

# 10 Wildlife Management Practices



## Quick Fixes—Silver Bullets and Magic Beans

Almost every week we hear about a shortcut that will let us quickly reach some wildlife management goal. Some weeks it's a new technique for stocking pen-raised quail that assures they survive and repopulate our farms. Other weeks it is a high-protein feed mix or mineral supplement that increases antler size in our white-tailed deer herds. Each spring and fall advertisements proclaim the latest and greatest plant materials to grow big bucks or increase quail and turkey populations.

These claims usually share some common threads. First, someone is making money from them. Second, they have not been rigorously researched. Third, promoters don't provide data to support their claims. Finally, they are promoted based on testimonials. It is helpful to do some research before committing to something that sounds too good to be true. Contact a NCWRC Division of Wildlife Management wildlife biologist at (919) 707-0050, the NC Cooperative Extension Service, or ask for research reports to support claims. Successful wildlife management programs are based on a well-planned program that addresses wildlife needs during each season of the year, not on silver bullets and magic beans.

## Prescribed Fire

North Carolina's wildlife evolved and flourished in a rich and diverse landscape maintained by fires set by lightning and Indians and, later, early European settlers. Today, prescribed fire is an inexpensive tool that can be used to create and maintain habitat in old fields, native grasslands, and in open-canopy woodlands. Repeated fires create a diverse and structurally complex grass- and forb-dominated plant community favored by many species of wildlife. Fire removes the accumulation of dead plant material on the ground, facilitating movement of many species, and makes seeds available. Many woody shrubs benefit from reduced competition, a flush of nutrients, and the natural pruning provided by fire and produce more fruit two to three years following a burn. Fire releases nutrients tied up in dead plant material making it available to resprouting vegetation. Regrowth following fire contains higher nutrient levels and is preferred by browsers.

Many of our declining or rare plant and wildlife species are adapted to and found exclusively in plant communities that develop and persist under a regimen of frequent fires. Examples of fire-adapted natural communities are longleaf, shortleaf, pond, pitch, and table mountain pine-dominated forests; hardwood glades and savannas; prairies; and shrub-dominated bays and pocosins. Efforts to restore fire to these community types are a high priority on many public lands. Private lands also can be managed to encourage fire types and can contribute to regional conservation efforts when landowners implement complementary management strategies.

Restoration burns should be distinguished from maintenance burns. In older forests that have been fire suppressed for many years, a heavy layer of litter and duff around mature trees can present management problems. Reintroduce fire cautiously and conservatively in fire-suppressed forests with a heavy duff layer to prevent mortality of overstory trees. Smoldering duff can cause mortality, and a number of low-intensity fires may be required to slowly reduce the organic layer before groundcover can be restored. Seek assistance from experienced land managers prior to initiating burns in a fire-suppressed stand of mature trees.

Growing-season fires will set back hardwood brush more effectively than winter burns but should be conducted in stands with light to moderate fuels to prevent damage to overstory trees. Late winter or early spring burns minimize the time an area is bare of cover and are preferred to burns conducted in early winter, which result in deficient cover and browse until spring green-up. Summer burning can be a useful tool, where hardwood sprouts are difficult to control, with winter or early spring fires, and as a tool to increase the forb component in fields where native grasses have become too thick. Late summer or fall burns can increase the open ground and forb component in grasslands. Use care when late summer and fall burns are used in pine forests as they can result in overstory mortality.

Repeated burns are necessary to restore and maintain fire-adapted plant communities. Every one to two years is ideal to provide the open groundcover preferred by quail and many grassland birds; two to four years is adequate for deer and turkeys. Burning in a checkerboard pattern in blocks of 10-50 acres is recommended. This practice will increase the interspersion of food and cover resources. Recently burned blocks provide more nutritious browse and higher insect populations. Blocks with one to two years of plant growth, since the last burn, provide concealment, nesting and fawning cover, and fruits, berries and seeds.

Prepare permanent fire lines that you can maintain with your equipment. Opportunities to establish permanent fire lines are presented when equipment is on site for establishing new pine plantations, when thinning existing stands, and when clearing land.

