Nemours Gazette

A publication of the Nemours Wildlife Foundation

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Volume 16 • № 2 FIND US ON FACEBOOK FALL – WINTER 2016

THEY'RE BACK! Red-Cockaded Woodpeckers in the ACE Basin

By Dr. Ernie Wiggers

Landowners Encouraged to Enroll in Safe Harbor

As we first reported a few years back, private landowners along with state and federal agencies were starting a program to restore the endangered Red-Cockaded Woodpecker (RCW) to suitable habitat in the ACE Basin. This process is well underway and we wanted to update everyone on its accomplishments.

About 75 RCWs have been released into the ACE Basin on three private properties and one state-owned property. This year, young were produced in 11 clusters which was a very pleasant surprise and is a good indicator these birds are off to a good start. Additional releases on these properties are planned over the next several years to ensure a sustainable population is established.

As these birds reach maturity and breed, their offspring will establish new territories with some hopefully beyond the sites where they were released. Typically, this entails a bachelor male two to four years old breaking off from his family unit and establishing his own territory.

The male may spend one to two years excavating a cavity in a living pine tree in his new territory. Once finished, he will try to attract a female. In the Red-Cockaded Woodpecker world, the young females are the ones 'booted' from their family cluster their first year. These young females then connect with unmated males to start their own family cluster.

For landowners this means that if your property is near RCW clusters and you have suitable habitat, birds may colonize your property. Landowners can encourage the expansion of RCWs onto their woodlands by installing artificial nest cavities. This can be done only by a trained, certified individual recommended by the US Fish & Wildlife Service or the SC Department of Natural Resources (SCDNR). The landowner may have to purchase the boxes and pay for installation, but occasionally there may be cost share programs available to help.

Whether you want to actively encourage RCWs to inhabit your property or prefer not to have this endangered species on your land, you are encouraged to enroll in the state's Safe Harbor program. The Safe Harbor program is administered by the SCDNR. The goal of the program is to provide conservation benefits to RCWs while removing regulatory restrictions to landowners who are voluntarily restoring or enhancing suitable habitat through improvement projects such as timber thinning, long-rotation stands, and prescribed burning.

Please see RCWS Page 2

ABOVE: *Male RCWs have a small red streak on either side of a black cap or "cockade" only during breeding season or periods of territorial defense. The black cap and nape, and white patches on its cheeks, are better identifiers*.

RCWS continued

Priority is given to sites with pine stands older than 30 years that are managed as long-rotation stands and are adjacent or near properties with active RCW clusters. Participation is voluntary and a landowner can withdraw from it at any time.

During the application process, biologists will do an on-ground survey of a property to determine if there are any active RCW clusters. If none are found, the property is assigned a 0-baseline value. If RCW's move onto the property and are not wanted, they can be removed, returning the property to a 0-baseline value. Applying is fairly simple and non-intrusive. About 175 landowners involving ±350,000 acres have enrolled in this program. If your neighbors have done this then why not you?

Caroline Causey is the RCW project leader for the SCDNR and handles the safe harbor program (803.603.9391 or Causeyc@dnr.sc.gov). Paula Sisson is the RCW project leader for the US Fish & Wildlife Service (843.727.4707, ext. 226 or paula_sisson@fws.gov). More information about RCWs and the Safe Harbor program can be found at http://www.dnr.sc.gov/birds/pubs/SCSHProgramOverview.pdf.

ABOVE: *An RCW insert in one of Nemours' pine trees. Notice the sap wells excavated by the woodpeckers to discourage predators such as snakes and flying squirrels.*

Dr. Robert H. Jones, Executive Vice President for Academic Affairs and Provost of Clemson University

FRIENDS OF NEMOURS GATHERING 2016

Nemours Wildlife Foundation members, guests and staff were met with glorious Autumn weather for the annual Friends of Nemours Wildlife Foundation gathering October 23rd. Due to damage from Hurricane Matthew just a few weeks before, the usual grand tours of the property were not possible. However, no spirits appeared to be dampened as we celebrated the generous support of our members and other donors.

Our guest speaker for the event was Dr. Robert H. Jones, Jr., executive vice president for academic affairs and the provost of Clemson University. We were honored by his visit to Nemours not only because of the close partnership we share with the university, but because of his own invaluable, personal insights into natural resources conservation issues. Dr. Jones is the leader of the university's undergraduate and graduate programs, academic support programs, research and public service activities. He earned his bachelor's and master's degrees in forestry from Clemson and his doctorate in forest ecology from Syracuse University. He previously served as dean of the Eberly College of Arts & Sciences at West Virginia University and as department head and professor of biological sciences at Virginia Tech.

