The Vector
Southeast Region GIS Newsletter

In This Issue

Notes from the Regional Coordinator

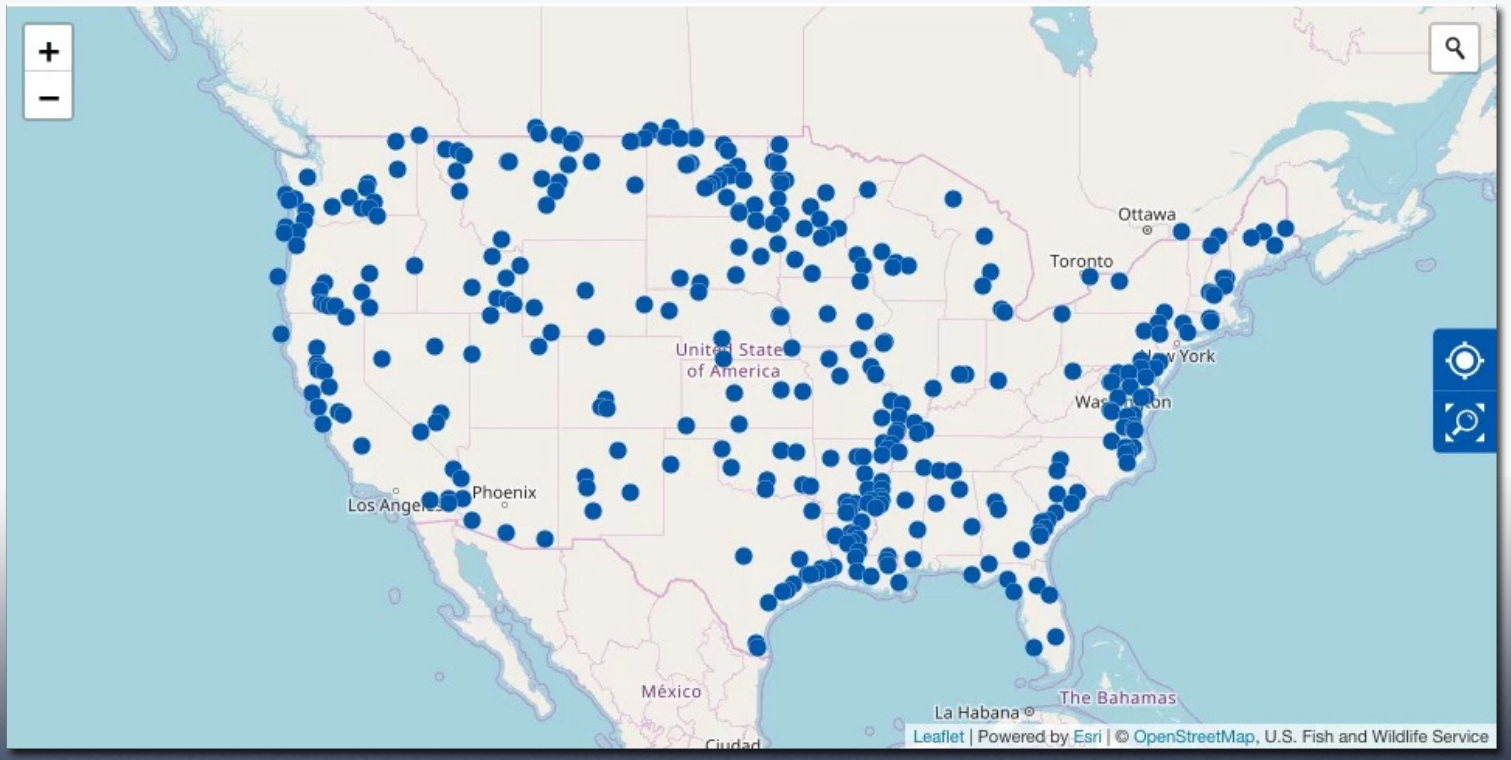
What a year 2017 has been for GIS in the US Fish & Wildlife Service in the Southeast Region! This newsletter showcases on a portion of the diverse projects that GIS Professionals and Biologists are working tirelessly on to conserve and protect our trust resources across the Southeast. Your Regional GIS Committee is hard at work planning the 20th Annual GIS Training for May 15-17, 2018, and we are wrestling with issues such as migrating to ArcGIS Professional as ArcGIS Desktop 10.6 will likely be the last release of the 32-bit GIS software that we utilize on a daily basis. Field data collection issues are shifting to smartphones with external GPS units and we are using Collector to capture GIS data in the field more and more and are starting to use Survey 123 widely for data captured via forms on tablets and phones. The GIS landscape is ever evolving and we had great success with a hurricane assessment application for Harvey, Irma and Maria recovery efforts. Our Regional GIS Professionals work to support wildfire response and hurricane response in addition to the many hats they wear in their local offices. Our primary task is to support our local and Regional users and we are always here to serve you. If you find yourself in need of GIS support or have questions about the use of the technology, please give me a call or e-mail. All of you are "spatial" to us!!

