

Why We Burn: Prescribed Burning as a Management Tool

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Introduction

Fire is an important ecological force that has influenced the natural history of North America throughout time. Arkansas' forests, prairies and bottomlands have also been shaped by fire. In fact, many of Arkansas' plant communities, especially the native shortleaf pine/bluestem grass community, depend upon fire for regeneration. Fire, regardless of the source, reduces dead vegetation, replenishes nutrients in the soil, stimulates new growth and maintains biological diversity.

Fire has also been used as a management tool throughout history. Prior to European settlement, Native Americans used fire to maintain oak and pine savannas, clear brush and create wildlife habitat. Early European settlers adopted the use of fire to maintain open stands of oak and pine forests, clear land for agriculture, control pests and improve livestock grazing.

Despite the benefits of fire as a management tool, over time the acceptance and use of fire was decreased and fire suppression became the norm. Several factors were involved with this change in practice. One was the shift from subsistence-



based agriculture to commercial agriculture. Another was increasing human population density. As more people moved deeper into the forest and range and the population density increased, fire was viewed as a destructive force that destroyed lives, property and natural resources. In addition, the uncontrolled forest clearing contributed to the perceived need for fire suppression. By the turn of the last century, most of the nation's forests were cleared and left to regenerate on their own providence. The slash left behind was an extreme fire hazard and rampant wildfires would occur. These wildfires destroyed entire communities. In 1918 one of the worst fires occurred in Cloquet, Minnesota. The final toll: 453 people killed, 85 seriously burned, 1,500 square miles blackened, 11,382 families displaced and 10 towns destroyed, including Cloquet, Kettle River and Moose Lake. Although not

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as dramatic in terms of destruction, over 50,000 acres burned in Arkansas on the newly formed National Forests in 1913.

The numerous devastating fires led to educational and public awareness campaigns aimed at preventing all forest wildfires. By the late 1910s, the USDA Forest Service fire policy was to extinguish all fires by 10 a.m. the next day. In 1937 President Roosevelt kicked off a national campaign to reduce the number of human-caused fires. During that time, approximately 40 million acres were lost to fire each year across the nation. The U.S. Forest Service introduced Smokey Bear in 1944 as the icon for the national Forest Fire Prevention Campaign, one of most successful in U.S. history. Even today, most American adults can recite the slogan prevalent at that time: “Only You Can Prevent Forest Fires.” The end result was that fire as a management tool was abandoned for perhaps the first time in human history.

Over time, natural resource managers observed dramatic shifts in the very forest they were charged to protect. Without fire, forests and rangelands became choked with dense underbrush, overstocked with less fire-tolerant plants and more susceptible to insect and disease attacks. Wildlife populations dependent upon more open forests decreased, and some species, like the red cockaded woodpecker, suffered severe habitat and population loss. In short, forests changed dramatically.

Today, natural resource managers and foresters understand that fire is essential to forest health. We also understand that fire can be used to reduce dangerous fire risks. Forests need fire and forests will burn. Foresters and natural resource managers can use prescribed fires to minimize fire risk and to maximize benefits. Fire can be destructive, but it can also be controlled to achieve important goals.

What Is Prescribed Fire?

Prescribed fire or controlled burning is a tool used by natural resource managers to accomplish specific management objectives. These objectives include wildfire hazard reduction, ecosystem restoration, wildlife habitat improvement, site preparation and reducing plant competition. Prescribed fire is used throughout the southern United States with an estimated 8 million acres burned every year. In Arkansas, prescribed fire is applied to approximately 300,000 acres each year. The use of fire as a management tool is expected to increase as other management tools become either increasingly expensive or socially unacceptable.

Uses of Prescribed Fire

Prescribed fire can be an affordable and effective management tool. It is used to accomplish various social and ecological goals that are developed by communities, landowners and the public for forest ecosystems.

