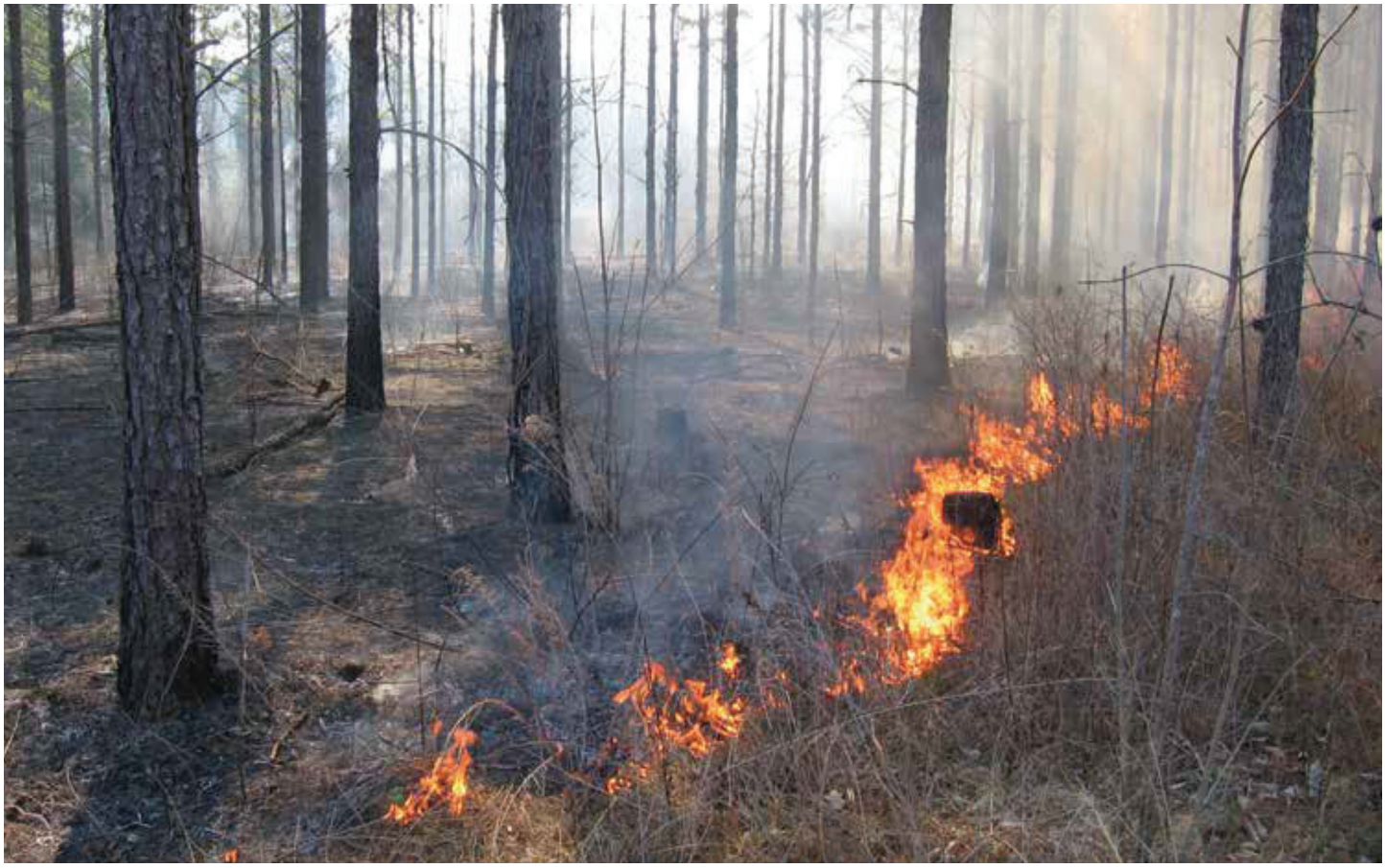
THE BURNING QUESTION

BY BILLY RYE



Understory burning in pines improves wildlife habitat, reduces wildfire hazard, decreases competition from hardwoods and improves aesthetics.

