



THE Upland GAZETTE

WILDLIFE CONSERVATION AND HABITAT MANAGEMENT

Published by the North Carolina Wildlife Resources Commission
Fall 2012 / Volume 17, Issue 2, \$2.50



What's Inside...

- ◆ Letter from the Editor 2
- ◆ Wildlife Habitat Conservation Success
Story 4
- ◆ Piebald Deer 6
- ◆ Bobwhite Use of Field Borders 7



Exposing the "Secret"

The National Bobwhite Restoration Effort

By Don McKenzie, Director, National Bobwhite Conservation Initiative

IT IS NO SECRET that our beloved bobwhite quail is in big trouble in North Carolina and across most of its U.S. range. It apparently is somewhat of a secret that the biggest bobwhite restoration effort in history is underway across the country, and North Carolina is an active participant.

Wildlife researchers and managers sit atop a mountain of scientific knowledge about bobwhite biology and management. We are masters at studying the birds in the field and managing small-scale habitats in crops, pastures, and forests. But until recently, bobwhite conservationists didn't fully grasp that the keys to widespread quail restoration are learning how to work with people, politics, and money. These three forces are the underlying causes of quail problems and ultimately will be the sources of any effective solutions.

continued on page 2



A Note from the Editor

As I write this in August, it occurs to me that *Upland Gazette* readers will see these words in November. By then, North Carolina hunting will be in full swing and the dog days of summer will be replaced by

the frosts of my favorite season. Most of us will be in the midst of hunting deer, ducks, small game, and migratory birds. Unfortunately, one species, the bobwhite quail, will not be pursued as often, with as much success, or by as many hunters this year as in past decades. We know this because the steady decline of bobwhites and bobwhite hunters is something as certain as the setting sun. Sure, we have local examples of intensively managed areas where quail are thriving (including lands managed by the Wildlife Commission like those highlighted in this publication), but the downward trend of bobwhite quail is widespread in at least 25 states. The decline is symptomatic of landscape changes that have impacted not only quail but a host of wildlife species including some amphibians, reptiles, mammals, and dozens of once-common songbirds like meadowlarks and field sparrows. In fact, these species that require early-successional habitats (grasses, forbs, weeds, and early stages of plant succession needing disturbance) are among the most imperiled in the United States.

Our cover story features several folks who are working to address these issues, and this gives us hope of better days ahead. Our focus on small game and small game habitat is something the *Upland Gazette* has proudly promoted for 16 years. We won't abandon that important focus, but we do plan to cover a variety of other topics from complicated university research to just plain "fun stuff" like trapping rabbits. We have even included information about white-tailed deer for our readers this issue.

Our focus will remain on wildlife habitat because without habitat there will be no wildlife for us to enjoy. If we throw in a few fun stories occasionally, we hope you will excuse us for not being too serious all the time. I hope there is something in this issue for all of our readers, and I hope you get out and enjoy the great North Carolina outdoors this fall!

Mark D. Jones

SUPERVISING WILDLIFE BIOLOGIST
PRIVATE LANDS WILDLIFE HABITAT GROUP

continued from page 1

Leaders from state wildlife agencies, researchers, and quail organizations across the Southeast came together at the turn of the 21st century to finally begin working together to solve the quail problem. North Carolina Wildlife Resource Commission's Small Game Project Leader at the time, Terry Sharpe, was among them. The resulting 2002 Northern Bobwhite Conservation Initiative (NBCI) was the first-ever 22-state native grassland and bird restoration strategy aiming to restore widespread bobwhite populations to huntable levels.

The NBCI is a habitat-based initiative because habitat degradation at landscape scales is the root of the range-wide quail and grassland bird problem. Regardless of whether you are in North Carolina or any other southeastern state, look around and ask yourself—"where is the quail habitat?" It should be quickly obvious that the proper question is not "where have all the quail gone?" Instead, the question should be "how are quail managing to hang on at all in such hostile landscapes?"

Hundreds of millions of acres of former quail habitat, across more than two dozen states, have been degraded over decades by fire suppression; vastly increased acreages of poorly managed, closed-canopy forests and pine plantations; conversion of pastures to aggressive introduced grasses such as fescue and Bermuda grass; intensive row-cropping; and suburban sprawl. Such overwhelming landscape impacts can be so daunting as to make lesser quail threats such as predators and fire ants seem to be more manageable targets for action. Unfortunately, there is no getting around the reality that the root problem is habitat loss, and the challenging solution is large-scale habitat restoration.

The 2011 NBCI revision, renamed the National Bobwhite Conservation Initiative (NBCI 2.0) involved more than 600 biologists across 25 states including dozens from North Carolina. The new digital plan identifies high, medium, and low priority areas and assesses the main opportunities and constraints for tens of millions of acres of needed habitat restoration.

The NBCI 2.0 gives us the best understanding yet of what needs to be done and

THE Upland GAZETTE

The *Upland Gazette* is published twice a year by the N.C. Wildlife Resources Commission, Division of Wildlife Management.

Executive Director	Gordon Myers
Wildlife Management Chief	David Cobb, Ph.D.
Editor	Mark D. Jones
Assistant Editor	Cay Cross
Graphic Designer	Bryant Cole