Roy Hewitt, Regional Web Developer, Southeast Regional Office

Hunting on national wildlife refuges is a tradition that dates to the early 1900s. Today, more than 330 refuges are open to the public for hunting – seasonally and in accordance with state regulations.

The service released a new interactive map that allows citizens to find the perfect hunting opportunity just in time for National Hunting and Fishing Day on September 23, 2017. The map allows citizens to filter hunts by big game, deer, small game, turkey, upland birds and waterfowl. Users can also find hunts using their current location or by searching for a location by keyword.

The website pulls data from a feature service hosted on ArcGIS Online.

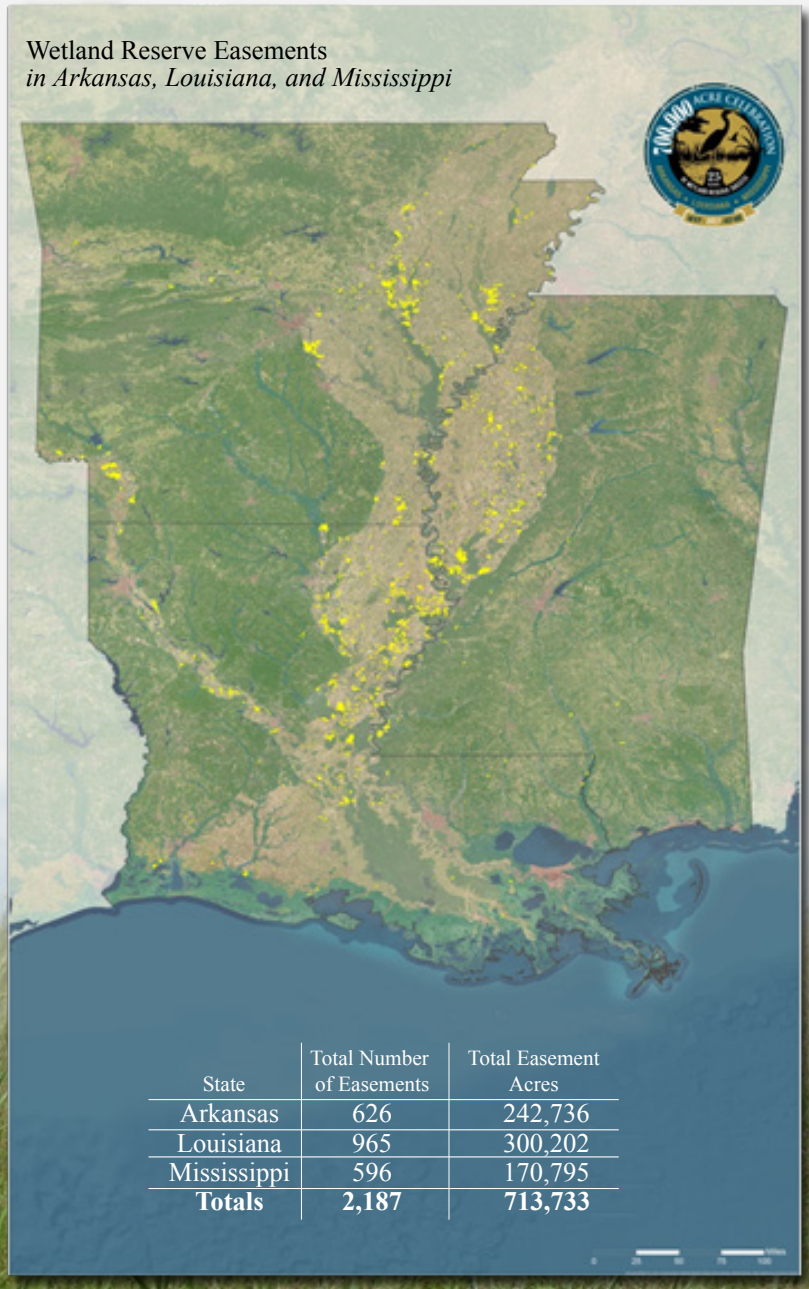


If you have questions about the new webpage or the underlying data please contact Roy Hewitt at roy_hewitt@fws.gov or (404) 679-7306.

NRCS, FWS, Partners Celebrate Conservation Milestone in the Lower Mississippi Valley

Blaine Elliott, GIS Applications Biologist, Lower Mississippi Valley Joint Venture

Congress first authorized WRP (Wetlands Reserve Program) in the 1990 Farm Bill as a voluntary program offering landowners the opportunity to protect, restore, and enhance wetlands and wildlife habitat on their property. Since then, the cumulative benefits of the wetlands restored through WRP (and its successor, WRE) continue to reach beyond their easement boundaries to improve watershed health, vitality of agricultural lands, ecosystem function, and aesthetics and economies of the communities they are associated with. Through strategic conservation planning, many of these easements are located in close proximity to state and federal public lands, further extending the ecosystem benefits provided by these protected lands.



State	Total Number of Easements	Total Easement Acres
Arkansas	626	242,736
Louisiana	965	300,202
Mississippi	596	170,795
Totals	**2,187**	**713,733**

Now 25 years after the first WRP tracts were enrolled in the Mississippi Alluvial Valley (MAV), conservation partners are celebrating the program's tremendous impact and success as it topped 700,000 acres in the "big 3" states of Arkansas, Louisiana, and Mississippi. With festivities planned in Tensas Parish, LA on October 20, 2017, the conservation-minded from near and far gathered to hear from conservation leaders, tour nearby easement habitats, and share stories regarding this monumental achievement.

