Fall 2011 / Volume 16, Issue 2

Published by the North Carolina Wildlife Resources Commission

THE Upland GAZETTE

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The Decline of Bobwhite Quail in the South

Big Problems Don't Come with Easy Answers

By Mark D. Jones, Supervising Wildlife Biologist, NCWRC

The last 100 years has been full of wildlife success stories. Species like white-tailed deer, wild turkey and black bear are thriving in our state and throughout the country. In the West, elk, pronghorn and many other game species have increased to records unknown since before North America was settled. However, throughout most of the range of the bobwhite quail, the decline of this magnificent game bird remains one of wildlife management's major unresolved problems.

A local experience I have had in eastern North Carolina is symbolic of the decline of quail. I first hunted quail in North Carolina about 20 years ago in Beaufort County. At that time, there were still good quail populations on farms owned by my friends. In the short 20 years since, I have personally witnessed quail populations decline in those areas. The populations I witnessed were good by today's standards but were already on the downward spiral, and the decline I experienced is nothing compared to the drop-off seen by older hunters who remember the "heydays" of the 1950s and 1960s. This same story could be told for countless areas throughout the South and has been well documented in the entire region.

Theories regarding the causes of the decline of bobwhites are as abundant as the birds themselves once were. Ask any armchair biologist, farmer or quail hunter and you will hear theories blaming fire ants, hawks, fescue, diseases, weather, coyotes and dozens of other factors. Every month I hear a new reason proposed for the quail decline. Many folks claim the problem must result from something "unusual" because "nothing has changed" relative to habitat over the period quail have been declining.

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How does one address the assertions that the problem must be something other than habitat? Many smart folks truly believe the landscape has changed little over the last 40-50 years. Well, like the tree growing in your front yard over a lifetime, sometimes slow and subtle changes are not as noticeable as you would expect. It seems you planted that one-foot tall tree when you were young, then one day it is so tall you fear it will fall on your house in a storm. You don't notice the changes. Basically, the same thing has occurred with quail habitat throughout most of the nation. If you are a skeptic, facts and statistics tell a different truth. Every available statistic on land use and management tells us that, throughout most of the range of bobwhite quail, we have experienced dramatic landscape-level changes since the quail heydays following World War II. Most of these changes have not been good for the game bird we all love.

Fescue and other sod-forming grasses have replaced native grasses and plants in most of our cattle pastures, hay lands, roadsides, power line rights-of-ways, ditch borders and grassed waterways. Many of these grasses were not even around following WWII and were more recently developed as effective erosion-controlling plants that are easy to grow in poor soil and with low moisture. While the merits of these grasses for stopping erosion cannot be denied, they are no friend of quail and other ground-nesting birds. Most birds simply cannot and will not nest and/or raise chicks within the habitat provided by these grasses.

Mowing has become a normal practice on most farms throughout North Carolina and the rest of the South. Mowers did not even exist on southern farms like the Virginia farm my grandfather worked in the years before The Great Depression and were rare when my father worked part-time in the summers in the 1950s–1960s. Oh, how times have changed! The operator of my own Craven County, N.C. farm laments each year the fact that I won't let him mow my ditches because he's "afraid the neighbors will think he's not a clean farmer." Ask any North Carolina farmer, and I'll bet at least 95 percent will tell you that mowing of "weeds" and cleaning of ditches is critical to their farm operations—especially if they rent land from an owner who expects it to be well-groomed. In many areas, well groomed farms are a selling point for farmers wishing to lease additional lands from other landowners. In the South, there is now a real social stigma attached to having ill-kempt farms. This simply was not the case when quail were abundant.

Forestry practices may be among the most important, yet also most unnoticed changes to the Southern landscape for quail. The trees may look the same, but an important change has occurred with the groundcover. During the quail booms following WWII in the South, burning of woodlands was a normal and routine practice throughout the region. My 85-year-old quail hunting friend from Beaufort County has frequently told me of the days when he could walk and hunt from Campbell's Creek to Aurora (about eight miles as the crow flies) through stands of fire-maintained forests. Anyone who knows anything about this area, or the average forested area in North Carolina, knows that it would be nearly impossible to walk, let alone bird hunt, through large swaths of our state's forests today. You bird hunters know what I am talking about! The simple reason is that our forests are composed of thicker stands of trees with heavy understories, and they suffer from

Based on numerous research most professionals around as the most important of bobwhite quail and

projects and experiences, the country view habitat issue in the decline other game birds.

a lack of prescribed fire, which leads to degraded plant groundcover. There also have been other less noticeable changes to common timber management practices like heavier planting rates, which shade out beneficial ground cover. Throw in the use of modern forestry chemicals to kill vegetation that competes with trees, and you have unintended consequences including the loss of beneficial plants many wildlife species including quail need to survive. All of these factors combined have resulted in a major loss of forested habitat for quail throughout the South. Our average forested areas simply do not provide quality year-round quail habitat.

