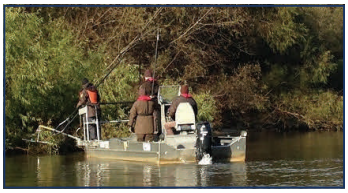
U.S. Fish & Wildlife Service

National Wildlife Refuge System
Southeast Region Inventory & Monitoring Network

Network Update
Spring 2015

Robust Redhorse (*Moxostoma robustum*) collected at Savannah NWR

During standardized fish assessment sampling at Savannah National Wildlife Refuge, an interdisciplinary team from across the U.S. Fish and Wildlife Service (Service) captured and photographed a juvenile robust redhorse (*Moxostoma robustum)* in November 2013. The species identification was confirmed from a fin clip and genetic analysis. This exciting find triggered additional sampling efforts in November 2014 by the Service (Refuges, Ecological Services, and Fisheries), Georgia Department of Natural Resources, South Carolina Department of Natural Resources, and South Carolina Aquarium specifically targeting juvenile robust redhorse to evaluate riverine habitat use in the lower Savannah River. The recent sampling effort again documented juvenile robust redhorse in the river adjacent to the refuge. The robust redhorse, *Moxostoma robustum,* was believed to be extinct for 122 years. This species was first described by Edward Drinker Cope in 1869 and then lost to science until 1991. Since then, the Service has partnered with state, Federal, and private entities to conduct research and implement conservation agreements in a pre-listing recovery approach under the Endangered Species Act. In 1995, a Memorandum of Understanding (MOU) established the Robust Redhorse Conservation Committee (RRCC). Historically, the robust redhorse was abundant in large Atlantic Slope rivers from the Altamaha River in Georgia to the Pee Dee River in North Carolina. Wild populations are now known to exist in the Altamaha River Basin (Georgia), the Savannah River (Georgia/South Carolina), and the Pee Dee River (North Carolina). Stocked populations have been reintroduced in the Ocmulgee, Broad, and Ogeechee rivers in Georgia and the Broad and Wateree Rivers, South Carolina. When fully grown, robust redhorse can measure up to 30 inches long and can weigh up to 17 pounds. The fish has a robust body with rose-colored fins and a fleshy lower lip. The species is a large, long-lived member of the redhorse sucker family. Adult robust redhorse feed on aquatic invertebrates and bivalves, including the Asiatic clam (*Corbicula* spp.), and use molariform pharyngeal teeth to crush shells. Robust redhorse require clean gravel beds for reproduction. Many questions remain with regards to habitat, life history, and survival threats for this species. Additional sampling targeting juvenile robust redhorse in the Lower Savannah River is planned for 2015. For more information, please contact Alice Lawrence (alice_lawrence@fws.gov), Theresa Thom, or Lee Holt.



Electrofishing at Savannah NWR for juvenile robust redhorse.

Juvenile robust redhorse.

Species Highlight

Species: Robust redhorse (*Moxostoma robustum*)

Image: T. Thom/USFWS

Location: Savannah NWR

Range: River systems in NC, SC and GA

Highlights and Progress in FY15

- **Water Resource Inventory and Assessments** (WRIA) for White River and Lower Suwannee NWRs have been completed. For more information contact Lee Holt.

- A **Draft Amphibian I&M Guidance and Recommended Techniques** is available for review. This guide provides one-page summaries of current amphibian monitoring techniques and protocols. For more information contact Wendy Stanton or David Richardson.

- Currently in progress are **7 Inventory and Monitoring Plans** for southeast refuges including: ACE Basin, Big Branch Marsh, Dahomey, Eufaula, Upper Ouachita, Okefenokee, and Pee Dee NWRs.

- The Southeast Region I&M network has **funded 17 excellent Inventory and Monitoring Projects** on refuges for FY2015. Selected projects had emphasis with elements of refuge management relevance, I&M program relevance, local capacity, data quantity and quality, demonstrable quick results, and good 'bang-for-buck' value. Area Supervisors solicited, ranked and submitted projects to the I&M Branch for final review and recommendations.

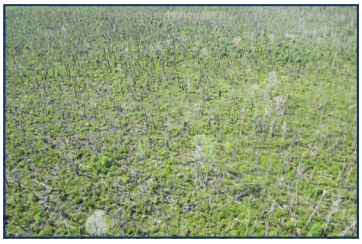
- **ServCat Update**. We continue to archive important refuge legacy documents into ServCat for our refuges in the Southeast. To date, we have **completed ServCat Legacy for 13 refuges** with a number of refuges in progress.

- **Acoustical Bat Monitoring Update.** Currently refuges in **13 states** across the Southeast with over **50 stations** participating nationally in mobile acoustical routes. Passive monitoring is on-going for the Northern Long-eared Bat and Indiana Bat. Contact David Richardson for more details.

