
NEMOURS GAZETTE

A publication of the Nemours Wildlife Foundation

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Volume 11 • No 3

Summer 2011

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Fresh air is just one of many benefits of a walk among the trees.

Several years ago my then young son asked me a very simple but extremely thoughtful question which I could not answer, and it has stayed with me ever since. The question was “how many trees does it take to produce oxygen for one person”? This question goes directly to an issue I believe will become more important to all of us through time.

As humans we tend to take much of what the natural world provides for granted. I suppose this is because the planet is so vast we cannot conceive of these resources becoming scarce. However, there is ample evidence to suggest that most things we depend upon have some form of limitation. While I don't see us running out of oxygen anytime soon because O₂ is derived from many sources beyond trees, there is mounting evidence that these essential resources are already in short supply in places. For instance, many metropolitan areas struggle

with clean air, and clean water is a challenge in many areas. We know that our ozone layer in the atmosphere shrinks each year, and our wetlands which are incubators for life and natural sponges during floods are disappearing.

The collective benefits derived from ecological functions are called ecosystem services and there is a growing field of study examining the real values provided through these services. Obvious services are things like photosynthesis which produces oxygen. Other services include biodiversity, decomposition of wastes, soil fertility, pollination of crops, groundwater recharge, seed dispersal, rainfall, cycling of gases and nutrients, control of pests, etc.

The list of services is vast, but consider the costs if we had

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to build the infrastructure to replace any of these services. In locations where ecosystem processes have been short-circuited, impaired, or reengineered by humans the real value of these services begins to emerge. For instance, what does a water purification plant cost, the infrastructure to manage storm water runoff, to put scrubbers on the smoke stacks of our electric generating plants, or the cost of operating hatcheries to replenish our salmon populations?

I bring up the value of ecosystem services to highlight the broader contributions we derive from lands placed under a conservation easement. The ACE Basin, the land drained by the Ashepoo, Combahee, and Edisto Rivers, is recognized internationally as a model for conservation. There are now some 205,000 acres protected from development in the basin which means most of the natural ecological processes are intact. That is a very big deal for all of us.

I have heard some local citizens ask the question "what's in it for me?" when I tout the importance of properties under easement. This is a fair question but one that is easily an-

swered. Simply put, it means the ability to see Bald Eagles, Wood Storks, Brown Pelicans, and Kites soaring overhead, to ride through miles of spectacular forests on your trip to Charleston, the ability to harvest and enjoy local oysters, shrimp, and fish, and to have abundant clean air and water among many other things.

When the current economic slow-down ends and development once again runs rampant in the Lowcountry, we can take comfort in knowing some land will not be paved over thanks to conservation easements. We owe a great deal of gratitude to the many private individuals who have placed easements on their property and as time moves forward we will be even more beholden to these wonderful stewards of our natural resources.

While these lands will continue to provide ecosystem services for all of us, our concern should be whether we have conserved enough land to keep the ecosystems healthy and sustainable. Part of the answer to this question goes back to my son's original question: it takes 17-22 trees to produce oxygen for one person.

- Prepared by E. Wiggers

We are grateful to the following Friends of Nemours Wildlife Foundation who continue to provide support for the scientific and educational programs conducted by the foundation. If you would like to join these dedicated members, please contact Kay Merrill at 843-384-4827 or kay@nemourswildlife.org

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RESEARCH UPDATE: MOTTLED DUCK USE OF MANAGED WETLANDS IN THE ACE BASIN

The Mottled Duck, a non-migratory resident duck in South Carolina, has become an important species particularly to waterfowl hunters since its introduction into the state in the 1970's and 80's. However, information on the life cycle and habitat needs of this species is not well known. As a result of this knowledge gap, research activities for the Mottled Duck were initiated by the Nemours Wildlife Foundation and the South Carolina Department of Natural Resources (SCDNR) and supported by Ducks Unlimited, Delta Waterfowl, and the Flyway Foundation, with further cooperation from USFWS and private landowners. The goals of this research are to examine the general habitat use and movements during the fall and winter and to monitor their activities during the spring and summer seasons to examine the types of habitat Mottled Ducks use for nesting and raising their young.