Development is another factor that we often forget when thinking of the quail decline. Many houses, stores, roads, and other man-made structures did not exist during the quail booms of the past. Many older quail hunters tell stories of watching their favorite places bulldozed for a housing development or paved for a department store parking lot. While the direct impact on quail cannot be denied, these types of developments may impact hunters more than the birds they pursue. It would be hard to measure, but there is no doubt that the amount of available hunting habitat is greatly reduced from years past.

Based on numerous research projects and experiences, most professionals around the country view habitat as the most important issue in the decline of bobwhite quail and other game birds. While my view is colored by my experience as a professional wildlife biologist working with quail off and on for the last two decades, it is also influenced by my experience as a lifelong upland bird hunter. I have been blessed with the opportunity to hunt 11 species of wild upland game birds in eight states over the last three decades. Each state I have visited had the desired upland game bird species if the landscape-level habitat required by that particular species was available. Parts of these states suffer from the same problems we have here in North Carolina, and those areas are widely known as places to avoid if you visit intending to hunt. But wherever habitat is found in abundance, the game bird local to the area in question seems to thrive. Whether we are talking about pheasants and sharptail grouse in North Dakota, Mearns and scaled quail in Arizona, or bobwhites in parts of the central and southern plains, upland game birds seem to do just fine if quality habitat is available on a large landscape. Furthermore, we do have examples of healthy and abundant quail populations on intensively managed areas right here in the South—even a few in North Carolina. We know that the right blend of habitat will result in bobwhite numbers not seen on average landscapes these days.

One additional point is worth noting. Bobwhites are not the only ground nesting bird that is declining due to habitat deterioration. Dozens of ground nesting songbirds are also in decline nationwide, and where these birds remain abundant, there is always a landscape of suitable, high-quality habitat to be found. What further evidence do we need to recognize that habitat really is the key when discussing the decline of our favorite game bird, the bobwhite quail? The bobwhite decline has been ongoing for decades, and hunters are desperate for a solution. Unfortunately, easy fixes are not available. In the spring 2012 issue, we will explore a variety of solutions that have been proposed to address the decline and bring back the South's iconic game bird.

Wildlife Habitat Conservation Success Story

Mr. John Bishop, Piedmont Region, Anson County, North Carolina

By John Isenhour, Technical Assistance Biologist, NCWRC

PETER TAYLOR

MELISSA MCGAW

Left: Lee Efird and Jeff Miller enjoy a successful rabbit hunt next to a field border on John Bishop's Farm.; right: John Bishop in a stand of native warm season grasses which make excellent wildlife habitat.

The following article represents the first in a series on North Carolina landowners and their efforts to implement wildlife habitat conservation. Mr. John Bishop is a Piedmont resident who owns a large tract of land in Anson County. He is known for his successful wildlife habitat improvements. Mr. Bishop has received two awards from conservation organizations for his habitat efforts including the Small Game Award from the North Carolina Wildlife Resources Commission and the Wildlife Conservationist of the Year from the North Carolina Wildlife Federation. However, awards are not what drives Mr. Bishop to work so hard to improve wildlife habitat. His love of the outdoors, wildlife, and his wish to share these experiences with his friends and family are key ingredients to his success. The following paragraphs highlight Mr. Bishop's efforts in recent years.

Mark D. Jones, Supervising Wildlife Biologist, NCWRC

A push from the past down a path toward the future is the story behind many conservation minded folks, including Mr. John Bishop. John is a successful businessman in Kannapolis, North Carolina who has a passion for natural resources conservation and land management. He was introduced to the outdoors as a youngster on his grandfather's farm; his conservation and personal ethics were honed as he earned the rank of Eagle Scout, and his drive to manage land can be found in the excitement his children exhibit in the outdoors. It's no wonder John began to purchase land in 1999 in Anson County, North Carolina to provide outdoor opportunities for his family and friends.

