

Sea of Cedar

An exploding population of Eastern Redcedar threatens to engulf Oklahoma, threatening people, wildlife and the economy

By F. Dwain Phillips

Eleven people were killed and 550 homes were destroyed in a wildfire that burned 100,000 acres in San Diego County, California in 2003. Wildfires with high property loss and even loss of human life are common in California and other western states. Could it happen in Oklahoma? Some people say that it is just a matter of time.

“The exploding population of Eastern Redcedar and the increasing number of people building homes on small acreages is setting up conditions for wildfires that could have disastrous results,” Dr. Terry Bidwell warns. Bidwell is an Oklahoma State University Professor and Extension Rangeland Ecology Specialist. “While it is nice to have a rural home nestled in among trees, the fire hazard can be high where there is a large cedar population,” he says. “There are precautions homeowners can take to reduce the fire hazards, but many like the privacy the trees provide and are just not aware of the danger.”

Eastern Redcedar and other juniper trees increase the fire hazard because they have fine foliage that begins at ground level and contain volatile oils. Grass fires can ignite cedars which then can act as a ladder for fire to climb to taller species of trees and rooftops.

“Dry cedars can literally explode when fire hits them, showering sparks in the air and fueling a wildfire that, with Oklahoma winds, could travel miles before it could be brought under control,” said Bidwell.

But fire danger is just one part of the problem caused by the increasing number of cedar trees, a species that was once promoted for use in windbreaks and wildlife plantings. The trees are affecting people’s health, reducing productivity from grasslands and destroying wildlife habitat, all of which is costing the state millions of dollars each year, according to the Redcedar Task Force formed in 2002 by the Oklahoma Secretary of Agriculture and Secretary of the Environment.

The number of Eastern Redcedars (not a true cedar at all, but a juniper) is increasing at an estimated rate of 762 acres a day or 300,000 acres a year, according to the USDA Natural Resources Conservation Service (NRCS). To visualize how much area is covered by 762 acres, consider that a football field including the end zones is about one acre in size.

An NRCS survey in 1985 found an estimated 3.5 million acres of rangeland, pasture and forestland had been invaded by cedar compared to 1.5 million acres in 1950. The acreage increased to eight million acres by 2004 and without control will reach 12.6 million acres by 2013 (28 percent of the Oklahoma landscape). The surveys are based upon estimates of land with at least 50 cedar trees per acre. Cedars have become a problem in all counties except the panhandle and a few counties in the southwestern part of the state.

So what has caused this tremendous increase in the cedar population? In the early part of the twentieth-



Without proper management, Eastern Redcedar (left) can invade grasslands and become so dense they will shade out grass, rob water from other plants and change the ecology of the area. When located near a home or structure, they also create a fire hazard by acting as a ladder by which flame can reach higher foliage and buildings.

century, cedars were found only in canyons, rock outcrops and bluffs. “The trees were protected from fire in these areas,” Bidwell says. Native Americans intentionally set fire to the prairies in the spring and fall to improve the habitat for wildlife. That, along with wild fires set by lightning, controlled the spread of the trees into grasslands. Settlers, however, brought fire control, heavy grazing and other management practices that allowed the cedars to spread out into the prairies and forestlands. Once they got a start, the number of trees continued to grow with help from birds spreading the seed across the landscape.

The growing number of cedars is also bad news for people suffering from allergies related to tree pollen. Studies by Estelle Levetin, University of Tulsa biology professor, found that the pollen grain concentrations (the allergen produced by

juniper trees) tripled from 1988 to 1996.

Cedars adversely affect wildlife as well, by invading native plant communities and changing their habitat structure and composition. As few as three juniper trees per acre can displace sensitive prairie songbirds, according to Oklahoma State University studies, which also found that the state could be losing over 5,000 bobwhite quail coveys each year due to the cedar invasion. The Redcedar Task Force reported that cedars caused an estimated \$52 million loss in lease hunting in 2001.

