

## GET INVOLVED

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### LEARN MORE

about redwoods by visiting [SaveTheRedwoods.org](http://SaveTheRedwoods.org) or your local library.

### INSPIRE OTHERS

by sending your redwood art, poetry, photos or memories to Save the Redwoods League — we might post them on our Web site!

### VISIT A PARK

in an ancient redwood forest — better yet, *volunteer!*

### REDUCE, REUSE AND RECYCLE

paper and wood products.

### PLANT A TREE

native to the area where *you* live.

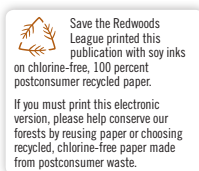
#### About Save the Redwoods League

Since 1918, Save the Redwoods League, a nonprofit conservation group with supporters in all 50 states and around the world, has led the effort to protect the coast redwoods and giant sequoias for all to experience and enjoy. Guided by our science-based Master Plan to save redwoods throughout their natural ranges, the League purchases priority pieces of land and donates or sells the property to government agencies for protection as parks and reserves. We restore logged forests to a majestic state and we support research to learn what redwoods need to survive. In addition, our Education Program connects people to redwood forests so they will know and want to protect these unique ecosystems.



WALK AMONG GIANTS™

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# Redwood Trees THREE ANCIENT WONDERS

*Save The Redwoods*  
LEAGUE®



### 3 SPECIES OF REDWOODS

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Three species of trees are commonly referred to as redwoods: the **coast redwood** (*Sequoia sempervirens*), the **giant sequoia** (*Sequoiadendron giganteum*) and the **dawn redwood** (*Metasequoia glyptostroboides*).

Redwoods get their common name from their bark and heartwood, the reddish-brown color of which stems from high tannin levels. Other chemicals found in the leaves, branches and bark give these trees a remarkable resistance to fungal disease and insect infestation. Their thick bark holds large quantities of water, which protects them from periodic, naturally occurring fires.

All three redwoods are descendents of a group of *conifers* (cone-bearing trees) that flourished more than 144 million years ago when dinosaurs roamed the Earth. At that time, the Earth's climate was warmer and more humid than it is today, so redwood species grew throughout North America, Europe and Asia. Over time and in response to an ever-changing environment, they retreated from most of their former range, and many once-abundant redwood species became extinct.

Successive ice ages, including the last one that ended about 10,000 years ago, have restricted the remaining redwood species to three small, distinct regions, each supporting one of the species. Each region is the only place in the world where you will find native populations of that species.

For more information, visit **[SaveTheRedwoods.org](http://SaveTheRedwoods.org)**.

**A Message from Save the Redwoods League:** Walk through a redwood forest and you can't help but feel a sense of awe and peace among these magnificent giants. Since 1918, the League has led the effort to protect redwoods for all to experience and enjoy.



## COAST REDWOODS: The World's Tallest Trees

In the most favorable parts of their range, California's magnificent coast redwoods can grow more than 320 feet high (about as tall as a 30-story building), with trunks more than 24 feet in diameter at breast-height, and can live for more than 2,000 years. However, ancient coast redwoods are rare — less than 5 percent of the original forest remains today. These ancient forests contain the highest *standing biomass* (total of all aboveground organic matter) of any forest on Earth and, therefore, store incredible amounts of carbon.

The coast redwood is one of the world's fastest growing conifers. In contrast to the tree's size, redwood cones are very small — only about an inch long. Each cone contains 14 to 24 tiny seeds: It would take well over 100,000 seeds to weigh a pound! In good conditions, redwood seedlings grow rapidly, sometimes more than a foot annually. Young trees also sprout from their parent's roots, taking advantage of the energy and nutrient reserves contained within the established, shallow root system.

In recent years, scientists have discovered that life abounds in the canopy and on the forest floor. Canopy research supported by Save the Redwoods League has revealed many species that live their entire lives in the redwood canopy, including worms, salamanders and plants such as Sitka spruce, ferns and huckleberry.

Frequent, naturally occurring fires play an important role in keeping coast redwood ecosystems healthy because they rid the forest floor of combustible materials. In contrast, decades of fire suppression practices usually result in the accumulation of dead plant material that may fuel intense, destructive fires.

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Coast redwoods grow naturally today only in a narrow 450-mile strip along the Pacific coast from central California to southern Oregon.

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Coast redwoods grow naturally today only in a narrow 450-mile strip along the Pacific coast from central California to southern Oregon. In this "redwood belt," temperatures are



Photo: Julie Martin

moderate year-round. Heavy winter rains and dense summer fog provide the trees with much-needed water during the otherwise drought-prone summers. In fact, redwoods create their own "rain" by capturing the fog on their lofty branches, contributing moisture to the forest in the driest time of year.

The native people of California did not usually cut down coast redwoods, but used fallen trees to make planks for houses and hollowed-out logs for canoes. When gold was discovered in 1849, hundreds of thousands of

people came to California in need of housing, and redwoods were logged extensively to satisfy their needs. By the 1960s, only a small fraction remained of the original 2 million acres of ancient coast redwood forest. The largest surviving stands of ancient coast redwoods are in Humboldt Redwoods State Park, Redwood National and State Parks and Big Basin Redwoods State Park.

Visit the coast redwoods:  
**[SaveTheRedwoods.org/events](https://www.savetheredwoods.org/events)**.