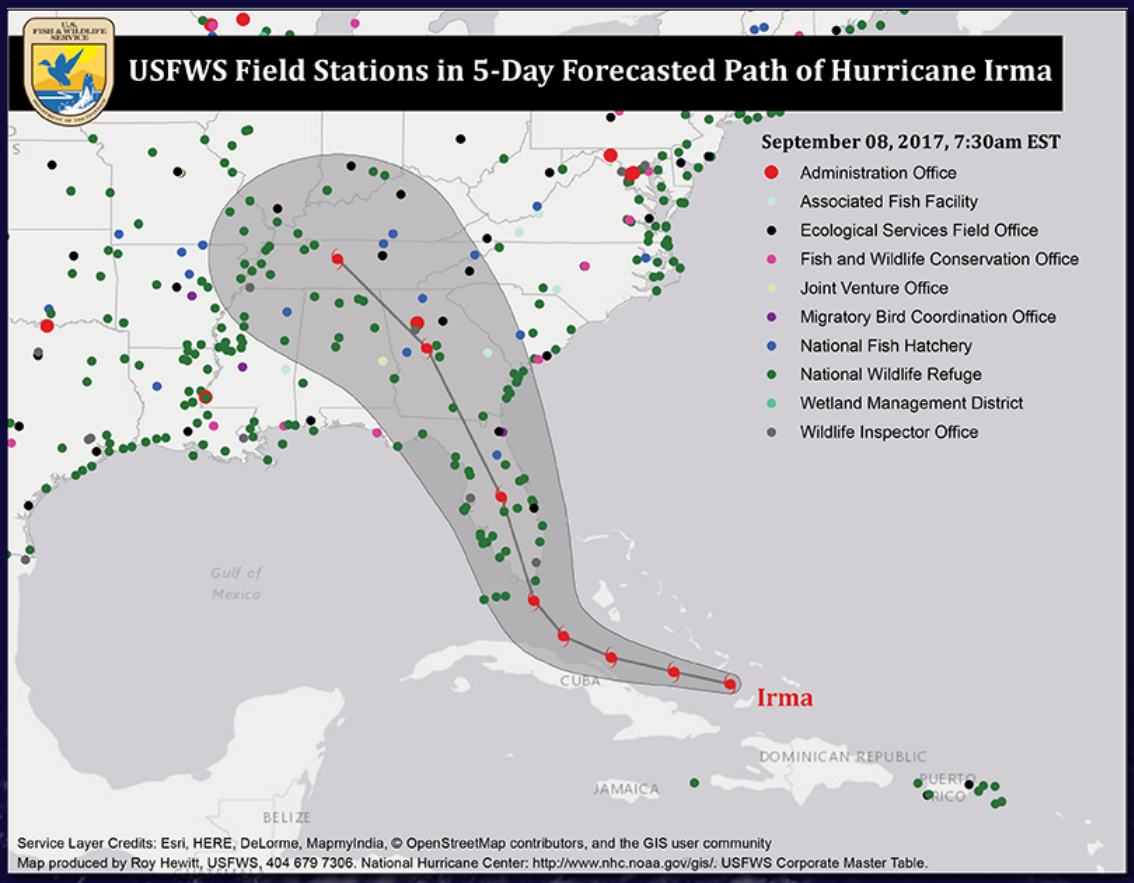
Geographic Information Systems (GIS) have long been principal to WRP/E accomplishment tracking and habitat monitoring, by both NRCS practitioners and others, and will continue to be used to support this nationwide endeavor. Further, these data are utilized heavily in landscape characterizations and habitat modeling by conservation entities that maintain and promote science-based objectives for habitat protection, restoration, and enhancement. National WRP GIS data are available annually via the National Conservation Easement Database (NCED) (https://www.conservationeasement.us/), that reports over 25 million acres of conservation easements from WRP and other programs within its data tables.

Hurricane mapper for emergency response

Roy Hewitt, Regional Web Developer, Southeast Regional Office

One hurricane after another battered the Southeastern United States, Puerto Rico and the U.S. Virgin Islands in September. Daily coordination calls began while Hurricane Irma grew in strength in the Eastern Atlantic and have continued into October after Hurricane Maria left Puerto Rico almost entirely without power and other essentials.

As Hurricane Irma moved into the waters of the Caribbean Roy Hewitt of External Affairs began preparing maps each morning and afternoon based on the National Hurricane Center's continually changing forecasts. The static maps showed the Service's field stations and refuges in the forecast cones and were provided to the Southeast Region's disaster response team to assist with preparation for the storm. Continually producing static maps quickly became a repetitive and time consuming process.



In an effort to streamline the production of maps the External Affairs team created a new national hurricane page, which consumes data from the National Hurricane Center's feature services available on ArcGIS Online. The new web page updates as the hurricane forecast changes and automatically produces a list of offices and refuges in any of the hurricane forecast cones. These automatic updates allows the External Affairs team to focus on communicating the Service's on-the-ground response efforts.

For more information on the hurricane mapper and the data behind the page please contact Roy Hewitt at roy_hewitt@fws.gov or (404) 679 7306.

Fish and Wildlife Service responders add technology to aid Hurricane Harvey response, bolster safety

Roy Hewitt, Regional Web Developer, Southeast Regional Office

Josh O'Connor, a fire specialist for the U.S. Fish and Wildlife Service at the Department of the Interior, wanted to help search-and-rescue teams in five Texas counties that were in Hurricane Harvey's devastating path.