## Using Fire Responsibly

Using prescribed fire carries the responsibility to keep fires on your property and manage smoke so that it does not become a safety or health hazard. Practitioners should work with experienced burners before becoming the lead person on a fire. Contact the North Carolina Prescribed Fire Council for suggestions and links to using fire safely, effectively and responsibly.



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## Food Plots

Food plots should be viewed as a complement to overall habitat management but, without proper planning, they do not provide great benefits for breeding, escape, and other types of cover. A food plot of clover or winter annuals will provide green forage for turkeys and deer. Grains standing after maturity can be an important food source for many species. In addition to providing browse or seed foods, food plots can attract an abundance of insects for turkey poulters or quail chicks. Plots can be an important tool to enhance hunting opportunities.

Openings can be shaped to facilitate hunting, to take advantage of areas with more fertile soils, or to double as fire lines. When managing for deer or small game, feather edges (page 64) or thin woodlands adjacent to openings to a basal area of 40 square feet per acre or lower to encourage ground cover. Work with loggers to plan locations of logging decks and access roads, which can provide locations for future food plots to complement your wildlife goals. Openings to be used as food plots should be placed where they are not visible from ungated roads.

Green browse plots designed to benefit deer and turkey should be at least one-fourth acre in size and about one-fourth mile apart. Locate plots on relatively level sites with fertile soils. The site should be open, tillable, and located next to suitable cover. Placing the plot at least 30 feet from any mature woodland edge will reduce competition from trees and allow sunlight to reach the planting. A buffer strip of perennial weeds and shrubs will develop between the browse plot and timber over time, if introduced grasses are not present. Rotating plots across larger openings will reduce weed problems and encourage volunteer plant communities that provide benefits of cover and a greater diversity of plant and insect foods.

Ideally, fall food plots for rabbits will be no-tilled into standing weeds (before planting, weeds can be killed with an application of glyphosate), surrounded by dense cover, and located about 100 yards apart. Plots that attract rabbits to areas where they can be seen by predators are not a productive endeavor, so avoid plantings along woodland edges, long straight plots, and plots visible from standing snags or woodland edges that can provide predator perches.

Aside from browse plots for rabbits, where cover takes precedent, don't take shortcuts on preparing a seed bed for your food plot. For fall planted plots, prepare the seed bed in September or early October. The ground should be plowed and disked until no live vegetation exists. Correct fertilization is essential for the successful establishment and maintenance of the browse plot. Before planting, obtain a soil sample from each plot site. Visit your USDA Service Center or NC Cooperative Extension Service office to obtain supplies and instructions on taking soil samples. Soil sample results will provide recommendations for liming and fertilization. Ideally, lime should be added during the spring, prior to planting in the fall and, on most North Carolina soils, lime is essential for successful clover plantings.

Avoid perennial-introduced grasses like fescue, orchard grass, Bahia grass, and Bermuda grass for wildlife plantings. They produce poor overhead cover. In addition, stands of these grasses are too dense at ground level for small birds and animals to negotiate, they leave little room for other valuable plants to become a part of the stand, and they often spread into areas where you do not want them. Finally, plants that produce higher quality browse are available.

There is a host of options available to choose from when selecting plant materials. Consider your objectives for planting the plot. Dove plots should be timed so that crops ripen shortly before your planned hunts. Quail and rabbit food plots should consider vertical structure that will stand throughout the winter to provide screening from predators. If planting for turkey brood habitat, consider leaving or adding clumps of blackberry or plums for escape cover and to provide soft mast. Also determine the food resources available in the surrounding landscape, the soil and site conditions, planting equipment, and your budget. *Growing and Managing Successful Food Plots for Wildlife in the Mid-South* (University of Tennessee Extension) provides an excellent discussion of planting materials, food plot planting techniques, and maintenance.

## Fallow Disking

Fallow disking is a practice designed to set back plant succession, encourage a volunteer plant community that has favorable structure for cover and foraging habitat, and provide plant and insect foods for wildlife. Fallow disking can also be used to discourage woody plant invasions in field borders, old fields, and openings. The plant community that develops after disking will depend on the time of year the soil is disturbed and the seed bank present in the soil.