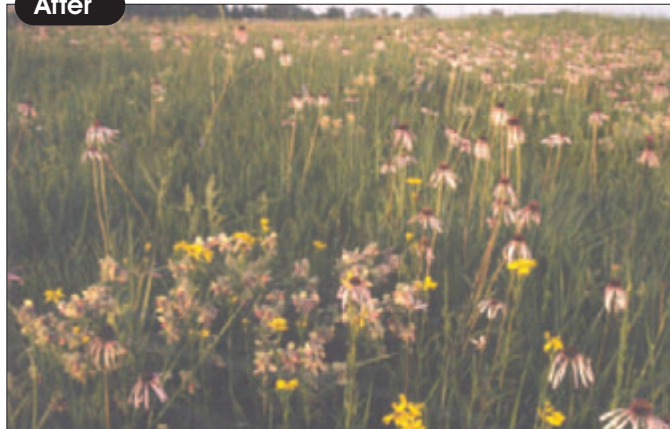
Hazard Reduction: One of the most frequent uses of prescribed fire is to reduce fuel accumulation that could lead to intense and potentially dangerous wildfires. Periodic removal of dense small trees, brush, vines and leaves reduces the threat of severe fires that kill valuable living trees or pose a risk to personal property and human safety. In Arkansas, where branches and whole trees fall to the ground during wind and ice storms, prescribed fires are especially important for the removal of flammable woody debris.

Plant Community Restoration: Many of the plant communities in Arkansas have developed and were historically maintained with periodic fires. These communities contain plant species that have specialized adaptations to fire that allowed them to

Before



After



flourish. With the advent of successful fire suppression efforts in the 19th century, populations of many fire-tolerant or fire-dependent species have declined. State and federal agencies, as well as a number of private organizations, use prescribed fire to restore important Arkansas plant communities such as tall grass prairies, oak woodlands and pine savannas.

Wildlife Habitat: When properly utilized, prescribed fire generally does not pose a significant threat to wildlife and is an economically viable tool for increasing the quality and quantity of suitable habitat for wildlife. Prescribed fire increases the production of wildlife food such as fruit, nuts, legumes, grasses and forbs. Fire can also increase the nutritional value of this food by increasing nutrient availability. Prescribed fire in Arkansas is used to benefit many game species, such as white-tailed deer and turkeys, as well as non-game species, such as the endangered red cockaded woodpecker.

Increased Regeneration of Trees: Prescribed fires are used to increase natural regeneration of trees and improve access to sites for planting of young trees. Fire reduces the amount of forest floor litter allowing better germination of seeds in mineral soils. Many land managers in northern Arkansas use prescribed burning to prepare seedbeds for shortleaf pine regeneration. To plant trees, excess logging debris frequently needs to be reduced. Prescribed fires are used to burn this woody material, thereby allowing crews to plant trees more efficiently.

Managing Unwanted Vegetation: Forest managers use prescribed fires to eliminate undesirable competing tree species and favor more valuable tree species. For example, fire is used to reduce unwanted, low-value, small hardwood trees that invade pine plantations in Arkansas. Removal of these trees reduces competition for light and water, thereby increasing rates of growth and economic returns from the pine crop trees. Young oaks sprout back readily after fire, so forest managers use fire to reduce the amount of non-oak seedlings or sapling, thus increasing the amount of ecologically valuable oaks in the Ozarks of Arkansas.

Accessibility and Appearance: Prescribed fire can improve the appearance and aesthetic value of an area. Repeated prescribed fires maintain more open stands that increase visibility within a forest stand. Changes in vegetation as a result of fire can increase the amount and visibility of flowering plants, thus



improving the scenic value of forests. Improved visibility can also increase recreational values for hunting, hiking and wildlife viewing. These open forest conditions are similar to those thought to have occurred early in Arkansas history. Early inhabitants of Arkansas reported that one could often see “a good quarter of a mile” through the woods (Cogburn 1976).

Where to Go for Assistance

Implementing prescribed burns requires a unique knowledge of fire dynamics and the ability to control fire. Resource managers often state that the only difference between a prescribed fire and a wildfire is control. Natural resource managers have the skills to predict fire behavior and to monitor the impacts of a prescribed fire. Most small landowners do not have this knowledge or experience. Although current state law does not prohibit a forest landowner from applying fire to his or her property, forest landowners are encouraged not to use fire independently of professional help. Many forestry consultants, foresters with the Arkansas Forestry Commission and other natural resource managers are trained to prescribe fire for various ownership objectives. Landowners interested in using prescribed fire should contact one of these professionals.

Conclusion

Remember, fire is part of the natural environment, and if used carefully by professionals, it can be a desirable and economical tool for management of Arkansas' forests.

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