



North Carolina Wildlife Resources Commission



Wildlife Diversity Quarterly Update

April - June 2012





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N.C. Partners in Flight - U.S. Nightjar Survey

If you are interested in helping out with a great citizen science project, why not try a U.S. Nightjar Survey? This year, the N.C. Wildlife Resources Commission is expanding its involvement in this nationwide program by filling more survey routes in the Piedmont and Coastal regions of the state. It only requires one night of surveying per year, and helps gather more information about some lesser-known species ([common nighthawk](#), [whip-poor-will](#), and [chuck-will's-widow](#)). Surveys are confined to a specific time of the year. This year,

they must be run either between **May 28 and June 11** or **June 27 to July 11**, so it's not too late!

For more information including datasheets and a detailed explanation, check out the U.S. Nightjar Survey [website](#).

Want to volunteer? Check out this [map](#) and see if there is a route vacant near you. If so, [contact us](#) to let us know you are interested! Not interested now, but want to keep in the loop? [Subscribe](#) to our mailing list for N.C. Nightjar Survey News.



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Riparian Landbird Survey along the Lower Roanoke River

The Coastal Plain's Wildlife Diversity Program, in cooperation with the Wildlife Commission's Tillery, Williamston and Edenton depots, the U.S. Fish and Wildlife Service, The Nature Conservancy, and many private landowners, is conducting an intensive survey of riparian breeding landbirds along the lower Roanoke River.

The focus of the study is the cerulean warbler (*Setophaga cerulea*), a North Carolina priority species for which little is known of its

breeding range, status and habitat requirements in coastal North Carolina. Data are being collected for an additional 12 landbirds, of which eight are priority species.

This information will be used as a baseline for all future cerulean warbler survey efforts along the Roanoke River. This survey will serve as a pilot study for riparian bird monitoring throughout the Coastal Plain and Piedmont ecoregions.



Cerulean warbler (Photo by John Carpenter)



The lower Roanoke River is the site for a riparian landbird survey being conducted by Wildlife Commission staff, in cooperation with the U.S. Fish and Wildlife Service, The Nature Conservancy and private landowners.

2012 North Carolina Waterbird Committee Meeting Update

The 2012 North Carolina Waterbird Committee Meeting was held March 8, at Hammocks Beach State Park. Thirty-eight people representing 15 state and federal agencies, NGOs, universities and

private entities attended the meeting. Twelve presentations were given on research, management and policy issues affecting North Carolina's waterbirds, and nine presentations are posted on the N.C. Partners In Flight website, www.ncpartnersinflight.org, for those who could not attend the meeting.



About 160 wood stork nests were detected at Lays Lake, Columbus County, during an early May 2012 survey.

A new wood stork nesting colony was found in Columbus County, North Carolina. The colony was detected first during aerial surveys, and confirmed later on the ground. There were at least 20 nests present in early May. The wood stork is federally and state listed as endangered, and first was found nesting in North Carolina in 2005. The two North Carolina colonies are on private property in Columbus County, within flooded cypress swamps.

North Carolina Sea Turtle Nest Protection Project: Monitoring Sea Turtles One Nest at a Time

The North Carolina Sea Turtle Nest Protection Project is coordinated by Wildlife Diversity staff. Loggerheads, green turtles, leatherbacks and, occasionally, Kemp's ridleys lay eggs on ocean-facing beaches in North Carolina between May

and August each year. Almost every square foot of sea turtle nesting habitat is patrolled daily during the nesting season by a network of more than 1,000 volunteers plus several dozen cooperators from federal, state and private organizations. In 2012,

the first confirmed sea turtle nest in the state was laid by a loggerhead turtle and found by volunteers on Caswell Beach, in Brunswick County. By the end of May 2012, nearly 100 nests were discovered in North Carolina.



Volunteers in Emerald Isle, Carteret County, verify the location of sea turtle eggs in a freshly laid loggerhead nest. A loggerhead sea turtle hatchling (Photo by U.S. Fish and Wildlife Service)

Northern Coastal Plain Land Use Planners Trained in Use of Green Growth Toolbox

The N.C. Coastal Land Trust, in cooperation with the N.C. Wildlife Resources Commission, held its fourth Green Growth Toolbox workshop for coastal communities and land use planning departments on May 22 in Elizabeth City.

Seventeen local land use planners, GIS specialists, regional planners and the local Commission district biologist attended the workshop. The workshop focused on providing information to

local governments about how to incorporate wildlife, habitat and other natural resource conservation in land use plans, development ordinances and development designs. Planners' comments in the workshop evaluations were encouraging and included comments such as "Thank you for doing this work!" "Everything was well presented — very informative and useful!" and "Great workshop."