He had a powerful piece of technology that he had used to aid in fighting wildland fires that he believed could be adapted to help Texas emergency management responders speed their response activities and do it safely. Combining publicly available geo-referenced PDF maps with the Avenza mobile application for smart phones and tablets, O'Connor created a way to inform searchers where they were on a flooded street, an inundated parking lot or submerged park. It can even tell responders what utility infrastructure is underneath them, and where other important infrastructure might be located that responders cannot see.

"We knew it could take 36 hours or more to get large printed maps to rescue teams and this technology would help them respond more quickly in real time," O'Connor said. "With this tool we can produce maps in minutes and make them available to rescue teams in flooded areas to show them exactly where they are in terms of submerged roads, power lines, and more.

"Just being able to use this technology to support responders and give them the advantage of speed and safety that comes with information like this is important to us and the people that need them quickly."

Service employees led by O'Connor and several of its best technology and mapping experts were able to produce maps for the cities of **Port Arthur**, **Beaumont**, and **Orange**, Texas, as well as **Hardin**, **Jefferson**, **Liberty** and **Orange** Counties there.

"This technology is an invaluable tool for everyone who is responding to our needs," said Hardin County Judge Wayne McDaniel. "Not just our emergency services personnel, but also our public utility departments and others. I can't say enough about how much we appreciate everything that the U.S. Fish and Wildlife Service has done and continues to do with its people, technology and equipment to help us save lives."

Greg Sheehan, the Service's Principal Deputy Director, noted that Service employees will always pitch in when they can. "I am extremely proud of the way our employees are aiding this vital response effort to help the people of southeast Texas," Sheehan said. "The technology Josh O'Connor and our team are using to help speed response times and enhance safety for our responders is incredibly valuable."

"With nearly 250 employees who live and work in many of these communities, this is just one example of the kinds of things our people are doing to support the extraordinary efforts of search-and-rescue teams, local law enforcement, firefighters, and the U.S. Coast Guard in their heroic efforts on the ground," Sheehan added.

The maps can be downloaded here: fws.gov/southeast/our-services/fire/#hurricane-harvey-response. The Avenza app can be downloaded separately.

