

The Eastern Redcedar

Objective

Students will read about the eastern redcedar and determine the points of view of various authors. Students will locate the range of the eastern redcedar on a map of the US and identify longitude and latitude. Students will conduct scientific investigations with eastern redcedar.

Background

Eastern redcedar is the most widely distributed conifer tree in the eastern United States. It is found in the eastern part of the US, from Maine to Florida and from Minnesota to Texas, from swamps to dry ridges, and can withstand extremes of drought, heat, and cold.

In Oklahoma, eastern redcedar can be found growing naturally throughout the state, except in the very western part of the state. While it is native to Oklahoma, it is not indigenous to many of the areas where it now grows. The number of trees and volume of eastern redcedar are increasing throughout most of its range.

Redcedar has scale-like leaves rather than needles. Its bark appears somewhat reddish brown and often is easily removed from the trunk in strips. Redcedar is classified as dioecious, meaning that usually there are separate male and female trees. Pollen is produced by male trees in early spring. Female trees develop pale, blue-green cones that mature in late summer to fall. Seeds are commonly disseminated by birds.

Although it is commonly called redcedar in its native range, the tree we know by that name is actually a juniper. There is no cedar native to the US. For that reason, the word should always be spelled “redcedar,” to distinguish it from true cedar. The Lakota Sioux call it *Chansha*, meaning “redwood,” or *Hante*. Redcedar smoke is used in cleansing ceremonies for several Plains tribes, including some Oklahoma tribes.

Redcedar wood is considered mid-weight, weighing about 33 pounds per cubic foot when air-dried. It is a relatively strong wood, about 80 percent as strong as white oak.

Redcedar is a very versatile wood. It has a fine grain but a soft texture and works easily with hand or power tools. Both the wood and the leaves contain an oil which has a pleasant, unmistakable aroma.

Redcedar works well for making cedar chests, outdoor furniture, closet linings, exterior trim, house siding, fences, gates, bird houses, frames for raised beds, jewelry boxes, cabinetry, carvings, aromatic shavings, mulch, boat trim, decking, fireplace mantels, cabins, beams, oil and more. Redcedar oil is highly prized for such uses as cosmetics and medicinal products. The trees also provide food and shelter for wildlife, and protective vegetation for fragile soils.

English Language Arts

1. Read and discuss background and vocabulary.
—Show students samples from redcedar trees and some products made from redcedar.

Oklahoma Academic Standards

GRADE 6

Speaking and Listening: R.1,2,3; W.1,2. Reading and Writing Process: R.3. Critical Reading and Writing: R.1,2,5,7; W.3,4
Social Studies Content—1.1,2,4; 2.1B; 3.1AB; 5.3,5CD
Life Science: 2-1,5

GRADE 7

Speaking and Listening: R.1,2,3; W.1,2. Reading and Writing Process: R.3. Critical Reading and Writing: R.1,2,5,7; W.3,4
Life Science: 1-5; 3-2; 4-6

GRADE 8

Speaking and Listening: R.1,2,3; W.1,2. Reading and Writing Process: R.3. Critical Reading and Writing: R.1,2,5,7; W.3,4
Physical Science: 1-3.
Earth Systems: 3-1,4

Materials

Sample cuttings from eastern redcedar, male and female, if possible

Sample cuttings from assorted other conifers.

Samples of products made from eastern redcedar. Products made from eastern redcedar include oil, jewelry boxes, shavings, and mulch.

Vocabulary

catkin— a flower cluster (as of the willow or birch) in which the flowers grow in close circular rows along a slender stalk

conifer— any of an order of mostly evergreen trees and shrubs having leaves resembling needles or scales in shape and including forms (as pines) with true cones

dioecious— having male reproductive organs in one individual and female in another

disseminate— to spread around as if sowing seed

indigenous— produced, growing, or living naturally in a particular region or environment

native— living or growing naturally in a particular region

pollen—mass of tiny particles produced by flowers that serve as males for fertilization. Usually appears as a fine yellow dust.

prolific— producing young or fruit in large numbers

range— the place where a certain kind of animal or plant naturally lives

susceptible— being of such a nature as to permit some action or operation

versatile— able to do many different kinds of things

2. Students will read the two articles about eastern redcedar included with this lesson. For each reading, students will determine the author's point of view and how it is conveyed in the text. Students will identify the central idea and how it is conveyed through particular details. Students will compare the articles in class discussion.
3. Students will use the facts presented in the three articles to write arguments for or against measures to control eastern redcedar. Should more effort be put into developing markets for using the wood or for eradicating it from the landscape? Students may also draw from outside research.

Social Studies

1. Students will complete following map activities, based on this fact: "The eastern redcedar can be found from Maine to Florida and from Minnesota to Texas."
 - Shade in this area on the map of the US included with this lesson.
 - Identify the latitudes and longitudes for the boundaries of the area.
 - What regions of the US does this area cover?
 - Use a topographic map to determine the kinds of land covered (mountains, desert, etc.)
 - Identify the major rivers and mountain ranges in this area.

