



**SOUTHERN
Fire Exchange**

Uniting Fire Science and Natural Resource Management



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Effects of Prescribed Fire and Wildfire: Frequently Asked Questions from North Carolina

John M. Diaz

INTRODUCTION

Neighbors or news media often ask questions of those involved in prescribed burning. Although some questions may require unique answers relative to that particular burn, other questions are more general in nature. This fact sheet offers helpful answers and resources for those general questions, with the intent that you can use them to enhance public education about prescribed burning. While written from a North Carolina perspective, this information can be more widely used in most southern states.

WHAT IS PRESCRIBED FIRE?

Prescribed fire is a land management tool that simulates natural fire processes to meet different management objectives, such as restoring and sustaining fire-dependent ecosystems. This is achieved by applying low intensity fire to clear dead wood, brush, and other hazardous fuels from the forest understory. The North Carolina General Assembly recognized the importance of prescribed burning with the NC Prescribed Burning Act, which was enacted January 1, 2000.



Prescribed fires, like the one being conducted in this photo, are planned and managed by trained professionals to meet several management objectives. PHOTO BY CHET BUELL.

WHAT HAPPENS TO ANIMALS DURING A WILDFIRE OR PRESCRIBED FIRE?

Understandably, many people fear that fire will harm animals in a forest ecosystem. While all animals will not escape fire, most are able to avoid direct harm from fires, both prescribed and wild. Wildlife specialists emphasize the ability of animals in North Carolina to escape fire.¹ Animals, such as deer and bobcats, will move away from fire to avoid harm, while birds and bats are able to fly away. Other, less mobile animals burrow under the ground, rocks, or fallen tree limbs. Wildlife biologist Herbert Stoddard, one of the most important southern conservationists of the twentieth century, recognized as far back as in the 1920s the overall value of fire is as a means to preserve habitat for many fire-dependent species.² Many animals have evolved with fire and are dependent on the habitats created, renewed, and maintained by fire.

HOW DOES PRESCRIBED FIRE HELP ANIMALS AND HABITATS?

Many of North Carolina's plants and animals rely on fire to maintain their habitats because much of the state burned frequently for thousands of years. Prescribed burning reduces competition of species that are not dependent on fire, which helps keep native flora and fauna healthy. This effect typically varies depending on each particular habitat. For example, the white-tailed deer and eastern cottontail depend on young hardwoods that sprout after a prescribed burn as a source of protein and phosphorus. These animals have become accustomed to grazing on these young trees and now prefer them to their unburned counterparts. This particular habitat is maintained with regular burn intervals which occur every 1 to 3 years. In the absence of fire, these young hardwoods will mature making necessary nutrients unavailable and the habitat unsuitable for deer and rabbits.

Birds are also affected by fire. Fire alters habitat, so as fire is prescribed to restore the habitat, it is expected that some species benefit from the change while others may look for more suitable habitat. But ground nesting birds in fire driven systems have long thought to be of particular concern from prescribed fire.³ However, current research shows that growing season burns typically destroy very



White-tailed deer depend on young hardwoods that sprout after fire as a food source. PHOTO BY LARRY KORHNAK.

few nests and do not have an impact on the population as a whole.^{4,5} In fact, patchy burns every 2-3 years seems to support the most species as it provides a greater variety of food and habitat availability to species. Thus the growing consensus among researchers is that prescribed fires are beneficial to birds and many other populations of organisms.

WHAT ARE OTHER BENEFITS OF PRESCRIBED FIRE?

The North Carolina Prescribed Burning Act outlines how prescribed burning of forestlands is a beneficial management tool for North Carolina's public safety, forest and wildlife resources, environment, and economy. The General Assembly identified the following benefits from the prescribed burning of forestlands:⁶

- Reduces naturally occurring buildup of vegetative fuels, which reduces the risk and severity of wildfires and lessens the loss of life and property.
- Reduces the risk of wildfires that cause damage in the wildland-urban interface.
- Creates habitat for fire-dependent game, nongame, and endangered wildlife species.
- Prepares sites for replanting and natural seeding, controls insects and diseases, and increases productivity.
- Enhances private lands that are managed for wildlife, recreation, and other purposes.

HOW MANY PRESCRIBED BURNS ESCAPE?

A common misconception is that prescribed fire often escapes and becomes a wildfire. Unfortunately, reliable statistics on the total number of prescribed fires in North Carolina were not collected until 2010. In that year, Andrew Bailey with the North Carolina Division of Forest Resources notes that there were 3,970 wildfires in the state—only one of which started from a prescribed burn. This means only 0.025 percent of all wildfires in 2010 were attributed to prescribed burning.

REFERENCES

- ¹ Moorman, C., & Sharpe, T. (2002). *Using fire to improve wildlife habitat*. Raleigh, NC: North Carolina Cooperative Extension Service. Retrieved from www.ces.ncsu.edu/forestry/pdf/ag/ag630.pdf
- ² Way, A. (2010). *Herbert L. Stoddard (1889-1970). The New Georgia Encyclopedia*. Retrieved from www.georgiaencyclopedia.org/nge/Article.jsp?id=h-3258
- ³ Artman, V., & Sutherland, E. (2001, September 25). Prescribed burning may threaten ground nesting birds. *Science Daily*. Retrieved from www.sciencedaily.com/releases/2001/09/010925071523.htm
- ⁴ Long, A. (2011). *Nests under fire: does it matter? Growing-season burns and ground-nesting birds*. Southern Fire Exchange Fact Sheet 2011-5. Retrieved from <https://southernfireexchange.org/wp-content/uploads/2011-5.pdf>
- ⁵ Cox, J. (2020). SFE webinar: growing season prescribed fires & ground-nesting birds. Presented September 15th, 2020. Retrieved from <https://www.youtube.com/watch?v=s4tqJFm3UAQ>
- ⁶ North Carolina General Assembly. (2000). *North Carolina Prescribed Burning Act, North Carolina General Statutes*. Retrieved from https://www.ncleg.net/EnactedLegislation/Statutes/HTML/ByArticle/Chapter_106/Article_80.html

FOR MORE INFORMATION

USFS Fire and Aviation Management: Prescribed Fire
www.fs.fed.us/fire/management/rx.html

North Carolina Forest Service: Prescribed Fire Overview
http://ncforestservice.gov/fire_control/fc_prescribedfire.htm

North Carolina Forest Service: Fire Control and Prevention
http://ncforestservice.gov/fire_control/fire_control.htm

North Carolina Forest Service: Prescribed Fire Video
http://ncforestservice.gov/fire_control/prescribedfirevideo.htm

North Carolina Prescribed Fire Council
<http://ncprescribedfirecouncil.org>

Author

John M. Diaz, North Carolina State University, University of Florida (jmdiaz2@ncsu.edu)

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