



# Wildlife Diversity Program Quarterly Update

October - December 2013





**In this Issue:**

Page 2 - Loggerhead Shrike Surveys

Page 3 - Cold-Stunned Sea Turtle Recovery

Page 4 - Inland Heronry Survey

Pages 5/6 - N.C. Partners in Amphibian and Reptile Conservation

Page 7 - Western North Carolina Amphibian Conservation

Pages 8 - Work Continues on 2015 N.C. Wildlife Action Plan

Pages 9 - Western North Carolina Conservation Project Roundup

Page 10 - Data Analyses on Rare Crayfishes Completed

**Wildlife Commission Biologists to Conduct Loggerhead Shrike Surveys**

The N.C. Wildlife Resources Commission's Wildlife Diversity Program is developing a protocol to survey the Loggerhead shrike, a N.C. Wildlife Action Plan priority species, in eastern North Carolina.

The loggerhead shrike currently is listed as endangered, threatened or of special concern in 20 states due to a 79 percent population decline, the seventh largest for a North American landbird since 1966.

Loggerhead shrikes breed and winter in North Carolina, which provides biologists with a unique opportunity to study them year-round. They are often found perched near open habitats on power lines and fences adjacent to roads. Because of their habitat preferences, Wildlife Commission surveys will consist of road-based transects utilizing distance sampling.

Biologists' main objective is to generate baseline data that can be used to track long-term trends in shrike distribution and abundance and guide future research efforts.



Loggerhead shrike

John Carpenter



Loggerhead shrike

John Carpenter



October - December 2013

N.C. Wildlife Resources Commission





## Majority of Cold-Stunned Sea Turtles Have Been Released or Continue to Receive Treatment

From mid-November through Dec. 31, 139 hypothermic (or “cold-stunned”) sea turtles have been observed in North Carolina, primarily along the eastern shoreline of Core and Pamlico sounds.

A subset of 97 turtles were still alive when found, and most were green turtles (>80%). Although four turtles subsequently died, the remaining have been either successfully released back in warmer waters after being deemed ready for release, or continue to receive treatment and will be released in the near future.

Various collaborators with the Wildlife Commission helped respond to these hypothermic turtles, including the Cape Lookout and Cape Hatteras National Seashores, Hatteras Island Wildlife Rehabilitators, Roanoke Island Animal Clinic, the N.C. Aquariums at Roanoke Island and Pine Knoll Shores, the Network for Endangered Sea Turtles, the Karen Beasley Sea Turtle Rescue and Rehabilitation Center, the U.S. Coast Guard, the UNC Institute for Marine Studies, the NCSU College of Veterinary Medicine, and the NCSU Center for Marine Sciences and Technology.



A National Park Service Ranger with several live hypothermic green turtles from Cape Lookout Bight, in December.



**ART CONTEST:**  
*Design A License Plate!*

The Wildlife Commission, in partnership with students at the University of North Carolina at Greensboro’s Academic Think Tank, is holding a contest to generate a new license plate design for the Commission’s Wildlife Diversity Program.

Deadline for submissions is April 15, 2014. Find out more by visiting:

[www.ncwildlife.org](http://www.ncwildlife.org).



## Biologists Conduct Inland Heronry Survey

The Wildlife Diversity Program and scientists from the N.C. Museum of Natural History, N.C. State University, and Lenoir-Rhyne University are studying several colonies identified during the Inland Heronry Survey, which was completed in 2012.

Their objectives are to obtain information on habitats selected, movement behavior, and survival. Until now, only information on nesting locations was known.

Biologists attached seven 48-g GSM, solar-powered transmitters, each with an internal accelerometer, to great egrets captured near nesting colonies. The transmitters were from the Max Planck Institute for Ornithol-

ogy in Germany. Great egrets are large enough to carry the 48-g transmitter and harness material and they nest in mixed-species colonies. Other species in colonies from which great egrets were trapped include great blue herons, black-crowned night herons, snowy egrets, and little blue herons.

