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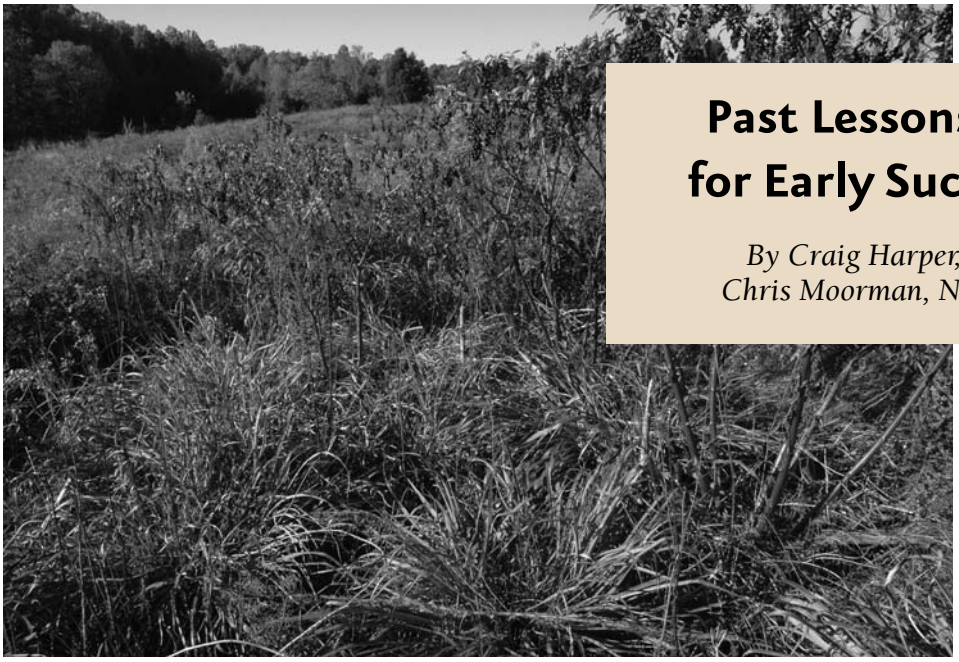
North Carolina Small Game Notes

What's **Inside...**

CRAIG HARPER



Past Lessons and New Visions for Early Successional Habitats

By Craig Harper, University of Tennessee and Chris Moorman, North Carolina State University

A diverse stand of native early successional plants makes excellent wildlife habitat.

By now most wildlife enthusiasts know that non-native perennial grasses, such as tall fescue and Bermuda grass, do not provide desirable cover or structure for many birds and other small wildlife. Thick growth at ground level makes travel through fields dominated by these non-native grasses difficult. Seed availability also is reduced by the sod and thatch. Forb coverage is limited because of the literal "carpet" of grass that blankets the seedbank and limits germination. But significant efforts have been made to eradicate these non-native grasses and replace them with native warm-season grasses (NWSG). Switchgrass, big and little bluestem, and Indian grass have been the primary species recommended by state wildlife agencies, the Natural Resources Conservation Service (NRCS), and non-profit organizations. However, five main problems associated with conversion to native grasses have become evident.

1. Lack of non-native grass control

Many fields have been planted to NWSG without first spraying and effectively killing the existing non-native grass cover with the appropriate herbicide. Burning and disking do not kill these undesirable grasses. Even if NWSG are established successfully, non-native grasses grow within the NWSG stands within two years if not eradicated beforehand. Thus, even though NWSG are growing on the site, field conditions for wildlife remain less than optimal. The common field of tall fescue with scattered bunches of broomsedge rising above comes to mind. Although desirable nesting cover for bobwhites is present at the base of broomsedge, mobility within the field and food availability is limited at best.

NWSG planted in fields containing Bermuda grass pose an especially unique problem. Although herbicide advancements in the past 10 years have made NWSG establishment much easier, there is no herbicide that will kill Bermuda grass

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CRAIG HARPER

A Wildlife Commission technician uses selective herbicides to improve early successional habitat.

growing in association with NWSG. Thus, the planted native grass must be killed to eradicate Bermuda grass growing underneath. Many planting efforts have been for naught because Bermuda grass was not eradicated before the field was planted. Eradicating Bermuda grass requires at least two years! Residual seedlings from the seedbank and sprouts from stubborn rootstock must be treated the year after the initial spraying. It is foolish to spend time and money planting if the seedbank holds problem plants that will render the effort useless or if desirable plants are present and await release.

2. Lack of establishment success

Early attempts at habitat restoration with NWSG were set back severely because of establishment problems. Establishment success has improved dramatically with recent advancements in planting equipment (e.g., no-till drills specifically designed for NWSG seed with long awns) and herbicides. Despite these advancements, difficulties establishing native grasses and forbs still occur. Planting seed too deep and too late in the growing season and competition with undesirable plants are the most common reasons for planting failures.

3. Improper species mixtures and high seeding rates

Prior to development of the appropriate drill attachments, it was difficult to sow the fluffy seed of bluestems and Indian grass. As a result, most managers planted switchgrass. The switchgrass seed was small and smooth and easily top-sown or drilled. For many, establishing NWSG meant sowing a pure stand of switchgrass. Moreover, expectations as to what the field should look like undoubtedly were influenced by past experiences with non-native grasses. Managers planted thick stands of switchgrass, often using eight to 10 pounds of pure live seed (PLS) per acre. As a result, wildlife response was mixed. Food availability was terribly low in these switchgrass monocultures because of a lack of desirable forb cover. Indeed, a pure stand of switchgrass was about as unnatural as a field of tall fescue.