The thought of fire in the forest elicits many emotions in people from fear to excitement. We often hear conflicting messages about fire and its impact on our forests. The U.S. Forest Service initiated the Smokey Bear campaign in 1944 to promote forest fire prevention,[1] yet our natural resource websites and magazines tout the benefits of fire. So here is the "burning" question: is fire good or bad for the forest? Technically, the answer to the question is neither. Fire is simply an agent of change in our forests and has influenced them as long as they have existed. The change brought on by fire creates favorable habitats for some species of plants and animals while it is destructive for others.

Humans have used fire as a land management tool throughout most of our history. Native Americans learned that they could create favorable habitats for their primary food sources by burning. Modern natural resource managers have also learned to incorporate the use of fire into forest management. Fire is one

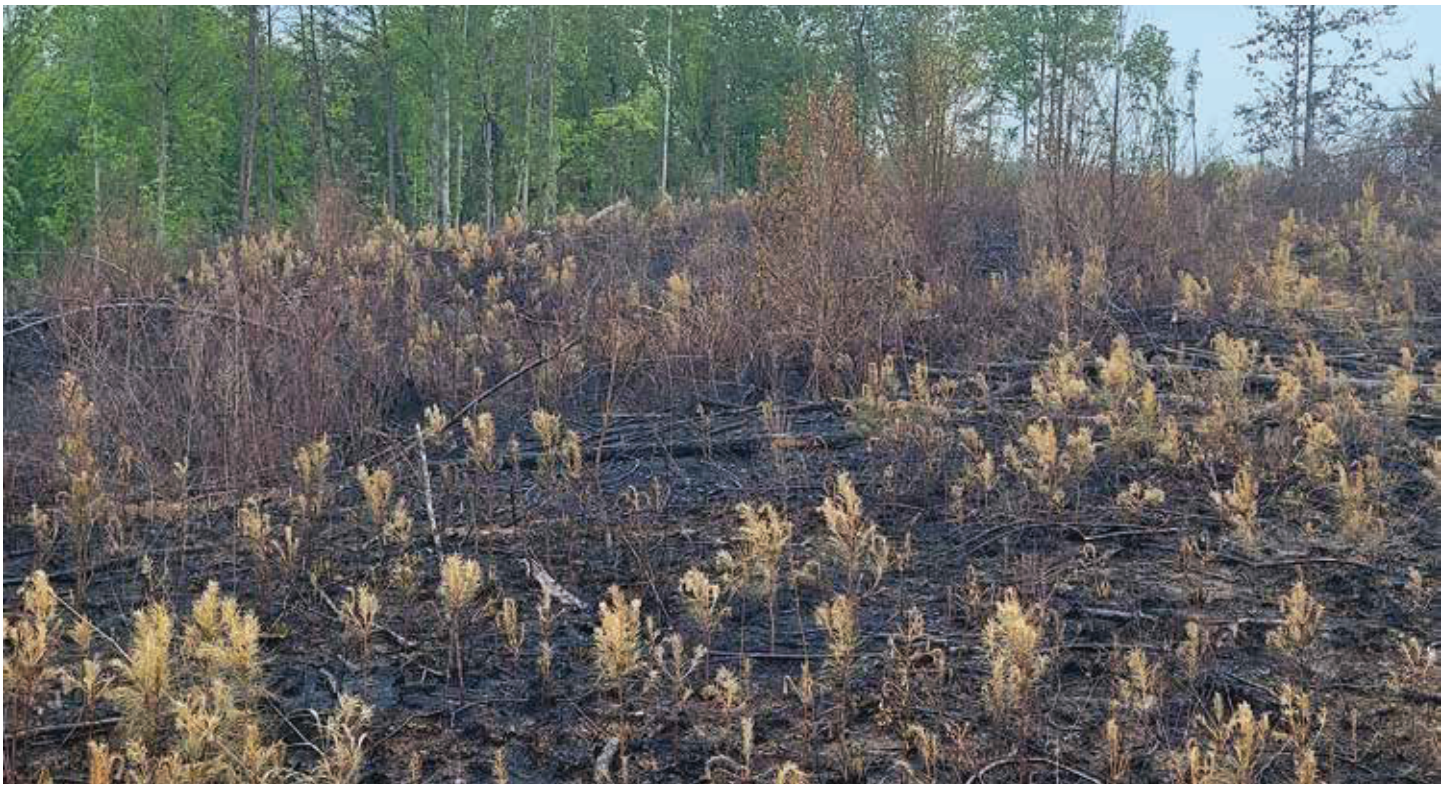
of the most useful and least expensive tools in their arsenal. When used under exact conditions, fire can be used to improve timber production by reducing competition from undesired species and can create habitat that is beneficial for wildlife. Below are some examples of how natural resource managers use fire to reach their land management objectives:

• **Site preparation for tree planting.** Burning before planting tree seedlings removes combustible fuels and reduces the amount of logging slash generated by a timber harvest. The resulting landscape makes it easier for the tree planters to traverse the property which improves the seedling spacing and quality of the planting job.