Please see FRIENDS Page 3

President's Notes…

By Dr. Ernie Wiggers

Saying the past year was busy is an understatement! The two small farm houses we maintain for graduate students and interns were booked to capacity all winter, spring, and summer. While most students have returned to school for the fall, Zack Ross from Marshall University is continuing his graduate student research on eastern diamondback rattlesnakes. We do have a new intern, Jennifer Swonger, here assisting our biologist Beau Bauer.

Shelby Timm, research associate with Marshall University who spent the last year here supervising the Marshall University students, said goodbye to Nemours in early November. She has accepted a permanent position with the Missouri Department of Conservation to work on reptile and amphibian projects. Shelby was a very dedicated researcher and passionate about her work. These are always bitter-sweet moments for us, but Shelby could not pass on this opportunity to advance in her career and move closer to her family in southern Illinois. We wish her well.

After a busy spring and summer with students rushing to complete their projects before heading back to school in August, the staff was looking forward to some quiet time. That did not last very long. At 5:20 a.m. on October 8th, Hurricane Matthew made an unwelcomed visit. As hurricanes go, Matthew was not the biggest or most powerful storm nature could have cooked up but he packed a wallop.

Some of us rode out the hurricane at Nemours. When I surveyed the aftermath immediately after its passing none of our dikes were visible. The ricefields and river were all just one large pond. I could see the very tips of the uprights on our rice trunks but everything else was covered by water. It would take two days before we could survey our dikes for damage and we had to do this by boat from the Combahee River. Our survey revealed at least two breaks and several places where water was still cutting through our dikes. **Please see PRESIDENT'S Page 5**

FRIENDS continued

During his remarks, Dr. Jones said the valuable partnership between Clemson University and Nemours is a classic example of ways the university and other organizations are increasingly joining together to leverage each other's resources in challenging economic times.

A trend that is developing among universities and specifically at Clemson is the growth of what he termed "experiential learning" where "tactile, visual, teamwork, and social interaction elements are centerpieces of the learning environment".

"Experiential learning has grown in importance in recent years resulting in explosive growth of study abroad, internship, service learning, undergraduate research, creative inquiry and a host of other learning models. This too plays well to the strengths of conservation education and research because hands-on field and laboratory experiences have long been core elements in conservation disciplines."

With his own experience and knowledge so closely related to all that is near and dear to Nemours Wildlife Foundation supporters, it was truly a privilege to hear from him directly and to know we have someone with such devotion to conservation and the environment in such a key position at Clemson**!**

ABOVE: *Dr. Jones and Nemours Wildlife Foundation Board Chairman Colden Battey.*

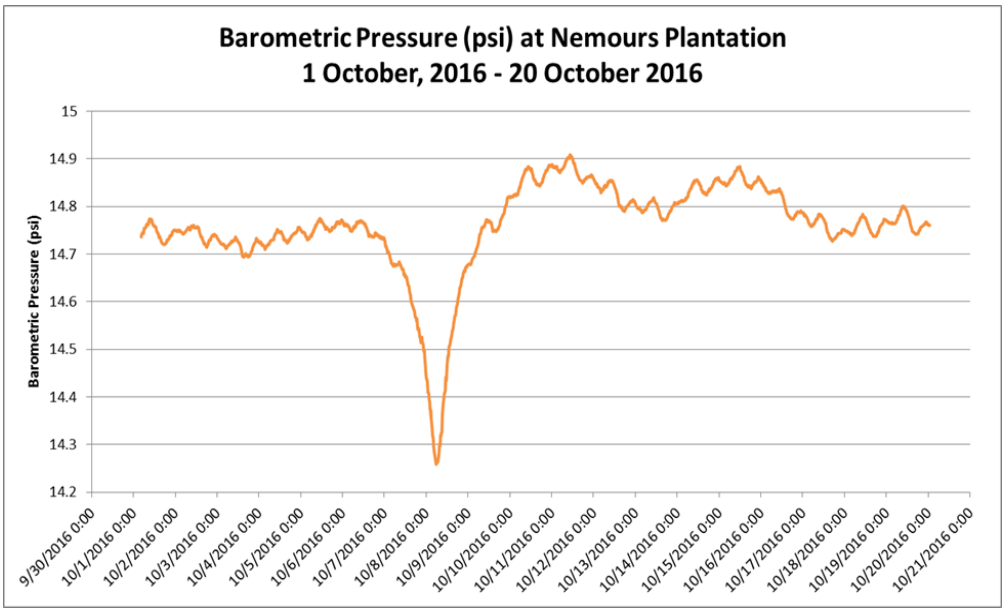
RIGHT: *Nemours Wildlife Foundation Board Vice Chairman Mike McShane presents Dr. Jones with a token of our appreciation for his visit.*