Contact

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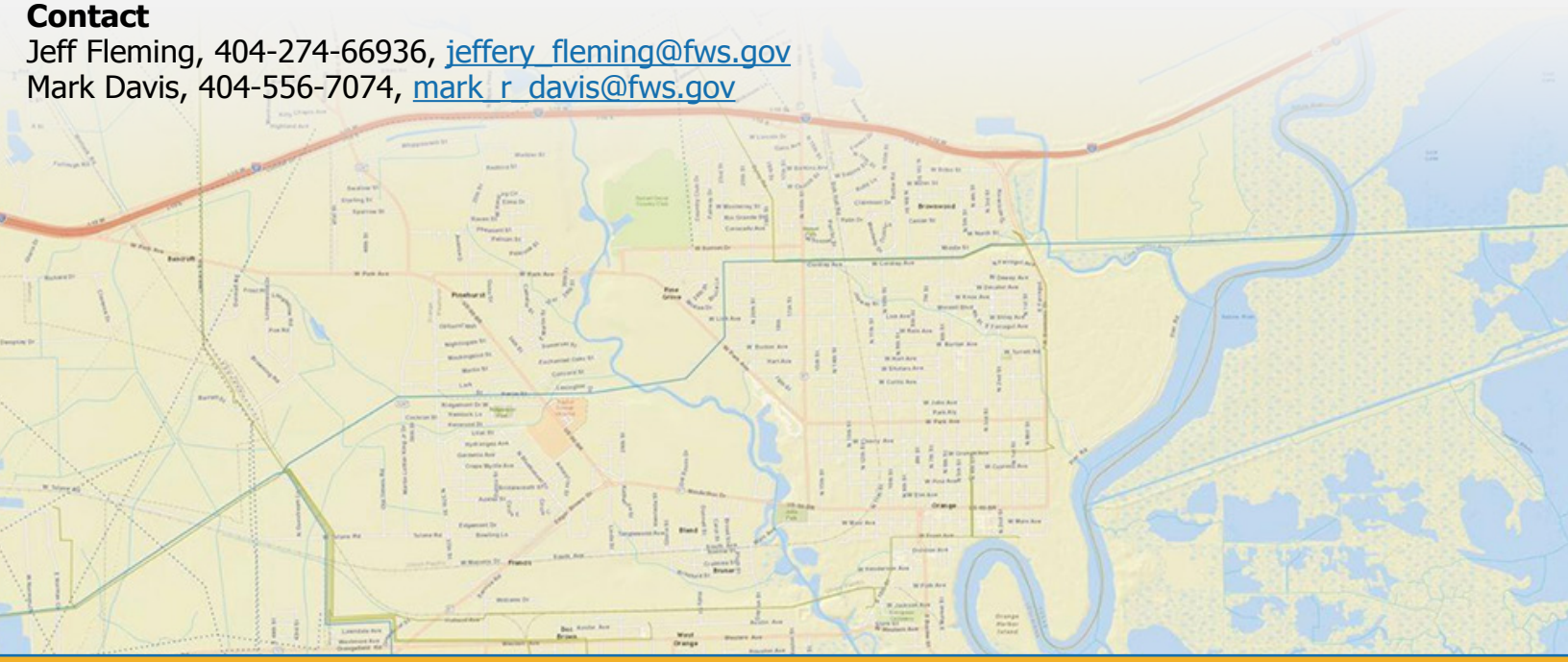
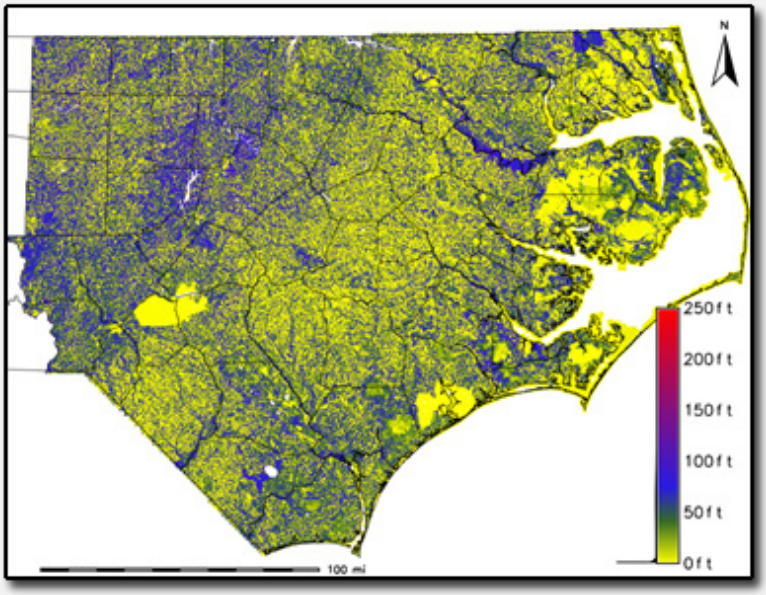


Red-cockaded Woodpecker geographic variation in habitat from LiDAR – derived vegetation metrics using Global Biodiversity Information Facility (GBIF) point data

