

Prescribed Burning in Southern Pine Forests:

Fire Ecology, Techniques, and Uses for Wildlife Management

Prescribed burning is an important wildlife management tool used in our southern pine forests. Because these forests regularly experienced burns in the past, vegetation and wildlife have adapted to occasional fire and actually benefit from the effects of prescribed burning. Unfortunately, because of new pine management techniques and concerns about fire, many landowners are reluctant to use fire on their property. If done correctly, though, prescribed fire can be an effective, safe, and affordable management tool.

Benefits to Wildlife

If used properly, fire is one of the most beneficial and cost-effective wildlife habitat management tools available. For example, annual burning maintains early stages of plant succession that bobwhites require. Fire reduces leaves/needles (litter) on the forest floor and exposes soil so bobwhites can easily find seeds. It creates open foraging and travel areas for hens with young chicks, and it encourages plants that provide food (insects and seeds) and cover for bobwhite. Fire also acts as fertilizer by removing vegetation and litter, returning many nutrients to the soil.

For bobwhites, patchy burns are best. Some "ring-arounds" (circular areas plowed around and protected from burns) provide nesting and escape cover across burned areas. It is generally best to burn in late winter before the bobwhite nesting begins in April.

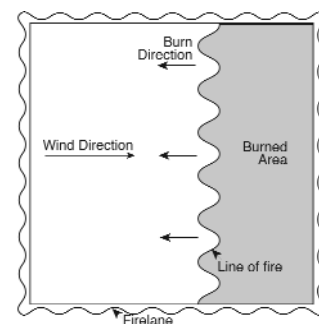
The wild turkey enjoys many of the same benefits from fire that bobwhites do. Burn before April to avoid nesting season, but burn less frequently (every two to four years). Fire produces nesting cover and maintains forest openings in quality brood-rearing habitat.

Burning every three to five years increases white-tailed deer forage production and quality. It also maintains forage close to the ground, well within a deer's reach. Burning top-kills hardwood brush and promotes sprouting of browse species. Winter burns are normally best for deer management.

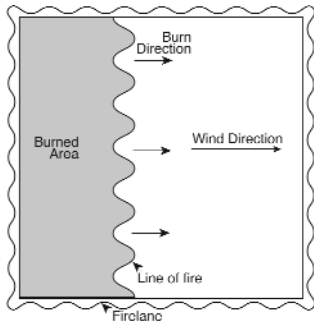
A partial list of species suffering from the declining use of fire includes the bobwhite, wild turkey, white-tailed deer, gopher tortoise, and red-cockaded woodpecker. Populations of other birds, mammals, reptiles, and amphibians also have declined in the absence of fire.

Important Prescribed Burn Techniques

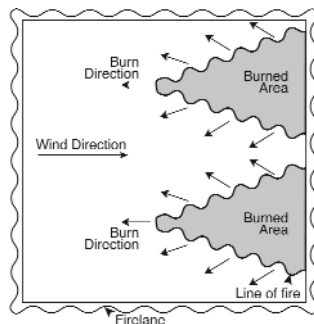
Backfire - A backfire is set at a 90-degree angle to the wind direction so the fire burns directly against the wind. This is one of the safest methods of prescribed burning and is recommended for beginning wildlife managers or where there are fire hazards, such as adjacent lands with high danger fuels. Wind speed should be no more than 6 to 10 mph. At night, backfires normally move about 1 chain (66 feet) per hour. If the wind speed is 20 miles/hour, the fire will back twice as fast (132 feet/hour).



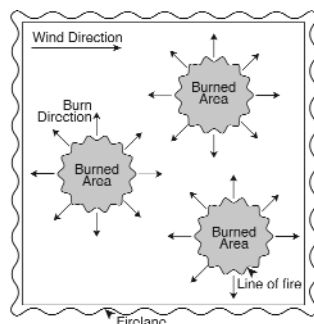
Head fire - Head fires are set with the wind direction and should only be used by experienced professionals under ideal fuel conditions. Often set after a rain, head fires are the most economical and the most dangerous type of prescribed fire. Head fires burn quickly, have a taller flame, and can kill even large pines if used improperly. If used properly, they are very effective at maintaining early successional wildlife habitat.



Flank fire - Flank fires are often used when the fuel is relatively light. These fires are set by an individual or individuals walking into the wind and are relatively safe.



Spot fire - Ideally, spot fires are set at equidistant locations throughout the forest. These fires gradually expand until they join.



Expense and Equipment

Prescribed fire is one of the most economical wildlife management tools available. Burning costs vary with tract size, application method, manpower needed, equipment used, and timber/fuel conditions.

Never burn without either a bulldozer equipped with a fire plow, or a tractor and disk. Other required equipment includes drip torches, fuel (a 3:1 mix of diesel and gasoline), fire rakes, flappers, and water. Costs range from \$5 to \$25 per acre. Consulting foresters and the Mississippi Forestry Commission (MFC) will conduct burns for a fee.

Burn Permits and Applicator Certification

Currently, the Mississippi Forestry Commission (MFC) requires you to get a permit before burning. Contact your county MFC office for permit information. If conditions to burn are not favorable, the burn permit will not be granted. Also, burn applicators should be certified by the MFC. You also can be certified by completing the prescribed burning short course conducted by Mississippi State University's Continuing Education program, located in the College of Forest Resources. Under the current Mississippi Prescribed Burning Law, all who satisfactorily complete the course will have reduced liability.

Steps to Conducting a Prescribed Burn:

- Get burn applicator certification.
- Map and develop a plan for the area to be burned. Have the plan notarized at least 10 days before the burning date.
- Arrange for equipment and personnel.
- Build fire lanes around the tract within 1 month of the burn.
- Determine wind speed and direction, humidity, temperature, and firing technique.
- Notify neighbors of your plan.
- Recheck fire lanes, and recondition them if necessary.
- On the burn day, get a permit from the MFC.
- Conduct the burn.
- After the burn, check all boundaries for "break overs" (escaped fire).

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