



Wildlife Diversity Program Quarterly Update

Third Quarter





In this Issue:

- Page 2 - [Red-Cockaded Woodpecker Habitat Project](#)
- Page 3 - [Loggerhead Sea Turtle Nests Below Average for 2014](#)
- Page 4 - [Colonial-Nesting Waterbirds Survey](#)
- Page 5 - [Amphibian Wetland Created](#)
- Pages 6, 7 - [NCPARC News](#)
- Page 8 - [Salamander Surveys](#)
- Page 9 - [Western North Carolina Wildlife Roundup](#)
- Page 10 - [Spiny Softshell Turtles Documented in Little Tennessee River](#)

Wildlife Commission Partners with Land Trust on Red-Cockaded Woodpecker Habitat Project

Wildlife Diversity Program staff, partnering with the N.C. Coastal Land Trust, recently inserted two red-cockaded woodpecker artificial cavities on a conservation easement in Carteret County.

The property is located near the Boy Scout Camp Sam Hatcher adjacent to Croatan National Forest and provides more than 200 acres of longleaf pine savanna habitat for the federally endangered woodpecker.

This partnership is another effort on the part of the Wildlife Commission’s Wildlife Diversity Program to partner with outside organizations to help protect the state’s native wildlife. For more information about the red-cockaded woodpecker, visit the Wildlife Commission’s red-cockaded woodpecker webpage www.ncwildlife.org/rcw.



*A Wildlife Commission biologist inserts an artificial red-cockaded woodpecker cavity into a tree.
(Photo by: Janice Allen, N.C. Coastal Land Trust)*



*Red-cockaded woodpecker
(Photo by: David Hoffman)*



July - September 2014
N.C. Wildlife Resources Commission





Loggerhead Sea Turtle Nests below Annual Average for 2014

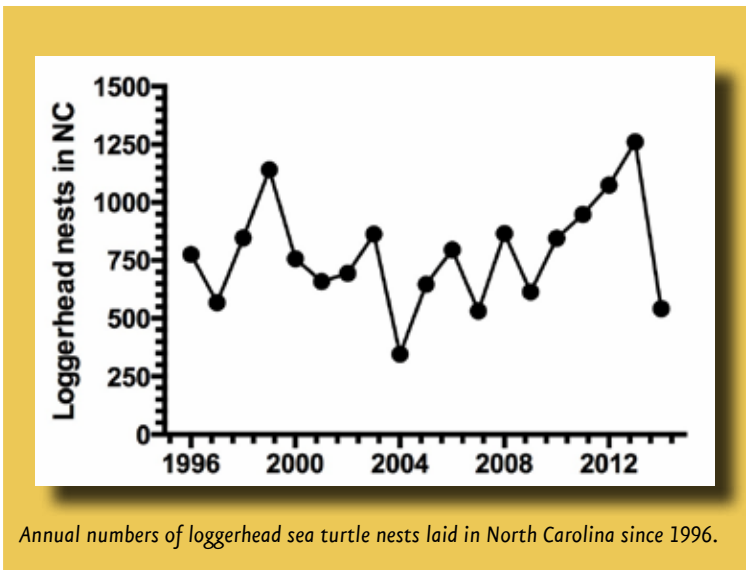
Loggerhead sea turtle nests in 2014 were down approximately 30 percent from the annual average of 775 nests, which is based on the previous 19 seasons. A network of more than 1,000 volunteers and employees of various state and federal organizations counted 542 nests along North Carolina’s coastline in 2014.

The sea turtle nesting season in North Carolina runs between May and August each year. During this time, beaches across the state are monitored daily for newly laid nests. Once discovered, nests are protected and monitored by volunteers and staff from the N.C. Wildlife Resources Commission, the National Park Service, the U.S. Marine Corps and the N.C. Department of State Parks and Recreation. Although nests of four species of sea turtles have been documented on North Carolina

beaches, the vast majority of nests are laid by loggerhead sea turtles.

While the overall number of nests laid in 2014 was lower than average, it was within the normal range of fluctuation between seasonal nest numbers. Biologists think that this seasonal fluctuation reflects changes in the reproductive status of adult females within the population, and the fact that adult female sea turtles rarely nest in successive years.

If a majority of adult females are able to reproduce in a particular season, then in the following season, biologists would expect fewer adult females to be available for reproduction. This also means that a low nesting season such as 2014 should be followed by a higher nesting season in 2015.