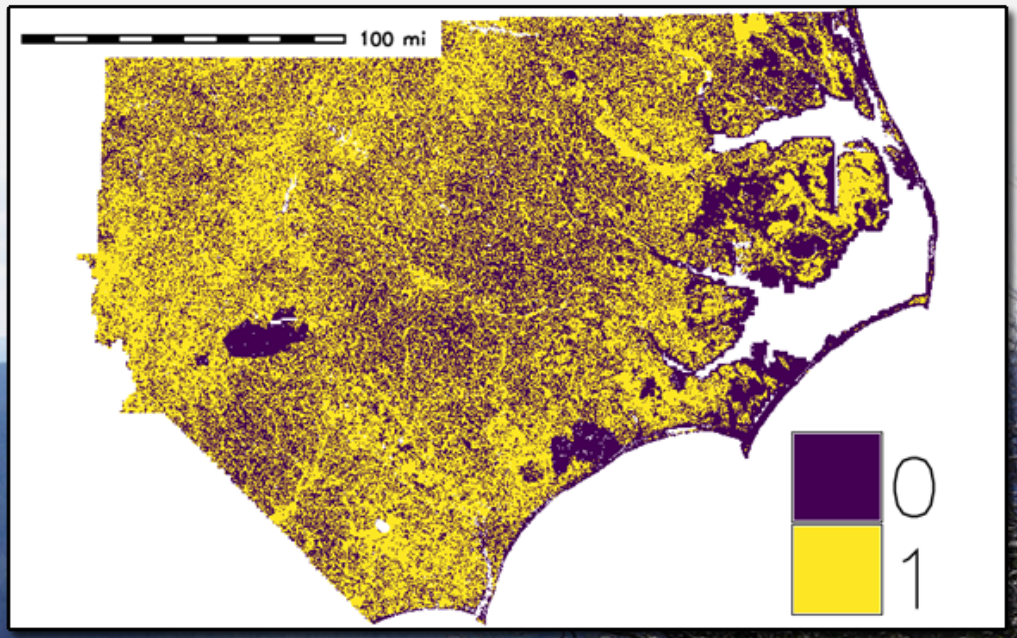
Doug Newcomb, Cartographer, Raleigh, NC Ecological Services Office



Canopy Heights in Feet, 20m Resolution

Leveraging the statewide LiDAR data collection in North Carolina, the Raleigh Field Office has been processing the 360 billion points of LiDAR data collected in the eastern 60 counties to generate vegetation metrics such as canopy height and understory vegetation distribution and density. The LiDAR data was processed at a resolution of 20ft (6.096m) to give a fine scale look at localized vegetative habitat. Since this data has been collected at a broad geographic scale, it allows for a broader analysis of species-habitat interaction. This allows one to see the overall vegetative habitat preferences of species , as well as extracting geographic variation in preferences of habitat. Ongoing work involves obtaining species observations from databases such as the Global Biological Information Facility, https://www.gbif.org or the North Carolina Natural Heritage Program to compare the locations to the vegetation structure metrics in the immediate vicinity.