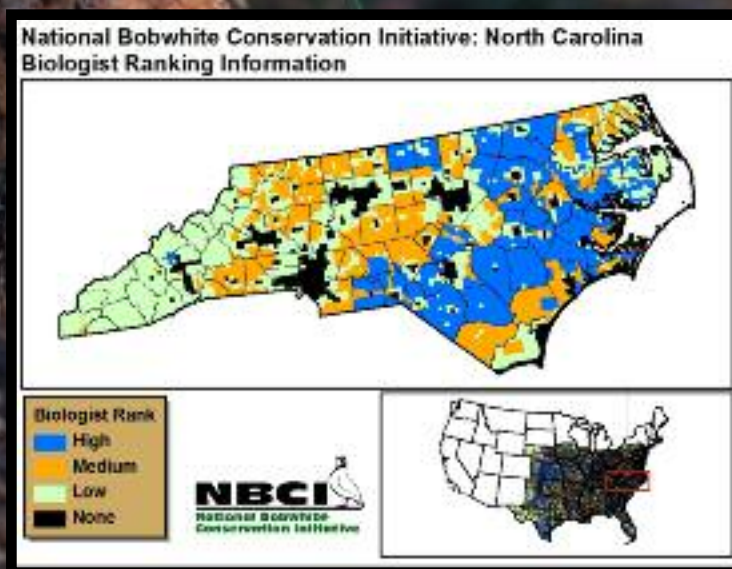
Subscriptions The *Upland Gazette*
Division of Wildlife Management,
N.C. Wildlife Resources Commission
1710 Mail Service Center
Raleigh, NC 27699-1710

Report hunting violations	1-800-662-7137
Seasons for migratory game birds	1-800-675-0263
Purchase a license	1-888-248-6834 (2HUNTFISH)

Questions and comments welcome.
Contact cay.cross@ncwildlife.org

The N.C. Wildlife Resources Commission is an Equal Opportunity Employer, and all wildlife programs are administered for the benefit of all North Carolina citizens without prejudice toward age, sex, race, religion or national origin. Violations of this pledge may be reported to the N.C. Wildlife Resources Commission, Equal Opportunity Employment Officer, Personnel Office, 1751 Varsity Drive, Raleigh, NC 27606. Telephone 919-707-0101.

It apparently is somewhat of a secret that the biggest bobwhite restoration effort of history is underway across the country, and North Carolina is an active participant.



where it needs to be done for widespread restoration of grassland songbirds and huntable populations of bobwhites. Now we face the biggest challenge: how do we get there? This is where conservationists must be as effective at dealing with people, politics, and money as with resource management because those forces will determine our success.

In addition to being a plan, the NBCI also is a strategic leadership initiative designed to compel our nation's conservation leaders to step up higher than ever for quail. Momentum for quail restoration is building, everywhere from Pennsylvania to Texas, and significant progress is beginning to occur. For example, more states than ever have launched active quail initiatives in response to the NBCI. In the North Carolina Wildlife Resources Commission's own Southeastern Focal Area (SEFA—see page 4 of the Spring 2012 *Upland Gazette*), for example, some of the state's highest bobwhite densities are rebounding on public and private lands being managed in association with the Commission's own quail initiative.

Although much more horsepower and capacity are needed, many of the right

pieces finally are in place at national, regional, and state levels to catalyze a major movement for quail restoration. A small, expert team of full-time NBCI staff are in place, helping the states and the National Bobwhite Technical Committee implement the NBCI by seizing big opportunities and removing major barriers. A high-level NBCI Management Board convenes and engages state wildlife agency and other organization Directors about quail. At least five major private non-governmental organizations are dedicated in whole or in part to quail restoration.

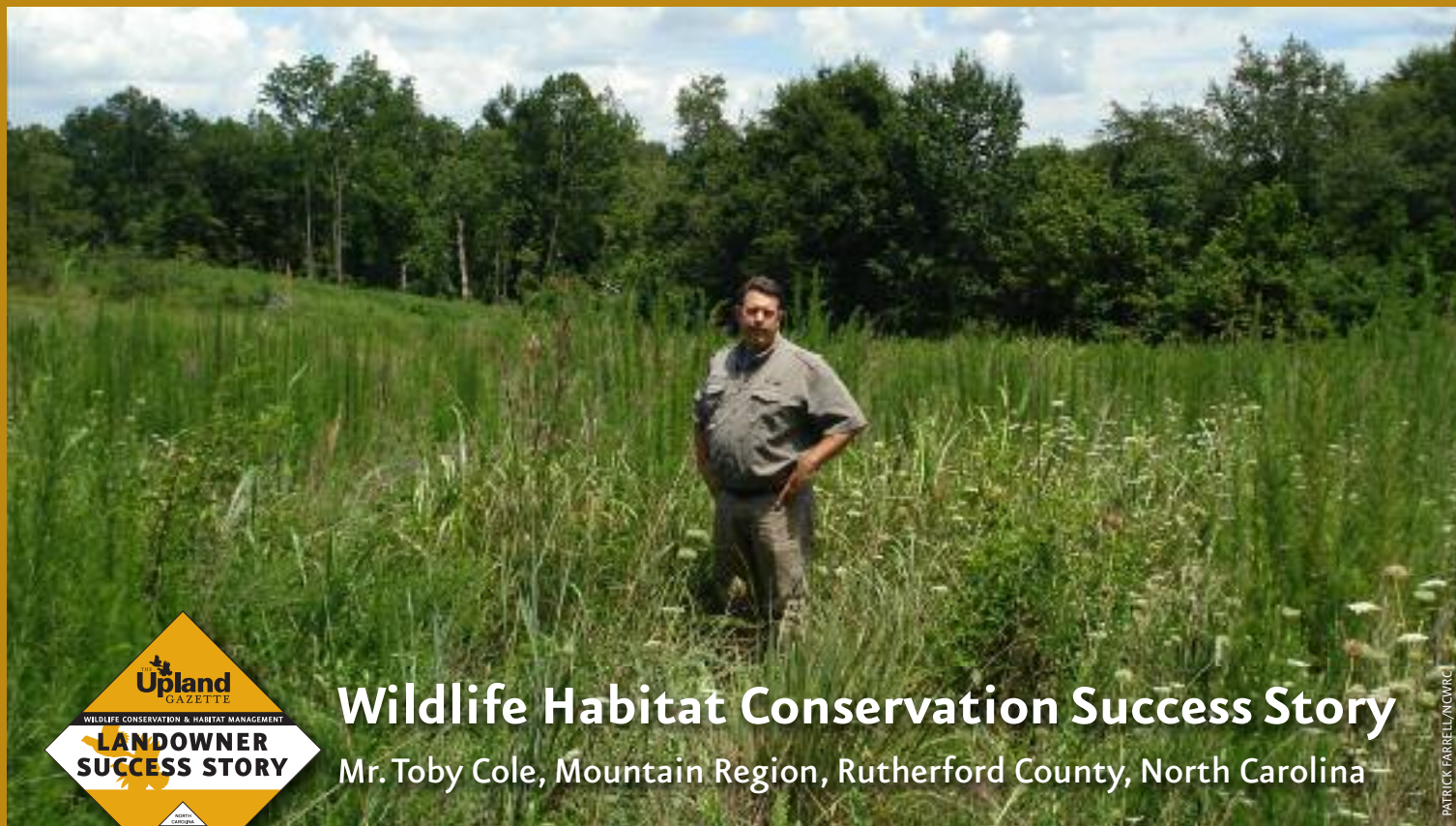
However, this is gut-check time. It's a fair question to ask if 21st century American society is up to this task. Deer and turkey restoration were comparatively easy because good habitat was already in place, and wildlife agencies were simply returning deer and turkey to suitable but unoccupied areas. Quail restoration requires fixing the habitat across vast landscapes and represents a greater challenge than ever undertaken. Even as our momentum is building, bobwhites are still declining across their range. The clock is ticking.