A Mottled Duck is ready for release with a newly attached transmitter.

In order to gather information for our research objectives, we captured 80 Mottled Duck hens during August and September of 2010 and fitted them with radio transmitters which would allow us to track their movements. With the help of SCDNR staff, ducks were captured from an airboat at night using spotlights and dip nets. We used two different transmitter attachment types to compare the effectiveness of the two units. Forty hens were fitted with backpack style transmitters while the remaining 40 hens had transmitters surgically implanted. The process of completing 40 implant surgeries in two days was the result of many individuals collaborating in a true team effort to complete the task. Many hospitals, vet clinics, and equipment manufacturers were invaluable in their assistance by donating or loaning supplies, equipment, or other services. Also, three local veterinarians volunteered their expertise and endured long, late night hours performing the surgeries. The process went surprisingly smooth thanks to the efforts of all of those involved. After the completion of the surgeries, the radio-marked birds were then released at their respective capture sites.

Since their release we have been tracking the ducks from the ground and from the air using a small aircraft equipped with antennas and a receiver to locate each duck's unique radio-frequency. The weekly aerial view of the ACE Basin is a much appreciated bonus to this research project. During our aerial surveys, we have observed a few of these birds moving out of the ACE basin northward up the coast toward Georgetown, SC and also following the

river systems inland but the majority of the birds we have tracked are remaining in the ACE Basin area.

During spring and summer, Clay Shipes, a graduate student working towards his Masters degree under the direction of Dr. Brian Davis at Mississippi State University, will be searching for Mottled Duck nests in our study area. To date, Clay has found a total of 36 nests, 21 of which are considered active. Nesting activity peaked in May but has slowed in early June. Nest searches will continue into July to detect a possible second peak in nesting activity. As nests reach their conclusions, Clay will be analyzing the vegetation at nest sites to determine which factors may influence nest site selection and nest success.

As summer progresses, our research team will evaluate the activities during the first year of the project and begin to prepare for the second year of field work. During late summer, with our telemetry equipment and surgical center in place, we will attempt to capture and radio-mark a second group of Mottled Duck hens. As before, we will track their movements and examine their habitat preferences particularly during the all important breeding season. The knowledge gained from this research partnership will help in developing wetland management practices that will benefit one of South Carolina's important resident waterfowl species.

Prepared by E. Mills

NOTE: If you are a veterinarian who would like to assist with this important scientific project, please contact Senior Biologist Eddie Mills at emills@nemourswildlife.org

Lights, Camera....

When Dr. Patrick McMillan, host of SCETV's popular *Expeditions with Patrick McMillan* was at Nemours Plantation last fall as the keynote speaker for the annual Friends of Nemours Wildlife Foundation event, it was a win-win. Patrick charmed the crowd, told fascinating stories of creatures he has encountered in many of the often-exotic locations where he's filmed his program, and elicited gasps from the guests when he spoke of spotting a banded Red Knot feeding on a Lowcountry beach and then, unbelievably, spotting that same bird on a beach in Chile some months later.

Dr. McMillan is a world-class botanist and is the director of the South Carolina Botanical Gardens at Clemson. He spends many months travelling with his crew literally all over the world as they film segments for his SCETV program.

Several months ago, the Expeditions team spent three days at Nemours Plantation filming footage for an upcoming segment. Patrick's visit last fall had convinced him that Nemours Plantation offers outstanding opportunities for reporting on unique ACE Basin conservation and wildlife activities. As additional incentive, the crew had gotten advance notice of Peachie Washington's culinary expertise in the Nemours kitchen. Who could resist?