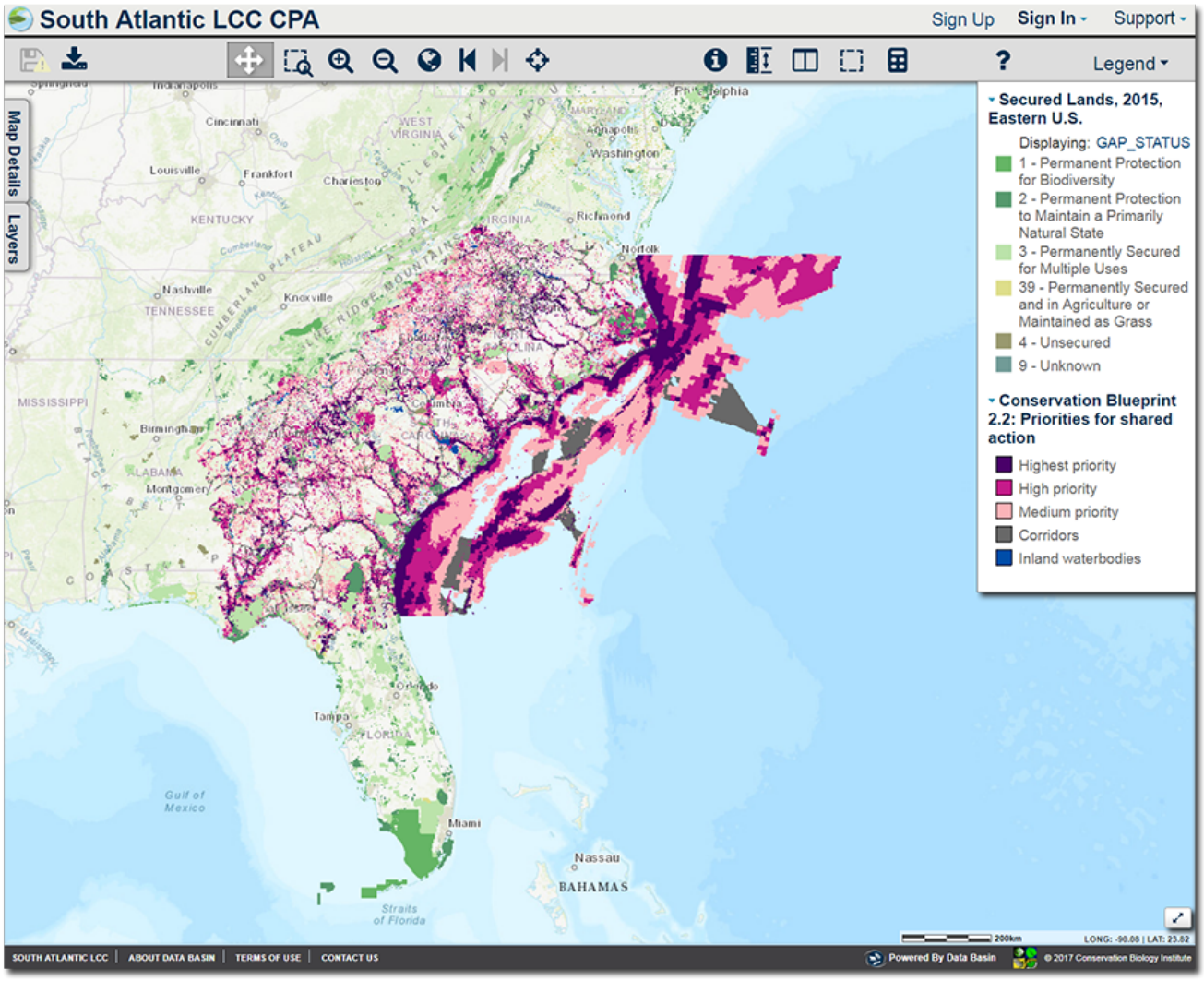
Forest (1) vs Non-forest (0)



Initial results indicate that different canopy structure data sets will be useful in working with our partners to further our understanding of species - habitat interactions for multiple species and improving conservation planning efforts.

South Atlantic Landscape Conservation Cooperative Blueprint 2.2 Release

Amy Keister, GIS Coordinator, South Atlantic LCC



Your Conservation Blueprint 2.2 data are now final and ready for you to use to inform conservation decisions across the South Atlantic! Rua's blog from last month provided a great summary of the major improvements in this latest Blueprint update, which include updated indicator data, a new marine birds indicator, improved corridor methods, a new approach to open water in lakes and reservoirs, more complete documentation of known issues, and more.

Please check out the final Blueprint 2.2 and associated layers on the Conservation Planning Atlas (CPA). You can play around with the data in the CPA mapping interface, or you can download it to your local machine and explore it in GIS software. If you download the data and have ArcGIS on your machine, I suggest you start by opening the .mxd file in the download. There you will find all of the layers pre-loaded in a map and ready to explore. If you do not have ArcGIS, and you have found that you need more access to the data than the CPA and Simple Viewer allow, we are now providing the final Blueprint layers (and some of the input layers) in formats that are easier to view in open source GIS software.

Please don't hesitate to contact me (amy_keister@fws.gov) if you are having any problems accessing and using these data. After all, the South Atlantic LCC mission isn't just to create a conservation blueprint, it is to "facilitate conservation actions that sustain natural and cultural resources, guided by a shared adaptive blueprint."

Your South Atlantic LCC support staff are here to help you explore and use Blueprint 2.2 in your conservation efforts!