How much do we want wild quail back in our lives, in our grandchildren's lives,

in our culture? Working in our favor is the fact that quail are universally loved. There is no such thing as too many quail, or quail depredation, or dangerous quail/vehicle collisions. I have never known a landowner who wouldn't like more quail. But getting them back won't come easily, and there are no silver bullets or shortcuts.

If we really, seriously want to stand up and tackle this unfinished business of wildlife conservation, the NBCI matters. It matters because people matter. The NBCI offers a vision and hope; it can bring together, focus, and help unite the many people that are necessary to help solve the problem. If we can muster Rocky Balboa's "eye of the tiger;" if all of us who care will recognize and act like we need each other; if we start actively and fully collaborating at national, state, and local levels; if we earnestly strive to pull each other up to higher levels of capability and performance; if we work toward solutions instead of band-aids; if we can persevere through the long term ... then we can solve this quail problem.

For more information, visit the NBCI website at bringbackbobwhites.org. 🐾



PATRICK FARRELL/NCWRC



Wildlife Habitat Conservation Success Story

Mr. Toby Cole, Mountain Region, Rutherford County, North Carolina

By Patrick Farrell, Technical Assistance Biologist, NCWRC

Over the past six years, Rutherford County landowner Toby Cole has implemented a number of wildlife habitat improvement practices on his 288-acre property located in the Harris community. He has converted non-native tall fescue grass and sections of forested lands into 115 acres of native warm season grasses and forbs for wildlife habitat. These grassland areas represent a declining and important habitat component in western North Carolina and throughout the Southeastern United States. This habitat conversion work involved spraying tall fescue grass with herbicides like glyphosate (Roundup) to eradicate the fescue and planting a more diverse mix of native grasses and forbs consisting of little bluestem, big bluestem, indiagrass, and forbs including plains coreopsis, partridge pea, and alfalfa.

Mr. Cole has also used herbicide treatments for site preparation and release work to control woody sprouts on 77 acres of new and existing loblolly pine stands. Implementing this work increases the native grass and forb community on these sites for wildlife habitat. Every time I visit this section of his property, I hear the songs and calls of bobwhite quail, indigo buntings, prairie warblers, and field sparrows. If the woody sprouts were left untreated, they would eventually outgrow and “shade-out” the native grasses and forbs. Furthermore, herbicide use improves the growth of

his planted loblolly pines, and Toby’s long-range vision is to thin his stand to a basal area of 40 square feet/acre or below for the creation of a pine savannah—optimum for bobwhite quail and grassland wildlife.

Mr. Cole uses prescribed burning during the winter months to control woody sprouts, improve plant diversity and vigor, improve forage quality for white-tailed deer and other herbivores, and remove thatch that obstructs wildlife-friendly plant growth. He uses prescribed burning on grasses and forbs spread throughout the property in rotation to make sure habitat cover is always available.

Toby opens up his property to friends for father and son hunts for small game like squirrels and rabbits and outdoor events with the Blue Ridge Chapter of Quail Unlimited. He hunts turkey and white-tailed deer with his son, other family members, and friends.

Mr. Cole continues to work with our agency to improve his property for wildlife habitat, and he has been able to utilize some habitat cost-share assistance from U.S. Department of Agriculture’s Farm Bill programs. Because of Toby Cole’s implementation of wildlife habitat improvement work, bobwhite quail, songbirds, cotton-tailed rabbits, wild turkeys, white-tailed deer, and many more wildlife species flourish on his property for enjoyment by the Cole family, their friends, and other wildlife enthusiasts. 🐾



Free advice on managing wildlife habitat is available from the North Carolina Wildlife Resources Commission 919-707-0050. Information about Upland Habitat Management and Restoration can be found at our web site: ncwildlife.org/CURE.

NCWRC Biologists Need Your Help

By Chris Kreh, District Wildlife Biologist, NCWRC

NCWRC District Wildlife Biologists are involved in many wildlife issues on private property throughout the state. A short, but incomplete, list of activities includes tracking game population trends, advising landowners with habitat recommendations, reviewing (and recommending changes to) hunting regulations and bag limits, and dealing with nuisance wildlife. To be successful, our District Biologists must not only be knowledgeable about wildlife species and habitats, they must also be in touch and cooperating with constituent groups (hunters, farmers, birdwatchers, etc.) and the general public. For these reasons, our biologists rely on information from hunters, sportsmen, and landowners on a variety of projects. Following are a few ways we can use your assistance.

