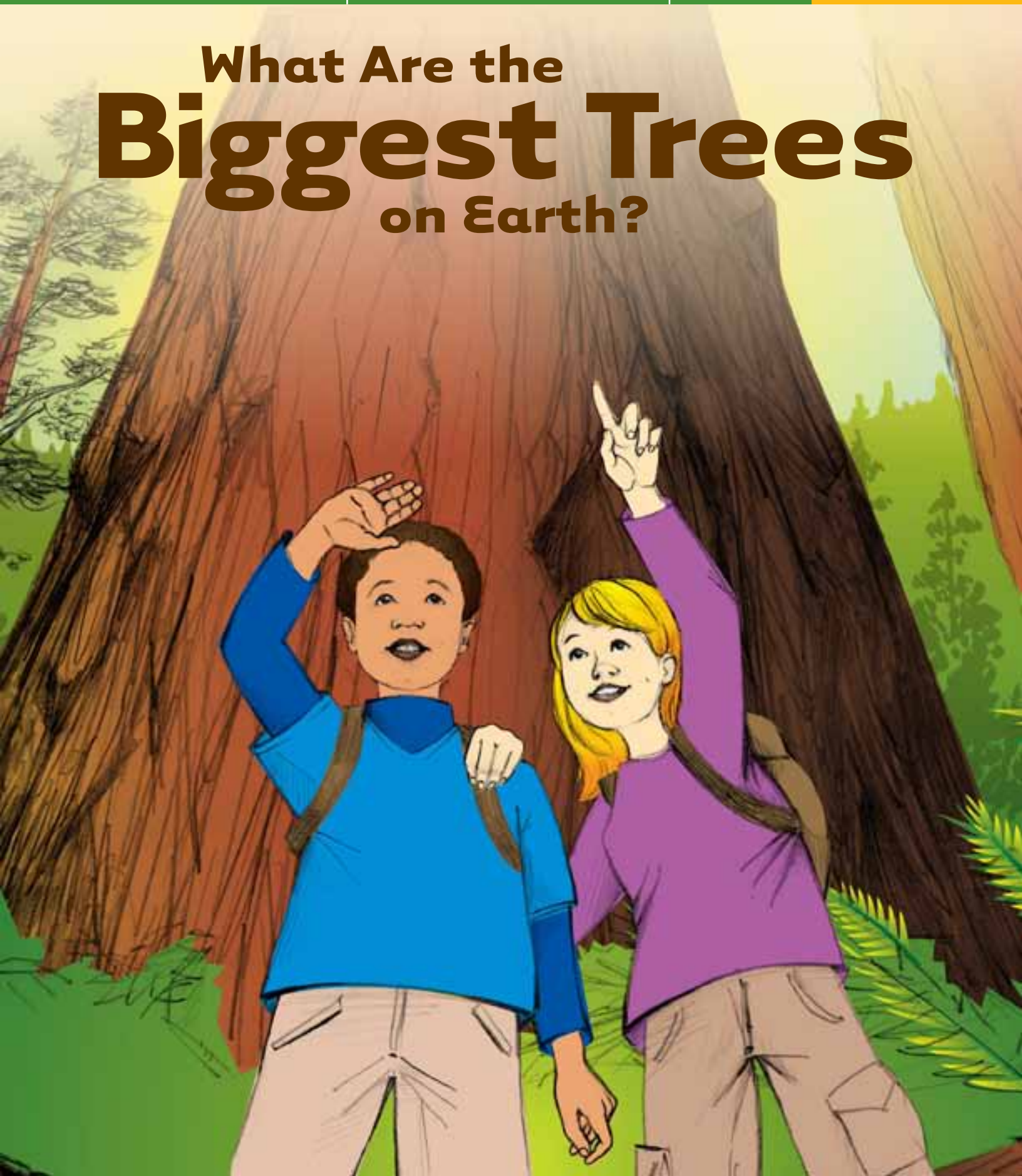




What Are the  
**Biggest Trees**  
on Earth?





# Threats to Giant Sequoias

Giant sequoias are strong trees. They can live up to 3,000 years and grow quickly, which is how they get so big.

Yet changes in and around the sequoia groves are making it difficult for these remarkable trees to survive.

One of the most serious threats to giant sequoias is California's expanding human population. As houses and towns are built closer and closer to giant sequoia groves, the amount of water available to the trees often significantly decreases. In addition, smog from nearby cities can harm the ecosystems in which giant sequoias live.

Since the mid-1800s, about one-third of the original sequoias have been cut down. Although cutting down ancient sequoias is no longer allowed, significant logging of other trees near the groves can disturb these ancient trees. Also, for many years people have prevented natural fires from burning in and around sequoia groves, a practice which has kept young sequoias from growing.

Save the Redwoods League knows that past **climate change** was a serious danger to giant sequoias. Many scientists are concerned that warmer temperatures and changing weather patterns may reduce the snowpack on which giant sequoias depend. The League is leading an effort to study redwoods and climate change so that we can keep protecting these amazing forests.

Although many giant sequoias living today have survived for 2,000 to 3,000 years, all these recent changes mean that their future is unclear. Some of the remaining sequoia groves do not have enough young trees to keep the groves stable in the years to come.



