South Carolina Department of Natural Resources

ACE BASIN NEWS

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Summer 2019 Newsletter of the Ashepoo, Combahee, Edisto Basin

Black Rails: Studying North America's "most secretive bird"

Four years of work on black rails by SCDNR researchers is beginning to show results – and has the potential to re-write the management playbook for this little-understood species.

Prior to this decade, there was only one confirmed incidence of black rails nesting in South Carolina – in 1903. Nearly a century later, when SCDNR biologists undertook a comprehensive survey of black rails and other marsh birds during the 1991 and '92 breeding seasons, black rails were similarly scarce. While black rails were heard responding to call-playback devices used for the surveys 38 times over the two-year study, wetlands were surveyed multiple times per year, so these detections do not represent unique individuals. "None [black rails] were actually seen," notes the report, "except incidentally…." Read the complete report at: [*www.dnr.sc.gov/wildlife/species/marsh/*].

A multi-year study of the status, distribution, and ecology of black rails is helping SCDNR researchers learn more about habitat requirements of this secretive bird. (SCDNR photo by Christy Hand)

Perhaps not surprising, as these birds are known for being extremely secretive. That secrecy intrigues researchers like SCDNR avian biologist Christy Hand, very much. Hand, who works out of Donnelley Wildlife Management Area, in the heart of the ACE Basin, has been leading a black rail study and survey effort for more than four years now, one that is beginning to show some positive results.

"People say they are the least understood bird in North America," says Hand. "One of the things our work has shed some light on is their natural history."

When Hand and her team began documenting black rail broods in South Carolina with photo evidence, it was pretty big news in the world of marsh bird research. There's still much work to be done, but confirming that black rails are nesting here is a huge first step in helping them.

They need it badly. In 2018, the U.S. Fish and Wildlife Service recommended the eastern subspecies of the black rail be listed under the federal Endangered Species Act, meaning that scientists believe these birds could become extinct in the foreseeable future. A decision on whether to declare the birds "threatened" is imminent. The birds are already listed as a species of "highest concern" under South Carolina's State Wildlife Action Pland [*www.dnr.sc.gov/swap/index.html*].

Loss of habitat is the primary problem, exacerbated by rising ocean levels, higher tides and increasing severe weather events brought about by a rapidly changing climate. In the states bordering the Atlantic Ocean, black rail numbers are dwindling particularly fast, with only an estimated 355 -815 breeding pairs from New Jersey to Florida (per the USFWS). If that proves to be correct, protecting the small breeding population in the ACE may be critical to the birds' long-term survival. Identifying where pockets of the birds live and learning more about their habitat requirements and nesting and molting phenology [seasonal timing of nesting and molting] is vital to this effort. Since the project began, approximately 20 black rail broods have been documented. SCDNR researchers now know the ACE Basin may be one of (possibly) four population centers for Eastern subspecies black rails on the East Coast — the others being in New Jersey, North Carolina and Florida, and the birds have also been documented by SCDNR researchers at Yawkey Wildlife Center and Santee Coastal Reserve WMA.

Next Steps:

Understanding black rails' life history is key to developing concrete management strategies that could have a meaningful impact on their population numbers in South Carolina. Documenting the elusive birds' habits — especially with regards to brood rearing — is painstaking work. Gaining a better understanding of the fine-scale habitats where birds are successfully hatching and raising chicks is important, says Hand, and is the current priority for her research. The longer-term goal will be to work with colleagues to identify compatible management practices and policies based on that hard-won knowledge to promote high-quality nesting and brood rearing habitat on a wider scale. It's going to take adopting some very specific management practices to help these birds recover.

A key aspect of the black rail research project has been carefully documenting habitats characteristics in the marshes where they live in coastal South Carolina. (SCDNR photo by Christy Hand)

Black rails need "high marsh" areas with very shallow (less than one inch) of water, with plenty of invertebrates and a careful winter fire or flooding regime that retards the succession of woody plants and leaves patchy grasslands intact. Black rails occupy the upper zone of tidal marshes (aka high marsh), which is only inundated periodically during extreme high tide events. However, with sea levels rising and higher tides becoming a more regular occurrence, it's possible that this type of habitat may become even scarcer over the coming decades.

Working within currently protected managed impoundments may hold the key, and it will be landholders — public and private — who will make the difference. Long-term, it may require the construction of new infrastructure to manage water levels in very high tidal marsh and shallow fresh water marshes where water level manipulation is not currently part of the program.

