

# Youth Forum

## To Burn or Not to Burn...That Is the Question

By Kelly Haile

*Editor's Note: This paper is the 5th Place winner of the High School Youth Forum contest at the Society for Range Management Annual Meeting, February 2005, Fort Worth, Texas.*

In presettlement times in North America fire was as much a part of the landscape as rain-fall, snow, grazing, and insects. Fire was a natural occurrence caused by lightning strikes. These naturally set fires were common in the summer when it was hot and dry.

Under these conditions the fuel was easily ignited. Native Americans also deliberately set fires to reduce ground cover for the ease of traveling and hunting. This could be considered a prescribed burn. A modern definition of a prescribed burn is the application of fire to a vegetated site in a predetermined area under specific fuel load and weather conditions in accordance with a written prescription plan. The Native Americans did not have a written prescription but they did have a plan.

Burning is one of the oldest rangeland management practices. It has been known for years that prescribed burns have many benefits. Following are 3 benefits: 1) burning helps control brush and invading grasses to improve rangeland condition and wildlife habitat, 2) burning helps prevent wildfires, and 3) burning helps improves seed germination and seedling establishment.

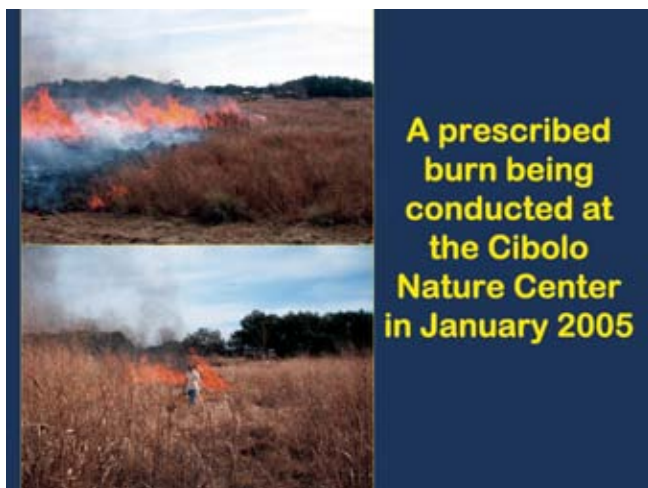
In the Edwards Plateau where I live we have several invading brush species. We use prescribed burning to increase the production of native grasses and forbs while reducing the growth of unwanted brush species.

For instance, Ashe juniper, also known as cedar, is one of the main invading brush species. It can take over the rangeland in a relatively short period of time. If left unchecked it can get so dense that the production of grasses and forbs are reduced to a minimum amount. Further study shows that a rain of less than 1 inch can be caught in its thick canopy, keeping the rain from reaching the soil underneath. However, Ashe juniper can be controlled by fire because it does not resprout after being burned for the right amount of time and at a high enough temperature.

Although not all brush species are killed by fire like Ashe juniper, their growth is suppressed, which makes the rangeland more accessible for

Ashe juniper invading rangeland





wildlife and livestock and increases the nutritional value and production of grasses and forbs which are a significant part of the animals' diet. Similarly to controlling brush, you can use fire to control introduced invasive grasses. Native grasses generally respond more favorably to fire, while less desirable introduced grasses do not, allowing your native grasses to be the predominant grass on your rangeland.

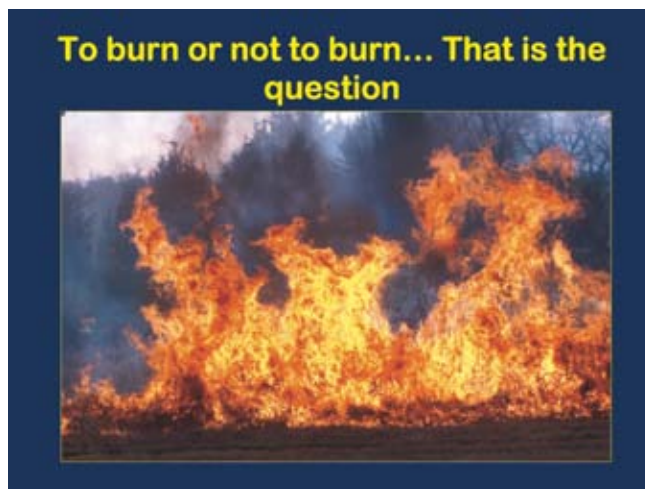
The Cibolo Nature Center is located along Cibolo Creek in Kendall County. At this site there has not been any livestock grazing for at least 15 years. The predominant grass is switch grass, which makes up about 55% of the grass cover. They conduct prescribed burns on it every other year to reduce the amount of plant litter and to try to reduce the amount of the introduced grass, King Ranch bluestem, and to keep new sprouts of Ashe juniper from sprouting. One of their main goals is to increase the amount of native grasses. For the past 5 years I have volunteered at the Cibolo Nature Center conducting vegetation composition transect lines in the spring and fall to see if the prescribed burns are meeting the established goals of reducing the amount of King Ranch bluestem and promoting the growth of native plants. These are some examples of how prescribed burns help control brush and invasive grasses to improve rangeland condition and wildlife habitat.