Since acquiring his first tract of land, John has had a vision of not simply owning land but also managing it to be the best habitat it can be. He has been aggressive in managing his forestland to maximize ground cover and food sources for wildlife. John has utilized both commercial and pre-commercial thinning to allow sunlight to reach the forest floor, improving plant diversity and vigor. Prescribed burns have been conducted to control woody sprouts and maintain quality ground cover. Highly erodible crop fields have been taken out of production by Mr. Bishop and converted to mixtures of native grasses and forbs, which benefit a whole suite of grassland birds including bobwhite quail. John has sought out guidance from wildlife professionals and

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Conservation Reserve Program—A Tale of Missed Opportunity

By Mark D. Jones, Supervising Wildlife Biologist, NCWRC

Most readers of this publication have probably heard of the program called CRP administered by the U.S. Department of Agriculture's Farm Services Agency (FSA). CRP, or Conservation Reserve Program, is a national program that began in 1985 and was designed to retire highly erodible cropland from commercial production and protect soil and water resources in the process. Landowners are paid an annual rental rate and management cost share on these acres, and the acres retain all cropping history in case farmers wish to farm them again in the future when contracts expire.

Millions of acres of cropland were planted in grasses and trees across the nation under this program. A welcome benefit of the program was increased populations of waterfowl, pheasants, other upland game birds, grassland songbirds, and other wildlife in the Midwest and West. However, the early program was not designed specifically for wildlife.

Changes to federal laws through the 1995 Farm Bill elevated wildlife to the same priority level as soil and water under CRP. This was a policy change that was difficult to make a reality on the landscape in many states. While there are small examples of exceptions, overall the program has been better for wildlife in the Midwest and West than in the South and East. Native grasses in dry regions further west have provided exceptional habitat, while CRP in the South has been dominated by fescue and loblolly pines planted at high density and not managed for good ground cover.

CRP is just one of many Farm Bill programs but very widespread on the North Carolina landscape. In 2010, we had 122,000 acres enrolled in CRP, most in loblolly and fescue. Approximately 16,000 acres expired in 2009, and 9,400 (including 841 acres of fescue and 7,396 acres of loblolly) were enrolled for a net loss of over 6,000 acres. The potential to encourage improved habitat during re-enrollment was great if we could have required/encouraged mid-contract management (thinning and fire) on the loblolly and conversion on the fescue. However, most acres were simply enrolled "as is" with no improvement. The lack of adequate management on CRP has been primarily due to Federal Agricultural Policy designed to place acreage enrollment goals ahead of benefits to soil, water, and wildlife. These policies will only change through coordinated efforts from wildlife constituent groups from around the state and country. We have some CRP loblolly pines on their third contract with no management for wildlife for 20-25 years. These trees have provided little or no wildlife benefit for most of their lifespans and certainly not met all three CRP objectives (soil, water, and wildlife) as required by federal rules since 1995. Think about that!

I want to make sure our readers understand the magnitude of CRP in terms of acres of potential habitat that we are losing a chance to improve each year. We have 12,851 acres of CRP set to expire in 2011, 10,815 acres in 2012, and peak out at 15,493 acres in 2015. Each of these expirations is also an opportunity to re-enroll trees that are thinned and burned or convert fescue to native grasses rather than simply re-enrolling tracts with no changes.

If future CRP sign-ups proceed like those for recent decades and thousands of acres of pines and fescue are re-enrolled without management to improve the wildlife value of the tracts, we will lose the opportunity to improve habitat on millions of acres of lands throughout the Southeastern United States. As conservation groups continue to focus on efforts to address declining species that need early successional habitats, perhaps more thought should be given to this issue.

This typical stand of loblolly pines is under its third CRP contract and provides little to no wildlife benefit. If thinning and burning were implemented in southern CRP pines, over 1 million acres of improved wildlife habitat would immediately be available on the landscape.

JOHN ISENHOUR

Little Known Rabbit

By John Wooding, Former Small Game Biologist, NCWRC

I asked a rabbit hunter from the mountains if he had ever gotten a short-eared mountain rabbit. His eyes told me instantly that he had, but he didn't say anything at first. He might have thought I was trying to trick him. I went on to tell him there were two kinds of rabbits in the mountains—the short-eared and the long-eared. There is only a ¼" difference in ear length between them, but for some reason, the discrepancy is noticeable to rabbit people. Maybe it's because the short ears are also a little wider and a little darker. He finally spoke, and said he had gotten both kinds, and he thought they were different but wasn't sure.

