UPDATES FROM STATES AND SOIL SURVEY REGIONS

Florida – Digital Soil Mapping Field Week
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On February 3-7, the Digital Soil Mapping (DSM) Focus Team, in collaboration with Southeast Soil Survey Region (former Regions 3 & 7) of the NRCS Soil and Plant Science Division, offered a DSM field week in Fort Myers, Florida. The field week objective was to develop a DSM workflow to produce a Raster Soil Survey for the Big Cypress National Preserve (BCNP). This activity provided cross-training for the Fort Myers Soil Survey Office (7-FOR) staff, DSM Focus Team members, and other soil survey regional staff in conducting DSM projects. Participants included GIS Specialists, Soil Scientists, Soil Data Quality Specialists, an

Group discussing project and field week logistics at the Big Cypress National Preserve, Collier County, Florida.

Ecological Site Specialist, Remote Sensing Specialists, and soil science university faculty from across the nation.

After the safety briefing participants are ready for the safari day.

The week began with Martin Figueroa (Senior Soil Scientist) and Craig Prink (Soil Survey Office Leader) welcoming the team to the state of Florida and providing an overview of the field week agenda at the Fort Myers Soil Survey Office. We then headed to the Big Cypress National Preserve (BCNP) where we discussed field week logistics, project objectives, project area, and safety procedures. BCNP was established in 1974 being one of the first national preserves established in the United States. The national preserve offers a complex landscape, diverse fauna, and a wide variety of tropical and temperate plant communities. BCNP is located on the MLRA 156A – Florida Everglades and Associated Areas.

Cypress domes (left) & Hammocks (right).

During the field days participants were able to explore the survey area using a swamp buggy and other all-terrain vehicles transforming the overland journey into a safari. With the objective to identify and recognize the relationships between landforms, soils, and their respective vegetation community, we focused mainly on four classes which include Hammocks (flatwoods or knolls), Prairies (fresh water non-forested wetland - broad flats), Cypress domes (outer-edge freshwater forested wetlands), and Isolated swamps (inner-core fresh water non-forested wetlands). However, after observing a pattern on the bedrock outcropping around the area, we added another class – rock outcrop (fossiliferous limestone bedrock) in order to test the utility of adding this class to the model. All classes were identified by their respective landforms within the landscape. The dominant landform in the project area is marine terraces within the coastal plain.

After several days exploring the project area the participants learned about the soil-landscape relationships, geology, landforms, native and invasive plants, ecological site concepts, and the general ecosystem on the Big Cypress National Preserve.

Some examples of the mineral & mucky mineral soil and the fossiliferous limestone from the late Pliocene-Pleistocene age exposed in some areas of the prairies. In the extreme right side, a mini soil profile of the Myakka series - Florida's Official State Soil.

The BCNP offers a rich diversity of flora that includes oaks, cypress, cabbage palms, saw palmetto, willows, and even citrus trees which have been introduced by anthropogenic means hundred years ago. Also, a variety of ferns, lichens, vines, and epiphytes can be found in the sheltered interior of the tropical forested areas. The fauna includes a variety of birds, venomous cottonmouth snakes, eastern diamondback rattlesnakes, alligator, river otters, deer, coyotes, black bear, and the Florida panther.

Back in the office, the group gathered to discuss field observations and share ideas to improve the developing DSM project. It was a great opportunity for on-site modeling with participants manipulating covariates and running different scripts in R software to produce or refine soil class maps. Training data and digital soil mapping methods were constantly reviewed and analyzed by participants to maximize accuracy and validate the model. After creating several models with some modifications on the soil classes, DSM Focus Team members decided to perform additional data exploration which proved fruitful in refining soil class relationships with respect to landform position, pedogenic processes, and ecological site concepts.

On-site modeling and data discussion.

From a training standpoint, participants applied all the techniques discussed and learned during the Introduction to Digital Soil Mapping training. This is definitely an important step for encouraging those who are just getting involved in digital soil mapping.

Participants evaluated different preliminary products for meet project objectives.

During the wrap up, the group expressed appreciation for the field week experience and agreed that collaboration between DSM Focus Team members and others involved in DSM is important to develop initial soil surveys and update existing soil surveys. Many thanks to the DSM Focus Team and the Southeast Soil Survey Region for supporting the DSM field week activity which increases the awareness and knowledge of constantly evolving soil delivery products. This dynamic group effectively worked together to generate a preliminary product that will be tested and refined to meet project objectives. The final

Raster Soil Survey will inform land managers, aid decision-making, and promote wise land use of this unique ecosystem in southern Florida. All were very grateful to Martin Figueroa for being an excellent host and providing each team member a mini soil profile of Florida's Official State Soil – the Myakka series. It was a fantastic week where everyone gained new perspectives and knowledge of a unique and beautiful place with memories that we will carry with us for years to come.

If you want to see more photos click the following link to get access to an online photo gallery: Digital Soil Mapping <- (Florida 2020)

Participants of the Digital Soil Mapping Field Week held in Fort Myers & Big Cypress National Preserve, Collier County, Florida.