As equipment improvements were made in the late 1990s, more bluestems and Indian grass were planted. However, problems associated with field image continued. Mixed stands of NWSG were planted at six to10 pounds PLS per acre, which resulted in a thick-mixed stand with few forbs present in the field. Landowners began to think this was what "early-successional habitat" should look like. Again, wildlife response was mixed, and it was common to see reduced wildlife activity in those fields with dense grasses that were not burned or disked. Grasses generally became excessively dense four to five years after planting.

4. Lack of recognition of desirable early successional cover

Although relatively high seeding rates were commonly recommended, grass density in many fields initially appeared sparse. Landowners were accustomed to planting non-native grasses where it was common and expected to see dense grass seedlings coming up all over the field. A stand of sparse native grass seedlings was viewed as a failure. This coupled with a plethora of "weeds" (which were often desirable forbs) germinating from the seedbank, stimulated many landowners and managers to mow, spray, or disk the field. Often, the field was re-planted in non-native cool-season grasses because the native grass planting had "failed."

Recognizing quality early successional cover is terribly difficult for most landowners, even those with a primary interest in wildlife. Maintaining a "clean and even" landscape without "weeds" is firmly ingrained in landowners' minds. Thick stands of grass limit forb coverage, and this reduces habitat quality for most wildlife species that use early successional cover. Forbs and brambles, such as pokeweed, ragweed, blackberries, native lespedezas, beggar's-lice, partridge pea, asters, and goldenrods, provide structural diversity, more openness at ground level, quality forage, and an important seed source. Forbs also attract high numbers of pollinators and other invertebrates, which are an important food source for many birds. Scattered shrubs provide additional cover and diverse structure needed by northern bobwhite and several shrub-nesting songbirds.

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ASK the Wildlife Biologist

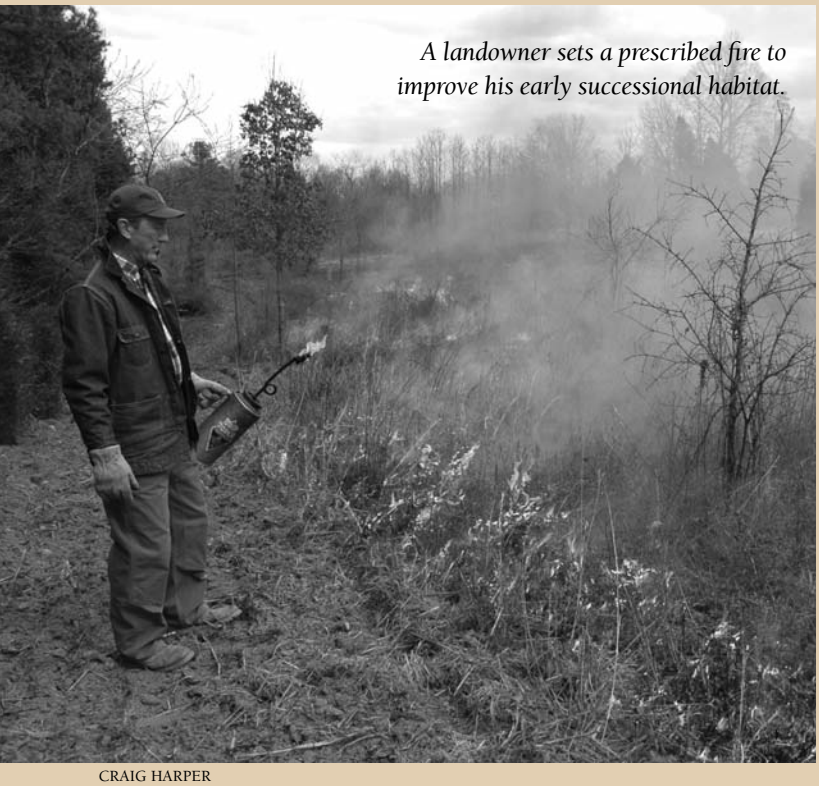
A New *Upland Gazette* Feature

Beginning with this issue of the *Upland Gazette*, we invite readers to send in questions to our new column "Ask the Wildlife Biologist." Questions can be about anything related to wildlife habitat and the species that use them. We will select two to three questions, which will be answered by members of the North Carolina Wildlife Resources Commission staff. Please send questions to:

Attention: Ask the Wildlife Biologist
The Upland Gazette
1722 Mail Service Center
Raleigh, NC 27699-1722

Be sure to include your name, city, and state, which will be printed along with our response. Thanks for reading the *Upland Gazette*, and don't forget to send us those questions!

—Mark D. Jones,
NCWRC Supervising Wildlife Biologist



A landowner sets a prescribed fire to improve his early successional habitat.

CRAIG HARPER

Question: I am managing early successional habitat to benefit wildlife. How frequently do I need to disk, mow, or burn the habitat area, and what is the best time of year to do so?

George Armstrong, Fayetteville, N.C.

Answer: Don Barker, the Commission's Coastal Region Technical Assistance Biologist who works as a liaison to the USDA Natural Resources Conservation Service.