HURRICANE MATTHEW'S VISIT TO THE ACE BASIN

By Beau Bauer

Hurricane Matthew slammed into Beaufort County as a category 2 hurricane around 5:00 a.m., October 8, 2016. Highest wind speeds were recorded on Hilton Head Island at 88 mph. The Fort Pulaski tidal gauge measured a record storm surge of 12.5 feet. Total rainfall was recorded at 14.04 inches. Thankfully, Beaufort County suffered no fatalities (four fatalities state-wide), but did incur an estimated $51.6 million in damages and 80,000 reported power outages.

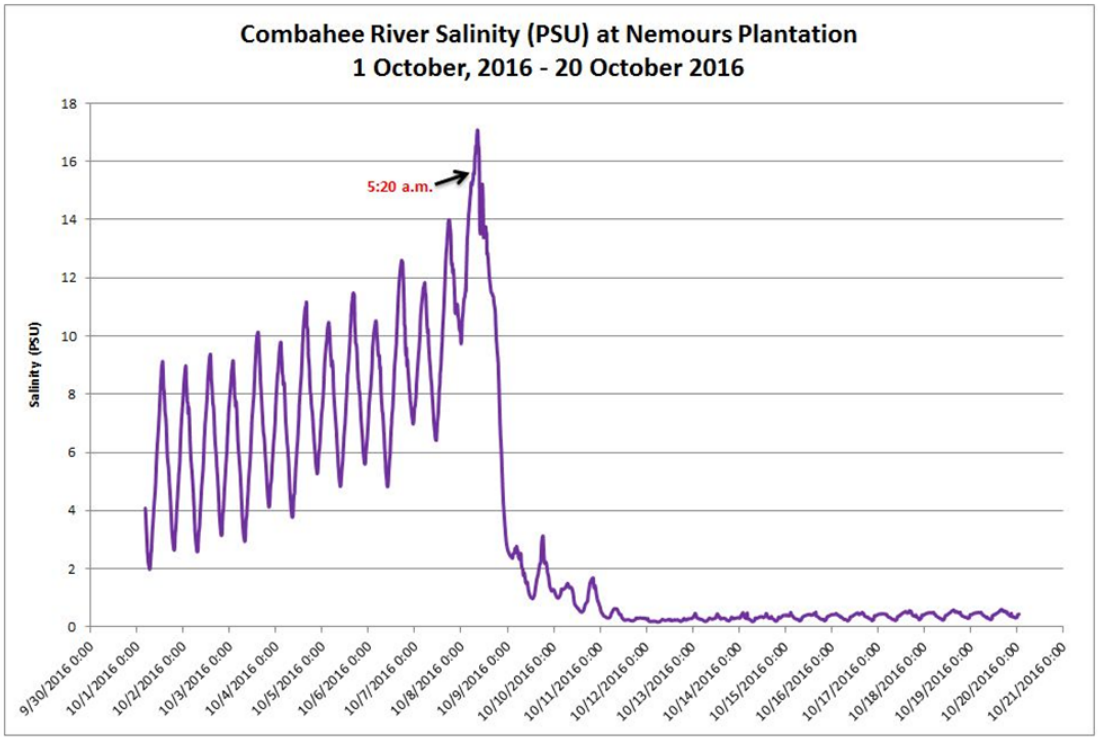
Many properties with impounded wetlands, such as Nemours Plantation, received substantial infrastructure damage to their dikes and rice trunks. Despite having persisted on this landscape for hundreds of years, our impounded wetlands are fragile when faced with the onslaught of Mother Nature. You cannot help but notice the number of excavators repairing dikes on multiple properties while driving across the causeways of the ACE Basin. However furious nature may be, the resilience of our community and dedication to our natural resources remains unshaken



At left and below are graphs showing data taken from a water quality data logger deployed on the Combahee River at Nemours Plantation. The only such station on the Combahee River, it was made possible by collaboration between Nemours Wildlife Foundation, Clemson University, and the U.S. Fish and Wildlife Service. The range of dates encompasses river conditions a week prior and two weeks after Hurricane Matthew.