Collecting Biological Data on Deer

Assessing the status, population trends, and overall health of the deer herd requires more than simply computing the number of deer killed each year. It also requires our biologists to obtain data related to age, weight, antler characteristics, and reproductive output. Since many hunters use the option of reporting big game by telephone or online instead of by going to a check station, we aren't always able to gather all the data we need during hunting seasons. So we rely on many volunteers to supply data from their hunting clubs or personal harvests.

In some Commission districts, there is a system in place for hunters to mail jawbones to the biologist. In other districts, there are hunt clubs that record weight, reproductive information, collect jawbones, and then meet with the biologist after the season to review and submit the data. This cooperation allows the NCWRC to better evaluate the overall deer herd and gives hunters and land managers an opportunity to learn more about the particulars of deer management in their area.

Disease Observations

Assessing a wildlife disease outbreak can be difficult. Sick animals may be widely scattered and difficult to find, thereby pre-

venting the opportunity for prompt testing if not found quickly. For some diseases, the impacts to wildlife populations can be devastating. Our biologists strive to assess any disease outbreak, and if warranted, to enact rules or programs to minimize the impact of the disease. In order to do this, it is crucial to get information about sick or diseased animals as quickly as possible. We rely on hunters, landowners, and other folks encountering wild animals to contact us when they find a sick or diseased animal. A useful report might be accompanied by a hunter's trail camera photo of an extremely emaciated deer, or perhaps homeowner reports of dead songbirds near their feeder, or a farmer who finds a number of dead turkeys with lesions consistent with blackhead disease.

Wildlife Observations

Sometimes animals show up in unexpected places. Knowledge of species distribution and abundance is critical information for the NCWRC for use in managing wildlife resources. As part of that effort, our biologists keep range maps for a variety of species. These maps can be viewed at ncwildlife.org/Conserving. Hunters, landowners, and outdoor enthusiasts are generally aware of the animals that live in their area. They notice when something

unusual shows up. Our biologists would like you to share those observations. It may help us do a better job of managing and understanding our wildlife populations. Examples of reports to share might be of a sow bear with cubs in an area that isn't known to have an established bear population (perhaps accompanied by a trail camera photo), or an encounter with an armadillo somewhere in the state, or a nutria or spotted skunk caught in a trap in a part of the state where those species are not known to occur. Any of these cases would provide great information for our biologists.

Contacting a District Wildlife Biologist

These are just a few of the ways that our agency benefits from cooperating with hunters, landowners, and other outdoor enthusiasts. Our biologists have a wealth of good data related to many types of wildlife species and habitat to share with you. They can provide expert information about almost any topic. Establishing a working relationship with your local wildlife biologist will be a win-win situation. A map depicting our nine wildlife districts, along with contact information for our biologists, can be found at ncwildlife.org/Portals/0/Hunting/Documents/WMDistrictBiologistContacts.pdf. 📄

Wildlife Commission Biologists give landowners advice and information on managing habitat at an event in the Piedmont.



MARY D. JONES/NCWRC



Piebald Deer

By Brad Howard, Private Lands Coordinator, NCWRC

The genetic abnormality often referred to as “piebald” or “calico” is a topic that comes up frequently when talking about deer. Hunters often want to know if it is a sign of an unhealthy herd. Does it come from inbreeding? Does this mean the local deer are overpopulated? Is it a cross between a deer and a goat? The answer to these questions is all the same, no.

Properly referred to as the “piebald anomaly”, it is a condition that is the result of a genetic abnormality. It appears to be inherited from one or both parents, but beyond that, scientists don’t really know much about the actual genetic cause of the condition. For lack of a better or more scientifically exact definition, let’s just say it is a genetic mutation. It does not relate to the health of the deer population in the area and should not be viewed as an indicator that something is wrong with the deer population.

How do you know if a deer has this condition? Well, it is pretty easy. Piebald deer exhibit significant differences in hair color on their body ranging from almost pure white to splotches of brown, black, and white. There is no way to predict the arrangement of colors on a piebald’s coat. Some less-obvious signs of the condition are abnormal legs, a hump on the nose between the eyes and nostrils, short mandibles (lower jawbones), and curved spines. In short, piebalds look very different from your average deer. Some fawns born with this anomaly have severe internal organ problems, and these individuals usually die at birth.

The piebald condition differs significantly from true albinos. Albino deer are the result of a recessive gene. They simply lack

the gene for pigmentation and have no pigment in their hair, hooves, and their eyes (which appear pink). True albinos are indeed rare, but they have few if any other physical problems. Male albinos grow antlers, and the females have fawns. Survival of albino fawns is low because they are not camouflaged like normal fawns, but if albinos survive their early months they often typically grow to otherwise healthy adult deer. Native cultures and some hunters considered albinos sacred, but there is no biological reason and no North Carolina law or regulation that protects them. A hunter’s decision to harvest an albino deer is one of personal choice.

Piebald deer should not be protected. Attempts to breed two piebald deer to one another have failed to produce offspring, but these deer can and do occasionally reproduce if they breed with an otherwise normal deer. Because piebalds apparently carry the genetic disposition to pass the trait along, it could increase the prevalence of the condition in the population if they are allowed to breed. Normally, the piebald anomaly appears to exist at rates well under one percent of the population. However, there is one report of a rate nearing two percent. This high prevalence rate apparently was the result of “protecting” the piebald deer. Once that protection was removed, the rate of prevalence went down considerably.

A piebald deer is certainly a curious sight but not one that should cause you concern or alarm as it relates to the overall health of the deer herd. The venison is not affected and is suitable for human consumption should you harvest one. 🍖



MELISSA MCGAW/NCWRC

Bobwhite Use of Field Borders

By Shannon Bowling, Chris Moorman, and Chris DePerno,
North Carolina State University

Over the last half century, habitat loss and degradation caused by urbanization, more efficient farming practices, and fire suppression have contributed to the range-wide decline of northern bobwhite quail. In response, field borders have been proposed to create habitat and help restore bobwhite populations in agricultural landscapes. For example, CP33 (Upland Habitat Buffers for Wildlife) under the Conservation Reserve Program (CRP) supports creation of borders of fallow vegetation along cropland margins. However, bobwhite response to field border creation has been inconsistent, possibly because of the influence of the surrounding landscape on bobwhite ability to disperse and gain access to field borders.