Location data for each great egret are downloaded daily to [www.movebank.org](http://www.movebank.org) and can be further downloaded as tables or maps. Each egret has demonstrated different movement behavior. For example, a sub-adult egret trapped near a colony on Morgan Island, has used one roost site and nearby marsh feeding areas for almost a year. An egret trapped near

the Monkey Island colony left the area after the breeding season in late summer and traveled south to the Bahamas, Cuba, Jamaica, then Columbia, South America, where it has remained through December. An egret nesting in a swamp colony near Elizabeth City ventured south to the Pocosin Lakes National Wildlife Refuge during October, but was back in its colony area near Elizabeth City by December.

This study will continue as long as the transmitters stay on the egrets and the egrets survive. It is revealing much about the egrets that nest or over-winter in North Carolina, especially their international travels and long flights over water and urban centers.



Great egret with transmitter



Map depicting movement of a great egret



Mark Buckler

Other birds, like blue herons, live in colonies with great egrets.

Have you missed a Wildlife Diversity Program Quarterly Update?

No Problem! Access back issues [here](#).





## North Carolina Partners in Amphibian and Reptile Conservation (NCPARC) *Workshops, training and meetings*



Wildlife Diversity Program staff gave several workshops and presentations on topics such as amphibians, snakes, eastern diamondback rattlesnakes, survey techniques, and pond restoration. These sites/groups included: Cool Springs EE

Center, NCSU herpetology club, Weyerhaeuser foresters, Animal Control Officers Association, N.C. Herpetological Society, and UNC Wilmington.

Staff attended a workshop on management of alligators across the southeast,

held in Brunswick, Ga. Nearly all states throughout the range of this species were represented at the workshop.

The Education & Outreach working group meeting for NCPARC also took place this quarter.



American alligator

Jeff Hall

## *Surveys and research - Amphibian Restoration and Creation Projects*

Work continued on amphibian restoration and creation projects. Of particular note, Wildlife Diversity Program staff, along with many other Commission staff and volunteers from partner agencies, participated in the creation of a new pond on Sandhills Game Land. Several N.C. Wildlife Action Plan priority species are expected to benefit from the new pond, especially the gopher frog. Gopher frogs have struggled to breed in the sandhills for the last several

years due to low water tables. Biologists hope this new pond will hold water a little better than some of the nearby existing wetlands.

Additionally, Commission staff continued work at a Holly Shelter gopher frog breeding site. The site is a borrow pond and staff are attempting to work on erosion issues in and around the pond.



Borrow pond on Holly Shelter Game Land

Jeff Hall



**North Carolina Partners in Amphibian and Reptile Conservation (NCPARC)**  
*Surveys and research - Neuse River Waterdogs*



Wildlife Diversity Program staff and external partners held a joint meeting to prepare for Neuse River waterdog surveys. The group reviewed sites that have been surveyed over the last three years and discussed sites remaining for 2014. Several members of the group headed into the field after the meeting to discuss waterdog dipnetting technique and several individuals were caught in dipnets.



Neuse River waterdogs

Jeff Hall



Jeff Hall

David Beamer from Nash Community College showing Neuse River waterdogs caught in a dipnet.

**Surveys and research - Other Amphibian and Reptile Surveys**

Wildlife Diversity Program staff examined possibilities for using wildlife field cameras to catalogue species utilizing stump holes as refugia.

Staff deployed two cameras on two separate occasions on Sandhills Game Land and Croatan National Forest. At least one amphibian was detected and one snake (unknown toad and eastern coachwhip). This technique may prove useful during emergence from hibernacula in the spring.

Staff and volunteers continued other amphibian and reptile surveys and monitoring including road-cruising at several long-term locations, including Croatan National Forest, Sandhills and Holly Shelter game lands. Priority species documented from these efforts included: northern pine snake, eastern hognose snake, southern hognose snake, pigmy rattlesnake and timber rattlesnake.



Jeff Hall

Eastern hognose snake on Sandhills Game Land



Pigmy rattlesnake crossing the road in Croatan National Forest.

Jeff Hall



### Western Amphibian Conservation

In fall 2013, Wildlife Diversity Program staff completed another season of research, monitoring and inventorying priority and state-listed salamanders. One project underway that is addressing objectives outlined in the N.C. Wildlife Action Plan includes collaboration with researcher Dr. J. J. Apodaca at Warren Wilson College, in Swannanoa.