- **Integrated Waterbird Management &Monitoring (IWMM)** is now a nationally approved protocol framework! Contact Wendy Stanton for more details.

On the Horizon: Mapping Refuge Habitat

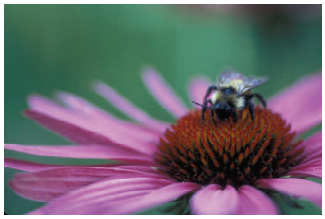
There are 129 National Wildlife Refuges in the Southeast that total roughly 4 million acres. These lands represent a variety of ecosystems and ecological processes. Mapping and classification of these habitats are critical components to the responsible conservation, management, and stewardship of our fish, wildlife, and plant resources. Mapping provides better tools for refuges to evaluate habitat condition and determine distribution of habitat types. When coupled with a standardized classification system, habitat maps allow landscape and regional scale opportunities to assess landscape patterns of distribution and to identify greatest potential to improve or provide habitat. The Southeast Region I&M Network has proposed a process utilizing the upcoming LANDFIRE remap as a cost effective source for acquisition of spatial data products. LANDFIRE is a collaborative effort between the Department of Interior and U.S. Forest Service that provides national-scale geo-spatial products that describe fire regime history, vegetation condition, and wildland fuel. A Habitat Mapping Working Group has been assembled in the Southeast to engage with LANDFIRE and provide refuge data and expert input to improve the accuracy of the habitat map for the southeast U.S. This Working Group is composed of staff from I&M, Refuges, and Fire Management Divisions. For more information, please contact Forbes Boyle or Tim Fotinos.



*Recently burned Southern Coastal Plain Nonriverine Basin Swamp .**(Ecological System CES203.384)** within Okefenokee NWR*

Pollinator Work Underway at the Savannah Coastal Refuge Complex

Pollinator survey work, primarily targeting bees and wasps, will be conducted on Savannah National Wildlife Refuge beginning in April 2015. Sampling will run through the fall of 2015, to detect seasonal variations in native and introduced pollinator species diversity and abundance. Collected specimens will be sent to the USGS Patuxent Wildlife Research Center for taxonomic verification and DNA research. Previous work conducted in November 2009 on Kings Island (Savannah NWR) detected a mix of high quality native pollinator species reflecting a diversity of native wildflowers and nesting habitat for bees and wasps. The southeast in general, and especially along the coast, is under-represented in most bee and wasp research. This baseline survey will contribute to a greater understanding of pollinator species along the coast. For more information, please contact James Leckie (james_leckie@fws.gov), Wayne Harris (billy_harris@fws.gov), Theresa Thom or Sue Wilder.



Coastal Wetland Elevation Monitoring in the South Atlantic – Update

The Coastal Wetland Elevation Monitoring project (CWEM; formerly SET monitoring) is currently in the midst of the spring 2015 sample period and thanks to refuge staff for continuing this important effort. Starting in fall 2016, the sampling effort will be once/year in October/November. Starting this summer, a Directorate Resource Assistant Fellow will begin working with I&M and refuge staff to conduct static GPS occupations of the SET benchmarks at the CWEM sites. In order to determine wetland elevation change in relation to relative-sea level rise, accurate and precise connections between the wetland surface and local water levels must be made. This GPS campaign will provide critical baseline elevations of the benchmarks and will be used to compare to future campaigns in order to determine the trends in the surveyed elevation of the benchmarks and understand rates of wetland elevation change and relative sea level rise. This Fellow will be the lead in performing the field GPS occupations and work directly with I&M and refuge staff to deploy GPS equipment and perform field work. Please stay tuned for more information about this effort. For more information, please contact Nicole Rankin.

New FWSpecies Database

In 2015 the Natural Resource Program Center is expecting to roll out a new Service-wide database called FWSpecies. This web-based database has the very simple purpose of telling us what occurs where. It is modeled after NPSpecies, a similar database in use by the National Park Service. We will be assembling all data from lichens to mammals, and for certain groups we will be collecting information on abundance and nesting. This past winter, I&M began the process of assembling data for input into FWSpecies. We are scouring CCPs, HMPs, refuge files, websites, and other sources to document species occurrence on our refuges. One such source, for birds, is Cornell University's eBird database . eBird is a citizen-science driven platform that records bird locations, including date, time, and numbers seen. Each rare sighting must contain confirmation, via description or photo, and is reviewed by expert regional reviewers. Extracting the data from eBird is easy, but can take some time and formatting to make it readable by the new database. For this, we sought help from interested birders throughout the US, and several of them stepped forth to download the data and provide it to the Southeast Region I&M. Currently there is available data for every US refuge, including those in Puerto Rico and the US Virgin Islands, excluding those with no public access. Some refuges are more heavily birded than others, providing informative data on seasonality and abundance. When compatible with refuge goals, those less birded refuges will be targeted for additional survey work in the years to come. Identifying interested local birders is a great first step to providing a more detailed picture of bird use on our refuges. Steve will be conducting an eBird webinar in the months to come. Contact Steve Holzman for more information.