One very exciting outcome of the work the SCDNR researchers are doing has been the documentation of black rails successfully rearing broods of chicks in the ACE Basin. (SCDNR photo by Christy Hand)

Recent experiments at Nemours Plantation have shown that with some minor modifications, it is possible for landowners to create conditions favorable for black rails on impoundments that are of marginal utility for other waterfowl such as ducks. Project managers there believe it is something that would be of interest to other landowners within the ACE Basin. This could be an important step towards creating habitats where rails can nest successfully in larger numbers, rather than just attracting the birds to habitat where conditions are too variable during the breeding season.

One existing federal program is already in place to help landowners interested in bolstering black rail habitat on their property.

"Through the South Carolina Coastal Program the Service has been working with various landowners to enhance areas within managed tidal wetlands for black rails," said Jason Ayers, a wildlife biologist who helps manage the USFWS program in South Carolina. "Typically these are areas that for various reasons (topography, hydrology, etc.) are marginally useful as waterfowl habitat. However, with Coastal Program funding, small cross dikes and water control structures can be installed to create ideal management areas for this secretive marsh bird. Through a collaborative effort with SCDNR and Nemours Wildlife Foundation, the Service has discovered much about the habitat needs of the black rail and just how important the ACE Basin may be in recovering this species."

Landowners interested in finding out more about available grant funding for black rail habitat projects should visit the USFWS web page: [*www.fws.gov/charleston/coastal.html*]. Hopefully, as the research by SCDNR scientists continues to increase what is known about these birds' habitat needs, additional management strategies and programs will be developed that can help bring them back from the brink of extinction.

USFWS - Partners for Fish and Wildlife

Cost-Share Opportunities for Longleaf Restoration Projects

The American Forest Foundation has joined forces with The U.S. Fish and Wildlife Service's Partners for Fish and Wildlife Program to benefit at-risk species that rely on longleaf pine-dominated habitat for their survival.

The Program is offering cost-share funding from The American Forest Foundation and technical assistance opportunities for habitat restoration projects in the ACE Basin and other areas, including Beaufort, Jasper, Hampton, Colleton, Allendale, Bamberg, Barnwell, Aiken, Edgefield, and parts of McCormick and Orangeburg counties.

Projects must be associated with longleaf pine and include actions that benefit species designated by the Fish and Wildlife Service as "at-risk," specifically, gopher tortoises, southern hognose snakes, pine snakes, gopher frogs, Bachman's sparrows, tiger salamanders, Eastern diamondback rattlesnakes and the frosted elfin butterfly.

Project ideas can be accepted any time and will be assessed by a review panel to determine if the project will be funded.

Partners for this initiative include American Forest Foundation (AFF), the South Carolina Department of Natural Resources (SCDNR), The Longleaf Alliance and the South Carolina Forestry Commission. The initiative is part of a larger effort focused on working with private landowners in the Southeast. Landowners are eligible to participate in this initiative if they meet the American Tree Farm standard eligibility requirements for certification (up to 20,000 acres).

Learn More:

Landowners can find additional information about the goals of the program and criteria to participate in this cost-share opportunity at: [*www.fws.gov/charleston/pdf/Partners/AFF_PFW_Longleaf_Costshare.pdf*] or by contacting Partners Biologists Bret Beasley (843-300-0433) or Joe Cockrell (843-300-0425).

USFWS - Coastal Grants Program

Partnership Funding Available for Habitat Enhancement

Thinking about restoring or enhancing the habitat on your property? The U.S. Fish and Wildlife Service's Coastal Program may be able to help.

Since its establishment in the mid-1990s, The Coastal Program has worked with various partners, including private landowners, to voluntarily protect, restore, and enhance priority fish and wildlife habitat. The Coastal Program in South Carolina is one of twenty-two coastal programs in the country. The program works within the state's major coastal watershed "focus areas," including the ACE Basin.

The program takes a non-regulatory, partnerships-driven approach that achieves the agency's conservation mission by providing a combination of technical and financial assistance to its partners. These partners include private landowners, non-profit organizations, and other governmental agencies. There is no match requirement for individual projects, although program leaders aim to achieve a match ratio of 1:1 for the overall program. Projects are selected based upon a number of factors, most importantly: biological significance and consistency with the overall goals of the U.S. Fish and Wildlife Service and the larger Coastal Program.

