

# Redwoods Win Protection

Some of the world's most stately trees are being protected by scientists, nature lovers and politicians in the eternal conflict of beauty versus utility—By Barbara Tufty

➤ WHY is a tree?

A tree is for beauty, let it live, say the conservationists.

A tree is for wood and pulp and paper, cut it down, say the industrialists.

A tree is for contemplation, let it grow toward the sun, say the thinkers.

A tree blocks progress, bring it down, say the road engineers.

Usually in such an argument the tree gets cut down, since the active voices favoring profit are far more powerful and domineering in our pragmatic society than the vulnerable voices of beauty.

But along the shores of western California, the argument is having unusual results. Pressures built up by an aroused public are actually preventing slaughter of California's state tree, *Sequoia sempervirens*, the ancient majestic redwoods found along the California coastline.

## Highway Plan Canceled

Abruptly and decisively, the California State Highway Commission recently canceled highway plans for cutting a swath through redwood groves, and orders were sent to engineers at their drawing boards to plan another route that will swing traffic farther to the east, out of the redwood area.

This remarkable victory of conservationists over highway engineers resulted from a number of pressures, set in motion by angry voices raised by such sources as the Sierra Club, the Save-the-Redwoods-League, the State Division of Beaches and Parks, the State Assembly, California's Governor Edmund G. Brown, and most importantly, the aroused citizens of California and other states throughout the nation.

Added strength came recently in the form of a substantial sum from the Ford Foundation, a \$500,000 outright grant to the Redwoods League and a pledge of one million dollars more to be given on condition that it be matched on a basis of two to one by private contributions in 1966.

A final boost for the conservation victory came from Governor Brown who emotionally declared after a visit to the redwood groves:

"As long as I am Governor of California, not a single, solitary redwood will be cut down for a freeway."

With such substantial material and moral support, the redwood saviors now hope to complete buying Gold Bluffs, a spectacular four-mile stretch of wild sandy beach, and Fern Canyon,



National Park Service

**NATURE'S CATHEDRAL**—The Sequoia redwoods along California's coastline give many people a sense of awe and wonder at nature's tallest living masterpieces, now objects of bitter conflict between industrialists and conservationists.

a narrow deep canyon whose high walls are covered with a cool green growth of five-finger fern. Both of these areas lie along the northern California coast, in land adjacent to the Prairie Creek Redwoods State Park.

Also proposed for immediate purchase is a six-mile strip of virgin redwoods still privately owned by a lumber company. This will extend a 20-mile strip of majestic trees called Avenue of the Giants that runs northward from the Humboldt Redwoods State Park.

Today there are five principal redwood parks—the Big Basin Redwoods in the Santa Cruz Mountains, the Humboldt Redwoods State Park near Eureka, the Prairie Creek Redwoods State Park south of Klamath, the Del Norte Coast Redwoods State Park and the Jedediah Smith Redwoods State Park near the Oregon border.

### Opposition From Industry

Violent opposition to adding any more redwood land to state and Federal parks has come from men in logging firms and private industry. They claim that there are already enough trees under park protection, that they know how to farm the trees to keep timber crops perpetually, and that the trees are not in danger of dying out. Redwood forests constantly renew themselves by their prolific seeds and by sprouts sent up from the roots of cut redwood stumps. Young redwoods are virtually unmatched in their capacity for tremendously fast growth. In less than a man's lifetime, new trees often grow as high as a thousand-year-old giant.

Why do redwood trees evoke such bitter controversy between industrialists and conservationists?

Nature lovers admire the trees' antiquity and beauty, which they wish to protect from the woodsman's saw. Industrialists covet the trees' remarkable straight grained wood, which resist decay, fire and insects because of its high tannin content. They claim they can keep the "scenic trees" while logging the useful ones, and do not want the land tied up in protected parks.

Naturalists charge the industrialists are not yet responsible in their logging practices and often destroy ancient trees that can never be replaced. These trees give a remarkable sense of peace and beauty, say those people who have been profoundly impressed by a stroll through redwood groves.

Nature was at work on these masterpieces long before man began building his own cathedrals and monuments.

The tallest trees in the world, the evergreen conifers, members of the cypress and pine family, tower more than 300 feet high. Trunk diameters range as large as 15 or 20 feet. The deeply furrowed, reddish-brown trunk stretches unencumbered toward the sky for about 100 feet, then the branches begin, bearing flat sprays of deep yellow-green needles and small brown



Kimberly-Clark

**COMPUTERIZED FORESTS**—Vital statistics of some 35 million trees are being stored on computer punch-cards. The massive forest census, by Kimberly-Clark Corporation, will help make possible the best use of timberlands. An instant record of what trees are available for paper, lumber, pulp, etc., will result from the work of teams of tree-checkers like this one, who can survey as many as 350 trees in a day.

cones. Strangely enough, these mighty trees bear tiny seeds only one-sixteenth of an inch in diameter. They are so light it takes 123,000 of the light-brown seeds to make a pound.

Twenty-five million years ago, forests of these huge trees extended across the Northern Hemisphere. More than 40 fossilized species have been found across Europe and Asia and in western Canada continuing down as far south as Texas.

The earliest positively identified redwood fossils date back to the Upper Jurassic period—about 130 million years ago. This was an age of mild climate, heavy rains and flowing rivers that were well suited to the growth of vegetation. Simple plants such as conifers, cycads and ferns grew in profusion at this time, but no flowering plants had fully developed.

Animal life had evolved to fishes and reptiles. Huge dinosaurs roamed the land, but man had not yet appeared, nor even the first small mammals.