Managing early successional habitat for the benefit of wildlife (more specificially in this case small game and songbirds) is generally done in the fall and winter. Burning reduces the ground litter and allows for movement of smaller animals and ground-feeding birds. Although burning during the fall and winter may promote some unwanted cool-season grasses, it does provide more open habitat. Burning during March and April promotes more warm-season grasses and additional forb structure. Disking during the fall and winter promotes more forbs than spring disking. Mowing should be done only in conjunction with burning or disking. If you only mow, a thatch layer will build up providing no new growth and making it almost impassable for small ground-nesting birds like quail.

Herbicide use is also an option. Selective herbicides or spot application can allow for greater manipulation of the composition of the plant species. Sometimes the best solution is to use a combination of practices to meet specific objectives or goals. Management activities should happen every two to four years, depending on the plant response desired and the wildlife species of interest. The last and probably most important part of early successional habitat management is to make sure you have a variety of cover types available at all seasons. Allow for disturbances to be distributed around the property so that all species will have multiple stages of succession at their disposal.

Question: Why doesn't the N.C. Wildlife Resources Commission trap and transfer wild quail from healthy populations to areas with good habitat without quail? This seemed to work great for turkeys.

John Smith, Grifton, N.C.

Answer: Mark D. Jones, NCWRC Supervising Wildlife Biologist, Private Lands Program

This is a common question from sportsmen in the Tarheel state. Biologists and hunters alike wish quail could be stocked in the same manner as turkeys or other successfully reintroduced species. However, the circumstances around the decline of quail are much different than the circumstances around the decline and comeback of wild turkeys.

Turkeys declined because their habitat was drastically altered and because of a lack of regulatory management of mortality levels as humans exploited turkeys for food. This is different from the facts surrounding the decline of bobwhite quail. Turkey habitat improved over much of the latter part of the 20th century in many areas, and the creation of state wildlife management

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Preserving our Hunting Heritage

Reconnecting with Nature Produces Unexpected Benefits

By Walter "Deet" James, Jr., NCWRC Hunting Heritage Biologist

At a recent workshop on Hunting Heritage at the North Carolina Wildlife Resources Commission headquarters, I led a discussion focused on the North American Model of Wildlife Conservation and its relationship to our hunting heritage. As the Commission's Hunting Heritage biologist, I deal with issues related to recruiting and retaining hunters in North Carolina. During a break, a gentleman came up to me and asked a question. The deer around his home were doing well, but the ornamental vegetation was not. The deer were eating beyond what was acceptable, and he asked what he could do about it. My response to him was, "Is hunting possible in the area where you live?" And, "Would you consider allowing it on or near your property?"

I could tell that the gentleman wasn't sure at first, as I don't think he had ever considered hunting as a feasible option for managing his increasing deer population. I briefly explained the "hunting alternative" and then later provided him with the Commission's *Regulations Digest* that lists species, seasons, and regulations. I don't know whether he will consider allowing hunting as a way to manage the abundant deer on his property. I do hope my presentation shed light on this valuable and rewarding activity that is an important part of North Carolina's heritage.

"Hunting re-connects us to our natural world. The drive-through is the ultimate disconnection."

NCWRC/"DEET" JAMES

The author after a successful wild turkey hunt.

Cultural Value

The hunting experience goes far beyond a simple description. For example, many hunters have difficulty describing why they hunt. Others may be at no loss for words. Each person has his or her own reasons, but all find themselves deeply and passionately rooted to the experience.

During and prior to the colonial period of the 17th century, the motivation for hunting was primarily for basic needs like food, clothing, and tools. Spanish explorers like Hernando De Soto discovered early hunting and gathering cultures during his mid-sixteenth century travels. Later, explorer John Lawson noted the vast areas of natural resources in a document entitled "Voyage to Carolina" printed in 1709. The written and spoken interactions of these early travelers contributed to the arrival of others in search of North Carolina's vast natural riches.

Today motivations for hunting are much different. Some hunters do hunt for food, while others choose to be close to nature or spend quality time outdoors with family and friends. Still others may be motivated by a unique connection with our cultural and historical beginnings. Although individual reasons vary, hunting remains a one-of-a-kind way to interact with nature and often provides a deep spiritual connection with the land and wildlife. While many outdoor activities tend to be passive, hunting allows us to be part of, and interact with, our natural environment. Rather than an obsolete activity being readied for the dustbins of history, hunting is a highly regarded and anticipated seasonal activity for many North Carolinians.

Economic and Nutritional Benefits

Hunting is also an excellent way to manage and benefit from wildlife species like

deer. Deer often reach high population numbers throughout the state, and hunting them for food provides certain benefits.

Wild game is an excellent source of high-grade lean protein and is well matched to a healthy diet.

Shopping for food at the grocery store is a passive experience. Hunting for a meal is not. It is easier to throw away food purchased at a drive-through restaurant. But wasting hard-earned food from hunting is much more difficult.

Hunting reconnects us to our natural world, while the drive-through is the ultimate disconnection. This natural connection often develops into a sense of stewardship because humans tend to care deeply about what they love, appreciate and enjoy. Protecting our hunting heritage also means protecting our stewardship ethic.

Along with nutritional benefits, there are monetary benefits. In any given year, approximately 14 to18 million residents, or roughly five percent of the U.S. population, participate in hunting. In 2006, hunters spent $431 million in North Carolina on hunting-related expenses. In the same year, hunters contributed almost $23 billion nationwide to wildlife conservation and management. Wildlife management and conservation in the United States, as we know it, would not exist without the support and funding that hunters provide. And that figure becomes much larger when jobs, businesses, and other services related to hunting are considered.