Photo credit: Rachel Holzman

Project Updates

I&M Staff Transitions

Laurel Barnhill
At the beginning of April, Laurel Barnhill transitioned into her new role as the Southeast Region's new Migratory Bird Chief. Laurel joined the Service in January 2011 and served as the Southeast Region's National Wildlife Refuge System's Inventory and Monitoring Coordinator and as the Deputy Division Chief for Strategic Resource Management. She lead the Region's effort to establish the Inventory and Monitoring Program focused on coordinating inventory and monitoring activities on refuges and in accordance with Landscape Conservation Cooperative priorities. Bird conservation has been a theme throughout her professional career, working in both game and non-game bird areas at the state, regional, flyway and national levels.

Janet Ertel
Beginning in April, Janet Ertel was selected as the next Branch Chief of Inventory and Monitoring for the Southeast Region, following Laurel's departure. Since 2012, Janet has served as the Deputy Branch Chief of Inventory and Monitoring, and lead for the Gulf I&M Network. Since her start with the Service in 2000, Janet has served as a refuge biologist and as Assistant Regional Biologist, providing significant contributions to scientific integrity and adaptive management through development of the 'Building a Strong NWRS Biological Program' course at NCTC, and her role on the NWRS 'Conserving the Future' Science core Team. Janet worked closely with leadership and individual refuges providing guidance in implementation of the Habitat Management Planning policy and development of plans. Janet has demonstrated an ability and commitment to enhancing and bridging field-level biological work on refuges with national vision and policy. Janet's position will remain field-based, working out of Starkville, MS.

Theresa Thom
In mid-June, Theresa will transition to an aquatic ecologist position with the National Park Service at Lake Mead National Recreation Area in Boulder City, Nevada. Theresa joined the Southeast Region I&M Network in 2012 as an aquatic ecologist. She got her start with the Service in 2001, working as a Fishery Biologist at Eglin Air Force Base and as a Ph.D student at the University of Georgia through the SCEP program. Throughout her career, she has provided significant contributions to the Southeast Region related to water resources, inventory, assessment, monitoring, and supporting scientific excellence on refuges and public lands. Her new position at Lake Mead will involve supporting an existing multi-agency partnership for the adaptive management of Lake Mead, as well as leading a team focused on water monitoring and aquatic invasive species research and outreach. Theresa looks forward to strengthening partnerships between NPS and FWS. It is anticipated that Theresa's position will be filled with a field-based zone ecologist position.

Marsh Accretion Measurement Method

I&M staff have tested and approved a sediment coring method to be used at some wetland sites for the Coastal Wetland Elevation Monitoring project. In summer and fall 2014, I&M staff conducted field tests at ACE Basin and Waccamaw refuges to determine if this method was feasible and more dependable for collecting sediment accretion cores. Nicole Rankin and Theresa Thom used the cryogenic coring method to extract a sediment core from established marker horizon plots at both refuges. Using this method, liquid nitrogen is delivered through a steel hose and copper bullet into the marsh soil. The soil surrounding the copper bullet will freeze to the bullet resulting in a frozen core of marsh sediment. After some initial troubleshooting, Nicole and Theresa were able to successfully collect cryo-cores and measure accretion from all established plots at both refuges. Currently, Savannah Coastal refuges have been trained in how to use this sampling method for collecting sediment cores. And in the near future, other refuges will also be trained on how to use this method. For more information, please contact Nicole Rankin.


Measuring accretion from cryogenic core

SOUTHEAST REGION INVENTORY AND MONITORING BRANCH CONTACT LIST			
Janet Ertel	Branch Chief	662-325-8679	janet_ertel@fws.gov
Forbes Boyle	Botanist	912-496-7366 ext 224	maxwell_boyle@fws.gov
Tim Fotinos	Botanist	318-742-1219 ext 104	tim_fotinos@fws.gov
Lee Holt	Aquatic Ecologist	256-353-7243 ext 28	roger_holt@fws.gov
Steve Holzman	Data Manager	706-425-2250	steve_holzman@fws.gov
Nicole Rankin	Coastal Ecologist	843-928-3264 ext 211	nicole_rankin@fws.gov
David Richardson	Terrestrial Ecologist	662 226-8286	david_richardson@fws.gov
Wendy Stanton	Terrestrial Ecologist	252-796-2402	wendy_stanton@fws.gov
Theresa Thom	Aquatic Ecologist	843-784-6262	theresa_thom@fws.gov
Sue Wilder	Coastal Ecologist	985-882-2008	sue_wilder@fws.gov

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http://www.fws.gov/southeast/IMnetwork/

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