Initially, the crew hoped to film the nighttime capture of Clapper Rails, but choppy inland waters made that project difficult. Shorebirds, alligators, a wood stork rookery, orchard orioles and snakes all became fodder for filming, along with footage of a huge just-completed rice trunk which had not yet been placed in the water. There were no dull moments!

The eagles cooperated, the wily fox squirrels did not, leaving the crew with no choice but to plan another trip to Nemours Plantation, possibly to coincide with the mid-summer mottled duck project. And, of course, there's always Peachie's cooking – well worth a return.



Dr. Patrick McMillan examines a newly constructed rice trunk at Nemours Plantation.

IRS STATUS

Nemours Wildlife Foundation recently received approval from the Internal Revenue Service to change its status from a private to a public 501(c)(3) charity, thus eliminating restrictions previously encountered by donors wishing to make certain types of gifts. We now welcome donations of funds, securities or property, all of which are fully tax-deductible as allowed by law. Please contact Kay Merrill at 843-384-4827 or kay@nemourswildlife.org to discuss your gift. Thank you!



Teachable Moments



"Look what I found", says a First Scots kindergartner during a field trip to Nemours Plantation.

School children of course love visiting Nemours Plantation. What's not to like? The children are out of their classrooms, enjoying fresh air and sunshine, exhilarated by a degree of freedom not usually found in a typical school day. They can run in the woods, climb trees, dangle a line in the hopes of catching a crab or two, and watch fox squirrels warily eyeing them from nearby tree branches.

Nemours is the perfect place for a school field trip and we welcome students from all over the Lowcountry in the spring and fall. While the outings may appear to be just fun and games for the children, for wildlife biologists Eddie Mills and Dr. Ernie Wiggers, each of these visits presents a challenge. The biologists attempt to tailor their presentations and the children's field experience to the curriculum each class is studying at the time of their visit, making for some "ah ha!" moments as the children stumble upon skulls and bones left strategically for their discovery. They peer into cavities in trees and they observe a variety of bird life in fields and in impoundments. They learn about the use of prescribed burns and how trees, vegetation and wildlife are impacted. And they see for themselves the centuries-old method of regulating water flow in remnant rice fields and

impoundments through the use of wooden rice trunks.

Each of these visits, whether with kindergartners or middle schoolers, is designed to teach the young people about the wonders of nature that can be found at their back door and throughout the area if they know how and where to look. And they need to understand their role in protecting and sustaining the natural resources that are such an important part of the quality of life here in the Lowcountry.

Are the children hearing the message? Here is a sampling of feedback from recent visitors: "I learned so many different things that seemed so important to me." ... "Thank you so much for an amazing experience, and the best field trip I have ever gone on!" ... "I never knew how a rice trunk worked. And I had never seen a bald eagle or a bald eagle chick." ... "It was a great experience, even with the bugs." ... "It made us understand the beauty of nature and what we can do to protect it."

Nemours Wildlife Foundation continues its mission to foster a conservation ethic through education. And we love those "ah-ha" moments!

ROBERT MONTGOMERY: *An Exceptional Young Man*



Robert Montgomery checks eggs in a wood duck box on Nemours Plantation.

Over the years, Nemours Wildlife Foundation has hosted many young people interested in honing their outdoor skills in the fields, forests and waterways of Nemours Plantation. Each of these students has brought his or her own personality and enthusiasm to their work. Many have completed their college or post-graduate studies and have gone on to excel in careers in wildlife biology, timber management or related fields.

During the past year, Robert Montgomery, a member of the class of 2011 at Beaufort High School, has spent many hours at Nemours, another in that long line of students learning new skills working alongside biologists and plantation managers. Unlike most of his predecessors, Robert's career choice is elsewhere, although he clearly loves the outdoors. He will be a member of the freshman class

in the fall at The Citadel as a history major, with a goal of ultimately gaining a law degree.

