
NEMOURS GAZETTE

A publication of the Nemours Wildlife Foundation

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RESTORATION OF SOUTHERN FOX SQUIRRELS ON PARRIS ISLAND



Katelyn Amspacher holding a newly collared Southern Fox that will soon be released on Parris Island.

Southern fox squirrels (*Sciurus niger niger*) are closely tied to the long-leaf pine ecosystem of the southeastern coastal plains. However, the decrease and fragmentation of this ecosystem has led to a decline in Southern fox squirrel numbers throughout its range. Restoration of this southern squirrel species is a priority among many conservation groups. My project aims to reestablish a population of Southern fox squirrels on Marine Corps Recruit Depot Parris Island where they have an active pine savanna restoration program underway.

I am trapping Southern fox squirrels on 4 donor sites: Nemours Wildlife Foundation, Bonny Hall Plantation, Cheaha-Combahee Plantation, and Donnelley Wildlife Management Area. Once trapped, squirrels are examined to determine age, overall health, sex, and if female, whether she is lactating. Lactating females are immediately released at the capture site to return to their young.

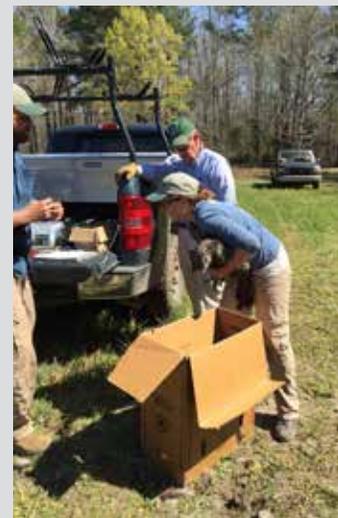
Squirrels selected for translocation are fitted with radio collars while under sedation at a local veterinarian's office. Having radio collars on translocated squirrels allows me to monitor their survival and examine their habitat use and movements. I track each squirrel at least two times each week.

My goal is to translocate 24 fox squirrels this year with a 50:50 gender ratio. In order to do this, between 12 and 24 box traps have been set most days since mid-January.

MY EXPERIENCES TRACKING WILD TURKEYS IN THE ACE BASIN

Over the past several years biologist have noted a decline in wild turkey numbers throughout the south-east. To understand population trends at the local scale, the Nemours Wildlife Foundation has been conducting a multi-year nesting and brood rearing habit study on wild turkeys in the ACE Basin. Several interns have participated in this study over the years and this year it is my turn.

I started in early January and the first priority was to capture and equip wild turkey hens with radio transmitters. This requires pre-baiting several sites and putting trail cameras up to monitor the sites to determine which have the best turkey activity. Every day I pulled the camera's memory cards and viewed them for any photos of hens. Once a promising site was identified, we set up a rocket net at that location. Then comes the fun part (I say this with great sarcasm) of sitting in a ground blind from sunrise to sunset waiting for the birds to return. When they do (could be days or weeks), we have to wait patiently until all hens line up at the bait where the rocket net is hidden with their heads down before we can fire the rocket, otherwise most will escape before the net falls to the ground. Captured hens are aged using wing markings, equipped with a leg band, and a backpack style transmitter is attached. After all birds have been processed, they are released together back into the wild.



Beau Bauer, Lane Morrison, and Mandy Bellamy preparing a wild turkey hen for banding and radio transmitter attachment.

Pecans are used as bait as this tends to only attract fox squirrels, but I have caught gray squirrels and opossums. The opossums are the most unpleasant to deal with because they squeeze themselves into the traps and are very difficult to get out.

Reaching my goal of moving 24 fox squirrels has been more difficult than I anticipated. So far I have captured 83 fox squirrels, but this required 706 trap days (number of traps multiplied by number of days they were set out). Of the 83 squirrels, only 29 were females and 20 of these were lactating so they could not be moved. The skewed sex ratio of captured squirrels favoring male has me joking with my peers that females might be a little bit smarter or at least a little more cautious than their male counter-parts when it comes to traps.

I have moved 11 males and 9 females to Parris Island and have had 2 mortalities, both males. One may have been surprised by a bird of prey, and the other died from unknown causes. Just from general observations it seems the squirrels are very active exploring their new habitat for the first several weeks after translocation and then seem to select and settle into a smaller home-range. One large mature male has moved several miles crisscrossing Parris Island looking for the right spot.