Each year, up to a third of bobwhites may disperse more than a mile, and successful dispersal likely is aided by the availability of continuous food and cover across the landscape. Field borders established in landscapes with more useable habitat (e.g., open forests, recent timber harvests, and summer crop fields) may be more successful at increasing bobwhite abundance than borders created in land-

scapes with unusable habitat (e.g., closed canopy forests and crop fields after harvest) because bobwhite are better able to disperse through continuous areas of useable cover. Conversely, field borders located in landscapes with sparse useable habitat may not be occupied by bobwhite because the borders are isolated from other useable habitat patches and because dispersing bobwhite are more susceptible to mortality.

To determine the influence of the landscape on bobwhite quail use of field borders, we surveyed bobwhites at points with and without field borders over six years (2006–2011) and across two states. We assessed the influence of landscape cover and field border creation on bobwhite density (bobwhite/acre) and on bobwhite colonization and extinction rates.

Colonization is the probability bobwhites not present during one sampling period are present at the next sampling period, and extinction is the probability that bobwhite present during one sampling period are not present at the next sampling period. High rates of colonization and low rates of extinction may indicate successful dispersal of quail into

new habitats such as field borders. Examining the factors that influenced bobwhite extinction and colonization around agricultural fields allowed us to explore the reasons bobwhite may respond differently to creation of habitat on different properties across the Carolinas.

Study Design

We surveyed bobwhites around 154 agriculture fields located in North Carolina and South Carolina (Figure 1). Half of the fields contained a CP33 border and were paired with a nearby field without a border for comparison. From mid-May until mid-July in each year, we surveyed study fields using point counts. During 2006–2008, surveys were conducted by the North Carolina Wildlife Resources Commission and South Carolina Department of Natural Resources, and from 2009–2011 surveys were conducted by North Carolina State University.

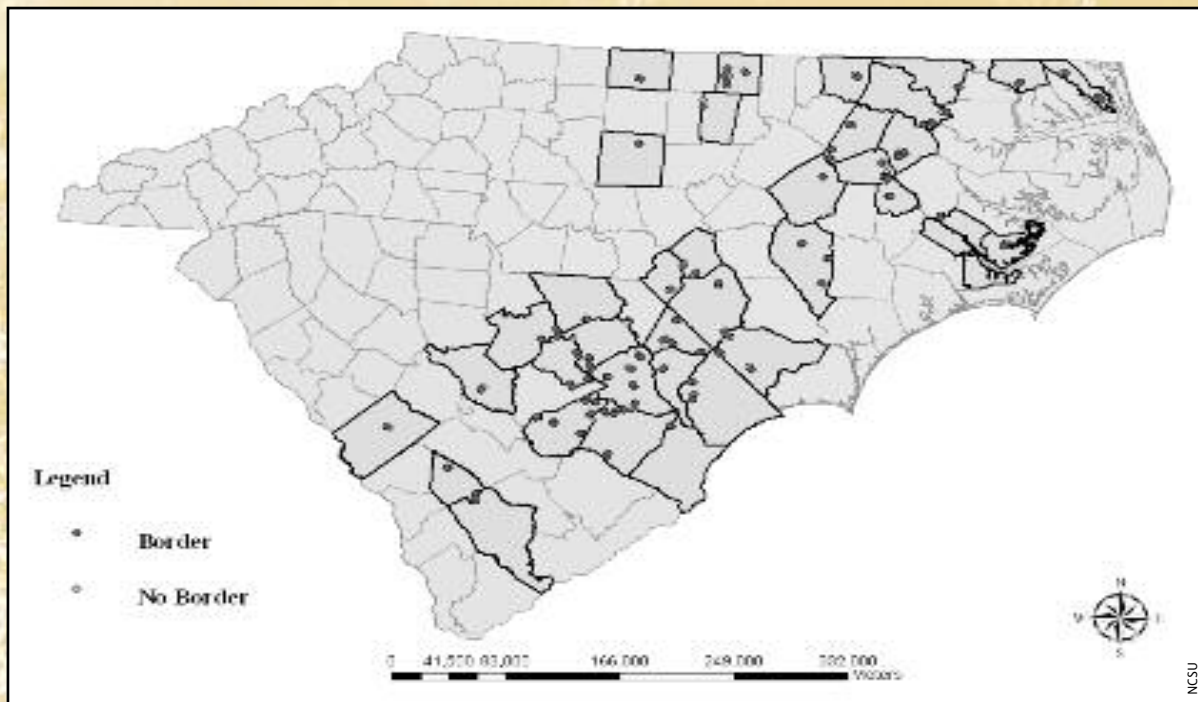
To determine how the surrounding landscape influenced bobwhites, we calculated five landscape cover classes (percentage of crop, urban, forest, pasture, and early successional cover) for a 0.6-mile

continued on page 8



JOHN LSENHOUR/NCWRC

Figure 1. Northern Bobwhite Quail Survey
Locations of survey points in North Carolina and South Carolina.



area surrounding each survey field. We then calculated the effects of these five landscape cover classes and the presence of a field border on bobwhite density and colonization and extinction rates.

Our results were:

- Bobwhite densities were 28% greater around fields that contained field borders than those without.
- Bobwhite colonization and extinction were similar around fields that contained field borders and those without.
- Fields with greater percentages of forest, urban, and pasture cover in the surrounding landscape had lower bobwhite densities.
- Fields with greater percentages of cropland in the surrounding landscape had lower rates of extinction.
- Fields with greater percentages of pasture cover in the surrounding landscape had lower rates of colonization.
- Fields with greater percentages of forest and urban cover in the surrounding landscape had greater rates of extinction.