*Early-succession habitat managed with light soil disturbance and periodic prescribed fire.*

The plant community that we most often hope to encourage is composed of volunteer large-seeded annuals and perennials. Fall or winter disking often encourages ragweed, partridge pea, native sunflowers, native grasses, and beggar's lice in woodlands and old fields with little history of herbicide use.

If your land has a long history of herbicide use, it may take several years for a seed bank of desirable plants to develop. In that case, wheat or rye can be planted at one bushel to the acre in the fall, or partridge pea, Kobe or Korean lespedeza, or native wildflowers can be seeded at three to five pounds per acre during the winter. After one or two cycles, dormant season disking should result in desirable volunteer plant communities without further seeding.

If the site is occupied by fescue, orchard grass, Bahia grass, or Bermuda grass, the grasses should be killed by one or more applications of the appropriate herbicide prior to initiating fallow disking.

## Edge Feathering and Woody Cover Establishment

Edge feathering is a technique used to encourage dense woody escape cover. When applied adjacent to early-successional habitat on field borders, fallow areas, or weedy rights of way, edge feathering provides loafing and escape cover for quail, rabbits, and songbirds, as well as a secure area during winter storms.

Edge feathering can be implemented on any overgrown ditch bank, hedgerow, or woodland edge. Ideal areas are dominated by low-value hardwoods such as sweetgum, scrub oaks, maple, or water oaks. Areas should be between one-tenth and 1 acre in size, and ideally they should be spaced 50-100 yards apart around field edges. If exotic grasses are present in the area, kill them with an approved herbicide prior to cutting trees.

Edge feathering is tough work, typically accomplished with a chain saw, and care should be taken to assure that it is accomplished safely. Fell all trees over 15 feet tall parallel to the woodland edge and leave them loosely piled. Treat stumps of felled trees with herbicide to prevent resprouting. The goal is to create heavy cover at ground level, so leave no more than one fruit or mast tree per one-tenth acre. It is important to re-treat the area every five to seven years or when the regrowth reaches 15 feet tall and the area begins to open up at ground level.

A variation of this practice can be used to create hedgerows or cover islands in idle fields or wildlife openings. First, mark off and kill exotic perennial grasses in the area that will become woody cover. Cut trees along woodland edges or in nearby woodlands. Drag trees or tops to the location where you want to develop cover and arrange them in a loose hedgerow or island. By the end of one growing season, you will have a woody thicket with an understory of weeds and grasses growing. Blackberry and other fruiting shrubs and trees will volunteer within a few years.

For more information on edge feathering, see *Edge Feathering Job Sheet* (Natural Resources Conservation Service).

“Living” brush piles may be constructed for long-lasting shelter. These are created by cutting partway through small trees and shrubs so that the tops fall to the ground, but enough stem remains uncut on each tree to keep it alive. If the trees are cut to fall in a crisscross pattern over each other, a living brush pile is created. Brush piles of this type are loosely formed. Those built for rabbits can be made denser by using the bases of cut trees as foundations and piling dead limbs and brush over them. Care should be taken to leave the live tops of the half-cut trees uncovered so they will continue to grow. Either deciduous trees and shrubs or conifers may be used. Grapevines should be encouraged to grow over the brush pile for added cover.

Brush piles and woody cover add a valuable dimension to wildlife habitat on your land. If properly located and constructed, they will provide important critical escape cover. However, it should be noted that heavy cover areas are not permanent. Tree growth, rot, and decay will reduce their effectiveness over time. To provide adequate escape cover through time, maintain existing cover and add new areas on an annual basis.

## Using Herbicides for Wildlife Management

Herbicides used today have little direct effect on wildlife when used according to label instructions. However, when their use results in less complex plant communities or removes valuable cover, wildlife is impacted by having less food or greater exposure to weather and predators. Herbicides used appropriately are a useful tool to create and maintain wildlife habitat.

Always read and follow label instructions. Herbicide labels contain important information relating to wildlife, environmental, and human safety. Labels which contain detailed information on how to safely apply and use herbicides can be found at *Crop Data Management Systems Agro Systems Data Base*.

Consider application options to target specific pest plants. Application options vary with each chemical but include basal bark, hack and squirt, thinline, broadcast of granular materials, applying spots to the soil on a grid pattern, or foliar. Herbicides can be applied to individual stems, broadcast by ground equipment, or applied aerially.