This project has provided me many new experiences. I have had several of the released squirrels jump out of their leaf nests onto the ground directly beside me and even had one chattering at me from a tree as if he recognized me as the person who moved him from his original home!

I will continue to monitor the released squirrels through August and then return to school for classes in the fall semester. I will be back next January to catch up with the



A melanistic colored Southern Fox Squirrel.



A Southern Fox Squirrel showing grised pelage color phase.

released squirrels and supplement the population with more squirrels. This has been a fun and tremendously rewarding experience, and I thank all of partners on this project for their support — Katelyn Amspacher.

Katelyn Amspacher is the graduate student on this project and is earning her Masters of Science degree in Biology at Marshall University. Katelyn received her B.S. in Biology with a concentration in Ecology from Shepherd University in 2015. Katelyn started college as a pre-med student but had the opportunity in her freshman year to work with an ecologist and medical scientist on a project studying a disease that can be transmitted from animals to humans. The medical scientist left the project early but Katelyn continued working with the ecologist and found her true calling as a conservationist and ecologist. Partners on this project include the Marine Corps Recruit Depot Parris Island, Nemours Wildlife Foundation, Marshall University, the SC Department of Natural Resources, Bill Sammons, D.V.M. and Shelly Horn, D.V.M. (Sea Island Animal Hospital).



Shelby Timm, of Marshall University, and Katelyn Amspacher secure a radio collar to a female Southern Fox Squirrel.



Mandy Bellamy and Beau Bauer attaching a backpack style radio transmitter to a turkey hen.

Now radio tracking of each bird begins in earnest. After capture, the turkeys tend to move away from the capture site and as the breeding season approaches individuals move out of the flock in search of suitable nesting habitat. Often this means going into uncharted territory. Tracking these birds means driving down old logging roads and other seldom used travel lanes and given

the wet winter we had that meant I became an expert at getting stuck and getting unstuck. I have learned much from these experiences though. For instance, my eye for evaluating whether a given mud-hole can be successfully navigated has improved greatly much to the joy of the Nemours staff who I called upon often to pull me out of tough spots. Also, my directional and navigational skills have improved. When I first arrived, Dr. Wiggers told me to use a navigational procedure his 2 brothers taught him called 'listening to the wind' but I found a good GPS unit is much more reliable!

Each transmitter on a turkey puts out a signal over a unique frequency and that allows me to know which hen I am monitoring at any given time. When a hen begins to stay in the same general location, it is a good indication she has begun to lay eggs. Around 26 days later, she will leave that area with poults, if nothing goes wrong. The challenge for me is to get as close to the hen while she is on the nest so that I can narrow down its location to a very small area-but not too close so that I do not flush the hen from her nest. Then after the chicks have hatched and left the nest we can easily locate the nest and take the measurements we need to describe the nest site habitat.

Once the nest has been located, egg shells are counted to estimate the number of poults hatched. Then in each of the four cardinal directions from the nest, vegetation density, species composition, canopy cover, and stem density is measured. Once the hen and chicks leave the nest, I continue to track each hen to better understand brood-rearing habitat selection.

At the beginning of the season, there were 18 hens with transmitters. Nine of those were caught in previous years, while 9 were caught this year. I am now down to 10 hens. Of those gone, 6 of those we determined to be Bobcat kills, the transmitter dropped off 1 hen, and 1 hen is unaccounted for. Her transmitter may have malfunctioned, she

may have traveled outside the area I search, or experienced some other unknown fate.

This year 9 hens successfully nested, with only 1 abandoning her nest. Compared to last year, when 7 of 11 nests were successful, this year's success rate is higher. The nest location for 1 hen was over 2 miles from where she was captured. Each successful nest had 12-14 eggs hatch! It is very difficult for me to get eyes on all the poults when I encounter them because they are so good at concealing themselves, but each hen that had a successful nest still has poults with her. I look forward to following these birds for the remainder of the summer.