Photo: Vlad and Marina Butsky, Flickr Creative Commons

## GIANT SEQUOIAS: The Most Massive Trees

California's enormous giant sequoia is the world's most massive tree and one of the oldest. These trees can grow to more than 250 feet tall (about as tall as a 25-story building), with a diameter at breast-height up to 30 feet. Sequoia National Park's General Sherman Tree is about

52,500 cubic feet, which is roughly equivalent to 21,800 150-pound humans! Giant sequoias can live to be 3,000 years old; the oldest recorded specimen exceeded 3,500 years.

The Earth's last giant sequoias total fewer than 48,000 acres distributed in 77 scattered groves along the western slopes of the Sierra Nevada mountains. Some of the largest surviving giant sequoia groves may

be seen in Sequoia and Kings Canyon National Parks, Giant Sequoia National Monument, Calaveras Big Trees State Park and Yosemite National Park.

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**Giant sequoias grow so large because they live a very long time and grow quickly.**

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Giant sequoias grow so large because they live a very long time and grow quickly. To thrive, giant sequoias require thousands of gallons of water each day (the average American uses 80 to 100 gallons daily). They benefit from the Sierra snowpack that accumulates over the winter months and get some of the water they need from snowmelt that soaks into the ground. Because they need well-drained soil, compacting the soil by walking around their shallow roots can seriously damage giant sequoias.

Fire is an important element of the giant sequoia's ecosystem. Naturally occurring fires create openings in the forest, allowing

young giant sequoias to establish themselves. Fire suppression policies in recent years have increased the growth of a dense, brushy understory and reduced the likelihood of giant sequoia regeneration.

John Muir, renowned naturalist and extensive explorer of the Sierra Nevada mountains, was in awe of these giants. "There is something wonderfully attractive in this king tree, even when beheld from afar, that draws us to it with indescribable enthusiasm; its superior height and massive smoothly rounded outlines proclaiming its character in any company; and when one of the oldest attains full stature on some commanding ridge it seems the very god of the woods."

Visit the giant sequoias:  
**[SaveTheRedwoods.org/maps](https://www.savetheredwoods.org/maps).**





## DAWN REDWOODS: True Living Fossils

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The dawn redwood is distinct from the other two species because, among other traits, it is a *deciduous* tree rather than an evergreen. This means that it sheds its leaves in the fall, is bare in winter and grows new leaves in the spring. It is also the smallest of the three redwoods — typically between 50 and 60 feet tall — but can grow up to 140 feet tall with a trunk about 6 feet in diameter (at breast-height).

Before it was discovered in a remote area of China, the dawn redwood was thought to be extinct. Scientists had identified fossil remains of this redwood in North America, Asia and Greenland and had concluded that it must have been extinct for millions of years. However, in 1944, a Chinese forester found an enormous dawn redwood in Sichuan province.

In 1948, researchers supported in part by Save the Redwoods League traveled to China's remote Shui-hsu Valley in south-central China. They found a few thousand trees growing in narrow canyons that opened into the wide valley. Rice and other crops were being cultivated in these lowlands; the researchers guessed that the valley was probably once covered with dawn redwood forests. They collected cuttings and seeds and sent them to Asia, Europe and North America to be grown in public and private gardens, which is where you can enjoy them today.

The dawn redwood is commonly known as “water-fir” or “water pine” in China because of its tendency to grow in low-lying areas near rivers and streams — the same conditions that support rice cultivation. To the Chinese people, this tree is second only to the panda as a conservation icon.

Learn more about redwoods:  
**[SaveTheRedwoods.org](http://SaveTheRedwoods.org)**.



Photo: Mo-Mei Chen

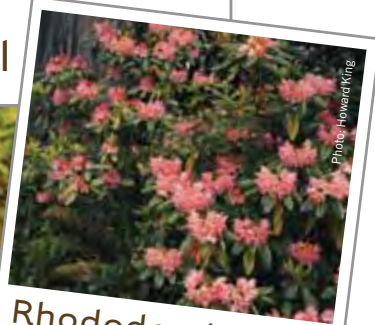
# FOREST INHABITANTS



Northern Spotted Owl



Banana Slug



Rhododendron



Redwood Sorrel

## REDWOODS Are More Than Trees

It is important to remember that redwoods are not just trees — they are part of complex ecosystems that depend on and support them. About 18 percent of the remaining coast redwood forest is protected in parks and reserves; more than 90 percent of giant sequoia acreage is in public ownership. Much work remains to ensure that future generations can enjoy these magnificent forests.

Unsustainable logging and poorly planned development continue to be major threats to redwoods. In California, thousands of acres of ancient coast redwood forest are on private land and could still be logged



for lumber or to make room for development. While mature giant sequoia trees themselves are too brittle to produce useful lumber, real-estate development near the groves threatens the ecosystem on which they depend. In China, much of the dawn redwood forest was logged to make room for rice terraces; as a result, the ecosystem is extensively fragmented, even though dawn redwoods are now protected there. The future of all redwoods depends on conserving not just the trees, but all redwood ecosystems and connecting landscapes.

The League also considers climate change a threat to redwood ecosystems. Many scientists are concerned that rising temperatures and changes in weather patterns may further limit the range of redwood forests. Together we are studying the potential effects of climate change to determine how best to protect these awe-inspiring ecosystems.

Help redwoods:  
[SaveTheRedwoods.org/help](https://www.savetheredwoods.org/help).