Seven of the 13 respondents to the workshop evaluation believed that their com-

munity's citizens or elected officials would consider Green Growth to be important to their community. All participants rated the workshop as being useful to them.

The N.C. Coastal Land Trust will be assisting two communities and potentially more to incorporate Green Growth planning practices in land use planning projects in the Northeast Coastal Plain.

Isolated Wetland Restoration Yields Positive Early Results

Monitoring of isolated wetland restoration sites on the Sandhills Game Land, located in Scotland County, continued through 2012. Surveys for amphibians were conducted during rainy nights in winter, spring and early summer before and after restoration man-

agement. Two restoration sites are illustrated below, with numerous previously unobserved amphibian species colonizing restored wetlands. Monitoring for amphibians and plants will continue in following years.

On Block T Pond, trees were removed from a fire-suppressed pond and a prescribed fire was introduced.



2008: Pre-restoration



2012: Post-restoration tree removal and burned.

Pre-restoration (three species): Spring peeper, southern cricket frog, eastern newt

Post-restoration (eight species): Spring peeper, southern cricket frog, eastern newt, barking treefrog, pine woods treefrog, Cope's gray treefrog, eastern spadefoot, eastern narrowmouth toad

On Little Little Dismal Pond, trees were removed from a fire-suppressed pond and a prescribed fire was introduced.



2008: Pre-restoration



2012: Post-restoration tree removal and burned.

Pre-restoration (three species): Spring peeper, southern leopard frog, green frog

Post-restoration (nine species): Spring peeper, southern leopard frog, green frog, southern cricket frog, pine woods treefrog, Pine Barrens treefrog, eastern narrowmouth toad, southern toad, oak toad



Citizen Science Box Turtle Study - The Box Turtle Connection

In collaboration with UNC-Greensboro and the North Carolina Zoo, Wildlife Commission biologists Jeff Humphries and Gabrielle Graeter train volunteers throughout the state on how to collect data on Eastern box turtles to determine their conservation status. This project, called “The Box Turtle Connection,” currently consists of 22 study sites in the Mountains, Piedmont and Coastal

Plain. As of 2012, volunteers have captured and marked 1,199 box turtles. Commission biologists’ primary role is to train volunteers on marking and data-collection techniques, as well as compiling and analyzing data on how box turtle populations vary depending on land use surrounding each study site. Below is a summary of box turtle captures and recaptures at each study site.

Site	Total Turtles	Recaptured Turtles	Unique Turtles
Camp Chestnut Ridge	98	12	86
Collie Farm	34	10	24
Dismal Swamp	25	1	24
Earthshine Lodge	51	13	38
Eno River State Park	8	0	8
Falls Lake State Park	144	13	131
Fortress of Solitude	15	2	13
Fort Bragg	25	0	25
Hanging Rock State Park	43	1	42
Haw River State Park	85	31	54
Lake James State Park	58	6	52
Lake Raleigh Woods	123	40	83
Lumber River State Park	16	0	16
Merchants Mill Pond State Park	139	11	128
Morrow Mountain State Park	154	16	138
Mountain Air	22	0	22
Peace Falls	57	25	32
Piedmont Camp	48	8	40
Piedmont Wildlife Center	174	66	108
Pilot Mountain State Park	43	1	42
Somers Berry Farm	33	7	26
Umstead State Park	74	7	67
Totals	1,469	256	1,199



Western North Carolina Amphibian Conservation

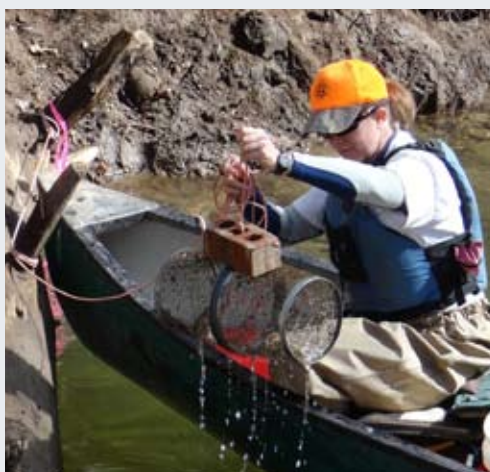
In February 2012, Wildlife Diversity staff and volunteers conducted aquatic trapping surveys for the mudpuppy (*Necturus maculosus*), a Wildlife Action Plan priority and special concern species, at the only two historical locations known in Transylvania County in the French Broad River basin. Locations included the Davidson River

and Little River. Historical records dated back to 1916 in the Davidson River and 1953 in the Little River. Staff and volunteers had no captures in 255 trap nights in the Davidson River but were successful in 150 trap nights in the Little River with the capture of one male, one female and one juvenile mudpuppy. With this capture,

staff was able to update the 59-year old record. In each instance, captures coincided with rain events. The presence of all age classes in the Little River could indicate a healthy population. Wildlife Diversity staff will continue trapping surveys next winter in other sections of the river to examine distribution in that system.