ABOVE: *Notice drop in barometric pressure at 5:20 a.m., October 8, as Hurricane Matthew passes over Nemours Plantation.*

RIGHT: *Notice the spike in salinity as the storm surge pushed up the Combahee River, followed by an immediate decline as heavy rainfall from inland moves through the watershed.*



PRESIDENT'S continued

Having just gone through the so called "1,000 Year Flood" exactly one year earlier, seeing our dikes damaged once again was difficult to absorb. One odd observation from all of this was that the wading birds would signal to us where the breaks and cuts were in our dikes. The wading birds, especially the egrets and herons, congregated at these spots apparently because they provided great fishing and shrimping opportunities!

While we did have some issues, it was soon clear they were not as extensive as the damage we suffered in the previous year. Further, all of the maintenance work we completed this year on our dikes paid off as these areas held together fairly well. I am happy to say we have now completed all the repairs needed because of Hurricane Matthew.

As we move into the winter and holiday season we are thankful for many things. One is cold weather which will finally bring an end to the horrendous mosquito outbreak that was another unwanted legacy of Matthew. We welcome back the coots, ducks, harriers, and bald eagles, and very soon we will welcome back our students.

Merry Christmas and a Happy New Year to all and thank you for supporting our work!

LEFT: *A dike at Nieuport on the Nemours Wildlife Foundation property showing the break caused by Hurricane Matthew's storm surge.*

RIGHT: *The same Nieuport dike after extensive repair work.*

An Aquatic Invertebrate Project with Backbone

Studying the Food Chain in our Impoundments

By Beau Bauer

Waterfowl season is once again upon us—which is my cue to begin another field season of sampling aquatic invertebrates, an essential component of many water bird diets. These immature insects provide proteins and amino acids that are required to maintain body condition fitness and ultimately reproductive success. Some birds such as our shorebirds feed almost exclusively on invertebrates and readily exploit these resources in our coastal managed impoundments during migration.

Nemours Wildlife Foundation Biologist Beau Bauer gathering samples.

For my study, I am collecting samples from twenty impoundments throughout the ACE Basin. These impoundments are managed by manipulating water levels to encourage growth of widgeongrass and other brackish-tolerant vegetative forage preferred by waterfowl. I am using quantitative methods to sample invertebrates in both the substrate and submersed vegetation to better represent available habitat for invertebrates. Previous invertebrate studies conducted in South Carolina coastal impoundments primarily used soil cores to determine invertebrate abundance; however, this technique alone does not take into account those organisms that dwell among submerged aquatic vegetation (SAV), i.e. widgeongrass.

Preliminary analysis suggests increased species richness in SAV samples compared to soil core samples. Anecdotally, SAV samples tend to support high densities of invertebrates. A quart-sized freezer bag containing one widgeongrass sample representing an area of 0.1 m^2 may contain thousands of tiny (1-2mm width) snails and hundreds of midge larvae. This suggest that previous invertebrate studies in South Carolina coastal impoundments may have underestimated invertebrate abundance by not taking into account the invertebrates living within the SAV habitat. Additional samples taken from unmanaged tidal marsh dominated by cordgrass and needle rush reveal negligible invertebrate abundance, further emphasizing the importance of our managed tidal impoundments for wildlife.

Please see INVERTEBRATES Page 9

RIGHT: *Invertebrate yield from an apple-sized sampling of widgeongrass.*

NEWS & NOTES

***LEFT and ABOVE**: Seventh graders from Beaufort's Holy Trinity Classical Christian School took a voyage on SCDNR's Discovery vessel November 9th as part of the agency's Carolina Coastal Discovery Marine Education Program. The trip was made possible by a grant received by Nemours Wildlife Foundation from the Stanely B. Farbstein Endowment Fund.*

Longleaf Alliance members attending the 11th Biennial Longleaf Conference in Savannah visited Nemours in early November to learn from local professionals from SCDNR, Nemours and Folk Land Management.