I've seen so much in my short time here. While I was at Clemson, the mountains offered me a rich landscape to learn in, but nothing compares to what the Lowcountry has to offer! Besides the turkeys I see every day, I've seen snakes (Copperhead, Yellow-rat snake, Black Racer, Garter snake, Rough Green snake, Ribbon snake), a Yellow-bellied slider laying eggs, does with fawns, egrets catching fish, a pileated woodpecker drumming for grubs, fiddler crabs running for cover, etc. Those are just a few examples. Besides giving me the opportunity to see all this wildlife, my internship with the Nemours Wildlife Foundation has made a huge impact on my career. Not only has it given me the experience to work with radio telemetry, which I've been craving to learn, it has also opened the doors to endless possibilities through the networking I have been able to do with the many professionals I've met. I greatly appreciate everything Nemours and this internship has provided me. – Mandy Bellamy

Mandy was born and raised in Irmo, SC and recently graduated from Clemson University with her bachelors in Wildlife and Fisheries Biology. Mandy use to know exactly what she wanted to do with her future, but after getting her hands dirty in this internship and others she has completed, she is not so sure. Eventually Mandy wants to go back for a master's degree, but for now she will continue doing internships to see if they provide any clarity regarding her career choice. As of now, Mandy's goal is to work with endangered species.



Just what we hope for, a turkey nest with all chicks successfully hatched.

NEW RESEARCH PROJECTS

Old Ricefields: A Historical Treasure with 21st Century Ecological Importance

By Ernie P. Wiggers

It's 1967 and two of America's iconic wildlife species, the Bald Eagle and American Alligator, are on the doorsteps of extinction. These two species are listed along with 76 other species in the unfortunate Class of '67. This designation was given to the first group of species listed under the Endangered Species Preservation Act of 1966, the predecessor to the Endangered Species Act of 1973.

Fast forward to the winter of 1977 and the South Carolina Department of Natural Resources has just finished their first Bald Eagle nesting survey and found 13 nests in the state, 2 on Nemours Plantation. As the biologists plot the nests on maps, they note 12 of the nests occur in association with old ricefields along our state's coastal marshes. The lone exception is 1 nest on Lake Marion. Biologists in North Carolina and Georgia complete similar surveys and find no eagle nests in their states.

During this same timeframe, DNR biologists turned their attention to the American Alligator. These biologists conducted aerial surveys throughout the coastal marshes and river systems in an attempt to document nests. Out of 296 nests found, 73% occurred within old ricefields.

These events were recently described to me by Tom Murphy, retired DNR biologist and resident expert on eagles, gators, and many more of our coastal wildlife denizens. As Tom related this info, my first question was whether it was just a coincidence old ricefields were the last haven for both of these species in SC or was there a biological reason for this? My suspicion was these 2 species fared better in old ricefields because many of these impoundments are in private ownership and therefore eagles and gators were less vulnerable because of limited public access?

Tom indicated my hypothesis might be on target for alligators and to some level for Bald Eagles, but he said the story is more complex for our national symbol. For those of us who lived through the 60's and 70's and read books such as *Silent Spring* by Rachel Carson, we recall how science linked the presence of chemicals such as DDT in the food chain with the demise of Bald Eagles. These chemicals caused eagles to produce eggs which had very thin, fragile shells which subsequently broke during the incubation process. These



A variety of wading birds feeding and loafing in a managed tidal impoundment being dewatered.

chemicals bio-accumulate as they moved through the food chain and consequently acutely impact top predators such as eagles.

Tom suggested that because our managed ricefields are magnets for migrating waterfowl and many other birds, eagles using impoundments feed more heavily on birds than those nesting along river systems or larger man-made reservoirs which feed more on fish. He based this on his observations of prey remains around eagle nests. Unfortunately, fish tend to accumulate higher levels of DDT and its metabolites than birds, so eagles whose diets were heavy on fish did not fare well, but eagles using ricefields managed for waterfowl fared a little better.

Today our old ricefields have been renamed managed tidal impoundments (MTI) for regulatory purposes. Of the 504,000 acres of marsh along the SC coastline, we believe somewhere between 150,000 to 175,000 acres were converted into rice and other agricultural fields. Today we think there are about 50,000 to 70,000 acres with intact dikes and water-control structures allowing water management within the impoundments. (Just as a side note, to clarify these data Nemours along with many conservation partners started a graduate student project this summer with Clemson University to map all the historic rice fields so we will have a better understanding of their location and extent.)