We know a lot about the long-eared rabbit. It is the eastern cottontail and is the common rabbit of fields and farms across the state. We know much less about the short-eared mountain rabbit, which is officially named the Appalachian cottontail. We know they are a small rabbit as rabbits go. They weigh about two pounds compared to three pounds for a big eastern cottontail. They only occur in the mountains and tend to stay in the woods rather than the fields. They have short ears partially outlined with black hair and often a black spot of fur atop their head. If you handle a short-eared rabbit from the mountains, and there is a black patch of fur on the head, it is probably an Appalachian cottontail. If the patch of hair on the head is white, the rabbit is an eastern cottontail. Both species live in our mountains. The black or white patch of fur is not a 100 percent accurate identification tool, but it's fairly reliable. The partial black outline of hair on the ear is also a good field mark. To be 100 percent sure, biologists distinguish the two species by using a genetic test, or if the rabbit is dead, the skull can be examined for distinguishing bone patterns. If you've looked at a bunch of rabbits, when you see an Appalachian cottontail up close there is something about the rabbit's overall appearance that stands out. If you didn't know better, you might just think it was a young eastern cottontail. However, once you know there are two species of rabbits in the mountains, you will interpret what you're seeing a little differently. You'll look and say: "Wait a minute—this might be a mountain rabbit—I'll be dog—learn something new every day."

Biologists tend to be inquisitive, and the old joke is that we like to study critters so hard we wear off their fur. But for some reason, we haven't studied the fur off the Appalachian cottontail (the rabbit is no doubt grateful). Much about the rabbit is therefore a mystery.

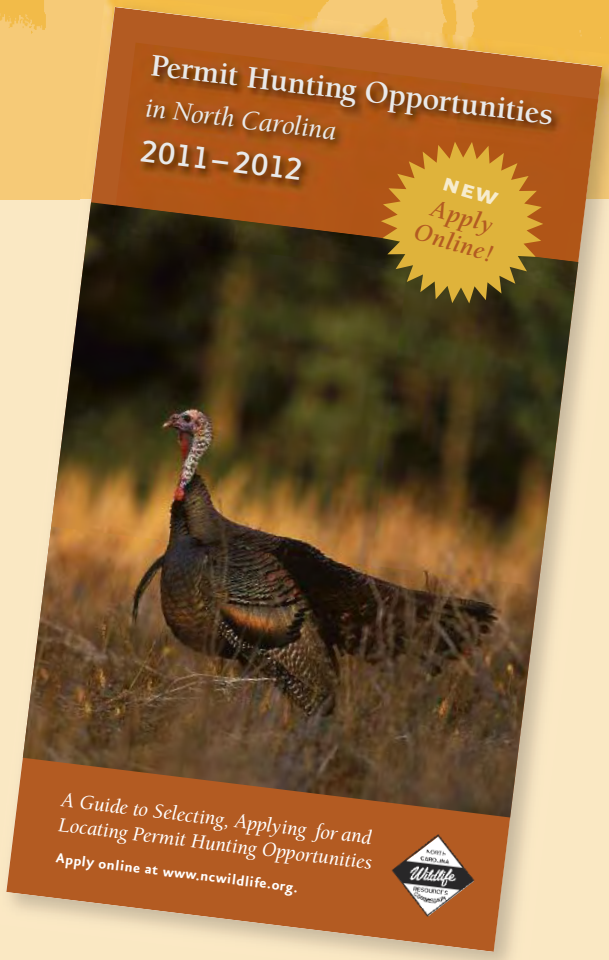
Some people think the Appalachian cottontail rabbit only lives at high elevations—perhaps above 4,000 feet, and that the rabbit is rare. Other people think the rabbit is not so picky in terms of elevation and they occur as low as 2,000 feet. Maybe the rabbit is common. Some people think the rabbits prefer high elevation blackberry thickets, while others think they prefer blueberry thickets at any elevation.

Some people think the Appalachian cottontail is naïve—naïve in terms of predators, as if the rabbit has lived in a world with few predators and doesn't seem to think the fox will in fact eat it for dinner. The rumor is that Appalachian cottontails are easy prey.

The fact is we don't have many facts. If we did, we might find out that the rabbit is abundant and just as elusive as any rabbit, and that the rumor of naïveté is totally unfounded. Mysteries like this are fun, and figuring out the facts on the Appalachian cottontail is something to eagerly anticipate. Stay tuned. And we promise to go easy on their fur.

