FY15 Highlights and Accomplishments

Nationally, Region 4 made significant contributions to the National 7-year plan this year, including Inventory & Monitoring Plans (2 complete, 7 in progress), Water Resource Inventory & Assessments (5 completed), and ServCat Legacy projects (17 completed). We provided water threats data for 109 refuges to the National Water Resources Database and tested the upcoming NWRSpecies National Database.

Regionally, the Inventory& Monitoring Branch continued to provide coordination, technical support, data management, and reporting for natural resource monitoring efforts: The Mobile Acoustical Bat Monitoring (MABM), including 58 stations collecting data for local species inventory, landscape trends and habitat use; and Surface Elevation Table (SET) monitoring, with 18 stations acquiring long-term data on impacts of climate change. We also initiated a project to create standardized wall-to-wall Habitat Type maps for refuges region-wide.

We contributed to regional and landscape strategic planning through input on the RISAC Invasive Species Team, the Waterfowl Action Plan team, and GCPO LCC Monitoring prospectus, the South Atlantic LCC blueprint and At-Risk Species workshops.

At the local scale, the Branch provided $238 k in funds for 22 refuge inventory and monitoring projects and helped refuges receive an additional $214k for projects by directing proposals to other funding opportunities. I&M staff supported specific requests for assistance, including but not limited to technical support for passive acoustical bat surveys, vocal anuran monitoring, refinement of site specific protocols, Regional Invasive Species Advisory Committee (RISAC) contribution, fire effects monitoring, mining of e-bird data for regional and national refuge species lists, research coordination and advice, forest treatment response monitoring design, partner coordination for aquatic invasive species inventory, occupancy modeling for fire dependent bird species, and historic waterfowl data assessment.

Species Highlight

Species: Eastern Spadefoot (Scaphiopus holbrookii *)*
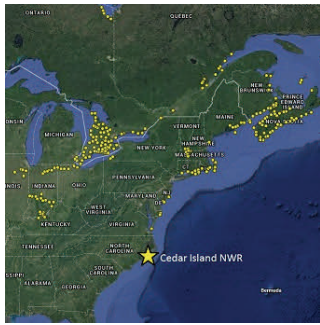
Location: Big Branch Marsh NWR

Range: Throughout Eastern US

Habitat: burrows in sandy soils; hard to detect (only call after midnight with heavy rains and temps above 60F)

Photo: Kimberly Terrell, Memphis Zoo

New I&M Statistical Capacity

Please welcome our Refuge System Quantitative Ecologist

Adam Smith is the new R4 Inventory and Monitoring Quantitative Ecologist. Adam's skills and interests are an ideal match for our needs in monitoring protocol design and data analysis at refuge and landscape levels. He has a BS in Wildlife Biology (Murray State University, KY), MS in Raptor Biology (Boise State Univ., ID), and PhD in Environmental Sciences (Univ. of Rhode Island), and brings a combination of outstanding statistical skills and aptitude with ecological education and experience. Adam is already making a positive difference on regional and refuge design and analysis problems. Joining him in Athens are his wife, Rhonda, previously a NWRS biologist in Rhode Island, and three children ages 1, 5, and 8. We welcome Adam and his family to our regional FWS family!

Join us in welcoming the Smith family to the Southeast Region I&M Branch!

Crystal River NWR Manatee Monitoring Protocol: leading by example

Winter-time use of the Three Sisters Springs by manatees and human visitors at Crystal River NWR in Florida has been increasing in recent years. Refuge staff and other interested parties collaborated to begin monitoring human-manatee interactions within the springs to determine the impact that swimmers and boaters may be having on manatees that use the springs as an important winter-time thermal refuge. Refuge staff relied on the FWS handbook, "How to develop survey protocols", to develop the necessary components of a monitoring program for human-manatee interactions (USFWS 2013).

Now, with the help of SE Region I&M staff, Crystal River NWR is about to send the first, site-specific I&M protocol for national review. We applaud the refuge staff and volunteers on their dedication to scientific integrity and implementation of an excellent monitoring program. We, on the SE Region I&M team, look forward to working with every refuge to develop more quality monitoring protocols. Contact: Tim Fotinos or Janet Ertel.