What Our Results Mean

The creation of field borders increased bobwhite density on a local level but did not influence colonization or extinction. Although field borders provide useable bobwhite habitat, including foraging and nesting cover, they do not influence larger scale processes such as dispersal. Field borders can increase bobwhite abundance locally but have less influence on bobwhite dispersal and occurrence and will likely be most effective if implemented in high quality landscapes that promote bobwhite presence and facilitate dispersal.

Cropland is critical to bobwhite populations during the growing season because of the useable habitat provided including foraging, nesting, and escape cover. Landscapes dominated by cropland assist dispersal by bobwhite and may yield greater probability of bobwhite presence and less probability quail will disappear over time. Habitat types without suitable groundcover for bobwhite to forage efficiently and escape from predators (e.g., closed-canopy forest, urban, and pasture) may hinder dispersal, prevent new bobwhite

from colonizing an area, and increase the likelihood that populations will disappear. More specifically, closed-canopy forest shades groundcover, thereby reducing food and cover for dispersing quail. Additionally, pastures are comprised primarily of non-native, sod-forming grass species that restrict movement and provide little overhead cover. These possibly restrict bobwhite survival and ability to colonize new areas including areas with field borders. Similarly, urban landscapes lack appropriate cover, are fragmented, and increase the risk of predation for bobwhite.

The CP33 field border program successfully increased small-scale local bobwhite densities within North Carolina and South Carolina which is further evidence of the value of field borders to bobwhite conservation in agricultural settings. However, establishing habitat in areas that contain high probability of sustained bobwhite occurrence (i.e., greater percentages of crop cover and minimized percentages of urban, pastures, and closed-canopy forest) will maximize the efficiency of future conservation efforts. 🌱



Yellow-breasted Chat



Painted Bunting

Improving Woody, Early-Successional Habitat to Benefit Shrubland Birds

By Corey Shake, Christopher Moorman, and Michael Burchell
North Carolina State University

Several federal and state government conservation programs can help North Carolina landowners create wildlife habitat on their property. Some of these programs are specifically designed to create and maintain grass and herbaceous early-successional habitat for wildlife. One of these is the U.S. Department of Agriculture's upland bird habitat buffers (CP33) under the umbrella of the federal Conservation Reserve Program (CRP). Methods for improving the habitat created by these programs have been discussed in many previous issues of *The Upland Gazette*.

Other conservation programs allow establishment of woody plants such as shrubs and sapling trees, and these habitats also have benefits for some wildlife. Often, the conservation practices used in these habitat restoration programs are intended to create mature forested habitat through time (such as forested riparian buffers, or CP22, under the Conservation Reserve Enhancement Program called CREP). However, in the first 5 to 15 years of their enrollment period, these programs also provide woody, early-successional habitat.

Woody plants in early-successional habitat may provide benefit to wildlife by providing additional food and cover. For example, dense blackberry tangles and patches of tree sprouts provide overhead cover for bobwhite quail and rabbits as well as soft mast in the form of blackberries. Sapling pines and hardwoods are good nesting places for mourning doves and many shrub-nesting

songbirds. Woody, early-successional habitat is particularly valuable for conservation of shrubland songbirds, a group of species whose numbers are declining nationwide. Examples of shrubland birds include prairie warbler, indigo bunting, field sparrow, and yellow-breasted chat.

The characteristics of individual patches of woody, early-successional habitat can vary extensively, and it is likely that not all habitat patches will provide high quality habitat for shrubland birds. The quality of any habitat patch may be influenced by many factors including its vegetation structure, size and shape, and the quality of the habitat in the surrounding landscape. How these factors influence shrubland bird habitat use and breeding productivity within a patch is not well understood. For example, we know that nest predation, an important component of breeding productivity of many forest and grassland songbirds, is often higher at habitat edges, but this phenomenon has not been well-studied for shrubland birds.

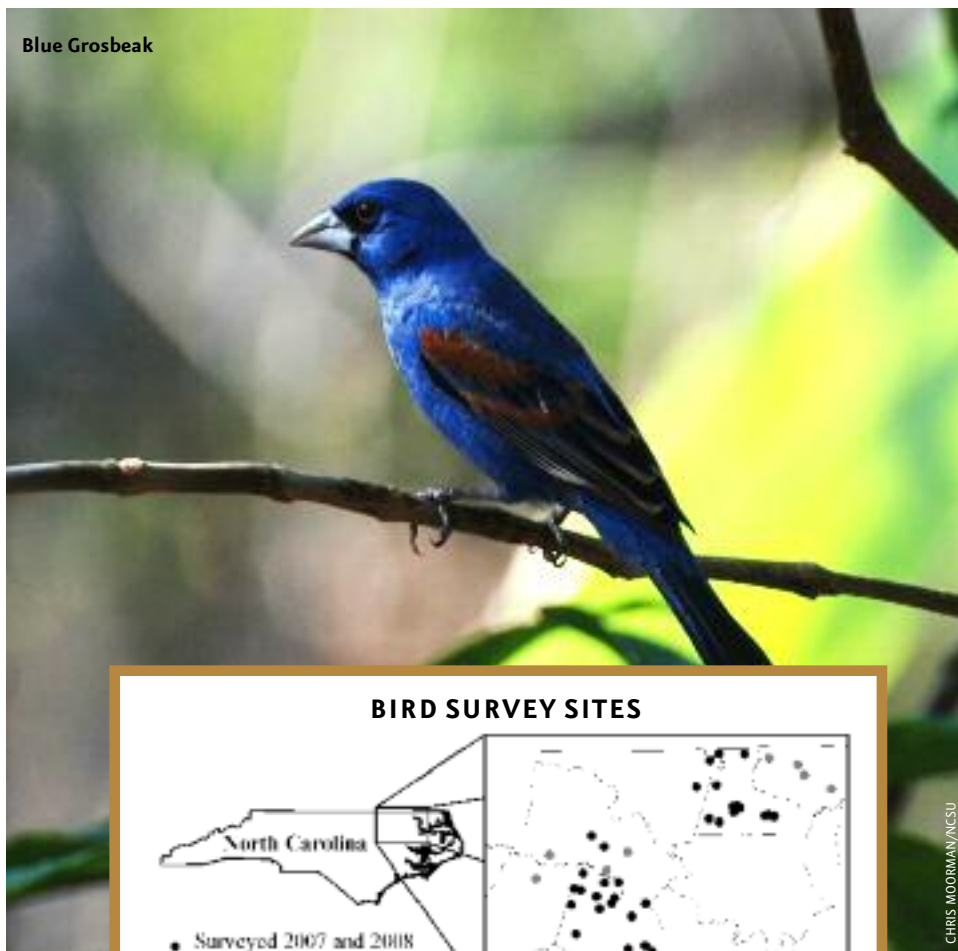
We conducted research to determine which characteristics of woody, early-successional habitat patches enrolled in North Carolina CREP are best for shrubland songbirds. We specifically looked at which patches would support the most number of species and which patches would have the lowest rates of nest predation. High rates of nest predation can significantly reduce populations of songbirds.