Permit Hunting Opportunities in North Carolina—Hunts for a Lifetime

By Tommy Hughes, Supervising Wildlife Biologist for Eastern Game Lands, NCWRC and Gordon Warburton, Supervising Wildlife Biologist for Western Game Lands, NWRC



How Permit Hunts Began

In 1989, the North Carolina Wildlife Resources Commission developed a program to manage hunter numbers and to provide for quality hunting experiences on our state-owned Game Lands across North Carolina. The Permit Hunt Opportunities Program was born and today encompasses many Game Lands and species. This program started small and has rapidly grown with Game Land expansion.

Prior to 1989, the NCWRC had used permit hunts to allow antlerless deer harvest on selected Game Lands. At this time, controlling hunter numbers to regulate harvest was important in managing our deer herds. However, as deer herds grew and rules became more liberal, the need to restrict harvest became less important, and these hunts were phased out.

Reducing Hunter Crowding and Conflicts

In the late 1980s, two major events occurred that forever changed permit hunting on North Carolina Game Lands. The first ever permit waterfowl hunt was implemented on Goose Creek Game Land. Goose Creek Game Land contained the state's premier public waterfowl hunting impoundments. Over the years, as popularity grew, hunter crowding, conflicts, and impacts to the resource began to become a serious problem. In order to address these challenges, NCWRC biologists began working on a system that would reduce hunter crowding and conflicts and infuse a quality aspect into the hunt, while benefiting the resource that depended on the high-quality habitat provided on the Game Land. Thus began the first permit hunt system for waterfowl. We received both positive and negative comments during these early years. Some waterfowl hunters were concerned over limited hunting opportunities. To address this concern, only "high pressure days" (opening, closing days of the season, Saturdays and holidays) were restricted by permit, while all other hunt days were open to the public with no restrictions in numbers. This framework continued for several years until "open days" became too crowded and hunter conflicts and resource impacts increased beyond acceptable limits. At this time, rules were enacted to make all hunt days for waterfowl by permit only. From a biologist and waterfowl hunter's perspective, this was one of the best moves made to benefit hunting quality on Goose Creek Game Land.

Transitioning to High-Quality Hunting Experience

The second major event that had a huge impact on the permit hunt system was the creation of the Roanoke River Wetlands Game Land. The creation of this Game Land ushered in a new philosophy of providing a high-quality hunting experience to sportsmen. A team of wildlife biologists were tasked with the challenge of evaluating the new lands and recommending harvest and hunter numbers for the area. For the first time, permit hunts were designed for hunting of deer, turkey, and small game and furbearer trapping. The response from hunters was one of the most positive seen by the NCWRC. Today, little has changed from the original goal of providing a quality hunting experience. With acquisitions and the formation of the Roanoke River National Wildlife Refuge, dove hunting has been added and in some cases the number of permits adjusted. Under all management scenarios, the same quality hunts remain on both state and refuge lands.

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The John's River Game Land in western North Carolina is another example of providing quality hunts under the Permit Hunting Opportunities Program. This high-quality deer, turkey, and waterfowl area provides high success rates for many of our sportsmen. One portion of this area is dedicated to youth and disabled sportsmen, which is a new element to our program.

How to Apply for Permit Hunts

Now that we know how these permit hunts were created, it is important to understand some basic terminology and rules for applying.

Many hunters get confused on how to apply for permit hunts. First, before applying, obtain a current Permit Hunting Opportunities book or go online to www.ncwildlife.org/Hunting/H_Publications.htm to start the application process. We know many of you do not like to read instructions, but do not pass this section. The Application Procedures section will help guide you through the process. Without reading or following the instructions you will be lost when applying.

Understanding Terminology

Second, understanding the terminology about the type of permit will help in the application process. We have two basic types of hunts, quota and no quota. As you can expect, the quota hunts have a limited number of permits available and are administered through a random computer drawing. The category labeled as "none" does not have a limited number and can be purchased at the Wildlife Service Agent, online (www.ncwildlife.org), or by phone (888-248-6834, M-F 8 a.m.-5 p.m). These permits are issued at "point-of-sale," which means they are valid at time of purchase. Most point-of-sale permits are non-quota hunts. Point-of-sale (POS) permits can be obtained by purchasing them through a local wildlife service agent or calling the license section at 888-248-6834. We do not have quotas on POS permits, unless you are purchasing a leftover permit from a hunt that had a quota. Enough on applying—READ THE BOOK and GOOD LUCK!