Manatee at Crystal River NWR

Southeast Refuges Extend Motus

The first Motus station in the Southeast Region was deployed at Cedar Island NWR in October 2015.

This fall, the Southeast Region Inventory and Monitoring Branch and the Migratory Bird Program are installing two automated telemetry receiving stations as part of a continental migration tracking network. The Motus Wildlife Tracking System (Motus) comprises a network of coordinated automated radio telemetry towers that track the movements of tagged animals throughout terrestrial and coastal environments. The purpose of Motus is to facilitate landscape-scale research and education on the ecology and conservation of migratory animals. Launched in 2013, the network has grown to more than 280 active receiving stations. The receiving stations listen around the clock for passing animals wearing a digital "nanotag" tracking device. Nanotags are lightweight (<3 g) digital VHF radio transmitters that enable hundreds of individual animals to be monitored simultaneously on the same radio frequency. One of the key gaps in the network is the south Atlantic coast which is highly relevant to the species and locations of ongoing tag deployments. The first refuge tracking station is collecting data at Cedar Island NWR.

Each year, scientists from numerous universities and agencies deploy hundreds of nanotags for tracking migratory movements throughout eastern North America, including multiple species of seabirds, shorebirds, songbirds, raptors, and bats. They count on tracking stations along the route to record passing animals. Receiving stations log tag detections in real time, and flying animals can usually be detected by the station up to 15-20 km away. For more information, contact Adam Smith.

The newly installed Motus Wildlife Tracking System at Cedar Island NWR in North Carolina.

MABM Update

The Mobile Acoustical Bat Monitoring initiative (MABM) completed its 4th year of survey which began in 2012. The survey is designed to examine long-term changes in relative abundance bats during the breeding season. To date, 58 field stations (56 NWRs and 2 Ecological Service Field Offices) across 13 states, 4 LCCs, and 3 FWS regions have participated in the survey. In 2015, due to flooding and other logistical challenges, only 48 stations participated. Of the expected 16 species of bats within the sampling locations, the survey has identified 13 species. Eastern Red Bat, Tri-colored Bat, and Evening Bat are the most common detected bats. The I&M Branch also supported targeted acoustical surveys for the threatened northern long-eared bat and the endangered Indiana bat and Florida bonneted bat at Cache River, Felsenthal, and Ding Darling NWRs. Contact David Richardson.

Vocal Anuran Monitoring at Swanquarter NWR

In 2014, the Southeast Region I&M Branch conducted the first vocal anuran monitoring at Swanquarter NWR. The methodology and data analysis were conducted in accordance with the National Park Service Southeast Coast Network I&M Program's draft protocol for monitoring vocal anuran communities. Ten Wildlife Acoustic SM2+ automatic recording devices were deployed from March 24 – June 16. Eight species were detected with the ARDs. A detailed report of the monitoring has been archived on ServCat (record 53971). Related to this project is a report developed on amphibian inventory and monitoring and recommended techniques to provide an evolving, quick guide to determine which protocol or technique best fits a refuge's objectives or question they need addressed. This is an evolving document and will periodically be updated with additional surveys. (ServCat record 53954). Contact Wendy Stanton.

Wildlife Acoustics Automatic Recording Devices are used to monitor vocal anuran communities at Swuanquarter NWR.

2015 I&M Project Highlight: Herp Survey at Big Branch Marsh NWR

This 2015 nationally funded project surveys a total of 15 sites at Big Branch Marsh NWR in Southeast Louisiana using a combination of visual surveys, trapping, cover boards, and call surveys (frogs only). Sites were selected semi-randomly across a sampling grid using GIS software. The number of sampling sites reflected the amount of total acreage of habitat type (i.e., flatwoods, grasslands, swamp, marsh, ponds, river, and bayou) on the refuge. Traps were checked daily and removed or made inaccessible when not in use to minimize the risk of animal mortality. Pitfall traps are covered with rain guards to prevent flooding. Each site is visited every 2-3 weeks from February – December 2015. Results of this project show that Big Branch Marsh NWR is an incredibly important refuge for coastal plain herps. From this survey 15 species of frogs, 4 species of salamanders, 15 snake species, 2 turtle species, 6 species of lizards and 1 crocodilian (American Alligator) were observed. Species of note included; the Eastern Spadefoot Toad (see species highlight), the Eastern Glass Lizard and Northern Scarlet Snake. The Eastern Glass Lizard and the Northern Scarlet Snake are species of state conservation concern. Prior to this survey, there was only one record of a Northern Scarlet Snake in St. Tammany Parish. Also of interest is the melanistic (i.e., all black) glossy crayfish snake, which appears to be a first for record for St. Tammany Parish. Contact Sue Wilder.