***LEFT:** Daniel Barrineau, former Nemours intern now with SCDNR, explains managed tidal impoundments to the group.*

***BELOW:** Clay Folk of Folk Land Management demonstrates how he uses a drone with attached camera to survey land for information such as the condition of the trees.*

LEFT and ABOVE: *The 2016 class of Leadership Beaufort learns about the functions of trunks in managed tidal impoundments during their visit to Nemours November 4th.*

BELOW: *The Lowcountry Institute's Master Naturalist Class explores Nemours Plantation guided by Dr. Chris Marsh November 21. Being able to stand underneath a bald eagles' nest was one of the highlights of their tour.*

An Intern's Perspective...

By Jenny Swonger

I was born and raised in Toledo, Ohio. After deciding I couldn't endure another northern winter, I chose to pursue my college education at Clemson University. After graduating in May 2016 with a degree in Wildlife and Fisheries Biology, I spent my summer working at a wildlife refuge in New Jersey learning about birds and stomping through their salt marshes. I was ecstatic when I found this position at Nemours in August, as it was a perfect continuation of working in salt marshes and learning about the importance of the Atlantic Flyway.

My primary job here at Nemours is helping Staff Biologist Beau Bauer with his invertebrate research. This entails kayaking through twenty different impoundment to gather core samples and submerged aquatic vegetation (SAV) samples. Core samples are gathered by inserting a PVC pipe into the mud 5 cm. Submerged aquatic vegetation is collected with a modified garden rake.

While kayaking in the heat of August or intense wind can be difficult, the real work comes when we take these samples back to the lab for processing. Most of the core samples don't take too long to process, but with the SAV samples we have absolutely no idea what we'll get. We have spent anywhere from a half hour to a full work day processing a single sample. The majority of the macroinvertebrates extracted are worms, snails and various insects. While this work can be tedious, it's always interesting to see what's in these samples. Just last week I found a sizeable fiddler crab in a 5 cm deep core sample. I'm excited to see how the biodiversity and quantity of the invertebrates in these samples may change throughout the year, as we sample in August, November, January and March.

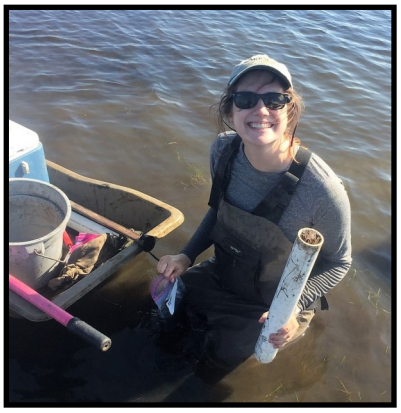
Even though I've been here since August, there are still some sights that amaze me - like seeing a bald eagle carrying woody material to its nest or an 8 foot gator scrambling off a dike and into the water before you drive by. What I love most about Nemours is you truly never know what you're going to find. Just last week we came across a cottonmouth snake in the middle of a road and not five minutes later saw a bobcat running away. I have witnessed so many incredible sights in my short time here, and I can't wait to see what the rest of my internship has in store for me. I'm sure it won't disappoint!

NEW TO NEMOURS

Michele Barker joined the Nemours staff in September as Dr. Wiggers' administrative assistant. Michele's background is in marketing, public relations and journalism and she is a graduate of the University of South Carolina. She most recently was the community blood drive coordinator for The Blood Alliance in Beaufort and Bluffton and worked in retail at the former Fordham Market in downtown Beaufort. Originally from Charleston, Michele has lived in the Beaufort area since 1993. She is an active member of the Parish Church of Saint Helena, serves on the steering committee of Beaufort Greendrinks and is a volunteer coordinator for the annual Beaufort International Film Festival. You can reach her at mbarker@nemourswildlife.org, 843-846-2539 (office) or 843-226-0722 (cell).

INVERTEBRATES continued

This research is being conducted as part of my master's thesis with Clemson University. I would like to acknowledge Nemours Wildlife Foundation, the James C. Kennedy Waterfowl and Wetlands Conservation Center at Clemson University, South Carolina DNR, private landowners, and my graduate committee: J. Drew Lanham, PhD., Rick Kaminski, PhD., Patrick Gerard, PhD., Ernie Wiggers, PhD. and Chris Marsh, PhD. I especially thank the Friends of Nemours whose continued support is the foundation of our research mission. Last, but not least, I am especially grateful for our newest intern, Jennifer Swonger, pictured in the "field" at right, for enduring the filthy field conditions and tedious lab time!



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