Historically, rice fields are cultural treasures and stand as symbols of an important time in our state. But, their history and value did not end in the 1920's when commercial rice production stopped. Research recently completed and underway suggests these vestiges of our heritage are producing an ecological value we could have never imagined a century ago. While the miles of dikes and scores of rice trunks were once built to manage water for growing rice, this infrastructure today provides invaluable opportunities to manage habitat for an incredible array of wildlife. The availability of these managed wetlands was not only key to survival of some of our iconic species such as the American Alligator and Bald Eagle they have also attracted new species to our Lowcountry including wood storks, white pelicans, roseate spoonbills, black-bellied whistling ducks, and whooping cranes. Nemours Wildlife Foundation in conjunction with its many partners has research underway that will shed even more light on this remarkable story—stay tuned.

We take great pride in our educational programs and enjoy telling our audience the wonderful story of the ACE Basin and the important research projects our students are doing. However, we don't solicit evaluations from the audience so we sometimes wonder just how well the programs are received. Recently, we received this feedback in the form of an article which appeared in a local newspaper. The article was written by a participant in one of our programs who also happens to write for the newspaper. Thankfully, she seemed to both enjoy and appreciate her experience here and we wanted to share her article with our supporters. Her article appeared in the Bluffton Today paper on April 20, 2016.

BLUFFTON TODAY

Birds, history in the ACE Basin

By Annelore Harrell

Driving to Charleston on U.S. 17, just before you cross over the Combahee River, there's a gate that sits back on the right side of the road, the entrance to a property of some 9,800 acres, a conglomeration of former rice plantations dating back to the 1700s now identified as Nemours Wildlife Foundation, a portion of the 350,000-acre ACE Basin.

We went there last Monday, the monthly meeting of the Bluffton Gardeners, about 20 of us, to tour the plantation after an instructional talk by president and CEO Ernie P. Wiggers, Ph.D.

This was not to be a house tour. There was no mansion. In fact, the earliest dwelling on the plantation is totally covered in vines. Roof gone, you can see from the front all the way through to the back of the house, the actual doors only a memory.

The main house we saw on our visit was built in the 1960s when Eugene duPont III — yes, that duPont — began acquiring adjacent plantations that would in 1995 become, through his generosity, this important link to conservation of the resources of the ACE Basin, an acronym for the Ashepoo, Combahee and Edisto rivers, the area that encompasses this unique estuary.

Students come from around the world to study land management, conservation and the extensive plants and wildlife found here.

For over an hour, we listened engrossed to Dr. Wiggers.

One of the brochures given out contained a birder's checklist. You see the bird. You put a check mark next to its name.

This list included all avian species that regularly occur in the ACE Basin.

There were almost 300 birds listed.

I live on the marsh. There are all sorts of birds that "regularly occur" out in front of my house. There is a big white bird with a long neck and a big blue sort of gray bird, little birds that always come in bunches and leave a mess on my dock, a trio of ducks that visit on occasion and buzzards, now those I recognize. I don't know any of the other birds' names. Maybe they are on the list?

They gave us a pictorial guide to birds. I had no idea there were so many different kinds of ducks. Can I really tell a canvasback duck from a ring necked duck or bufflehead duck or a mottled duck when the only duck I recognize is on the menu as confit or pate or crispy or Peking?

For our outdoor tour, with Beau Bauer as our guide, we climbed into a wooden contraption that seated us all on facing benches and was pulled gently by a truck as we traveled along the dike built so many years ago to protect the rice fields painfully produced by slave labor from virgin swampland.

Even today, there are craftsmen at Nemours who specialize in building

"trunks," wooden apparatus designed to control water flowing into and out of the rice fields. It is amazing to see a trunk in operation. Such a simple concept but so effective, there has never been a need to update this basic invention.

A quiet place these days. No one out in fields that haven't changed that much since the 1st and 2nd of June 1863, when a contingent of federal troops directed by Harriet Tubman and under the command of Col. James Montgomery came up the river burning plantation homes as they went and freeing more than 800 slaves. Somewhere out there buried in the mud is the pontoon bridge destroyed in that raid, the Combahee Ferry raid.

But this day, we were talking about birds and squirrels, long leaf pine and spartina grass and how rice was grown.

If you are lucky, you'll have the opportunity to visit Nemours and hear Dr. Wiggers, who shares most generously his knowledge of this special place.

And maybe you'll look out across the Combahee and think of those past days when rice, not cotton, was king and men, women and children as slaves made it so.