Northern Scarlet Snake, Cemophora coccinea opei Big Branch Marsh NWR June 2015. Photo: Kim Terrell, Memphis Zoo
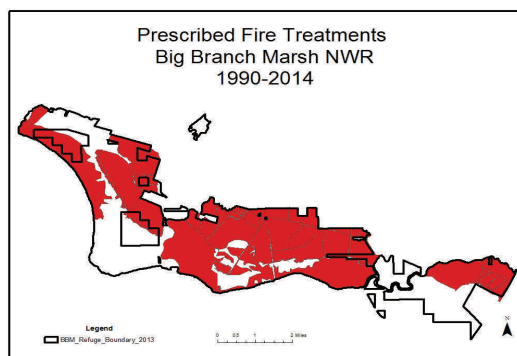
Fire Atlas Project: Mapping Fires

When a fire occurs on a refuge (either a prescribed burn or a wildfire) a detailed fire report is created and entered into the Fire Management Information System (FMIS). Fire reports have been archived as far back as the early 1980s when the Fish and Wildlife Service first began to collect fire data. Reporting elements in FMIS include information such as what type of fire, location, size, ignition date, control date, staff and equipment resources and other information pertinent to the fire.

Since 2013, any new fire reports entered into FMIS have required a digital spatial fire perimeter that provides both the location and size of the fire as part of the report. A collaborative effort is underway to build an atlas of fires for any refuge fire that can be mapped prior to 2013 using remote sensing tools and satellite imagery. The Fire Atlas project is a partnership among the Service's Fire Management, I&M Branches and USGS. Here in the Southeast Region fire atlases have been built for St Marks, Big Branch Marsh, Sabine, Mississippi Sandhill Crane, and Grand Bay NWRs and a fire atlas database is currently being constructed for Merritt Island NWR.

Results from the Fire Atlas Project can provide important information related to both fire and resource management for refuges. At Big Branch Marsh NWR in Southeast Louisiana, for example, a map was created from the fire atlas data that shows the location of prescribed fires that have occurred on the refuge over the past two decades (see map). Contact: Sue Wilder.

Prescribed Fire Treatments
Big Branch Marsh NWR
1990-2014

Vegetation Community Monitoring – A 2015 NPS and USFWS Partnership

The SECN NPS crew and FWS Botanist Forbes take a break from vegetation sampling for a photo op at Fort Pulaski National Monument, Georgia.!

The Plant Community Monitoring project is an ongoing survey on NPS lands within the Southeast Coast Network (SECN) used to detect vegetation changes for the purposes of complementing management decisions that promote biodiversity and the health of listed and rare species. In July 2015, Forbes Boyle detailed with the NPS SECN to assist with vegetation surveys on several parks across Florida, Georgia, and North Carolina.

The detail provided valuable insights in how to efficiently conduct long-term vegetation community monitoring on refuge lands, including the use of the Reversed Randomized Quadrant-Recursive Raster algorithm for determining a spatially-balanced framework within each park. Partnering across agency boundaries to get our conservation work done will prove to be invaluable for establishing a landscape-level approach to dealing with ecosystem threats. For more information on the NPS Plant Community Monitoring project, please visit: http://science.nature.nps.gov/im/units/secn/monitor/plantcommunities.cfm or contact Forbes Boyle.

R4 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	Plant Ecologist	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
Adam Smith	Quantitative Ecologist	252-796-2402	adam_d_smith@fws.gov
Wendy Stanton	Wildlife Biologist	252-796-2402	wendy_stanton@fws.gov
Sue Wilder	Coastal Ecologist	985-882-2008	sue_wilder@fws.gov