The annual project budget for the South Carolina Coastal Program varies but is typically between $150,000 to $225,000. Funding for individual projects can be as low as $5,000 or as much as $100,000. Although program staff members work with partners throughout the year to develop project ideas, proposals should be submitted in the fall for consideration of funding the following year. In the ACE Basin, previous and ongoing South Carolina Coastal Program projects include managed tidal wetland enhancement for black rails [see related article on page 1], invasive species control within wood stork rookeries, longleaf pine enhancement for red-cockaded woodpeckers, and helping land trusts protect private lands via conservation easements.

Learn More:

For more information about submitting a project application to South Carolina's USFWS Coastal Program, contact:

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Beaufort County Voters Approve Additional $25 Million for Land Preservation

Voters in Beaufort County have demonstrated a commitment to land protection that bodes well for future projects in the western part of ACE Basin.

In November of 2018, Beaufort County voters approved by an overwhelming margin investing an additional $25 million in the county's long-running Rural & Critical Land Preservation Program. The program originated in 1998, when County leaders recognized the potential for uncontrolled and detrimental development and has been funded since 2002 by general obligation bonds. November's bond referendum vote was the fifth for a program that enjoys the strong support of Beaufort County citizens. Over the past two decades, the program has protected 23,926 acres, with over half of that total being accomplished through the purchase of development rights and conservation easements.

Rural & Critical funds have facilitated the protection of key, large-acreage holdings in the ACE Basin. The South Carolina Department of Natural Resources (SCDNR), the South Carolina Conservation Bank, the U.S. Department of Defense and USDA/NRCS have been instrumental partners in the Rural & Critical Program, providing over $40 million in cost-share funds to leverage $135 million in county purchases.

North Williman Island was one of the Program's first fee simple purchases in 2002, protecting 8,000 acres of tidal marsh and hammock islands in the heart of the ACE Basin National Estuarine Research Reserve. The purchase hinged on a strong partnership between SCDNR and Beaufort County, with assistance by The Nature Conservancy. Two years later, SCDNR and Beaufort County joined forces again to protect Altamaha Town Heritage Preserve, a site of significant archeological and historical Indian artifacts dating back to the early 16th Century on the Okatie River. Listed on the National Register of Historic Places, the 100-acre site was the home of the Yemassee tribal chief.

The South Carolina Conservation Bank provided cost-share funds for the Rural & Critical Lands Program purchase of the 2011 conservation easement on Chisolm Plantation, 4,717 acres with 10 miles of frontage on the Whale Branch River, located just south of South Williman Island. A significant portion of Coosaw Plantation (1,527 acres) adjacent to Chisolm Plantation on the Coosaw River, was protected with a Rural & Critical Lands Program-purchased conservation/restrictive easement in 2011 with cost-share funds from the Department of Defense's REPI Program, in order to reduce future density north of Marine Corps Air Station Beaufort.

Working in concert with the S.C. Department of Natural Resources and TNC, Beaufort County's Rural & Critical Lands Program helped protect the site of Altamaha Town on the banks of the Okatie River, now an SCDNR-managed Heritage Preserve. (SCDNR photo by David Lucas).

North Williman Island – seen here from the boat landing on the Wimbee Creek in Northern Beaufort County – was another partnership project involving the Rural & Critical Lands Program and the SCDNR. (SCDNR photo by David Lucas)

This $25 million renewal of funding for the Rural & Critical Land Preservation Program helps to ensure continued financial support for the important land conservation work happening in the ACE Basin. There are still large-acreage priority tracts to protect, and by working together with the citizens and government officials here in Beaufort County, the conservation community has the opportunity to continue to protect the land (and water) we love.

New Research at the Nemours Foundation Aids Waterfowl Managers

Invertebrates - "Effects of Hydrological Management for Submersed Aquatic Vegetation and Invertebrates in South Carolina Coastal Impoundments," the title of researcher Beau Bauer's recently published Master's Thesis at Clemson University, may be a bit of a mouthful, but maximizing the impact of good vegetation management is as basic as it gets for landowners hoping to increase waterfowl production on coastal wetlands, so over two years, Bauer, working with other researchers at the Nemours Foundation in Yemassee, set out to measure the influence of differing levels of spring drawdowns of managed brackish impoundments.