• **Understory burning in pine.** Burning underneath existing pine stands has multiple benefits when properly applied. Regular prescribed burning results in a plant community that is more beneficial to whitetail deer, eastern wild turkey, bobwhite quail, rabbit and many non-game species of wildlife. By reducing the amount of available fuel, prescribed burning can also reduce wildfire hazard. Burning reduces competition from hardwoods and improves the aesthetics of the post burn stand. Most understory burns are conducted in January through March to protect pine trees from needle scorch and to keep the cambium layer just underneath the bark from reaching its lethal temperature. However, most wildlife biologists prefer "Late Season" burns which are conducted in April and May as they result in more control of undesirable species such as sweetgum and red maple. Even though late season burns will undoubtably cause the loss of a few wild turkey nests, the benefits of improved habitat far outweigh the risks.[2] However, expertise is required for this type of burn to avoid excessive needle scorch or damage to the cambium of the pine trees in the overstory.

• **Maintenance of early succession habitat.** This technique is employed by natural resource professionals to improve the habitat for most game species of wildlife. The first step is to install a fire-lane around the desired location within a recent clear-cut. A relatively "hot" prescribed burn is then performed inside the fire-lanes on an annual or a semiannual basis. Wildlife biologists recommend relatively large early succession habitat areas (3-5 acres in size) that are evenly distributed over the landscape. When properly maintained, these early succession habitats produce more and higher quality food for many species of game.

• **Understory burning in hardwood.** Burning underneath an overstory of hardwood has both opportunities and risks. While beneficial to most game species



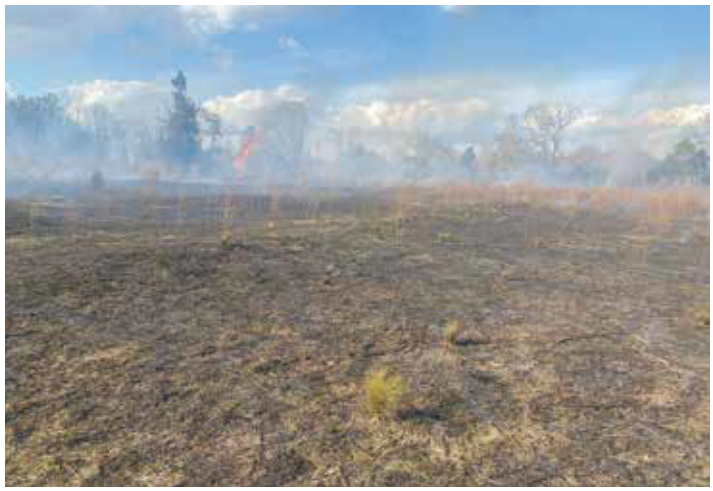
Many foresters will conduct a site preparation burn to facilitate tree planting. Most of the combustible fuels and logging slash are burned up making it easier for tree planters to traverse the site.

of wildlife, a controlled burn in a hardwood stand is especially beneficial for wild turkey habitat. It appears that burns make it easier for turkeys to find seeds and tasty roasted insects.[3] However, fire damages the lower portions of hardwood trees much more than pine. Therefore, fire should be excluded in stands of mature hardwood where timber production is an objective.

• **Maintain a savanna.** A savanna is a plant community that contains a grassy plain with a few scattered trees. These areas are beneficial for most species of game and are aesthetically pleasing. Savannas are maintained by regular prescribed burning which prevents trees and shrubs from becoming established in the open areas or underneath the existing overstory of trees. Burning savannas on an annual or semiannual basis will help establish relatively low-growing grasses which maintain their "open" look. Deer habitat may further be improved by retaining oaks in the overstory. However, landowners should know that fire will damage the lower portion of any hardwood tree and the open growth of tree crowns will result in epicormic branching which reduces wood quality. This will make future timber harvests of hardwood unlikely.