Since permit hunts have been implemented, the number of hunters participating has grown. In 2010-2011, permit hunts were conducted on 48 different areas including Game Lands, Division of Forest Resources Educational State Forests, corporate-owned tracts, and National Wildlife Refuges. More than 30,500 permits were issued to 15,270 hunters applying to hunt on these areas and to hunt Tundra swan and Canada geese in the Northeastern portion of our state.

Variety of Hunts from the Mountains to the Coast

Today, permit hunts are available from the mountains to the coast. Species hunts are offered for deer, bear, turkey, waterfowl, goose, dove, and small game plus opportunities are offered for trapping. Disabled sportsmen have the opportunity to apply for deer, bear, and waterfowl hunts. In addition, hunters can apply for a tundra swan permit through this program. If you are looking for a unique hunting experience, we suggest you consider applying for one of the many permit hunts offered in North Carolina. We truly think you will enjoy the experience and remember it for a lifetime.

Hunt Descriptions

DEER—Coastal and Piedmont

White Oak River Game Land — ***Either-Sex Deer***

Item Number: 7904
Weapon: Muzzleloader/Archery Equipment — **Deadline:** Sept. 1, 2011
Cost: $5.00 — **Hunt Type:** General
Age Restrictions: Not applicable
Hunt Dates: Refer to Hunt Choices.
Hunt Area: Huggins and Morton Tracts
Min. Party Size: 1 **Max. Party Size:** 5 **Hunt Choices Allowed:** Up to 2
Quota: 9 person(s) per hunt choice.
Other Information:
- Authorizes hunting only on Huggins and Morton Tracts.

	Dates	
Hunt Choices (Quota)	10/1–10/7	10/8–10/14
Huggins & Morton Tracts (9)	1000	1001

White Oak River Game Land — ***Either-Sex Deer***

Item Number: 7905
Weapon: See "Other Information" below. — **Deadline:** Sept. 1, 2011
Cost: $5.00 — **Hunt Type:** General
Age Restrictions: Not applicable
Hunt Dates: Refer to Hunt Choices.
Hunt Area: Huggins and Morton Tracts
Min. Party Size: 1 **Max. Party Size:** 5 **Hunt Choices Allowed:** Up to 5
Quota: 9 person(s) per hunt choice.
Other Information:
- Authorizes hunting only on Huggins and Morton Tracts.
- Authorizes hunting using muzzleloader, shotgun, and archery equipment. Centerfire rifles are prohibited.

	Dates										
Hunt Choices (Quota)	10/20–10/22	10/27–10/29	11/3–11/5	11/10–11/12	11/17–11/19	11/24–11/26	12/1–12/3	12/8–12/10	12/15–12/17	12/22–12/24	12/29–12/31
Huggins & Morton Tracts (9)	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010

Piedmont

Buckhorn Game Land — ***Either-Sex Deer***

Item Number: 8120
Weapon: Archery Equipment — **Deadline:** Aug. 10, 2011
Cost: $5.00 — **Hunt Type:** General
Age Restrictions: Not applicable
Hunt Dates: Refer to Hunt Choices.
Hunt Area: Buckhorn Game Land
Min. Party Size: 1 **Max. Party Size:** 2 **Hunt Choices Allowed:** Up to 5
Quota: 4 person(s) per hunt choice.

The example above is taken from the Permit Hunting Opportunities booklet, published by the N.C. Wildlife Resources Commission. This publication is available in print and at www.ncwildlife.org.

NCWRC Establishes Southeastern Focal Area

By Benjy Strope and Michael Champion, Technical Assistance Biologists and Mark D. Jones, Supervising Wildlife Biologist

The Corporate CURE area in Bladen, Duplin, and Sampson counties continues to grow, and in fact, has become part of what is known as the Southeastern Focal Area (SEFA). NCWRC analysis of land use data indicates this area has the best combination of opportunities to manage early-successional habitats on row crop agriculture and forestlands in the state. SEFA will cover Bladen, Duplin, Sampson and the southern part of Cumberland County. In this focal area, special water quality grant funds will be used to continue the operations of Corporate CURE, while USDA Farm Bill Conservation Practices and general Technical Guidance will be used to assist non-corporate landowners. The SEFA area will be NCWRC's premier private lands focal area promoting early-successional habitats, water quality improvements, and timber-stand improvements through any means available.

