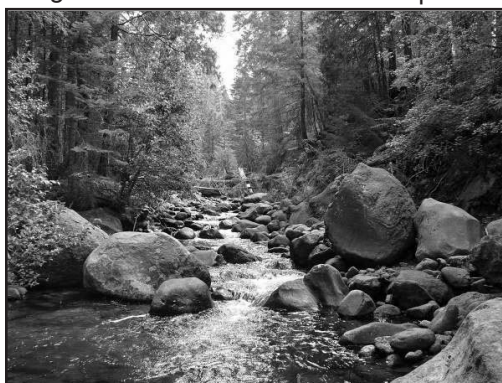


Forest Resources

Information compiled by the Forest Foundation

Sources – Due to California's diverse topography and climate, the state has diverse forests with many tree species only found in California (endemic). One-third of the state's 100 million acres includes forests, and half of this land is designated as timberland—land managed for timber products.

Forest types include mixed conifer, true fir, east-side pine, and redwood. Another important vegetation type, especially in Southern California, is chaparral. There are 52 species of conifers; these trees produce cones, have need-like leaves, and most are evergreen. Hardwood trees, including oak, maple, and madrone, have broad leaves and may be deciduous.



History – California was initially home to approximately 100 language groups of Native Americans who used the forests to meet their needs for food, forage, and homes. In the early days of the gold rush (1850s), forests were unmanaged, and there was little planning for the future. Today, forests are now owned and managed by the federal government (57%), industry (14%), non-industrial private (26%), state and other public entities (3%), and tribal groups (less than one percent). Diverse ownership ensures diverse management goals and diverse forest structures.

Management – All forest lands, except wilderness areas, are managed. Even parks carry out thinning and prescribed burning to limit invasive species and to control stand density. Forest management goals and practices differ among the various forest managers. Industrial forests are managed primarily for wood products, and non-industrial owners have goals of recreation, wildlife habitat, and retention of healthy forests for the next generation.

The goal of national forests is to sustain forests for multiple long-term benefits. Forest practices such as trimming, harvesting, and prescribed burning are aimed at maintaining forest health—limiting the effects of insects and disease, windstorms, and catastrophic wildfires. All forest managers ensure sustainability through planting and restoration—on average, about 30 million seedlings are planted annually.

To ensure the highest forest management standards for private forests, California has the nation's most restrictive forest practice rules. In addition to these rules, most private timberlands are certified to ensure managers adopt sustainable practices. Three organizations provide

sustainability certification: the Sustainable Forest Initiative, the Forest Stewardship Council, and the American Tree Farm System.

Uses – Wood and its components (cellulose, lignin, and oils) are used in many products, including houses, furniture, musical instruments, fences, paper, boats, biofuel, cosmetics, ice cream, toothpaste, plastics, and clothing. Everything that grows above

ground can be used to produce more than 5,000 products. Using wood has many advantages over other materials due to it being renewable, biodegradable, and requiring less energy to produce. In addition to these products, forests contribute to our environment. Forest cover is largely responsible for ensuring water quality as snowpack moves through the soil profile and into streams. Forests are also critical in mitigating climate change through the absorption of carbon dioxide and the emission of oxygen, which is fundamentally important for sustaining life.

Economic Value – California has more than 31 million acres of forestland. Forestry and forest product industries contribute 177,000 jobs and \$39 billion to the state's economy. At a value of \$77.4 billion, Humboldt County leads the state in timber production and accounts for 24 percent of the state's total timber value. Other top producing counties include Mendocino, Shasta, Siskiyou, and Del Norte.

For additional information:
The Forest Foundation
(866) 241-TREE
Website: www.calforestfoundation.org



Forest Resource Activity Sheet

Managed forests can be characterized in three classes: young, middle-aged, and mature.



Young, open forests (0-15 years old) develop after windstorms, fire, or reforested after timber harvesting. They characterize early stages of plant succession and include grasses, berries, shrubs, and trees. There is ample sunlight for growth of plants eaten by herbivores such as deer, and good hunting grounds for predators such as hawks, owls, and mountain lions that prey on woodrats and rodents.



Middle-aged forests (15-40 yrs old) have their density controlled through mechanical thinning that removes some of the over-dense, small, weak trees. The open forest canopy allows the development of understory shrubs and grasses and provides good habitat for raccoons, Cooper's hawks, and bears.



Thinned, **mature** and older forests (40-80+ yrs old) are in the later stages of plant succession and include trees of many ages and species as well as large, rotting logs and some snags (dead trees). These diverse forests provide habitat for woodpeckers, Douglas squirrels, and northern spotted owls.

Lesson Ideas

- List the variety of products in your house that come from trees. On food package ingredients, look for cellulose gum.
- Visit a sawmill, cogeneration plant, or biomass energy plant in your area.
- Use a cross-section of a tree stem to discover how a tree grows, the function of the bark, phloem, xylem, and cambium. Discuss possible factors that control ring width (tree spacing trees, available light, water, nutrients, and climate change).
- Visit a local park to discuss differences among trees—shape, bark color and texture and leaf shape.
- Find the height of a tree or flagpole at your school by using this resource, "How To Measure A Big Tree" (tinyurl.com/bigtreemath).

Fantastic Facts

1. California is home to the oldest (bristlecone pine), tallest (coast redwood), and largest tree (giant sequoia) in the world.
2. On average, 30 million seedlings are planted in forestlands each year.
3. California has more than 31 million acres of forestland, and half of this land is used for timber production.
4. Nine million acres of forests are owned by individuals, with nearly 90% of these owners having less than 50 acres of forest land.
5. Well managed forests ensure that clean water is delivered through the soil to streams and rivers.
6. In 2018, California spent almost \$2 billion fighting wildfires, which only accounts for 40% of the actual economic loss.

Lesson Plan: Making Recycled Paper

Introduction: Most paper is made from cellulose obtained from trees. About 60% of all paper is made from recycled cellulose.

Objective: Make recycled paper from old newspaper (An Internet search will provide details and alternatives.)

California Standards: NGSS: K-LS1-1, K-ESS2-2, K-ESS3-1, K-ESS3-3, 1-LS1-1, 1-LS3-1, 2-PS1-2, 3, 3-LS1-1, 3-LS3-2, 3-LS4-2

Materials: Large baking sheet, large bowl, measuring cup, water, a large section of newspaper, rolling pin, butter knife, plastic wrap.

Procedure:

1. Tear newspaper into small pieces about one inch in size or less.
2. Put paper shreds into large bowl and add one cup of water. Keep adding paper, tearing and squeezing it until the mixed pulp looks like cookie dough.
3. Place your baking sheet upside down on a flat surface. Cut a piece of plastic wrap and lay it across the bottom of the baking

sheet, tucking the ends underneath the baking sheet. Take a second piece of cut plastic wrap and wrap the rolling pin.

4. Grab a handful (about half) of the pulp and place it in the center of the pan, shaping the pulp into a square.
5. Place multiple layers of newspaper on top of the pulp ball, using the rolling pin prepared earlier, roll the ball from left to right and top to bottom twice removing all excess water.
6. Remove the newspaper from the pulp and discard wet newspaper. Drain any excess water in the lip of the pan. If the mixture sticks to the newspaper, use a butter knife to scrape it back onto the pile.
7. Apply dry sheets of newspaper onto the pulp. Flip the baking sheet over and gently remove the plastic wrap from the pulp, letting the new recycled paper dry completely.
8. When thoroughly dry, peel your new recycled paper away from the newspaper and have students make a gift for someone!