Imagine a tree as tall as a 25-story building with a trunk four times wider than a school bus. That's how large a giant sequoia tree can get!

Giant sequoias are the biggest trees in the world, growing more than 250 feet tall and up to 30 feet wide at the base. Some of the giant sequoias alive today are 2,000 to 3,000 years old. While not the tallest tree **species**, nor the oldest or widest, the giant sequoias are by far the most **massive** trees anywhere on Earth.

These huge trees are found growing naturally only in 77 groves in the Sierra Nevada mountains of California. Like their cousins the coast redwoods, giant sequoias have red bark, **evergreen** leaves and seed cones. Because of their location, giant sequoias are sometimes called Sierra redwoods.

Scientists can tell from fossils millions of years old that the ancestors and close relatives of the giant sequoia lived in other parts of North America, Europe and Asia. Over time, temperatures in many places became either too hot or too cold for them, and they only survived in a few small areas in the Sierra Nevada mountains where the climate is just right.

## Explore



Scientists learn about the giant sequoias by studying them over time. Find a tree in your neighborhood and visit it several times over the next few weeks. Take notes, draw pictures or take photos of what you observe. Do you see any evidence — like chewed leaves or fruit, a spider web, ant trails or a bird's nest — that animals may both use and help the tree?

Photo: SigmaEye, Flickr Creative Commons



# Sequoia Ecosystem

An **ecosystem** is a community of living things that interact with each other and their environment. Giant sequoias live in complex ecosystems that include many different animals, plants and fungi. They also need a healthy environment with the right amount of water, sunlight and fire.

Photo: Eric in S.F., Flickr Creative Commons



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## Explore



Find a tree in your neighborhood. Use a tape measure to find the width of its trunk.

Estimate its height by having a friend stand at the base while you step back to see the entire tree. Using the space between your thumb and finger as a guide, count how many of your friend it would take to equal the height of the tree. Multiply that number by your friend's height (measure it with your tape measure); for example, 6 of your friend x 5 feet tall = 30 feet.

How does this tree's width and height compare to a giant sequoia's dimensions?

**Temperature and moisture** are very important to giant sequoias. The largest sequoias require thousands of gallons of water each day to grow, which they get mostly from melted snow that has soaked into the ground. These trees grow naturally only in a narrow band (about 260 miles long and most often at elevations ranging from 5,000 to 7,000 feet) in the Sierra Nevada mountains, because that is where the temperature and moisture levels are just what they need.

Fire also is very important to giant sequoia ecosystems. These trees need naturally occurring fires to survive. Fire helps to open their seed cones and scatter the tiny seeds. It also destroys soil fungi that would otherwise kill young sequoias. Fire also creates openings in the forest, giving young sequoias the light and space they need to grow. Giant sequoias can live through occasional fires because they have a very thick, **fire-resistant** bark and can sprout new branches if burned.

Giant sequoias also depend on living things in their ecosystem. Woodpeckers and other birds eat insects living in the trees. Two different animals — chickarees (a kind of squirrel) and long-horned beetle larvae — help to spread sequoia seeds by eating the fleshy scales of the cones and freeing the seeds. Tiny soil organisms, called **decomposers**, break down dead leaves, logs and other matter, returning nutrients to the soil for the giant sequoias and other plants in the ecosystem.

Photo: Mark Brunell



Photo: Frank E. (Ed) Ely © California Academy of Sciences



# Get Active

## Learn More

Visit the Save the Redwoods League Web site at **SaveTheRedwoods.org**. Find books about giant sequoias or ancient forests at a local library.

## Inspire Others

Check out organizations that work on forest issues and join one that you like. Send your sequoia art, poetry, photos or memories to Save the Redwoods League, and we might post them on our Web site!

## Visit a Park

Take a trip to a park or nature preserve in your area to see what plants and animals are common there. Ask a park employee what you can do to help protect it.

## Reduce, Reuse, Recycle

Everything we use comes from nature. You can help trees and the environment by using fewer natural resources and recycling what you do use.

## Plant a Native Tree

Find out what kinds of trees are native to your area and plant one. If you can't plant one yourself, find a local group that will plant one on your behalf.

## Saving the Giant Sequoias

The native peoples of California lived among the giant sequoias for more than 8,000 years, but did not cut them down.

Soon after these trees were discovered by settlers in the 1850s, people began logging them for things such as fence posts and roof shingles. Due to their immense weight, the trees often broke apart when they were cut down, and many were wasted in the process.

Many people joined together to protect these extraordinary trees from wasteful logging and other harm. In 1864, Yosemite was set aside as a park, and several other sequoia parks were formed a few years after that. Over the years, Save the Redwoods League has helped to create parks and reserves to protect the remaining giant sequoia groves so that these rare and massive trees can continue to survive.

## About Save the Redwoods League

Since 1918, Save the Redwoods League has protected redwood forests so that people can be inspired by these precious natural wonders—now and in the future. The League and its partners help people of all ages experience these majestic trees through the forestlands we have helped protect and restore, the many education programs we sponsor and our Web site.



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Photo: Humboldt Historical Society