From the Abstract: Widgeongrass (*Ruppia maritima*) is a species of submersed aquatic vegetation (SAV) in brackish wetlands around the world. Management of SAV is practiced in impounded tidal wetlands (former historic rice fields) in coastal South Carolina to provide forage for waterfowl and other waterbirds. Widgeongrass also provides habitat and attached algae and microbes eaten by aquatic invertebrates. We conducted an experiment to evaluate effects of complete drawdown to dried substrates versus partial drawdown to mud or several inches of water during May–June 2016 on aquatic invertebrate and SAV biomasses and invertebrate diversity in managed brackish tidal impoundments in the Ashepoo, Combahee and Edisto river basins. Such data has been lacking to inform managers of best practices to promote standing crops of SAV and invertebrates. We then sampled sediments and SAV in eight completely and twelve partially dewatered impoundments, and three non-impounded natural tidal marsh sites during August 2016, November 2016, January 2017 and April 2017. Our investigation showed that the SAV and invertebrate biomasses at peak production in August 2016 were greatest and less variable in partially drawn-down impoundments, before Hurricane Matthew devastated SAV communities in October 2016. Nonetheless, partially drawn-down impoundments contained greater invertebrate biomasses and diversity for most sampling periods during the study. We also determined that partially drawn-down impoundments had about three times greater potential foraging capacity for dabbling ducks than completely drawn-down impoundments. As a result, we recommend partial drawdowns to maximize invertebrate and SAV biomasses and foraging carrying capacities for ducks and other waterbirds in managed coastal impoundments in South Carolina. However, we also recommend complete drawdowns every too-three years to consolidate soils and decompose organics to promote rooting by SAV. Our study provided premiere information to guide future similar management and duck foraging studies in the south Atlantic Flyway.

Wood Ducks – Another project undertaken by Bauer and other researchers affiliated with the Nemours Foundation, this one a pilot study that got underway in 2019, seeks to better understand the impact of artificial nest boxes on the recruitment of female wood ducks and could change the way that landowners deploy nest boxes, a mainstay of wood duck management since the 1930s.

From the Abstract: Artificial nest boxes have played a pivotal role in the recovery and management of wood ducks (Aix sponsa) throughout North America. Wood ducks now comprise a significant percentage of the annual waterfowl harvest in the Southeast and are a model species for the recently adopted multi-stock adaptive harvest management protocol for the Atlantic Flyway. While numerous studies have addressed nest box use, hatching success, and habitat characteristics, few have directly addressed nest box contributions to female recruitment, and such data is lacking on a regional scale.

This lack of critical population metrics resulted in biologists from the southern portion of the flyway to list the need for contemporary regional-scale estimates of wood duck reproductive success and female recruitment rates as a high priority. Subsequently, we have initiated a pilot study in 2019 to evaluate methodology and logistics required to conduct a multi-state female recruitment study throughout the southeastern United States for the next three-five years. We will band adult female wood ducks and web-tag newly hatched ducklings from approximately 200 nest boxes situated on Lake Moultrie, South Carolina during the pilot study, which is being conducted as a partnership among Nemours Wildlife Foundation, Clemson University's James C. Kennedy Waterfowl and Wetlands Conservation Center, the S.C. Department of Natural Resources, and the U.S. Fish and Wildlife Service. Concurrently, the University of Delaware and the Delaware Division of Fish and Wildlife have initiated their own companion study. Our goal is to expand this study to multiple states in 2020 from Delaware to Florida. If successful, this study could be a model for how other flyway level questions for waterfowl identified during a meeting of biologists in February 2018 at the Nemours Wildlife Foundation can be address through a unified public and private agency collaboration.

For more information about these and other critical research projects being spearheaded by the Nemours Wildlife Foundation, visit: [*www.nemourswildlifefoundation.org.*].

Ace Task Force Partners News and Happenings

The ACE on TV – In March, Ducks Unlimited released the first **DU Films** video of its 2019 season, a look at the ACE Basin that delves heavily into **Coy Johnston** and other Task Force members' contributions to creating the ACE Basin as we know it today. The seven-minute video can be seen online at: [*www.ducks.org/media/du-films*]. Also, Walterboro-based Palmetto Rural Telephone Cooperative's Channel 57 has spent some recent airtime exploring the ACE Basin's history. The first episode in Channel 57's "Lowcountry Escapes" Series has a great interview with **Charles Lane** at Willtown Bluff covering the beginnings of the ACE Basin Task Force, an invaluable first-hand recounting of how the plan for this ground-breaking private-public conservation partnership came to be. Episode two in the series takes viewers to Bear Island WMA for a conversation with **SCDNR Wildlife Biologist Daniel Barrineau**. Both videos can be watched online via the "Vimeo" streaming service [*Vimeo.com*]. Just type the series title **"Lowcountry Escapes"** into the search bar at the top of the page.