We have all heard the saying "Only you can prevent wildfires!!!" Though it may seem strange that you can use fire to prevent fires, it has been shown that a program of prescribed burning does not eliminate wildfires, but it does reduce the number of fires and the acres burned during a wildfire. The traditional method of preventing wildfires was to eliminate all fires. Without fire, fuel loads increase because they have not been burned in years which can cause an increase in the number and intensity of wildfires. The general public often has a view that all fires are bad because of Smokey Bear and other fire prevention campaigns. While this is a prevention method that has worked in the short term, over the years it has not eliminated or prevented the threat of wildfires. What it actually does is create a greater fire potential. Fuel loads increase

due to the accumulation of dead trees, carpets of pine needles, and other plant litter. These and other accumulations have the possibility of causing a devastating wildfire. Also, the temperature and intensity of the flames during a wildfire can kill the understory vegetation and do some harm to the taller, more mature trees. Even though the land may look barren and lifeless after a prescribed burn, in a short period of time after the fire (under the right weather conditions) the vegetation on the rangeland is better than it was before the burn. Preventing wildfires with prescribed burns has an economic benefit as well. According to G. G. Martin in the 1988 Fuels Treatment Assessment, for every dollar you spend on a prescribed burn, \$1.76 is saved by not having to pay to extinguish the fires and damages that they might cause.

I attended the Wildlife Conservation Camp this past summer. It was held in Huntsville, Texas, and while there we did a prescribed burn in the Sam Houston National Forest. The objectives of the burn were to reduce the amount of fuel load and the amount of understory brush. Using prescribed burning to remove the fuel load at the right time of year and under the right weather conditions, prescribed fire can be a great asset in controlling wildfires. It also educates the public that not all fires are bad, just the uncontrolled ones.

Another benefit of prescribed burning is to encourage the germination of seeds. Research has revealed that some seeds depend on smoke and heat to get them to germinate. According to studies done by Daubnshire in 1968 and Sampson in 1944, grass seeds can tolerate temperatures of 180° to 240° F for 5 minutes. Not only do seeds tolerate heat, fire can trigger germination of seeds. Grass seeds can lay dormant for as long as 100 years under the right environmental conditions. If you think about it, it is a divine plan for the seed. Smoke comes from fire, and fire means that the plant residue has been burned off and there is less competition for new seedlings. Fertile ash will be available for the establishment of seedlings and their future growth. On the Edwards Plateau the Flameleaf sumac is stimulated to germinate from the heat of the fire. Along with the heat influenc-



ing germination, smoke has been proven to enhance seed germination. The exact triggering agents in smoke are not yet known, but nitrogen dioxide and/or butenolide are two possible agents contained in the smoke. However, not all seeds are influenced by smoke and heat to germinate.

So the question is to burn or not to burn.

I hope you have seen the advantages that prescribed burning offers. When fire is used properly as a tool it is very beneficial in controlling brush and invasive grasses to improve rangeland condition and wildlife habitat, it helps prevent wildfires, and it improves seed germination and seedling establishment. ♦

### **My sources were the following:**

Youth Range Workshop  
Wildlife Conservation Camp  
Prescribed woodland burns  
Journal of Range Management  
Texas Co-op Power November 2004  
Smokey the Gardener by Susan Milius  
Forest Preserve District in Kane County  
Red Buffalo prescribed burning company  
Prescribed Range Burning in Central Texas  
Prescribed Burning for Brushland Management