In summary, our state has a deeply rooted hunting culture, and those who hunt are passionate about it. For many North Carolinians, hunting is something far too valuable to ignore. Hunting is not an outdated pastime; instead, it is a highly regarded and anticipated seasonal pursuit that connects us with the natural world. By helping conserve the state's wildlife resources, the Commission is dedicated to preserving hunting heritage as an important part of our state's cultural foundation.

Update on Important Cost-Share Opportunities for Private Landowners

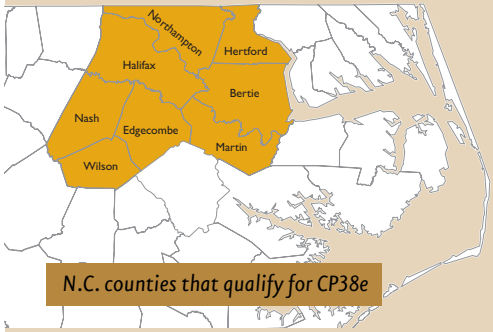
Mark D. Jones, Supervising Wildlife Biologist, Private Lands Program

As many of our readers know, Congress recently passed the "Food, Conservation, and Energy Act of 2008", otherwise known as the "2008 Farm Bill." As we go to press many rules guiding 2008 Farm Bill programs have not been received by Farm Service Agency (FSA) and Natural Resource Conservation Service (NRCS) offices in North Carolina. However, we can provide general information to landowners about potential programs. We hope this information will help you make wildlife management plans for lands you own or manage and help you ask the right questions at your local FSA or NRCS office.

Conservation Reserve Program (CRP)

Nationwide enrollment for the Conservation Reserve Program has dropped because of high commodity prices. Many areas of the Midwest have lost hundreds of thousands of acres of wildlife habitat since 2007. This loss of CRP in the Midwest has negative implications for upland game birds and waterfowl.

However, there is good news in North Carolina. During 2009, North Carolina landowners can use the "continuous enrollment" provisions of CRP and enroll cropland in high-priority upland habitat practices like Upland Bird Habitat Buffer (CP33), Longleaf Pine Initiative (CP36), and the new State Acres for Wildlife Enhancement Habitat Initiative (SAFE, CP38e). These programs have the potential to improve conditions for wildlife dependent on early succession habitats. CP-33 should be available to landowners throughout North Carolina, while CP36 is limited to areas suited for growing longleaf pines. Landowners in eight North Carolina counties should look into CP38e (see map).



N.C. counties that qualify for CP38e

The new law may also provide incentives to improve wildlife habitat on existing CRP forest contracts using wildlife-beneficial thinnings and prescribed burning. This may allow landowners with loblolly pines under CRP contracts to thin and manage the trees in a more beneficial manner for wildlife than has ever been available.

EQIP and WHIP

We expect the role of EQIP and WHIP to expand to provide incentives for stewardship management of private non-industrial forests. NRCS expects to offer incentives for implementing practices such as wildlife thinning, prescribed burning, mid-story control, restoration of savanna habitats, or cut-back woods edges. All of these have the potential to benefit wildlife.

We are also hopeful that EQIP will be used to convert fescue and other exotic grass pastures to hardy native warm-season grasses like big bluestem and Indiangrass. These grasses are much better for wildlife and more drought-tolerant than fescue and most exotic grasses.

Summary

This is a short synopsis of some of the opportunities available to private landowners in North Carolina this spring and summer. Please visit your local FSA and NRCS offices as soon as possible for final details. As a general rule, FSA and NRCS work together to manage CRP programs while NRCS handles EQIP and WHIP programs. It's not too early to visit FSA and NRCS offices to inquire about application procedures and to make sure land eligibility requirements are met in advance. Getting involved early can make the entire application process easier. There will be a variety of cost-share opportunities available to assist landowners with managing wildlife. Don't hesitate to learn more and do something good for wildlife on your land!

Assessing Small Game Habitat Using the Three-Perspective Approach

Food, Cover and Habitat Abundance

By John Wooding, NCWRC Small Game Biologist

If you have spoken with wildlife biologists, they've probably used the word "habitat," which means a place to live. It's important for us all to recognize good wildlife habitat when we see it. Otherwise, it's too easy to get off-track in managing wildlife and waste time and money on needless practices. Wildlife populations take care of themselves in good habitat, and the key to sustaining wildlife in North Carolina and elsewhere lies in smart habitat conservation and management.

Cattle ranchers use the concept of habitat in herd management. Pastures are cattle habitat that can support a limited number of cows. The number depends largely on the quantity and quality of the feed. A pasture with dense grass can support more cows than a pasture with sparse grass. Ranchers can improve a pasture through grass management. If ranchers want a bigger herd once a pasture is at its best, they must increase pasture acreage.

These principles apply to wildlife habitat. When wildlife managers say the problem is habitat, they mean either the quality and/or quantity is insufficient to "carry" the desired number of animals.

When you evaluate wildlife habitat on a farm or wild area, look at the land from three perspectives: food, cover, and habitat abundance. Each perspective involves reading the plants, the plant species, their growth form, and their distribution over the countryside. One view is close-up, one from middle distance, and one from far away.

Close-up View: What does the species eat?