Biologists measure a mudpuppy that was collected from the Little River in Transylvania County in February 2012.



In February 2012, Wildlife Diversity staff and volunteers conducted aquatic trapping surveys for the mudpuppy (*Necturus maculosus*) in the Little River, in Transylvania County. They collected one male, one female and one juvenile. This representation of all age classes could indicate a healthy population.

White-nose Syndrome Spreads in Western North Carolina

White-nose Syndrome (WNS), the disease that is devastating bat populations across the Eastern United States, continues to spread across more of the East Coast and into the Midwest, with positive sites being found as far south as northern Alabama and as far west as Missouri. The disease also was documented recently in a seventh species of bat, the federally endangered gray bat (*Myotis grisecens*). The gray bat is the second federally endangered species affected by WNS; the other species is the Indiana bat (*Myotis sodalis*).

During winter hibernacula surveys in North Carolina, Wildlife Diversity staff and U.S. Fish and Wildlife Service staff discovered signs of WNS in two additional counties, Haywood and Rutherford. A mine in Haywood County was confirmed to be WNS positive in February 2012. A cave in Rutherford County was listed as suspect in March 2012 due to aberrant behavior of

bats at the entrance of the cave. Winter hibernacula counts at a site in Avery County indicated declines of 76 percent from the average number of bats hibernating in that cave prior to being confirmed WNS positive in 2011. A cave in McDowell County showed a 39 percent decline one year after being confirmed WNS positive.



A tri-colored bat (*Perimyotis subflavus*) heavily infected with *Geomyces destructans* in a Haywood County mine. (Photo by Corrine Diggins / NCWRC)

Three additional caves within a mile from the WNS-positive McDowell County site had a majority of bats (up to 57 percent) displaying visible signs of *Geomyces destructans*, the fungus that causes the disease, on their bodies.

Likewise, the recently confirmed site in Haywood County, the largest known bat hibernaculum in the state, was already displaying population declines of 41 percent in the first year of WNS detection. Biologists saw visible clinical signs of the disease (i.e., the fungus) and behavioral signs (e.g., bats flying during the daylight hours, bats roosting at the entrance of the cave) in many bats in the Haywood County mine.



Photo by Gabrielle Graeter / NCWRC



N.C. Wildlife Resources Commission Wildlife Technician Corinne Diggins (sitting) and Flittermouse Grotto caver Scott McCrea (standing) prepare to enter a technical cave in Cherokee County. Since its discovery, white-nose syndrome has infected seven species of bats, including two that are listed as federally endangered — the Indiana bat (middle photo) and the gray bat (right photo). (Bat photos courtesy of U.S. Fish and Wildlife Service)

Carolina Northern Flying Squirrels

In addition to conducting annual nest box surveys for Carolina northern flying squirrels, Wildlife Commission staff radio-collared and tracked five northern flying squirrels in the Balsam Mountains in order to test acoustic survey sampling in known home ranges. They also began trapping efforts at Unaka Mountain.

Chris Kelly, who manages Carolina northern flying squirrel projects, was awarded a U.S. Fish and Wildlife Service Recovery Champion Award for all of the great work she has accomplished over the years toward recovering Carolina northern flying squirrel populations in North Carolina.



Telemetry, acoustic, and other equipment used to track Carolina northern flying squirrel dens, home ranges and habitat use, record high frequency vocalizations, and measure den characteristics are displayed on the forest floor.



Chris Kelly won a 2011 U.S. Fish and Wildlife Service Recovery Award for her great work with Carolina northern flying squirrels. (Photo of Chris by Melissa McGaw / NCWRC)



North Carolina Partners in Amphibian and Reptile Conservation Annual Meeting



On March 20, the North Carolina chapter of Partners in Amphibian and Reptile Conservation (NCPARC) held its annual meeting at the Southern Pines Elks Lodge. To increase participation, staff reduced the meeting from two days to one, and chose the Sandhills region for its central location in the state. In total, 105 participants were registered

for the day, which included numerous talks and field trips to Weymouth Woods and Sandhills Game Land. Following updates on NCPARC, Southeast PARC, and reports from each of the chairs of the NCPARC working groups, seven diverse talks were given. Topics covered the longleaf ecosystem, radio telemetry, e-DNA and hellbender genetics, HERPS education project, law enforcement and reptiles, loggerhead sea turtle nesting activity, and geographic isolation of rare amphibians. All of these talks were outstanding and well-received by the

group. The one that really had everyone talking after the meeting was given by two Wildlife Resources Commission law enforcement officers about the illegal trade in reptiles and amphibians. Sgt. Mark Cagle and Officer Robert Wayne did an outstanding job detailing cases involving violations of reptile and amphibian laws.