### Ideas and Concepts to Consider When Using Herbicides

Herbicides can be an effective means to control introduced perennial grasses prior to establishing food plots, native grasses, or other early-successional plant communities. If perennial grasses are present, you should plan well in advance as multiple treatments or treatments during a specific time of year may be required to target species when they are most susceptible to herbicides.

Herbicides can be used to control hardwood saplings and resprouts. Herbicides cannot replace prescribed fire, but when used in combination with prescribed fire, they can encourage grass and forb communities in open woodlands. If using fire in combination with mid-rotation herbicide applications in open canopy forests, burn in the spring following herbicide application to stimulate groundcover by reducing the litter depth. Careful evaluation of stem density and susceptibility of problem species (the ones you want to control), as well as susceptibility of nearby overstory trees (the ones you want to protect), should precede application.

Many herbicides target specific plant species for control. Assess weed problems and read labels carefully to determine your options for controlling specific weeds in specific crops. Carefully study the mode of action and characteristics of the herbicide. It is important to know if it is soil active or only absorbed through foliage, whether it is volatile in warm temperatures, and whether it moves downhill when it rains or translocates to other non-target plants. We now have an array of options for increasing the productivity or the longevity of food plots by properly applying herbicides.

Lower rates may sometimes be used to remove susceptible seedling plants without damaging surrounding beneficial plants. Consider time of year as some species may be more vulnerable during late summer when nutrients are being stored for winter. Some pest species (fescue for example) present an opportunity for control by staying green longer in the fall or by greening up earlier in the spring than surrounding beneficial plants. Always use herbicides and surfactants labeled for aquatic use when managing vegetation along ditches that contain water.

Herbicides are an effective tool to remove encroaching brush and control grasses as part of a maintenance program on fire lines, boundary lines, field and food plot edges, shooting lanes, and access trails. In summary, herbicides are a valuable tool in the land manager's toolbox. But like any other tool they must be used carefully. Used carelessly or inappropriately they can damage wildlife habitat and present safety concerns.

### Native Plants for Wildlife

North Carolina is host to thousands of species of native plants. Communities of these plants at one time provided all the food and cover needs of our wildlife. We have attempted to improve upon Mother Nature by introducing many species of plants from other parts of the world. Many introduced plants have become valuable agricultural and ornamental species. Most agricultural species pose no problems and some are valuable tools to enhance areas for wildlife or to control erosion. However, a number of introduced exotics have become serious invasive pests that degrade habitat conditions and pose a threat to native plant communities. Additionally, there is another more subtle link between native plants and wildlife. Almost all of our native terrestrial birds depend on insects for survival. Researchers are finding that insect diversity is almost always lower on exotic plants than on the native plants they replace, thus reducing food resources that are essential to many species of birds.



Northern Red Oak

Examples of plants introduced for conservation or wildlife management that have become invasive include sericea lespedeza, bicolor lespedeza, kudzu, autumn olive, multiflora rose, and oriental bittersweet. Responsible land managers will research plant materials before using them and select native species.



Water Oak



White Oak

## Avoiding Invasives

<i>Invasive Plants to Avoid</i>	<i>Native Plants with Similar Attributes</i>
Bicolor Lespedeza & Shrub Sericea Lespedeza	Bristly locust (spreading shrub) Partridge pea (large-scale erosion control; quail food and cover) Native lespedezas – slender & roundhead (small-scale erosion control; quail food)
Japanese Honeysuckle Oriental Bittersweet	Coral honeysuckle, Trumpet creeper (nectar) Virginia creeper, Muscadine grape (deer browse, fall fruit) American bittersweet (colorful winter berries)
Oriental Privet Multiflora Rose Autumn Olive & Eleagnus	American holly (evergreen; winter fruit for birds) Hawthorn (winter fruits; thorns protect nesting birds) Chickasaw & American plum (summer fruit; thorns protect nesting birds)
Sawtooth Oak	Chinquapin, hazelnut (hard mast in less than 10 years). Shingle oak, white oak, northern red oak, or others of the 30+ species of native oaks. (variety of growth forms, time until maturity, and acorn characteristics)
Chinese Silvergrass (Miscanthus) Weeping Love Grass	Indiangrass, switchgrass (bunchgrass suitable for ornamental plantings and wildlife cover) Prairie dropseed, pink muhly grass (ornamental and small-scale erosion control)
Fescue, Orchard Grass, Bahia Grass	Purpletop (looks similar to fescue, erosion control) Big Bluestem (high quality hay)