Robert's pleasant personality and get-it-done attitude has made him a welcome addition, even on a short-term basis, to the Nemours family. While here, Robert has assisted senior biologist Eddie Mills in a variety of wildlife studies, including helping to assess deer populations on the plantation, monitoring wood duck boxes, locating mottled duck nests using radio telemetry, and trapping and transporting fox squirrels to Botany Bay and Yeamans Hall for the purposes of repopulating the species in those areas.

There's no question that this is an exceptional young man and one who will undoubtedly make his mark in the world. We'll be watching, and we wish him well!

PRESERVING OUR PAST



Students from the College of William & Mary take measurements of one of the Nieuport slave dwellings.

The story of the slave houses located in the Nieuport section of Nemours Plantation varies, depending on who's doing the telling. Over the past year, beginning with a visit from students enrolled in the Summer 2010 Field School in Architectural History at the College of William and Mary, a number of experts have explored the remains of four slave dwellings lined in a row and another one located several hundred yards away. It is likely that there were additional slave houses nearby but only these remain, most in disrepair and deteriorating rapidly.

These structures, built of brick on tabby foundations, were probably built by the Middleton family between 1840 and 1860, and most likely replaced earlier buildings shown on an 1837 plat as slave quarters. The Middleton family owned Nieuport Plantation on the south side of the Combahee River in the eighteenth and nineteenth centuries when rice was king, making the plantation one of the most profitable in the Lowcountry.

With an eye toward eventual placement on the National Register of Historic Places, volunteer researchers Craig Bowman and Marion Johnson are tracing the chain of title for the several plantations encompassing what is now known as Nemours Plantation, amassed by Eugene duPont III prior to his death in 1995. While Eugene duPont's interest was in wildlife and habitat protection and conservation, the current trustees of Nemours Wildlife Foundation believe that his legacy includes the historic structures located on Nemours Plantation which merit protection as well.

In addition to Joseph McGill, program officer for the National Trust for Historic Preservation, several historians and other experts have visited Nemours recently and all agree that there are many unique features to the Nieuport slave dwellings and every effort should be made to try to preserve and possibly even restore them. While such an effort represents quite a daunting challenge for many reasons, it is one which deserves our attention. We will keep you apprised of our plans and our progress.

NEMOURS WILDLIFE FOUNDATION

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More observations from a not-so-newbie

It's been a little more than a year since Kay Merrill gushed in delight at her experiences as the newest staff member of Nemours Wildlife Foundation. Here's an update:

"Gushed"? Well, I guess I did, and I guess I will again! What a great place to work! I learn something new every day, and often it's something I had no idea I even wanted to know. For example, like most other folks in the Lowcountry, I was aware of prescribed burns only through having seen lots of smoke on the horizon. Now (and don't get me started) I can wax eloquently about the value and necessity of prescribed burns. Who knew?

I never thought I wanted to get up-close-and-personal with an Eastern Diamondback Rattlesnake. Well, not exactly up close, but close enough to gain a new appreciation for those gorgeous creatures and their impact in the wild. I've listened intently to descriptions of the use of rice trunks and seen many rice trunks out on the dikes on Nemours Plantation. And, even better, I've had a chance to see the impressive handiwork of Nemours' plantation managers who build the massive

trunks out of the water in much the same way the Africans did when they brought the age-old technology to the Lowcountry in the seventeenth century.

I've met many, many dedicated professionals who clearly love what they do and whose work significantly impacts the daily lives of all of us here in the ACE Basin. Nemours has played host to a number of conservationists during the last year. Just being in their company has enhanced my own knowledge and interest in organizations like ours which are working hard every day to protect and preserve this special environment for our children and our grandchildren.

Perhaps the single most exhilarating experience has been the opportunity to tag along while our current graduate student, Clay Shipes, and his faculty advisor from Mississippi State University, Dr. Brian Davis, searched the marsh for mottled duck nests from an airboat!! There's no way to describe that experience, except to say "golly, gee whiz, wow!" How did I get so lucky? Stay tuned...

- Kay Merrill