Nesting crawl made by loggerhead sea turtle on Shackleford Banks in Carteret County.



Loggerhead sea turtle (Photo by: Matt Godfrey)

Wildlife Commission Works with Partners to Manage and Research Coastal Waterbirds

Summer 2014 marked the second year of a long-term project the Wildlife Commission is working on with the USGS National Wetland Research Center, in collaboration with Cape Lookout and Cape Hatteras National Seashores (NS), and U.S. Fish and Wildlife Service's Pea Island National Wildlife Refuge (NWR).

The project — “Assessment of Storm Impacts on Coastal Bird and other Wildlife Populations, Behavior, and Nesting along the Outer Banks Barrier Islands, North Carolina” — involves Wildlife Commission staff using precision GPS instruments to record locations of nests at ≤ 2 -cm accuracy for American oystercatchers and piping plovers within study sites on Cape Lookout NS, Cape Hatteras NC, Pea Island NWR, and on dredged-material islands managed by the Wildlife Commission.

Use of these precision instruments to obtain exact locations of focal spe-

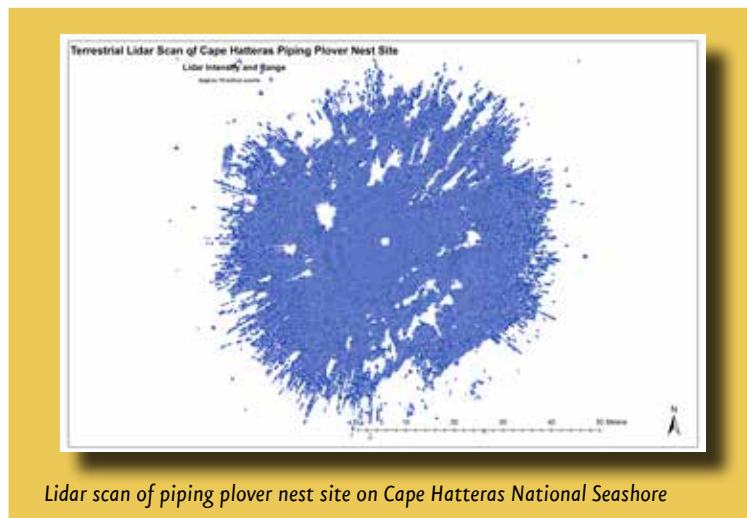
cies' nests will significantly improve accuracy of models and GIS maps. Additionally, precision, ground-based Lidar data at nests have not been obtained before this study.

Use of data from ground-based Lidar will help scientists obtain quantitative indices of nest sites that have not been developed previously. Previous data describing nest site characteristics were multiple measurements and subjective estimations that likely varied greatly among observers and were difficult to replicate without error.

Further, use of precision GPS and Lidar data will provide a unique quantitative set of indices for nest sites, that once developed, can be used widely for accurate, repeatable, quantitative site indices, significantly improving habitat-modeling efforts. These data will reduce bias or error substantially, thereby decreasing uncertainty associated with modeling efforts.

A master's degree student from NCSU working on this project will conduct GIS analyses of Outer Banks barrier islands and dredged-material islands relative to past significant storm events.

These analyses will provide data that can be used to populate a Bayesian-based predictive model indicating possible future responses of islands to storm events. Quantitative data on focal species' nests will be used to estimate nesting population response to islands' responses to storm events. These data will be used to inform conservation and management plans for focal species, and reduce uncertainty associated with such decision-making.



Recording locations of piping plovers on Cape Hatteras National Seashore



Newly Created Wetland Serves as Home for Several Amphibian Species

Wildlife Commission staff created a new isolated wetland on the Sandhills Game Land in October 2013 to provide additional breeding habitat for amphibians that use isolated, ephemeral wetlands. The pond began to fill with water in November 2013, shortly after being created, and has held water throughout 2014.

Biologists have been monitoring the amphibians that are colonizing the pond since this past winter using frog-call loggers and field surveys.

The first two frog species to find the pond were Eastern spadefoots and Southern leopard frogs, which colonized the pond in February 2014. Since then, at least nine species have colonized and successfully bred in the pond.

In addition to Eastern spadefoots and Southern leopard frogs, these species are: Southern toads, spring peepers, gray treefrogs, pinewoods treefrogs, green treefrogs, barking treefrogs and Southern cricket frogs.