This former tomato field near the intersection of U.S. Highway 21 and Kean's Neck Road will soon be the site of a solar farm producing renewable energy, with the site itself and a buffer protected under a conservation easement with the Beaufort County Open Land Trust. (Photo courtesy Barbara Holmes, BCOLT)

Land Conservation Meets Renewable Energy in Beaufort County – In what may be the first conservation easement granted on a planned solar farm project in South Carolina, **Seabrook Solar Farm's** parent company, First Solar, is working with the **Beaufort County Open Land Trust** to finalize a conservation easement that will protect the property in perpetuity. The 627-acre property near the corner of U.S. Highway 21 and Kean's Neck Road has been home to a thriving truck farm for more than eighty years, but in the near future will be producing solar energy — enough energy to power 9,000 homes for twenty-five years. This conservation easement project also includes the generous donation in fee simple of an adjacent 8-acre parcel protected by an easement that will provide an additional visual buffer at the U.S. Highway 21 intersection. More information to come in the next newsletter, but if you are driving by this location, check out the progress of the solar panel installation, which should be complete by the end of this year. The installed panels will eventually be obscured by a 150-foot-wide vegetative buffer.

Speaking of driving in this area, you may also have noticed that work is ongoing in the effort to bury powerlines along Sheldon Church Road, which will increase the resiliency of the region's power grid, as well as benefiting safety and enhancing the natural beauty found on this short, but lovely, stretch of road. That natural beauty got a boost his past Earth Day (celebrated on April 22), with some members of the ACE Basin Task Force teaming up with the **Friends of Garden's Corner** community group and Beaufort County government to pick up trash from the area around the Old Sheldon Church ruins and the intersection of Highways 17 and 21 (see photos on page 7).

New conservation property on the Edisto – Hunters, anglers and hikers who visit the Edisto Wildlife Management Area will have some new places to explore soon. The **Lowcountry Open Land Trust** reports that it is entering the second year of work on a riverfront parcel that was purchased to mitigate the construction of a needed landfill facility in Dorchester County. The rehabilitation of the property's forested wetlands will be extensive, and is already underway. The plan calls for the property to eventually be added to the SCDNR-managed **Edisto River WMA**, which sits just across the river in Colleton County.

The East Edisto Conservancy has created a new website designed to foster greater transparency that will provide public access to all legal documents related to the easements they hold. Visit: [*www.eastedisto.com*] and click on "Legal Documents" to view them.

Task Force Partner Organization gains more expertise – The Beaufort County Open Land Trust has welcomed a new Executive Director with an exciting resume and background. Kristin Williams assumed the role of Executive Director of the BCOLT on January 1, 2019, bringing to the organization ten years of leadership in environmental protection and conservation, having previously served as executive director of the organization "Friends of the Environment" in her native Bahamas. During her tenure at Friends, Williams facilitated the establishment of over 300,000 acres of Marine Protected Areas in the Abacos. She also successfully led a two-year capital campaign and oversaw construction of The Frank Kenyon Centre for Research, Education & Conservation. Although a native of the Bahamas, Kristin attended school in the U.S. and graduated from College of Charleston, where she met her husband Lloyd, a native Charlestonian. Kristin and Lloyd live in Beaufort with their two children, Gray and Ford.

New Maps Will Assist Land Protection Statewide – The talented staff in the **SCDNR's GIS Mapping Section** has completed work on a new statewide map identifying high-priority properties for conservation projects for the State Conservation Bank. In addition, the Bank recently announced the hiring of a new Executive Director. Berkeley County Native **Joseph Raleigh West III**, brings a wealth of expertise and local experience to the job, having grown up hunting, fishing and exploring in the Santee Basin Region of the state. West most recently served as executive director and general counsel of the **Lord Berkeley Conservation Trust** in Moncks Corner.

On Earth Day, volunteers coordinated by the Friends of Garden's Corners community group picked up litter at the intersection and traffic circle at Highways 17 and 21, and along the lower portion of Old Sheldon Church Road. Above – the cleanup crew ready to go to work. Top – David Lucas with SCDNR and Kate Schaefer, Director of the South Carolina Coastal Conservation League's South Coast Office, representing the ACE Basin Task Force, celebrate a successful cleanup of Old Sheldon Curch Road near the church ruins.

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Protected acreage as of June 2019

Private	218,049.00
260 easements; *includes 27 East Edisto tracts	
State	54,393.00
Federal	12,286.00
Local Government	9,892.00
Total	**294,620.00**