



# Cut and Stuff Practices for Enhanced Cedar Control with Prescribed Fire

February 2017

**Jess F. Crockford**  
Regional Coordinator  
Kansas Prescribed Fire Council

**John R. Weir**  
Research Associate  
Natural Resource Ecology and Management  
Oklahoma State University

**Carol E. Blocksome**  
Research Assistant Professor  
Horticulture and Natural Resources, Kansas State University

**Morgan L. Russell**  
Extension Range Specialist  
Texas A&M AgriLife Extension Service

**Dirac L. Twidwell**  
Assistant Professor  
Department of Agronomy and Horticulture  
University of Nebraska

Oklahoma Cooperative Extension Fact Sheets  
are also available on our website at:  
<http://osufacts.okstate.edu>



**Figure 1. Ladder fuels are flammable live or dead plant material that allows a ground or surface fire to climb into the tree canopy. This addition of ladder fuels through “cut and stuff” practices can increase fire intensity and create longer flames needed to control larger trees, thus increasing the overall effectiveness of most prescribed burns.**

Fire is a natural occurrence that has shaped our plant communities on the Great Plains for centuries. The lack of fire over the past 100 years has drastically changed this landscape through the increase of woody plants, especially eastern redcedar. Prescribed fire is the most economical control method for eastern redcedar and other junipers found throughout the Great Plains. Prescribed fire controls most cedars less than 6 feet tall, as long as there is adequate fine fuel loads and proper burning conditions. Cedars larger than 6 feet, are often more difficult to control with prescribed fire. Initially the fires only scorch and kill the lower branches of these larger trees. This is mainly caused by the lack of adequate fine fuel needed to create the heat and flame length to scorch or ignite these larger trees. Increased control on larger trees can also be achieved by timing prescribed burns with periods of lower leaf moisture content during dry or drought conditions to increase flammability. But having to wait for these conditions or being able to burn due to burn bans can be challenging.

One-way land managers can influence greater control or cause more damage to larger cedars on a prescribed burn is by increasing fuel loads through the creation of ladder fuels. Ladder fuels are flammable live or dead plant material that allows a ground or surface fire to climb into the tree canopy. This addition of ladder fuels through “cut and stuff” practices can increase fire intensity and create longer flames needed to control larger trees, thus increasing the overall effectiveness of most prescribed burns (Figure 1).

## Planning Considerations

When cutting and stuffing trees to create continuity in fuel from the ground to the tree canopy it is important to do some prior planning. When planning to use this technique, determine what is the best method or methods for cutting and

moving trees, what is the prescribed wind direction, which trees should be cut, and how long it will take to prepare prior to the burn. Thinking through the process before the burn will save a lot of time and effort, as well as make the burn safer and more effective.

Many times cedars cut or pushed during firebreak construction make a good source of ladder fuels to be placed or stuffed under standing trees. The best way is to strategically cut and stuff trees using any of the available mechanical methods. It is best if the trees do not have to be moved great distances after being cut. Cut trees should be stuffed on what will be the upwind side during the prescribed burn in order to take advantage of the greater flame length and intensity that will be produced. Also on steeper slopes place the cut trees on the downslope or lower elevation side of the taller cedar trees will take better advantage of increased fire behavior due to slope (Figure 2).

It's important to remember that burning cedars can throw embers a significant distance depending on relative humidity and wind speed, therefore, cutting and stuffing trees should not be done within 500 feet of the downwind firebreak or backfire sides of the burn unit to avoid spot fires or escaped fires (Figure 3). Cedars to be stuffed should be cut and placed under live trees one to nine months ahead of the planned burn date. This gives them adequate time to dry down, but





**Figure 2. Cut trees should be stuffed on what will be the upwind side during the prescribed burn in order to take advantage of the greater flame length and intensity that will be produced. Also on steeper slopes place the cut trees on the downslope or lower elevation side of the taller cedar trees will take better advantage of increased fire behavior due to slope.**



**Figure 3. It's important to remember that burning cedars can throw embers a significant distance, depending on relative humidity and wind speed, therefore, cutting and stuffing trees should not be done within 500 feet of the downwind firebreak or backfire sides of the burn unit.**

so long that they begin to loose their needles. Areas that are inaccessible to cedar cutting equipment can be treated by chainsaws, felling selected trees in areas where they will most impact fire behavior and carry into other standing trees. With just a limited amount of time and work, cutting and stuffing cedars can greatly enhance cedar control on most prescribed burn (Figure 4).

Cut and stuff prescribed burns can render significant damage to large cedars in areas where fire normally would not have much impact. Even though the cedars are not completely consumed during the burn, trees that are scorched significantly can be killed by the increased heat produced by the cut and stuff practice. As with all aspects of prescribed

burning pre-burn planning considerations should address concerns over safety of personnel, extreme fire behavior and smoke produced with this technique.

Follow up burns in subsequent years will be needed to treat the proliferation of new cedar seedlings that will come from the seed bank in the soil. Overall, cutting and stuffing cedar trees around and under the base of taller cedar trees is a very effective control practice that can be used on prescribed burns (Figure 5).



**Figure 4. Cedars to be stuffed can be cut and placed under live trees one to nine months ahead of the planned burn date. This gives them adequate time to dry down, but not so long that they begin to loose their needles.**



**Figure 5. Cut and stuff prescribed burns can render significant damage to large cedars in areas where fire normally would not have much impact. Even though the cedars are not completely consumed during the burn, trees that are scorched significantly can be killed by the increased heat produced by the cut and stuff practice.**

**In cooperation with:**



**K-STATE**  
Research and Extension

**N** UNIVERSITY OF  
Nebraska  
Lincoln

TEXAS A&M  
**AGRI LIFE**  
EXTENSION

Oklahoma State University, in compliance with Title VI and VII of the Civil Rights Act of 1964, Executive Order 11246 as amended, and Title IX of the Education Amendments of 1972 (Higher Education Act), the Americans with Disabilities Act of 1990, and other federal and state laws and regulations, does not discriminate on the basis of race, color, national origin, genetic information, sex, age, sexual orientation, gender identity, religion, disability, or status as a veteran, in any of its policies, practices or procedures. This provision includes, but is not limited to admissions, employment, financial aid, and educational services. The Director of Equal Opportunity, 408 Whitehurst, OSU, Stillwater, OK 74078-1035; Phone 405-744-5371; email: eeo@okstate.edu has been designated to handle inquiries regarding non-discrimination policies: Director of Equal Opportunity. Any person (student, faculty, or staff) who believes that discriminatory practices have been engaged in based on gender may discuss his or her concerns and file informal or formal complaints of possible violations of Title IX with OSU's Title IX Coordinator 405-744-9154.

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Director of Oklahoma Cooperative Extension Service, Oklahoma State University, Stillwater, Oklahoma. This publication is printed and issued by Oklahoma State University as authorized by the Vice President for Agricultural Programs and has been prepared and distributed at a cost of 42 cents per copy. 0217. GH