Science

1. Students will examine samples from male and female redcedar trees. Students will read about the difference between male and female and sort in the proper category.
2. Students will read the description of redcedar trees included with this lesson and sort the samples you provide between cedar (juniper) and other conifers.
3. Redcedar is considered to be a medium strength wood, about 80 percent the strength of white oak. Students will work in groups and develop experiments to measure the strength of cedar compared with the strength of white oak. Students will prepare a materials list (including safety equipment), conduct the experiments, record the results and report results to the class.
4. Provide scraps of cedar wood. Students will work in groups to design and produce products. Students will design promotional campaigns and sell their ideas to the class. The class will vote to determine the best idea.

Extra Reading

Desonie, Dana, *Geosphere: The Land and Its Uses (Our Fragile Planet)*, Chelsea House, 2008.

King, Zelda, *Examining Forest Habitats (Graphic Organizers, Habitats)*, PowerKids, 2009.

Leavell, Chuck, and Nicholas Cravotta, *The Tree Farmer*, VSP, 2005.

Wallace, Marianne D., *American Forests: Guide to Plants and Animals*, Fulcrum, 2009.

Name _____

Redcedar Mulch

Fired up about redcedar mulch

STILLWATER, Okla. – The beautiful grassland and native prairies of Oklahoma are under attack from unwelcome guests. The infestation of Eastern redcedars is expensive, unsightly and provides enormous amounts of fuel to wildfires.

“As you drive around central and western Oklahoma it’s clear that Eastern redcedar is invading our native prairie, and the best thing by far folks can do is to prevent that infestation from happening, either through prescribed burning or other good land management practices,” said Rodney Will, professor of silviculture with the Department of Natural Resource Ecology and Management at Oklahoma State University. “But sometimes you miss that window of opportunity and the trees get too big.

Once this happens, it is often very expensive to have these pesky trees removed. To aid landowners with the high cost of removal, researchers at OSU’s Division of Agricultural Sciences and Natural Resources began looking for uses of the tree. One alternative that was recently studied, using funds from the Oklahoma Center for the Advancement of Science and Technology, was using the Eastern redcedar for mulch. While landowners probably won’t make any money off the trees, the mulch can help with part or all of the cost of removal. The study examined the rate of decomposition, soil moisture, soil temperature and plant growth using redcedar mulch compared to several other common wood mulches. The results may be the proverbial light at the end of the tunnel.

“In regard to plant growth and soil variables, redcedar has ranked among the best of all of the mulch types we are studying,” said Adam Maggard, NREM graduate student who worked on the study. “Basically, the bottom line is, if you like the way it looks, you should use it.” And most people really like the way it looks.

Throughout the study, surveys have been taken where people rank their favorite mulch based only on appearance. Redcedar mulch has consistently been ranked on the top of the list. “Based on what we’re finding in terms of all of the effects on plant growth, I think folks should really consider using redcedar mulch,” said Will. “It’s locally produced, it keeps the money in the state, it increases tax receipts and in one small way helps to restore a degraded ecosystem.”

Source: Hubbard, Sean, “Fired up about redcedar mulch,” Agricultural Communications Services, Oklahoma State University, <http://water.okstate.edu/news-events/news/acs/fired-up-about-redcedar-mulch>

1. **What is the central idea?** _____

2. **How is the central idea conveyed through particular details?** _____

3. **What is the author’s point of view?** _____

4. **How is the author’s point of view conveyed in the text?** _____

Name _____

Fire and the Eastern redcedar

Why is Eastern redcedar taking over? Where did all these trees come from?

Eastern redcedar is spreading for a number of reasons, including the lack of fire on the landscape, the species' adaptability and changes in land use and management following European settlement. Eastern redcedar is very susceptible to fire, especially when small. Prior to settlement, lightning-caused fires or fires set intentionally by Native Americans swept frequently across forest and plain. These periodic fires restricted the spread of Eastern redcedar, confining them to canyons, limestone outcrops or other places where fire intensity was low.

With settlement, widespread burning became less frequent, which allowed redcedar seedlings to become more numerous, and grow larger and more resistant to control. Increasing development in urban and wildland-urban interface areas (where the city meets the country), brought demands for improved fire protection further limiting fires' spread. Today, smaller ownership sizes, plus the increased risks associated with burning, greatly reduced the use of prescribed fire as a management tool. Each of these influences has contributed to expansion of redcedar on the landscape.

Redcedars are also prolific seeders, with the male pollen-producers and the female seed- producers being on separate trees. A variety of bird species use the berries for food. As the fruit works its way through their digestive system, the seed is primed for germination when it hits the ground. This is one reason why redcedars are commonly found in fence lines, under power lines, under large trees and in other places where birds congregate.

Another reason why this species is proliferating is the large shift in land use and ownership objectives from active management to a passive management style, especially around population centers. Redcedars are easy to control when small, through burning, cutting, mowing or other relatively inexpensive land management practices. However, on lands that are not actively used or managed, such as those held for investment or purely recreational purposes, it is not surprising to see redcedar taking over.

Source: Oklahoma Forestry Services, "FAQs about Eastern Redcedar," http://www.forestry.ok.gov/Websites/forestry/images/Redcedar_FAQs_web_version.pdf

1. What is the central idea? _____

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US Map



Oklahoma Ag in the Classroom is a program of the Oklahoma Cooperative Extension Service, the Oklahoma Department of Agriculture, Food and Forestry and the Oklahoma State Department of Education.