## Native Grasses

Desirable native shrubs, trees, and mixes of native grasses and forbs can be established by planting seeds or seedlings. Plantings of locally adapted species that originate in the same region as you are planting such as southeast Piedmont, southeast Coastal Plain, or southern Appalachian region are preferred if planting for wildlife or to accomplish conservation goals. For assistance in locating shrubs, trees, native grasses and other planting materials for wildlife, see *Commercial Sources for Wildlife Planting Materials* (North Carolina Wildlife Resources Commission).

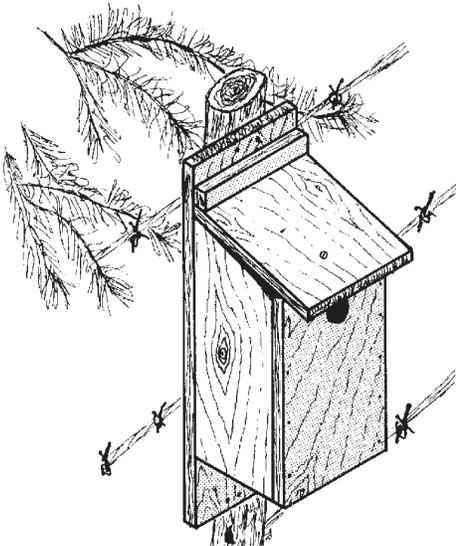
## Nest Boxes

The North Carolina Wildlife Resources Commission has an excellent publication on wood ducks, *North Carolina Wood Ducks Natural History and Management* (NCWRC Division of Wildlife Management), available on the Web. The publication covers wood duck natural history and contains plans for constructing a wood duck nest box and predator guard.

Constructing bluebird boxes is a popular building project. The publication *Bird Houses and Feeders: How to Build and Enjoy Them* (NCWRC Division of Conservation Education) contains plans for a number of bird houses and feeders, including plans for a bluebird box. Information more specific to bluebird nest-box placement, spacing, and predators is available at *Eastern Bluebirds Nesting Structure Design and Placement* (University of Kentucky).

The bluebird nest box design is also suitable for wrens, chickadees, titmice, nuthatches, or even flying squirrels. If you want to attract these species, place the box in trees 10 to 15 feet above the ground in wooded areas. Place this nest box on poles or in dead trees located in or over water to attract prothonotary warblers.

See *Homes for Wildlife II Plans* (Michigan Private Land Partnerships) for details on how to build and install squirrel den boxes from wood or discarded auto tires.



## Feeding Birds Responsibly

Backyard feeders can benefit many bird species, as well as provide excellent opportunities for birdwatching. Landscaping with native plants that provide more dispersed food and cover and supplying a dependable water source are sustainable additions or alternatives to feeding that benefit an even greater variety of birds.

Place feeders in a location that minimizes the opportunity for bird collisions with windows and adjacent to suitable cover, such as native evergreen shrubs or loosely piled brush. The seed in your feeder attracts hungry seed-eating songbirds. Similarly, a concentration of songbirds will attract predators. Keep cats indoors. Provide escape cover nearby and take measures to prevent nest predators such as raccoons and gray squirrels from using feeders. Temporarily close feeders if you notice a pattern of predation by raptors.

Clean feeders regularly and only use high-quality food. Never use food that is moldy or spoiled. Close feeders if you find evidence of disease. Finches and doves are particularly susceptible to diseases transmitted at feeders. Not all species benefit from feeders. Many songbirds use insects or foods that are difficult or impossible to supply. Remember that only those species that use the food you supply will benefit, and they benefit only when food is the limiting factor and its availability outweighs the contribution of the feeder to mortality. If feeders attract blue jays, house sparrows, flying squirrels, or brown-headed cow birds, you may be increasing the mortality of local songbirds by encouraging higher nest predation, nest parasitism, or competition for nest sites.