The colonization of so many frog species at this wetland is encouraging, especially considering that these species “found” the wetland within the first year of its creation. These early results suggest that additional wetland creation in the Sandhills and other regions of North Carolina could be successful at providing additional habitat for amphibian species, especially in areas where natural wetlands have been lost. Biologists will continue to monitor amphibian use and vegetation changes in this pond in the future.



Initial pond site in October 2013



New pond in August 2014



Green treefrog (Photo by Jodie Owen)



Eastern spadefoot (Photo by Jeff Hall)



Southern leopard frog (Photo by Jeff Hall)

North Carolina Partners in Amphibian and Reptile Conservation (NCPARC) News

Workshops, training and meetings

Wildlife Diversity Program staff presented several workshops and trainings including topics such as Calling Amphibian Survey Program (CASP); ecology and natural history of, and management for amphibians and reptiles; survey techniques; and Year of the Salamander. The presentations were made to: HERP camp at Camp Rockfish near Raeford; Kathleen Clay Edwards Family Branch Library and adjacent Price Park in Greensboro; Tectonic Plates Science Café at Fat Frogg in Elon; training at Weyerhaeuser's Cool Springs EE Center; and National Hunting & Fishing Day at Lake Wheeler in Raleigh.

The NCPARC biologist attended several meetings during the quarter including: Greater Uwharries Conservation Partnership planning, research, and surveys working group; Onslow Bight Conservation Forum; U.S. Fish and Wildlife Service webinar on priority species and listing; Cape Fear River Rock Arch; Non-game Wildlife Advisory Committee; and a joint meeting between the N.C. Sandhills Conservation Partnership, Greater Uwharries Conservation Partnership, and the N.C. Longleaf Coalition. Two NCPARC working group meetings also took place during this third quarter — the Education



& Outreach working group, and the Research, Inventory, Monitoring and Management working group.

The NCPARC biologist also met with several entities to discuss management recommendations appropriate to reptiles and amphibians. These management visits included private landowners in Montgomery and Wilkes counties, Camp Agape in Harnett County, and multiple Wake County Parks properties.



Eastern Box Turtle recapture found during reptiles training at Weyerhaeuser's Cool Springs EE Center. This male was originally marked in 1999. (Photo by Jeff Hall)



Yonahlossee Salamander found during private landowner visit in Wilkes County. (Photo by Jeff Hall)



North Carolina Partners in Amphibian and Reptile Conservation (NCPARC) News Surveys and research

Staff participated in a variety of field work including: Eastern hellbender surveys; a minnow trapping effort on the Holly Shelter Game Land in Pender County surveying

for priority aquatic species; timber rattlesnake surveys in the Uwharrie National Forest; and bog turtle surveys in western North Carolina.



Eastern hellbender (Photo by Jeff Hall)




Bog turtle (Photo by Jeff Hall)



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Salamander Surveys Continue in Western North Carolina

Wildlife Diversity Program staff, as well as volunteers and partners, continued aquatic surveys for N.C. Wildlife Action Plan priority salamander species in mountain waterways. They targeted species such as Eastern hellbender and mudpuppy, which are listed as special concern, as well as the state-threatened Junaluska salamander.

Junaluska salamanders are rare, occupying a small portion of the far southwestern mountain counties, which can make them difficult to find. However, using snorkel survey methods, staff was able to capture a larva Junaluska salamander at a new site in a river in Graham County where they are known to occur historically. The new site extends the documented

range of the species in that waterway.

In other salamander surveys led by Wildlife Diversity Program staff, Eastern hellbenders were found 64 percent of the time (n=25 surveys). However mudpuppies were found only once at a historical site in the New River drainage in a joint survey with N.C. Division of Parks and Recreation staff and more than 30 volunteers.

Hellbender captures in 2014 represented extremes in sizes and age classes. Project collaborators at Appalachian State captured the largest hellbender in total length on record for North Carolina – a little over 23 inches. Wildlife Diversity Program staff captured the heaviest and second-longest hellbender on record,

nearly 23 inches long and weighing more than three pounds. These giant salamanders could easily be more than 30 years old and were both found in the New River drainage.

Staff, partners and volunteers had at least 11 captures of a very young, and hard-to-find age class of hellbenders – larvae with external gills still present. These results represent the most gilled larvae found in a single season out of the eight years snorkel surveys have continued.

They found the larvae in three different river basins in Ashe, Graham and Clay counties. Although they are very challenging to find, gilled larvae are one of the best indicators of a healthy, successfully reproducing hellbender population.