At the close of the Miocene period, about 25 million years ago, the Northern Hemisphere grew colder and drier, and the great redwood forests began a

slow retreat. The Arctic froze, icecaps grew larger and vast glaciers began to move southward, grinding trees, animals and rocks in their paths. The redwood forests of Europe disappeared, as did those of Asia.

### Two Species Still Live

Today only two redwood species still live, both in limited sections of the northwestern United States. The species called *Sequoia sempervirens*, meaning evergreen or ever-living, consists of the coastal redwoods that stretch 450 miles along the Pacific Coast in an irregular strip scarcely 35 miles wide. Drenched in thick sea fogs that roll in from the ocean, these redwoods extend from the Chetco River in southwestern Oregon to Calmon Creek Canyon, about 100 miles south of San Francisco.

The other species, *Sequoia gigantea* or big tree, is found scattered in an inland area about 250 miles long at elevations between 4,000 to 8,000 feet on the western slopes of the Sierra Nevada, where winter snows are deep and summer sun is drying. These giants, almost completely protected in nation-

al parks, are the largest of all living things in girth and weight, and nearly the oldest. Specimens of bristlecone pine have been discovered to be older.

Big trees have a maximum life-span of 4,000 years, while the greatest recorded age of the coastal redwoods is about 2,200 years. Some of these trees were probably seedlings when the great king Hammurabi ruled Babylon in the 20th century B.C., middle-aged at the time of Christ and mature trees when North America was discovered.

These two species of redwood are actually quite different and should not be confused with each other. The coastal redwoods have flat, sharp-pointed needles that stand out stiffly on each side of the twig, while big tree needles are small, overlapping scales lying close against the twig. Coastal cones are small, less than one inch long, while big tree cones are fat and about two to three inches long. The coastal tree trunk is slender in proportion to its height, while the big tree trunk is massive and thick from the base to the top.

Well over a million and a half acres of redwoods once covered northern California's hills and valleys, Dr. Edward C. Stone of the University of California School of Forestry at Berkeley estimates.

### Enlightened Forestry

Many lumber firms today have learned to avoid hasty and ruthless overcutting, Dr. Stone notes. They practice a plan of "enlightened forestry" in an effort to conserve the trees and the land while continuing to cut selected trees for lumber.

In another 25 years, the practice of enlightened forestry will be sufficiently advanced so that private industry could handle the forests. Already there is a basic plan for California industry to produce a continuous crop of redwoods while leaving the huge giants for scenic beauty and to avoid timbering too close to valuable areas, thus inducing erosion.

However these good practices are too few and not used enough, Dr. Stone said. Tracts of valuable redwoods have already been destroyed to enrich the lumber industry, to make way for highways or to create new pastureland for sheep and cattle.

Loggers still use such ruthless practices as clearing the land completely of trees, starting serious land slides, and "jumping"—the cutting of enough trees from one area to spoil it for park land, then jumping to another place to do the same thing again and again.

With the public eye peering closely over the private industry's shoulder, Dr. Stone believes commercial lumber firms are exerting more caution and judgment than before to keep the land and trees in prime condition.

However, Dr. Stone warned that pressure has to be constantly maintained by private, state and Federal institutions to save the grandeur of the redwoods for future generations.

• Science News 89:264 April 16, 1966



Philco Corporation

**A BIT OF MOON**—This volcano-made fissure near Barstow, Calif., is being checked by geologists for material believed to be similar to material on the moon. The fissure was caused when a lava flow cooled more rapidly on top than underneath, causing internal pressure to split it open. This may have caused some of the lunar surface features spotted by the Ranger spacecraft.

### GEOPHYSICS

## New Radio Wave Heard

➤ A NEW KIND of "whistler," a lightning-caused radio wave in the audible range, has been discovered far out in the earth's atmosphere from satellite observations.

The helium whistler is the third kind to be detected. Whistlers are so called because they sound like a whistle falling steadily in pitch.

These very low frequency electromagnetic waves travel from one hemisphere to another along invisible tubes of force in the earth's atmosphere, reaching at least 8,000 miles into space during their journeys.

The first known whistlers resulted from the interactions of electrons in the atmosphere. Observations from the Canadian satellite Alouette I showed that there were also whistlers resulting from proton interactions.

Now, observations from the second Alouette have shown there are, in addition, helium whistlers. Details of the discovery are reported in *Nature*, 210: 80, 1966, by Dr. R. E. Barrington, J. S. Belrose and W. E. Mather of Canada's Defence Research Telecommunications Establishment, Ottawa.

Simultaneous observation of proton and helium whistlers, the scientists emphasize, "provides a direct and accu-

rate means of measuring the composition and electron density of the ionosphere at great heights above the earth's surface."

• Science News, 89:266 April 16, 1966

### TECHNOLOGY

## Canal Water Loss Prevented by Spray

➤ BILLIONS OF GALLONS of precious fresh water can be prevented from seeping into the ground by spraying concrete irrigation canals with a quick spray-on sealer.

With this new technique, three men can treat 800 feet of cracks in an hour, according to researchers with the Agricultural Research Service, part of the U.S. Department of Agriculture.

This will bring welcome relief to farmers in the West, where much water and money are lost by seepage through cracks in concrete-lined canals.

The cracks are cleaned with a high-pressure water jet, then the sealer is sprayed directly on the clean, wet concrete. The new sealer is a mixture of asphalt, butyl latex and asbestos fiber.

• Science News, 89:266 April 16, 1966