North Carolina Partners in Amphibian and Reptile Conservation Annual Meeting Photos



Sandhills Game Land field trip (Photos by Jeff Hall)



Workshops

Wildlife Diversity staff conducted several workshops on reptiles and amphibians: snakes workshop at Cape Fear Botanical Garden in Fayetteville (23 participants); amphibian workshops at both Agape Education Center near Fuquay-Varina (24 participants) and Cool Springs E. E. Center near New Bern (20 participants); reptiles and amphibians workshop at

Carolina Beach State Park (32 participants); and three frog call workshops targeted at gaining volunteers for the [Calling Amphibian Survey Program](#), at Agape (14 participants), Reedy Creek Nature Center in Charlotte (22 participants), and Halyburton Park in Wilmington (5 participants).



Jeff Hall, NCPARC coordinator, provides participants at the Amphibians in North Carolina workshop at Agape Education Center with a close-up view of some common amphibians, including a bullfrog (left photo.) (Photos by MirYoungquist-Thurow of Agape Education Center)



Land Conservation

Wildlife Diversity staff worked to secure NHTF funds to help secure the Swain Tract, which supports many species associated with ephemeral wetlands in longleaf systems including gopher frogs.



Swain Tract (Photos by Mike Sisson)

NCPARC Booth Events

NCPARC had booths at several events including the Dixie Deer Classic in Raleigh, the Cape Fear Wildlife Expo in Wilmington, Frog Fest at Crowder Park in Raleigh, the opening of the N.C. State Museum of Natural Sciences' Nature Research Center in Raleigh, HERPS Celebration at Cedarock

Park near Burlington, and Turtle Fest at Bass Lake Park in Holly Springs. Live animals were on-hand at each of these events, as well as information about identification and ecology of North Carolina species. Many volunteers were critical to the success of staffing these events.



NCPARC booth at the 2012 Dixie Deer Classic in Raleigh on March 2-4

Surveys and Research

Wildlife Diversity staff and volunteers conducted upland snake surveys at several locations including Camp Lejeune, Croatan National Forest and Holly Shelter Game Land. Numerous

priority species from the N.C. Wildlife Action Plan were spotted including corn snakes, eastern kingsnakes, and pigmy and timber rattlesnakes.



Pigmy rattlesnake (Photo by Jeff Hall)



Timber rattlesnake (Photo by Jeff Hall)



Support the Wildlife Diversity Program and Help Keep North Carolina Wild!

Whether you hunt, fish, watch, or just appreciate wildlife, you can help conserve North Carolina's wildlife and their habitats and keep North Carolina wild for future generations to enjoy. To make a direct donation for conservation of North Carolina's wildlife, print this [form](#) and send it with your check or money order payable to the N.C. Wildlife Resources Commission, to: N.C. Wildlife Resources Commission, 1702 Mail Service Center, Raleigh, N.C. 27699-1702.

You also can pay [online](#) with a credit card.



Wildlife Diversity Endowment Fund — Give a gift that lasts forever.



THE WILDLIFE DIVERSITY PROGRAM

The Wildlife Diversity Program, formerly known as the Nongame and Endangered Wildlife Program, was established in North Carolina in 1983 to prevent nongame species from becoming endangered by maintaining viable, self-sustaining populations of all native wildlife, with an emphasis on species in decline.

More than 1,000 nongame animals — animals that are not hunted or fished — call North Carolina home. Many nongame species, including mammals, reptiles, birds, amphibians, snails, mussels, and fish, are common and can be seen or heard in your own backyard. Other nongame animals, such as bald eagles and peregrine falcons, were, at one time, considered endangered, but now soar high in the sky, thanks in part to the work conducted by Wildlife Diversity Program biologists.

The men and women who work for the Wildlife Diversity Program are dedicated to conserving and promoting nongame wildlife and their habitats through a variety of survey and monitoring programs, species management, and habitat conservation or restoration projects. While these programs and projects target nongame animals and their habitats, game species — such as deer, turkey, mountain trout, and black bass — also benefit because they share many of these same habitats.

You can learn more about the many projects and programs conducted by Wildlife Diversity personnel on behalf of nongame and endangered wildlife by visiting www.ncwildlife.org/conserving.aspx.



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Cover photo: great egret by Mark Buckler*