First, you must know what animals eat to evaluate their habitat. If a species eats leafy plants, as a cottontail rabbit does, you read the habitat by knowing which plants cottontails like to eat. Are the plants common and widely distributed, or rare and in patches? Ask yourself, if you were trying to raise cottontails, would they have plenty to eat?

NCWRC/MARK D. JONES

This fallow field contains diverse native plants, including grasses mixed with forbs, to create ideal small game habitat.

Food habits change with the seasons, and if you only evaluate the habitat for one season, you will likely miss something important. Quail for example, eat seeds in winter. To judge winter food, look for the quantity of seed-producing plants, such as lespedeza and beggar lice. In summer, quail switch to a diet dominated by insects. To judge summer food production, read the plants from the insect growing perspective, as if you were an insect farmer. Do the plants produce insects at ground level where quail feed? If not, the summer food habitat may be lacking.

Mid-range View: Where do they hide?

Nature is a tough place for small game due to predators and weather. Protection is essential, and to a large degree, provided by plants. Biologists, when speaking of plants in terms of protection value, use the word "cover." Cover varies by seasons and even by the time of day. In winter, quail may forage during the day in a weed patch but spend the night sheltered in a plum thicket. Gray squirrels may do well in a summer leaf nest, but in winter they may seek shelter in a hollow tree.

The more you know about an animal, the better you'll understand its needs. You should pay particular attention to winter cover, because after leaf-drop in the fall,

It all makes sense when you think about it: animals have to eat, they need shelter, they need others like them to reproduce, and they need a way to safely travel the countryside.

areas that were densely vegetated become bare and exposed and are no longer safe. Cover recedes in winter to its lowest level of the year. Two hundred acres of suitable cover in September may become 10 acres in November. A second critical period for cover is during nesting and rearing of young. These special times should be considered when looking at habitat.

One way to assess cover is to ask: "What are the important predators, and how do they hunt?" If hawks are important, as they are for quail, plants must provide hawk protection. When you evaluate a field, ask yourself whether quail can move about under the plants to feed, yet be shielded from above. If you were a hawk, could you see the quail moving, and easily swoop down and catch one? If so, the habitat may be good for a hawk, but bad for quail.

When evaluating cover, the species of plants are not as critical as their growth form or the structure of the plant growth. Is the habitat thick, like a blackberry thicket, or as open as a fescue pasture? Could a gray squirrel travel without coming to ground, or would travel require running over land between widely spaced trees? Could a quail hide her nest in a clump of broom straw and sneak in and out undetected?

These qualities are largely determined by how the plants are spaced—tight or sparse—and how high they grow. When you look across an old field into the woods, you can see that plants grow in horizontal layers; the weeds form the bottom layer, the shrubs the middle layer, and the trees the top layer. These layers are part of the habitat structure, and being able to see them can greatly help you evaluate cover.

For example, high-quality cover that protects a quail from hawk predation will be weeds and blackberry vines that form a canopy at waist level—almost like a miniature forest, in which the weeds are the trees. The plants protect the quail in two ways: by hiding the birds from view, and by stopping the occasional hawk from diving in to catch the prey. In ideal cover, the soil under the weeds will be mostly bare, so quail can walk around freely looking for insects or seeds. If the ground cover is too thick, quail won't be able to walk easily, and any seeds that fall on the ground will be hidden in thatch. If the habitat is too open from above, like a harvested soybean field, a quail hungry enough to venture out for a bean risks a hawk attack. One way to visualize good cover for quail is to imagine you are a quail, and to think about walking around all day looking for seeds and insects while you and your offspring are being hunted by predators.

Distant View: How much habitat is available?

By using an aerial photograph or satellite image, you can see the landscape surrounding your property. You can see the way habitat is distributed, and you can imagine how animals move from one property to the next through the patchwork of habitat types. Animals don't recognize property borders, and populations extend well beyond any single farm. For small game species, it is insightful to assess the habitat for a several-mile radius around the property. This step allows landowners to appreciate the big picture and learn how best to manage their property.

Imagine you're looking at an aerial photograph taken from high altitude, and you want to understand the quail population within a five-mile radius of a 200-acre farm. The larger area of interest is about 15,000 acres. The farm contains 100 acres of habitat with abundant quail foods and quality cover. You know this from ground work on the habitat assessment.

The farm habitat supports about 1 quail/2 acres. You learned this by asking a biologist familiar with quail habitat. The 100 acres of habitat carries about 50 quail (100 acres/2 acres per bird). This estimate seems in the ball park since each fall you jump about three coveys, each with about 15-18 birds.

When you look at the habitat from above, you can see the habitat on the farm is connected to similar habitat on all sides. As you look further and further outward, you can see quail habitat scattered across the countyside with narrow stands of habitat connecting the larger patches. All total, you estimate that about one-third of the countryside contains quail habitat. Within a five-mile radius of the farm, there is about 5,000 acres of habitat. At a quail density of 1 bird/2 acres, the quail population numbers about 2,500 birds.

At this point, check the date on the aerial. Much of North Carolina looked like this in 1957, but few places do now. If the aerial is dated anytime in recent years, consider yourself blessed since quail habitat in much of our state is too poor and too scattered to carry many quail. Not that the situation can't be remedied, but it will only happen by managing habitat across a broad landscape, as you will quickly learn when you look at habitat from an aerial perspective.