Savannas are areas of grassy plains with a few scattered trees. Regular burning creates habitat for a wide range of wildlife species and improves aesthetics. (Photo Credit: John Stivers with Professional Forestry Services)

• **Controlling brown spot needle blight in longleaf pine.** Brown spot needle blight is a fungal infection which occurs in the needles of southern yellow pines. Repeated infection may result in the loss of growth or even death of the tree. Prescribed burning of infected longleaf pine has been proven to reduce the incidence of brown spot for years to come. A low intensity burn in January and February to stands of longleaf pine that are in the grass stage are the most effective.[4]



These green clumps are actually longleaf pine after a prescribed burn. Burning longleaf pine while it is in the grass stage has proven to reduce the incidence of brown spot needle blight. (Photo Credit: John Stivers with Professional Forestry Services)

Longleaf pine seedlings should have an average root collar diameter of ¾-1" before burning to avoid excessive mortality from the burn.

• **Controlling competition to shortleaf pine.** Fire may be introduced into shortleaf pine stands earlier than in those composed of loblolly. This early implementation of controlled burning can reduce the competition from hardwoods and other pine species and create a more open stand. The resulting plant community is more desirable to most species of game than are those found in loblolly pine plantations. In addition, shortleaf pine is more capable of surviving a hot fire than other species of southern yellow pine as it can resprout when its branches or stems are damaged by fire. Even though shortleaf is more adept to burning than loblolly, most experts recommend that the first prescribed burn be postponed until the trees average a ground diameter of at least four inches.[5] Unfortunately, shortleaf pine will yield an economic rate of return that is lower than loblolly due to their slow growth rate.

• **Other uses.** Prescribed burning is implemented by natural resource managers for many nontraditional land management purposes. Many endangered species require frequent burning to maintain their habitat such as red cockaded woodpecker and the green pitcher plant. Some foresters regularly burn areas along roadsides to reduce the available fuel in areas with a high arson incidence. Certified Burn Managers also conduct controlled burns on missile testing sites, firing ranges, and airports to reduce the occurrence and severity of wildfires. In addition, some landowners employ the regular use of fire to improve grazing for livestock.

Regular prescribed burning is necessary to suppress the midstory around red cockaded woodpecker den trees. Here, Joel Gardner (l) and John Ryals (r) of Professional Timberland Services stand next to a den tree in a long-leaf pine stand that has been recently burned. (Photo Credit: John Stivers with Professional Forestry Services)

Though versatile and beneficial to land managers, fire is inherently dangerous and should be used only by those who are qualified to do so. The Prescribed Burning Act created the certification of Prescribed Burning Managers in Alabama. To become certified, a manager must successfully complete a 32-hour training class where the participants are presented information on fire behavior, burning methods, safety, planning, smoke screening and Alabama fire laws.[6] The good news is that this certification is open to any forest landowner, forester, wildlife biologist, consultant, contractor, or agency personnel who is interested in the use of prescribed fire as a management tool. Prescribed Burn Managers use this information to prepare plans for both the burning and the management of the smoke it produces. Sufficient planning is required to produce the desired outcomes of the fire when it is implemented.

While there are many Certified Prescribed Burning Managers available to conduct burning for landowners, the Alabama Forestry Commission is a good place to start. The local office may be able to install fire-lanes and conduct burns for landowners. However, they also have a list of private individuals and companies which are available to conduct burning on private property on the "Service Providers"[7] section of their website. Be sure to look for their PBM number when searching for a Prescribe Burning Manager. With the assistance of qualified professionals, landowners can ensure that the answer to the burning question is that fire is good for their property!

References

1 https://www.fs.usda.gov/features/story-smokey-bear. Accessed on 5/19/2023.

2 https://www.nwtf.org/content-hub/a-time-to-burn. Accessed on 5/19/2023.

3 https://www.nwtf.org/content-hub/wild-turkey-behavior. Accessed on 5/19/2023.

4 https://forestry.ces.ncsu.edu/2019/02/forest-health-spotlight-brown-spot-needle-blight/. Accessed on 5/19/2023.

5 https://shortleafpine.org/growing-shortleaf-pine/stand-management/prescribed-fire. Accessed on 5/19/23.

6 https://forestry.alabama.gov/Pages/Fire/BurnManager.aspx. Accessed on 5/19/2023.

7 https://forestry.alabama.gov/Pages/Informational/Service_Providers.aspx. Accessed on 5/19/2023.