We recorded bird species in 43 CREP habitat patches in northeastern North Carolina (see map). In a subset of 12 of those patches,

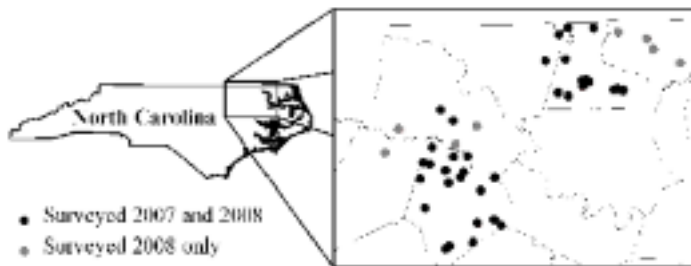


Yellow-breasted Chat nestlings

Blue Grosbeak



BIRD SURVEY SITES



we found and monitored 300 nests of five shrubland bird species (field sparrow, indigo bunting, blue grosbeak, yellow-breasted chat, and prairie warbler) over two breeding seasons to determine rates of nest predation. We related this data to patch vegetation structure, patch size and shape, and the extent of other types of habitat surrounding the patch.

Our research revealed the following patterns in shrubland songbird habitat use and nest predation:

Habitat Use

Indigo bunting, field sparrow, and common yellowthroat were common in almost all habitat patches we studied.

Prairie warbler and yellow-breasted chat usually were not recorded in patches smaller than five acres, indicating they need larger areas. We estimated a minimum patch size requirement and optimal patch size of 5.7 acres and 10.9 acres, respectively, for yellow-breasted chat and 2.7 acres and 13.6 acres, respectively, for prairie warbler.

The shape of a patch and the amount of forested habitats surrounding a patch (within 0.6 miles) did not influence which species used a patch.

Nest Predation

Nest predation rates of all species combined were greater for nests closer to the cropland edge of a habitat patch. Nest predation on nests located 300 feet from the cropland edge was 20% less than nests right near the edge.

Nest predation rates of all species combined were greater in patches with tall saplings (>12 feet), which had less vegetation in the understory.

Predation of field sparrow nests was lower in patches that were surrounded by more agricultural habitats, such as cropland and pasture.

Our results lead to several recommendations to create higher quality patches of woody, early-successional habitat for shrubland songbirds.

To maximize the diversity of shrubland birds using a habitat patch, we recommend landowners:

- Create habitat patches of 15 acres or larger. If this is not possible, patches should be at least six acres to improve the likelihood they will be used by shrubland bird species of conservation concern such as the prairie warbler.
- Avoid habitat patches that are narrow and linear-shaped or that have many irregular edges, especially if they are less than 10 acres.

To reduce nest predation and increase shrubland songbird breeding productivity, we recommend that landowners:

- Create habitat patches that are sufficiently wide to avoid increased nest predation near cropland edges. For habitats adjacent to cropland, we recommend that patches be at least 300 feet wide.
- Maintain habitat patches with a dense and diverse growth of grasses, forbs (herbaceous flowering plants), and low, woody vegetation (e.g., shrubs, tree saplings, and blackberries). For habitats planted with trees, like forested riparian buffers in CREP, consider thinning trees to allow more light into the understory to maintain early successional cover longer. Prescribed fire may be used to maintain beneficial wildlife cover in a variety of forested stands.

The evidence that nest predation may be lower in patches with high amounts of agricultural cover suggests that the agriculture-dominated landscapes of central and eastern North Carolina could be a good place for habitat restoration efforts that benefit shrubland songbirds.

These recommendations apply best to early-successional habitats with woody shrubs or saplings created with restoration programs like CREP. However, they also may be applicable to other woody, early-successional types like clearcuts or recently burned forests. Some of these recommendations must be planned when designing the habitat restoration or timber harvest, while others require management actions after the habitat has been created. Consult a NCWRC wildlife biologist for free expert advice regarding these and other wildlife habitat management issues. 🌿

Trapping for Rabbits: A Forgotten North Carolina Tradition

By John Wooding, Freelance Wildlife Biologist

North Carolina has a forgotten tradition, and it is one that can provide fried rabbit minus the #6 shot (and without feeding a pack of beagles). If you have a hunting or trapping license, you can legally trap rabbits in box traps, or as they are often called, rabbit gums. The North Carolina rabbit trapping season for 2012-2013 runs from November 17 to February 28, with a daily limit of five rabbits (no possession or season limits). The traps must be checked at least once every 24 hours.

The tradition of rabbit trapping began using improvised traps made from hollow logs fitted with a door that closed upon the rabbit's entry into the log. I was told the log traps were called "rabbit gums" because hollow black gum trees were the right size for rabbits, and hollow log rabbit traps were often devised from gum logs.