This brief summary of the three major elements of habitat—food, cover, and habitat abundance is important. It all makes sense when you think about it: animals have to eat, they need shelter, they need others like them to reproduce, and they need a way to safely travel the countryside. The word "habitat" is short for all of these factors. Habitat is most easily assessed by reading the plants, and once you train your eye, your view of North Carolina will never be the same.

A Corporate Partnership Continues to Lead to Improved Quail Habitat

Less Mowing Means More Habitat

Benjy Strope, NCWRC Corporate CURE Technical Assistance Biologist

NCWRC

A corporate CURE field border provides suitable habitat for quail and songbirds and also improves water quality.

Corporate CURE (Cooperative Upland habitat Restoration and Enhancement program) continues to move forward with positive steps to provide early successional habitat. Originally, there was one 4,000-acre farm involved, but thanks to a new North Carolina Department of Justice Environmental Enhancement Grant, we are now working on 10 farms and more than 7,000 acres. This project involves farms from Ammon in Bladen County to near Garland in Sampson County.

The message of the Corporate CURE program is fairly simple: leave some vegetation along your field edges and waterways to provide habitat and protect water. Producers do not need to mow field edges, ditch banks, or farm roads during the bird nesting season. Less mowing can also save on labor and fuel costs while ensuring that farms are places where crops and wildlife coexist. To help spread this message, Wildlife and Water Quality workshops are held at least once a year with field and classroom sessions. In 2009, the workshop will be held in cooperation with the Bladen County Cooperative Extension and involve a field-related theme.

To expand the project, we obtained project funds, were able to involve more land, conducted site visits, and held meetings with all producers to find areas to manage that would not interfere with farm waste utilization plans. Once the grant was awarded, the challenge became turning all of the paperwork and maps into a ground-based project. This project is different from other private lands CURE because the management is completed by N.C. Wildlife Resources Commission staff or contractors hired by the Commission. Landowners do not receive any payment for participating. They are simply asked to change their mowing regimes. The project demonstrates how government agencies and commercial hog producers can work together to improve the environment while not reducing company profits.

The Ammon complex, owned by Murphy-Brown LLC, was the first farm in the Corporate CURE program and remains the focal point. Located close to the Suggs Mill Pond Game Land (one of the CURE game lands), this 4,000-acre complex supports row crops, cattle, and 80,000 hogs.

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Livestock Production Company Wins Small Game Award

The N.C. Wildlife Resources Commission has awarded Murphy-Brown LLC the 2008 Lawrence G. Diedrick Small Game Award. Decided by the Commission's Small Game Committee, the award is named for former Wildlife Commissioner Larry Diedrick, a lawyer from Rocky Mount who died in 2002. Diedrick was a passionate hunter of doves, quail and other small game and a strong advocate of wildlife conservation practices.

The Commission honored Murphy-Brown for its work to improve water quality and restore songbird and quail habitats on more than 5,500 acres of its property. The company worked in cooperation with the Commission field staff in planting nearly 60 acres of native warm season grass on its Ammon farm property in Bladen County and installed 150 acres of field borders. In addition, Murphy-Brown has also had 78 acres of timber thinned, and clear cut more than 100 acres of the property to aid in habitat restoration. The company allows the Ammon complex to be used as an educational site, and helps sponsor workshops on water quality and early successional habitat management.

Murphy-Brown also won the award in 2006. For more information on habitat restoration, check out the Cooperative Upland habitat and Restoration and Enhancement program (CURE) on our Web site, http://www.ncwildlife.org/cure.

Dawn Williamson of Murphy-Brown LLC (second from left) received the Small Game Award from (left to right) Dr. David Cobb, Division of Wildlife Management Chief, Commissioner Bobby Purcell, Chairman of the Small Game Committee, Gordon Myers, NCWRC Executive Director, and Commissioner Wes Seegars, Chairman of the NCWRC.

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There are 150 acres of field borders on 1,500 acres of row cropland with 53 acres of fallow areas in various locations. Sixty acres of native grasses and forbs have been planted, although anything that has been planted the past two springs has not done well due to drought. Most of these areas are maintained by disking and by spot-spraying woody encroachment. However, fire and full herbicide treatments are also used to control succession. In addition to all of the field work on Murphy-Brown lands, we are in the process of thinning or clearing forestlands for fuel chips. Once that work is complete, money from the timbering will go to restore longleaf pine in areas where the soil will support the species. Areas that are not thinned or cleared will be prescribed burned.

Other farms involved range in size from 59 to 390 acres. Practices on these farms are similar to the Ammon complex with 16 acres of field borders, 33 acres of fallow areas, and 18 acres of native grasses planted. Some of the new farms border the Ammon complex and have switchgrass plantings and will have field borders on row crops and pastures. On another farm, we are planning to install 17 acres of field borders next summer by moving fences around cattle pastures that receive treated swine effluent. Fallow areas and field borders are being developed on many of the new farms.

There are other potential farms to be added. Murphy-Brown has two farms going into commercial production that are between the Suggs Mill Pond Game Land and the Ammon complex. We hope to add other privately owned farms in the future to help connect gaps between farms that don't border each other.

All of this work to improve early successional habitats and water quality would not be possible without the farm staff, the Wildlife Resources Commission, and funding from the Department of Justice. We would like to thank all who have helped and supported this project.

NCWRC/GEOFF CANTRELL

An aggressive educational campaign from natural resources professionals will be necessary to overcome this stigma and help the public see these fields not as weedy wastelands, but as native plant communities harboring abundant wildlife.