Wildlife Diversity Biologist, Lori Williams, holds the heaviest and second-longest Eastern hellbender on record for North Carolina, in Alleghany County. (Photo by John Groves)



A gilled larva of a Junaluska salamander, a N.C. Wildlife Action Plan priority and state threatened species. (Photo by Jeff Beane)



Wildlife Action Plan priority and state special concern Eastern hellbender gilled larva from Clay County. (Photo by Lori Williams)

Western North Carolina Wildlife Conservation Activities Update

Wildlife Diversity Program staff continued mountain bird conservation efforts that included meetings such as the Southeast Golden-winged Warbler Partners' fall meeting, N.C. Audubon's Golden-winged Warbler Land Managers Workshop. Staff also developed a Madison County golden-winged warbler project, as well as wildlife proposals for the U.S. Forest Service Pisgah-Nantahala Plan Revision, focusing on golden-winged warbler, cerulean warbler, wood thrush, and high elevation forests.

Northern flying squirrel conservation efforts included a workshop hosted by the Blue Ridge Parkway

where Chris Kelly presented a summary of the Wildlife Commission's efforts for flying squirrel conservation. She also co-lead a field trip to Buckeye Gap, which was a study area that was featured in the recent article "Late winter and early spring home range and habitat use of the endangered Carolina northern flying squirrel in western North Carolina," written by Kelly and Team Squirrel partners in the journal *Endangered Species Research* (volume 23).

They carried out acoustic surveys at Sugar Mountain, Roan Mountain, and Elk Knob. They continue to review audio data.

Red spruce restoration efforts

included the annual meeting of the Southern Appalachian Spruce Restoration Initiative at Whitetop Mountain, Va., development of draft restoration criteria, a webinar on mapping current extent of red spruce, scouting potential restoration sites, and a presentation at The Southern Highlands Reserve's fall symposium.

Volunteer engagement included posting barn owl nest boxes at Warren Wilson College farm lands, building flying squirrel boxes from donated scrap, and presenting raptor project information to the N.C. Falconers Guild.



Participants from the Blue Ridge Parkway's Northern flying squirrel workshop tour habitat at Buckeye Gap in July. (Photo by Kevin Parker)



Warren Wilson College's bird club helped post five barn owl nest boxes on the campus farms in Swannanoa. (Photo by Chris Kelly)

Spiny Softshell Turtles Documented in the Little Tennessee River Basin

Through monitoring and survey efforts, as well as several reports from interested citizens, Wildlife Commission staff has documented the presence of the Eastern spiny softshell turtle in the Little Tennessee River basin in North Carolina. The subspecies is state listed as “Special Concern” and little is known about its distribution and status in western North Carolina.

Prior to this work, biologists had not confirmed the reptile’s presence in this river basin. To survey for these turtles, staff set aquatic turtle traps baited with sardines and placed them along the river bank in several locations. They also conducted basking surveys, which are done by finding good access points to view the river, either by vehicle or with a watercraft, and using a

combination of binoculars and a long-range spotting scope to search for aquatic turtles that are basking on logs, rocks, or the river bank, or simply floating in the water. When a turtle is located through this method, biologists attempt to identify the turtle species. Identification of softshell turtles is simple given their unique body shape and long neck.

A citizen scientist reported the presence of a softshell turtle in the upper reaches of the river in North Carolina. Another citizen sent a photo and location information for a softshell turtle in a different stretch of the river, downstream of the Lake Emory dam.

During the Wildlife Commission’s survey of the Little Tennessee River, staff spotted and identified 52 basking turtles. Fifty were painted

turtles and one was female eastern spiny softshell turtle. Staff also spotted a juvenile red-eared slider, a non-native turtle commonly kept as a pet and often released into the wild.

Documenting the presence of spiny softshell turtles is an important first step toward understanding the distribution of this priority species in this watershed, but much remains to be done to gain a full picture of its distribution and status in North Carolina.

Efforts to learn more about this species’ distribution and other priority aquatic turtle species will continue next year when the weather warms and the turtles are active again. This work will continue in the Little Tennessee River and also expand into other river basins in western North Carolina.



Biologist Emilie Travis surveys for aquatic turtles using a spotting scope while on the banks of the Little Tennessee River. (Photo by Gabrielle Graeter)



Eastern spiny softshell turtle (Photo by Gabrielle Graeter)



THE WILDLIFE DIVERSITY PROGRAM



The Wildlife Diversity 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 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 to the work conducted by wildlife diversity 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. These programs and projects target nongame animals and their habitats, but 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.

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