Corporate CURE farm management already includes improved wildlife habitat and water quality on 15,500 acres of commercial farmland in Bladen, Duplin, and Sampson counties. There are currently 260 acres of habitat field borders, 186 acres of wildlife habitat areas, and 75 acres of native grasses under CURE management on these farms. Also, 170 acres of longleaf pine have been replanted in clear-cut areas.

General technical guidance has been provided to landowners managing 8,425 acres. Farm Bill plans have been written for tracts totaling 13,335 acres. Many of these plans are written with the objective of restoring longleaf pine using USDA's Wildlife Habitat Incentives Program or Environmental Quality Incentives Program.

Education and outreach continue to be priorities of this project. A Wildlife and Water Quality Workshop has been held in Ammon, N.C. for the past six years, including one held this past September. Interested landowners, farmers or hunters should contact Benjy Strope or Mike Champion at 910-866-4636 to attend a workshop or if you have a large group that would like to see some of the work being done in the area.

In an effort to return some benefit to North Carolina sportsmen from the resources dedicated to the SEFA work, NCWRC is offering quota hunts for bobwhite quail and rabbits on selected areas for the upcoming 2011-2012 season. These hunts are by permit only, and hunters can apply through the Permit Hunt System (see article on page 7).

As this project moves forward, we are looking to work with as many landowners as possible to create much needed early-successional habitat that benefits bobwhite quail and other declining species of songbirds. The focus will be on filling in gaps between Suggs Mill Pond Game Land (one of four NCWRC Game Land CURE areas) and the larger farm tracts (see attached map). Land management advice will be provided to interested landowners in the four-county focal area. Landowners with lands in the target counties should contact Mike or Benjy if they would like to participate in the project. The next issue of the *Upland Gazette* will include an article about some of the wildlife responses we have witnessed as a result of our habitat management efforts.

Southeastern Focal Area

Read more about the CURE program in past issues of the *Upland Gazette* at www.ncwildlife.org. Search for "Upland Gazette."

Northern Bird Heads South to "The Borders"

By Jessica Piispanen, Graduate Research Assistant and Jason Riddle, Assistant Professor, Wildlife Ecology Discipline, College of Natural Resources, University of Wisconsin-Stevens Point

Evidence of nesting by nationally declining songbird species such as Eastern meadowlarks, indigo buntings, blue grosbeaks, and dickcissels may indicate field borders on Corporate CURE areas are providing a unique habitat type for important bird species while also improving water quality. In the next issue of the Upland Gazette, *we will explore this issue with a more thorough summary of data collected by researchers from NCSU and the University of Wisconsin.*

Mark D. Jones,
Supervising Wildlife Biologist, NCWRC

JESSICA PIISPANEN

Dickcissel chick and egg in a nest on a corporate CURE field border. Use of these areas by dickcissels points to the unique habitat being provided for grassland birds through Corporate CURE. Not surprisingly, some of North Carolina's highest populations of quail and other grassland songbirds are found in these areas.

This year marks the second and final year of a collaborative research effort on Corporate CURE sites between the North Carolina Wildlife Resources Commission (NCWRC), North Carolina State University (NCSU), and the University of Wisconsin-Stevens Point. Specifically, the primary objective of our study was to determine if proximity to woody edge influences indigo bunting, blue grosbeak, and northern bobwhite nest success in field borders on farms in southeastern North Carolina. We also are interested in determining the primary nest predators of these birds with wildlife video cameras. To date, we have found a total of 46 focal species nests and placed 24 cameras on nests to determine nest predators.

In addition to the aforementioned observations, we have observed a number of other species nesting in Corporate CURE field borders such as common yellowthroats, red-winged blackbirds, mourning doves, Eastern meadowlarks, mallards, and Eastern wild turkeys. This year, we documented a dickcissel nest in a field border between two soybean fields. Dickcissels are a beautiful sparrow-like bird. The males have a black throat patch and a bright yellow breast. The females are generally duller in color with no throat patch. Historically, dickcissels utilized prairies in northern and mid-western states. In recent years, they have adapted to some agricultural landscapes. They are a nomadic species that are rarely seen in North Carolina and are an even rarer breeder in the state.

Our breeding pair was first observed on May 25, 2011. The nest was located in early July. The nest was about a half meter from the ground among pokeberry and marestail. It contained one nestling that looked to be a few days old and a single unhatched blue egg. About a week later, the nest was tilted and the egg was on the ground, but the male and female were chipping incessantly in the area. We believe the pair successfully fledged a single nestling based on the condition of the nest and the behavior of the parents.