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Many shrubs, such as wild plum, sumac, elderberry, hawthorn, and devil's walkingstick, also provide soft mast for birds and mammals.

5. Lack of management

Unfortunately, a "reluctance to burn" attitude prevented many landowners from using fire to manage fields, leaving only mowing, disking, and herbicide applications as viable options. Unless heavy offset disk harrows were available, it was impossible to disk the thick, tall planted mixtures; thus, most landowners used mowing as a management practice. This only made field conditions worse. Mowing was (and still is) most often accomplished during the summer. Landowners commonly reported killing young wildlife (such as fawns and nestlings), and the cover necessary for reproductive success was destroyed during the time of year it was needed most. Mowing also accumulated thatch and other debris, reducing openness at ground level and limiting germination and growth from the seedbank.

A New Vision

Recent research has shown that burning and disking are necessary to reduce grass density and improve the structure and composition of early successional habitat. Furthermore, managers have begun to realize that three to four pounds PLS per acre is plenty of grass seed when planting native grasses. When coverage of native grass does not exceed 60 to 70 percent, plenty of bare ground space is available to allow forbs from the seedbank to germinate. If desirable forbs are not present in the seedbank, they should be planted with the grasses. This is necessary to develop an early successional community, replete with a variety of forbs, grasses, and scattered shrubs, which is used by an array of wildlife species. This composition and structure is absolutely crucial when trying to replicate the quality habitat, which desirable species like quail and rabbit prefer and need to thrive.

Ideal early successional cover often is created simply by eradicating nonnative cover and allowing the seedbank to respond. In many fields, planting is not necessary. Seed from many native grasses and forbs remain viable in the seedbank for many decades, as evidenced by their germination and growth following clearing and burning of mature forest.

Changing Landowner Perception

The remaining major consideration when promoting quality, early successional cover for wildlife is landowner perception. The specific plants often being promoted – "weeds" – are what landowners have fought against for years. Creating the structure desirable for many species of wildlife is not aesthetically pleasing to most people; these fields look unkempt. To most onlookers, it reflects laziness of the owner and an unwilling attitude to "tend their property properly." Concern over what others might think is a real issue in persuading people to more appropriately manage for quality early successional plant communities. An aggressive educational campaign from natural resources professionals will be necessary to overcome this stigma and help the public see these fields not as weedy wastelands, but as native plant communities harboring abundant wildlife.

"The Herps" of North Carolina –No, it is Not a Disease

By Kendrick Weeks,
NCWRC Wildlife/Fisheries Biologist Supervisor I

NCWRC/KENDRICK WEEKS

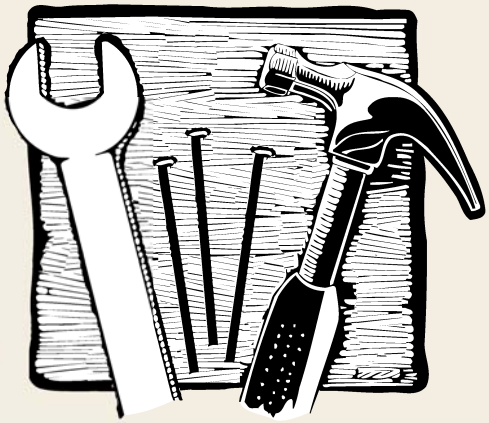
kingsnake

You may have heard of Maryland "Terps," but what about "herps?" The word "herps" is an easy way to say, "reptiles and amphibians," and comes from the Greek word "herpetos," which means crawling. Herpetology is the study of reptiles (crocodilians, turtles, lizards, and snakes) and amphibians (frogs, toads, and salamanders), and there are 146 native species of herps in North Carolina. Some folks I know would rather not see a herp, especially a snake, but these fascinating creatures are just as integral to the outdoor drama as other wildlife. Upland habitat is important for many life stages of herps, even aquatic species. Some turtle species migrate on land to bury themselves for the winter or lay eggs in the spring. Many salamander species migrate to uplands where they feed on insects and worms in the soil before returning to wetlands to breed. Small depressions in uplands that dry up in the summer can be extremely important for some amphibian species whose eggs and larvae can only survive in fishless "ponds." But, the most visible herps that utilize uplands to bask, hibernate, breed, nest, and forage are snakes.

Thirty-seven species of snakes call some part of North Carolina home with more species in warmer areas like the southeastern part of the state. Some species only grow to 12 inches in length, such as worm snakes, brown snakes, earth snakes, and southeastern crowned snakes, but others can reach five or six feet in length, such as the Eastern kingsnake and Eastern coachwhip. Most species are harmless, although some may deliver a painful bite if handled. Only six species are venomous including copperheads, cottonmouths, pigmy rattlesnakes, timber rattlesnakes, Eastern diamondback rattlesnakes, and Eastern coral snakes. All of these should be avoided if encountered in the field as most venomous snake bites (70 percent) occur when people try to handle or kill them. Copperheads and cottonmouths are fairly common, but the other venomous snakes are declining significantly and are protected by the state Endangered Species Act. Like other declining species, loss of habitat is a large contributing factor, but snakes are also persecuted out of fear.