Ranchers are also feeling the burden, as millions of dollars worth of grazing capacity is lost and millions more is spent trying to control the trees. Thick cedar populations reduce the productivity of grassland by shading out the grass and robbing the soil of water. Conservationists say absentee ownership is a major

concern because these landowners often don't realize that their land is being taken over by the cedars.

Cedars may soon threaten water supplies for cities and towns as well. OSU research shows that one acre of cedar trees can absorb 55,000 gallons of water per year. Snow and rain is trapped on the branches of the trees and can evaporate when the sun comes out instead of getting into the soil or running off into streams. The more cedars on the landscape, the more water is taken up by the roots and used by the trees or lost through transpiration. This all means less water is running off the land into lakes and going into aquifers.

The problem hasn't gone unnoticed by landowners, and they are fighting back using prescribed burning and mechanically cutting the trees by hand or using a variety of machines. Pearce and Sharon Kuykendall, Payne County landowners, know the frustration of trying to control cedar. They have used a bulldozer to push down the trees, a track hoe to pull trees out of the ground, machines with blades to cut them on a large scale and chain saws and tree loppers to cut them by hand. "The problem with cedars is, you think you have them all cleared out and in a year or two there is a whole new crop of little trees," said Kuykendall. The couple spends about 40 hours every other year cutting small cedars by hand with tree loppers on one of their 80-acre pastures. "As long as neighbors have cedars and birds bring in seed, we are going to have to keep fighting them," said Kuykendall.

At least 300,000 acres would have to be treated each year just to keep up with the growing population of the trees. The NRCS estimates that 2-4 million acres per year need to be cleared of the trees to begin to restore the land to good management levels and that it would take \$157 million to address the current needs.

Prescribed burning is a less expensive method of cedar control (ranging from about \$3 to \$7 per acre), but is limited because of the required weather conditions such as wind speed, humidity and temperature that are needed for a good, safe burn. Adequate fuel (grass) is necessary, and it takes several people with equipment to perform a burn safely. The use of prescribed burning is increasing, and eight prescribed burning associations have been formed in the state. These asso-

ciations consist of landowners who have joined together to share labor, equipment and safe burning know-how.

Mechanical treatment is also an effective control measure. It is usually more expensive than burning, but there may be conditions that limit use of fire such as surrounding property, oil wells and size of acreage. Cost depends on the size and number of trees per acre, but can range from \$25 to \$100 per acre. Small machines with blades or a saw mounted on the front are often used for smaller trees, but larger trees may require a bulldozer.

The Oklahoma Redcedar Association is working to help landowners and businesses find ways to use the cedar as a resource. Cedars are used for cedar chests, lumber, mulch, particleboard and other products. The main challenge in establishing an industry in Oklahoma that utilizes cedar is that, in many cases, the need for the products is already being met, according to John Burwell, Oklahoma Department of Agriculture forester. Eastern Redcedar is the most widely distributed conifer in the eastern United States, occurring from southern Canada to Florida and as far west as Nebraska.

In 2000, it was estimated that red cedars cost Oklahoma \$218 million dollars annually through catastrophic wildfires, loss of cattle forage, loss of wildlife habitat, recreation and water yield. By 2013 that figure is expected to increase to \$447 million if major preventative control steps are not taken to control the invading cedars.

"Unless the state begins a more extensive control program, the problem will continue to grow and cost the state more each year," said Bidwell.

More Information:

- A nationally recognized program called Firewise provides information on how to protect your home from external fires. Information is available on their website at www.firewise.org

- Information is available on cedar control in pasture and rangelands from the Natural Resources Conservation Service (NRCS), local conservation districts and the OSU County Extension Service offices. Cost-share assistance may be available through NRCS or conservation districts in some counties.

- Information on how Eastern Redcedar is affecting forestland is available for the Oklahoma Department of Agriculture, Food and Forestry in Oklahoma City, www.oda.state.ok.us

- Information of how cedar is being marketed as products is available on the Oklahoma Redcedar Association website, www.okredcedar.org



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Chris Kluding, a Canadian Valley Electric member who lives near McCloud, purchased a small Caterpillar with a saw mounted on the front to clear cedars from his land. It worked so well that he now has gone into the business of cutting cedars for other landowners.

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