The project entails phylogenetic investigations and analysis of metapopulation dynamics in green salamanders and crevice salamanders (*Plethodon yonahlossee* pop. 1). Staff and project partners ended 2013 with a collection of more than 100 tissue samples from green salamanders within the past two years and more than 20 tissue samples from crevice salamanders. Of particular focus are the salamander metapopulations in the Hickory Nut Gorge, primarily in northeast Henderson County and northwest Rutherford County. The Gorge represents a

small, geographically isolated range for green salamanders, disjunct from the larger Southern Blue Ridge metapopulation to the southwest, and the Gorge comprises the only known range in the world for the endemic crevice salamander.

During surveys for tissue collection in the Gorge in fall 2013, staff and partners monitored at least five separate populations for both species, documenting new, occupied rock outcrops for each. One new population of crevice salamander was found in a large, expansive habitat complex on private land adjacent to Chimney Rock State Park.

This site also has excellent potential for green salamanders. Fortunately, the property is already under a permanent Conservation Easement and has a private landowner who welcomes future surveys and collaborations with Wildlife Diversity Program staff and project partners.



Crevice salamander on a rock outcrop, Hickory Nut Gorge, Rutherford County

Alan Cameron



Green salamander on a rock outcrop, Hickory Nut Gorge, Rutherford County

Alan Cameron



Lori Williams

Private conservation land with newly documented crevice salamander population, adjacent to Chimney Rock State Park, Hickory Nut Gorge, Rutherford County



### Work Continues on Revising the 2015 N.C. Wildlife Action Plan

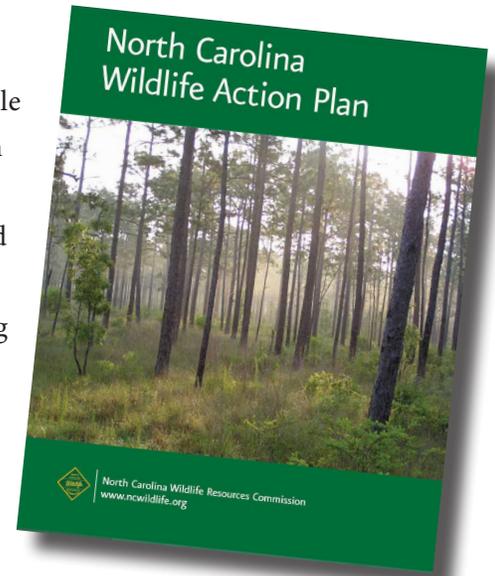
From October through December, Wildlife Commission biologists and conservation partners worked diligently on a species-level ranking and prioritization process for the 2015 revision of the N.C. Wildlife Action Plan (WAP). Teams of experts, within and outside of the agency, were assembled for specific taxonomic wildlife groups, including amphibians and reptiles, birds, crayfish, mussels, mammals and snails.

First, individuals of each team worked alone to rank each species according to its conservation needs, knowledge gaps and management concerns. Then, members of each team convened to discuss and fine-tune these individually derived rankings for each species. The ranking metrics include statewide and range-wide species population, range, and trends, a ranking of the threats each species faces, as well as an assessment of knowledge gaps regarding statewide distribution, population size, trends, and factors that affect the species in the state.

Biologists are also assessing management concerns for each species, including disease vector and invasive concerns, the species economic influence and cultural value, and the level of management needs. Wildlife Diver-

sity biologist Gabrielle Graeter is serving on both the Amphibian and Reptile team and the Mammal team. Chris Kelly is serving on both the Mammal and Bird teams. Lori Williams is serving on the Amphibian and Reptile team, and Kendrick Weeks is serving on all teams.

They have devoted much of their time in this quarter to the important task of updating the WAP according to the newly developed ranking metrics. The next step in this process is to solicit the input of additional experts on these species through peer review. Once review of the rankings for each species is complete, the final version of this database will provide the information needed to identify the state Species of Greatest Conservation Need, which is central to the N.C. Wildlife Action Plan.



# Buy a plate

*Your purchase helps conserve wildlife in North Carolina.  
Find out more by visiting [www.ncwildlife.org/conserving](http://www.ncwildlife.org/conserving)*






**Western North Carolina Conservation Project Round Up**

***Red Spruce Produces Bumper Crop***

Just as the Southern Appalachian Spruce Restoration Initiative (SASRI) is heating up, North Carolina’s red spruce population produced a bumper crop of cones in 2013. Red spruce bumper crops occur every 4-8 years.