By now, most quail and small game advocates realize there is no "magic bullet" to restoring populations, as nature can be complex. Predator control research has shown how economical and effective restoration of early successional habitat is to increasing quail populations, compared to predator control (*Upland Gazette*, Spring 2003). These same habitat-restoration efforts also help to restore other species of wildlife such as songbirds (*Upland Gazette*, Spring 2008), rabbits, and even snakes. Even though some may think of a snake as only a predator of quail nests, there are many snakes that would rather eat another snake or its eggs than a quail egg. Snakes are also preyed upon by hawks and, in an interesting twist, hawk eggs are preyed upon by snakes. Snakes also eat other predators of quail nests such as rats and mice. Nature's complicated food webs have proven to be somewhat unpredictable to biologists, even with our supercomputing abilities. The effects of predator control can have unintended consequences. The bottom line remains that quality habitat, and lots of it, is needed to restore wildlife to non-threatened and non-nuisance population levels.

The North Carolina Wildlife Action Plan provides a blueprint for understanding the distribution and abundance of species for which there are population concerns or lack of information. Herps are just a part of that plan, although like other species, they are important ones. Maintaining biodiversity has become a central goal for all state and federal wildlife agencies and many private groups. Restoring habitat should not be thought of by limiting it to a single species. Many of the habitat-restoration practices that benefit quail and small game can also benefit species such as reptiles and amphibians. On the other hand, folks interested in managing herps can be partners in efforts to increase populations of quail and game species through habitat practices that benefit both groups of species. To help identify herps that you may find in the field, please go to www.herpsofnc.org. To help the Commission track herps, consider registering at the Carolina Herp Atlas and document what you have seen on your property (www.carolinaherpatlas.org).



Land Managers'
TOOLBOX

Habitat Management

Disking Helps Maintain Natural Vegetation

Disking is an activity used to maintain natural vegetation in desirable habitat stages. This process maintains some open area on the ground surface, which is beneficial to ground-dwelling wildlife. Disking in late winter, just prior to spring green-up, maximizes winter cover and is the method used to maintain habitat throughout most of the year. Disking in October or November promotes the growth of high quality brood cover by encouraging annual plants such as ragweed and partridge pea.

Disking Methods

Light disking is used to promote herbaceous cover for brood habitat. Light disking should expose soil on about one-half of the ground. Heavier disking is used to control tree saplings.

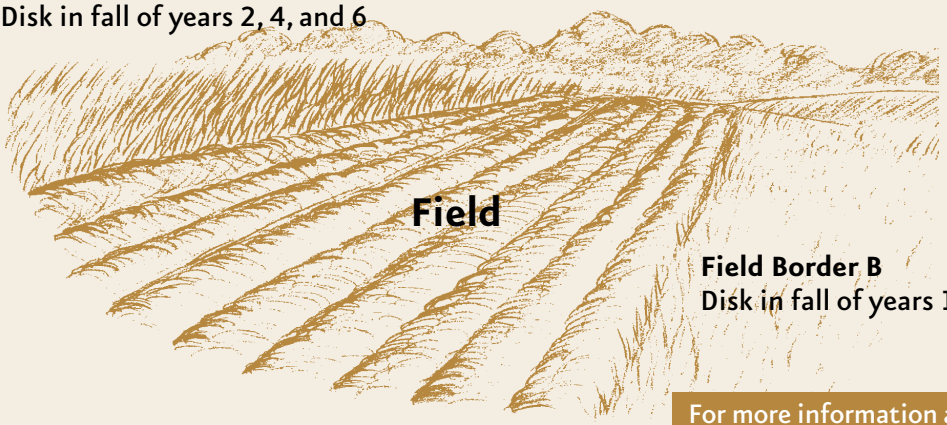
Disking Rotation

Disk one-half of each habitat area each year and disk the other half the next year. Disk the entire width of field borders in individual blocks to avoid leaving narrow strips of cover, which make bird nests more vulnerable to predators. Begin disking the fall or late winter following habitat establishment. Field borders parallel to row pattern are easier to protect from disturbance.

Disking Dates

Fall: Oct. 15-Nov. 30
Late Winter: Feb. 1–March 15

Field Border A
Disk in fall of years 2, 4, and 6



Field Border B
Disk in fall of years 1, 3, and 5

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*continued from page 3—**Ask the Wildlife Biologist***

agencies, in the early and middle part of the 20th century, allowed for wise regulation of hunting seasons. A perfect storm of improving habitat and regulatory management allowed the highly adaptable turkey to be restored to recovering (improving) but unoccupied habitats around the United States. The three keys to the successful turkey story are the recovery of habitats occurring in the late 1900s, an ability to manage mortality levels through regulatory measures by state wildlife agencies, and the adaptable nature of the birds.

The quail story does not qualify on any of these key points. Today, quail habitats continue to decline in both quality and quantity over most of the birds' range. In addition, the species experiences very high natural mortality making them difficult to impact with regulatory measures. Finally, quail are largely specialists (unlike turkey) and require very specific habitats in order to reproduce and live out their daily lives. Quail restocking has been tried by many state agencies and private individuals with almost no success at establishing breeding populations. The majority of wildlife biologists agree that stocking programs are a waste of resources and that our efforts are better spent working to improve habitat for existing birds. We know of no areas of good quail habitat in North Carolina where the birds are not already found. Populations of quail are scattered across suitable habitats in the Coastal Plain and in the Piedmont to a lesser degree. Mountain quail populations are even more scattered due to limited habitats. Without improving habitat conditions, there is little benefit from attempting to stock birds in any of these regions. Our best bet is to manage habitats and allow existing birds to move into and inhabit quality habitat areas.

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