A couple of years ago I trapped rabbits for a research project using a well-designed wooden box trap. I don't know the inventor, but the traps worked well. The trap was 24 inches long, made from 1x8 inch lumber,

and contained a wooden door and treadle hinge using screw eyes and wire for the hinge pin. When the rabbit entered the trap and stepped on the treadle, the treadle's movement lifted a wire that had held the door open. As the wire lifted, gravity dropped the door. A locking device made from another piece of wire fell behind the door, and the rabbit was caught.

I recently built a dozen of the traps for myself, and the cost was about \$10 each. This compares to about \$30-\$40 for a commercial rabbit trap. The traps are forgiving to build since they are made of wood and wire—if you drill a hole wrong, re-drill it; if you bend a wire wrong, re-bend it. One of the first traps I built, I drilled so many holes incorrectly that it looked like a woodpecker had worked on the trap. These traps don't have the nostalgia of an old rabbit gum, but they work better and are easier to carry than a log. I use apple slices for bait, but some people brag on onions or carrots, or just a pinch of salt. If you find a good rabbit trail, you don't even need bait—just put the trap in the trail, and the rabbit will hop right in. 🐇

HOW TO BUILD A RABBIT GUM

WOOD PARTS (cut from 1" x 8" lumber; I prefer untreated—more natural; paint if desired for longevity):

BOX: 4, 24" BOARDS

DOOR: 1, 7" x 5 3/8"

TREADLE: 1, 4 3/4" x 3 3/4"

BACK: 1, 3 1/2" x 8"

TOTAL LENGTH

1" x 8" NEEDED: 110"

STRAIGHT WIRE (1/8" welding rod, or 9 or 12 gauge wire—heavy coat hanger might work):

HINGE PINS: 2, 11" (TRIM TO FIT)

DOOR LOCK: 1, 16" (TRIM TO FIT)

TRIGGER: 1, 13" (TRIM TO FIT)

TOTAL LENGTH WIRE NEEDED: 49"

HARDWARE:

NAILS OR SCREWS:

8 - 1 5/8" AND 1 - 1"

SCREW EYES:

4, 5/8" SCREW LENGTH

HARDWARE CLOTH:

7" x 5", 1/2" MESH

POULTRY STAPLES: ABOUT 20

STEPS:

1. Cut lumber to size.

2. Attach bottom to sides using nails or screws.

3. Drill 3 holes in each side for hinge pins and door lock. Hole (1/8") for door hinge pin is 3"

back from front of side, and 1" down from top of side. Hole (1/4") for door lock wire is 8" back from front of trap, and 1" down from top of side. Hole (1/8") for treadle hinge pin is 8 1/2" from rear of trap and 1/2" up from bottom of side.

4. Insert door in trap to check fit; if too snug, trim width to fit (1/8" clearance is ideal). Attach screw eyes to door (1 in each upper, inside corner, 1/2" in and 1/2" down). Insert 1" long screw into door (same side as screw eyes), centered, and 3 1/2" from top of door (this screw is a stop for the door lock). Hang door by inserting 11" door hinge pin wire into the box through hole, and through the screw eyes. Bend ends of hinge pin wire outside of trap to secure the pin.

5. Bend 16" door lock wire to shape of Pilgrim hat (1 1/2" brim, 4 1/2" sides, 4" top). Insert in trap, bend ends outside of trap to secure. If lock binds after bending the ends, release bind by slightly unbending ends until the lock falls smoothly.

6. Attach screw eyes to underside of treadle (1 in each front corner, 1/2" in and 1/2" down); turn treadle over, and drill a 1/8" hole in treadle, 2 1/4"

from the front, and 1/2" from the side (this hole is to attach the door release wire to the treadle).

7. Bend 13" trigger wire to climb up side of trap from treadle to the bottom side of the opened door. Insert 1/2" end tip into hole in treadle, secure wire to treadle using 2 staples. The fully opened door rests on the wire—friction between the wire and the door holds the door open. Cut trigger wire to length so that the wire holds the door fully open.

8. Test fire trap, making sure everything works. Bend trigger wire to adjust weight needed to fire the trap.

9. Attach top; attach hardware cloth to back using staples, and finish by attaching the wooden back over the hardware cloth.

SETTING THE TRAP:

To set trap, first unlock the door by twisting the lock from the outside using the tip that protrudes from the trap. Once unlocked, stick your hand in the trap and feel for the trigger wire. Using your touch, place the trigger wire against the door. Bend the trigger wire slightly forward or backwards to adjust the weight needed to trip the trap. If too much weight is

An example of a wooden trap.



needed, rabbits will take the bait but not trip the trap.

Test fire by sticking a stick in back of trap and mashing the treadle. The treadle should fall easily. If not, reach your hand inside the trap and slightly bend the trigger wire so that a lighter touch will fire the trap. You will get a feel for this.

Set trap in good rabbit habitat where the rabbit will come across it and bait if desired. Check at least once every 24 hours.

Dress the rabbit, flour lightly, heat the oil, brown to perfection, partake, and chew without worrying about a lead shot dinging your new crown.



Division of Wildlife Management
N.C. Wildlife Resources Commission
1710 Mail Service Center
Raleigh, NC 27699-1710

Presorted Standard
U.S. Postage
PAID
Raleigh, NC
Permit No. 244

RETURN SERVICE REQUESTED



WILDLIFE
IN NORTH CAROLINA

2011 FALL OUTDOOR GUIDE

- Six issues of *Wildlife* in North Carolina
- Fall Outdoor Guide
- Spring Fishing & Boating Guide

\$12 a year

Subscribe today
ncwildlife.org or call 866-945-3746.

ATTN: ALL HUNTERS

PLEDGE TO MENTOR A NEW HUNTER
to get a **FREE** hat and bumper sticker.

It Takes a Hunter to Make a Hunter!
Become a hunting mentor.

Register online from August 1 to December 31, 2012 at
ncwildlife.org/huntingmatters

FOR MORE INFORMATION :
hunting.heritage@ncwildlife.org

*Limited supply of free hats and bumper stickers.