SASRI partners collected cones from six mountain ranges. Seeds will be banked at a U.S. Forest Service (USFS)

facility and at The Southern Highlands Reserve (SHR). SHR will begin germinating seed for future Carolina northern flying squirrel habitat enhancement and spruce restoration projects. SASRI is a collaboration of the Wildlife Commission, The Nature Conservancy, SHR, USFS, N.C. State Parks and Recreation and other conservation organizations.



Red spruce cones littered the forest floor Chris Kelly

***Building Barn Owl Nest Boxes to Bolster Populations***

The Mountain WILD! Chapter of the North Carolina Wildlife Federation, along with Wild South, helped build nest boxes for barn owls in December. Nest boxes will be posted this spring in areas where natural cavities are in short supply but foraging habitat is abundant. These nest boxes may bolster barn owl populations and will allow Mountain Wildlife Diversity to better study this secretive owl.



Mountain Wild Chapter of the North Carolina Wildlife Federation build barn owl boxes. Chris Kelly



Barn owl

***Other Collaborations***

Mountain Wildlife Diversity Program staff was involved in many other collaborations this quarter including participating in Game Land Management Plan Revision, Appalachian Mountain Joint Venture, Project Bog Turtle and North Carolina Bat Working Group meetings.



## Wildlife Diversity Program Staff Complete Data Analyses on Rare Crayfishes in Western North Carolina

In early 2013, Wildlife Diversity Program staff completed field work and data analyses to assess the status of selected rare crayfishes from western North Carolina that were identified in previous work as in need of further monitoring and that are also being evaluated by the U.S. Fish and Wildlife Service for listing under the federal Endangered Species Act. A report was completed and a manuscript was submitted to the Journal of the North Carolina Academy of Science for consideration for publication. The abstract follows:

Abstract: From 2009-2012 detailed distribution data, information to up-

date conservation status, and additional life history and habitat observations were obtained for six rare crayfishes in Western North Carolina. The Hiwassee Headwaters crayfish continues to occupy a very limited range in Clay County, with most known occurrences from the Tusquitee Creek system. The Chauga crayfish appears to be abundant throughout much of its range in the upper Savannah River drainage. The French Broad River crayfish has declined throughout much of its historical range in Madison and Buncombe counties, while populations in Transylvania County appear to have remained rela-

tively stable. The Broad River Stream crayfish continues to occur primarily in the upper First Broad River drainage where it is common in some streams in Rutherford County. The Broad River Spiny crayfish is rare but continues to exist in two isolated populations: upper First Broad and North Pacolet river drainages. The Little Tennessee River crayfish continues to occupy Jackson and Macon counties where it is most abundant in the upper Little Tennessee River Drainage.

No range expansions were observed for any of these crayfish species.



### Help a Small Raptor in a Big Way

Purchase our limited American Kestrel T-shirt and show your support of wildlife diversity in North Carolina. This 100% cotton T-shirt features North Carolina's smallest raptor flying across the Wildlife Commission's official logo on the front and a colorful assortment of wildlife and fish buttons on the back.

All proceeds from the Wildlife Commission's sales of these American Kestrel shirts benefit the Commission's Wildlife Diversity Program.

Fabrication of the shirts was paid entirely by Neuse Sport Shop in Kinston, which also agreed to donate the proceeds from the shirt sales to the Commission's Wildlife Diversity Program. Give a hand to wildlife and purchase a t-shirt today.

Visit [N.C. Wild Store, www.ncwildstore.com](http://www.ncwildstore.com).





# Stay Informed on wildlife activities in North Carolina

Subscribe to **NC Wildlife Update** — news including season dates, bag limits, legislative updates and more — delivered to your inbox from the N.C. Wildlife Resources Commission. Sign up at [www.ncwildlife.org/wildlifeemailupdate](http://www.ncwildlife.org/wildlifeemailupdate).

“Like” the Wildlife Resources Commission on **Facebook** and follow us on **Twitter** to see the latest news releases, view photos, get updates on fishing and boating, learn of new regulations or just find out about wildlife and the outdoors in North Carolina.



Wildlife Diversity Program  
N.C. Wildlife Resources Commission  
1751 Varsity Drive  
Raleigh, N.C. 27606  
919-707-0050