest damage to the native vegetation came from invasion by alien plants, and by progressive changes in species composition and structure due to the suppression of fires. Much of the forest is in various stages of post-harvest succession and centuries will pass before it returns to its pristine condition (J. Wise, pers. comm., 1995).

STAFF

In 2004 there were 100 permanent employees, 5-10 term positions, and approximately 75 temporary positions, supplemented with over 12,000 hours of Volunteers-in-Parks, 6 Student Conservation Association Assistants and 12,000 hours of work from the California Conservation Corps (NPS, 2004). (The 1995 NPS breakdown of 90 permanent posts were: 5 in management, 11 in administration, 25 in maintenance, 9 in protection, 7 in interpretation, 31 in resources management and 2 in technical services.)

BUDGET

In 2004 the Park had an operating budget of about \$7,522,000, divided as follows \$2,293,000 for resource management and science, \$2,103,000 for facility operations and maintenance, \$908,000 for park administration, \$735,000 for visitor services and resource protection, \$773,000 for interpretation and \$402,000 for park management (NPS,2004). No entry fees are collected.

LOCAL ADDRESS

Superintendent, Redwood National Park, 1111 Second Street, Crescent City, California 95531, U.S.A.

REFERENCES

The principal source for the above information was the original nomination for World Heritage status, but a complete compendium of information exists in the Park's planning and environmental compliance documents and legislative history. Many publications exist which deal with specific resources and park-related issues. New resource information is regularly published.

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DATE

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