This was not the first encounter with this species on field borders in southeastern North Carolina. Last year, a male dickcissel was observed multiple times in the same field border, but he did not appear to have a mate. In 2005, a dickcissel nest was found in a fallow area on a farm in Pender County, which was part of an earlier field border project managed by NCWRC, NCSU, and Murphy-Brown Farms. This nest was ultimately unsuccessful. Regardless, we believe the evidence suggests we might be observing an increasing trend of field border use by the locally rare dickcissel in southeastern North Carolina.

Grouse Chicks Hatch into a Tough World

By John Wooding, Former Small Game Biologist, NCWRC

February in the mountains means grouse hens start fattening up to lay eggs. This gives them about two months to prepare themselves nutritionally since the peak of laying is in April. Clutch sizes average 10 eggs—that's a lot of eggs to produce. Hens prepare themselves by seeking out nutritious spring greens rich in protein, and they scour the leaf litter for carbohydrate-rich acorns and beechnuts left over from last fall.

Hens that find high-quality foods produce eggs with abundant yolk, and the yolk feeds the chicks during incubation and for the first few days post hatch. Yolk also gives chicks the energy they need to peck out of the egg. This can be exhausting for a chick, and those with low yolk reserves emerge weak and badly disadvantaged.

Most chicks hatch the last week of May. Within a few days of hatching, the hen leads her brood to fern and wildflower areas where the chicks catch the insects they need for proper development. The hen doesn't feed her chicks as some birds do—the chicks are on their own in that regard. The hen's job is to lead the chicks to good habitat for finding insects. Somehow she knows where to go. The walk from nest site to insect sites may take a few minutes, or it may take days depending on conditions. There's no doubt that stronger chicks handle the journey and the first weeks of life better than weak chicks.

Grouse research in the southern Appalachians tells us that grouse chicks hatch into a tough world. In a West Virginia study, biologists monitored the fate of 118 grouse chicks using radio tracking methods. Only six chicks survived to five weeks of age. The cause of mortality was evenly divided between predation and exposure to harsh weather. In a larger study, one that covered multiple Appalachian states, overall chick survival was 21 percent to five weeks of age. This means that for every 100 chicks that hatch, 79 die during their first five weeks.

Chick mortality is a primary factor limiting grouse abundance in the southern Appalachians. One solution to reduce chick mortality is to increase food abundance for hens in late winter and early spring. The rationale is that well-fed hens produce healthy eggs that yield strong chicks with higher survival. The grouse researchers examined the importance of fall mast crops on spring chick survival and found that survival was higher when oaks and beech produced abundant mast. The mast persists through the fall and winter into spring when grouse hens are in need of nutrition for egg laying. Mast gives them the boost needed to produce eggs with large yolk reserves and increases chick survival.

We have always known that fall mast crops are important for wildlife. Deer, bears, squirrels, turkeys, and grouse feed on mast as soon as the seeds mature. But we didn't always know the importance of mast on grouse chick survival and subsequent grouse abundance the following fall. Now we do, so in the future, more emphasis will be put on the effects of mast crops on chick survival. Perhaps, come February, hens can find the nutrition they need to lay healthy eggs.

Reference: Ruffed Grouse Ecology and Management in the Appalachian Region. Final Project Report of the Appalachian Cooperative Grouse Research Project, August, 2004.

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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 Carla Osborne

Subscriptions *The Upland Gazette*
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has been willing to take chances and try several practices which are not the "norm." These nontypical practices include thinning an oak forest stand to a savanna density, establishing native Chickasaw plums, and treating invasive plant species on the tract. Total acreage impacted by management is about 900 acres. The effort and dedication he has shown, particularly his focus on declining early-successional species, is commendable. A large portion of the work completed on Mr. Bishop's property has been funded through USDA Farm Bill programs. A permanent easement funded with Farm Bill funds will protect his tract from development forever.

A very important component of this project is the location. Mr. Bishop's farm is located on the banks of the Pee Dee River. This area is a very important agricultural and forest production region of North Carolina's southern Piedmont. The Pee Dee River has historically served as a migration corridor for European settlers, Native Americans, waterfowl, and terrestrial wildlife. Today, waterfowl and various species of wildlife travel the Pee Dee corridor, and several towns get their drinking water from the river itself. John's property represents a shining star of wildlife management in North Carolina's Piedmont and stands as an example for other landowners in the region.

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