Annelore Harrell lives in Bluffton and can be reached at anneloreh@aol.com.

NWF Note-Mandy Bellamy, NWF intern from Clemson University, also assisted in the tour.

NEWS AND NOTES

In February, Nemours Wildlife Foundation was presented with a grant from **The Beaufort Fund of Coastal Community Foundation**. We were proud to be among a very dedicated, enthusiastic and productive group of organizations who received grants that will allow them to continue to make a positive difference throughout the Lowcountry. NWF used its grant to purchase a “peeper” camera and supporting equipment which is being used in our wildlife monitoring programs, especially with the red-cockaded woodpecker restoration project. This camera and equipment will allow us to safely “peep” inside the woodpecker’s cavities and monitor nests without having to climb trees. We will also use this equipment in our educational programs as it will allow us to give children and others a peep inside other cavities and see a world most of us never get to explore. Thank you Beaufort Fund/Coastal Community Foundation for your generosity and support!



On a beautiful spring like day in March, NWF welcomed Friends of Nemours Wildlife Foundation and other guests to our fourth **Annual Oyster Roast**. This

year graduate students and interns updated everyone on their research projects –everything from black bellied whistling ducks to southern fox squirrels to invertebrates sampling. These research projects are supported in large part by our Friends of Nemours and our annual oyster roasts provides us with an opportunity to express our thanks for their support and remind them of the scope and value of the research their support makes possible.

On May 14th, staff member **Justin Rickenbaker and Emily McKay** were married! Please join us in congratulating them. We wish you a wonderful life together. Congratulations!

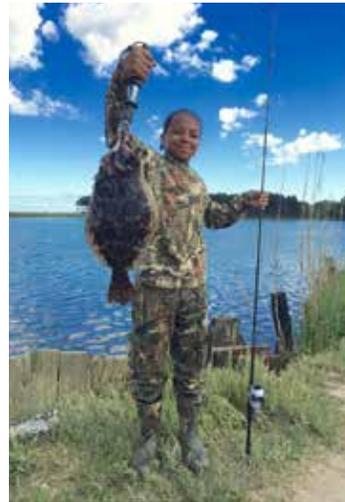


What better way to spend a day than cruising down the beautiful Mosquito River! In early March, a mix of 5th through 7th grade students from **Whale Branch Middle School** enjoyed a fun and informative day aboard the SCDNR’s discovery vessel where they participated in the Carolina Coastal Discovery Marine Education program. The students learned about many different species of fish, crustaceans, and other wildlife that make the ACE Basin rivers their home. They were able to examine a trawl catch and see the diversity of things living in our rivers. The students made models of plankton and identified multiple species of plankton under microscopes. Funding for this trip, and future trips this fall, was made possible by a grant Nemours Wildlife Foundation applied for and received from the Stanley B. Farbstein Endowment Fund. Thank you SCDNR Staff for a wonderful a program and the Stanley B. Farbstein Endowment Fund for funding this field trip!



NEWS AND NOTES CONTINUED

Senior Leadership Beaufort participants spent a Spring day at NWF learning about the economic and ecological value of our Lowcountry forests. This included a trip through the pine savanna forest we are restoring on Nemours and the importance of prescribed burning. Participants took part in a prescribed burn, with some having no hesitation in picking up a drip torch and stringing out some fire!



A day of great fishing was had by several participants from the **Outdoor Dreams Foundation** in early spring at Nemours Plantation, as seen by the wonderful smiles on the children's faces! The flounder and red drum were plentiful and everyone caught a very good sized fish. Nemours is proud to participate in this program!



On May 22nd, a large group of dedicated fans and admirers of Mary Alice Monroe enjoyed a wonderful lunch and an interesting and inspirational talk given by the renowned Lowcountry author. This luncheon was hosted by the **Beaufort County Open Land Trust** on the grounds of Nemours Plantation. Mrs. Monroe discussed her latest book, *A Lowcountry Wedding*, which is the last book in the "Summer" series and provided insight into how she weaves a message of conservation into her work by drawing from her own experiences. Mrs. Monroe is involved in many conservation and rehabilitation projects, with Atlantic Bottlenose Dolphins and Loggerhead Sea turtles to name a few, and is a board member of the SC Aquarium.



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*Have a safe and
happy Summer!*

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