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To: Highlands News-Sun

From: Archbold Biological Station

Date: 18 May 2018

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Archbold and University of Florida take the national stage

On April 22, Archbold Biological Station and the University of Florida (the Range Cattle Research and Education Center in Ona, Hardee county), collectively sent a team of delegates to the weeklong annual meeting of the Long-Term Agroecosystem Research (LTAR) network held in El Reno, Oklahoma. “LTAR is a national initiative by the U.S. Department of Agriculture, whose goal is to build knowledge to sustainably intensify agriculture, while minimizing or reversing environmental impact,” explains LTAR Data Manager Shefali Azad. “The network currently consists of 18 sites across the continental United States, each with a long-term history in agricultural and ecological research. The Archbold-University of Florida collaboration comprises one site.”

“As part of its many scientific operations, Archbold operates the 3,000-head working cattle ranch in Lake Placid, known as Buck Island Ranch,” says Dr. Betsey Boughton, Associate Research Biologist and Program Director at the Ranch, “Research is simultaneously carried out on soils, water quality, biodiversity, greenhouse gas emissions, effects of fire, and agricultural production at the Ranch.” The University of Florida at Ona carries out similar research at their Range Cattle Research and Education Center, a 1,200-head working cattle ranch on native rangelands. “Together,” Boughton continues, “Archbold and the Range Cattle Center represent the subtropical improved pastures and native rangelands that comprise the cattle industry in Florida.”

More than 130 agricultural scientists, economists, sociologists and data managers gathered at El Reno to discuss research needs for the future of sustainable agriculture in the United States.

“The focus of the meeting was discovery, collaboration, and cross-site comparisons,” Azad says. “For instance, what parallels can we in Florida draw from the stakeholder-driven adaptive approaches to cattle management in Nunn, Colorado? How can we take the crop rotation efficiency models developed at Pullman, Washington, and apply them to Tifton, Georgia? What emerging technology is the research team in Oklahoma using to measure methane emitted by cattle when grazing in pastures? All these and much more were discussed in great detail at the meeting.”

“Notable presentations included ways to develop water and carbon budgets for a site,” Shefali Azad continues. “Another interesting idea discussed was how researchers view the manure produced on farms and ranches as part of a geographically larger ‘manure-shed’ (like a watershed) showing where manure is produced and where it is then exported or shipped. The National Wind Erosion network reported on wind-based soil losses from agricultural lands. And the team that looks at remote sensing information such as satellite, airplane and drone data, has begun building ‘computer scale-up models’ to use LTAR results from the 18 sites for larger, agriculturally similar regions of the U.S. that they represent.”

Azad adds, “I was involved in a lot of breakout groups discussing protocols to measure and store climate, soil health, and water quality data and how to make these data publicly accessible over the Internet. Other groups discussed ways to compare the long-term data collected by all 18 LTAR sites and publish multi-author papers highlighting results. Still other groups discussed how to bring local producers, scientists, and policymakers together to develop LTAR research that could improve rural prosperity across the United States.”

“The team from Archbold and University of Florida contributed to many of these discussions,” says Dr. Hilary Swain, Executive Director of Archbold, adding, “We presented one poster display highlighting our site’s objectives, and two collaborative research posters, one on a GPS cattle tracking system developed by University of Florida and a second poster on reviewing the ecosystem values from agricultural landscapes that benefit people.” Dr. Swain is part of the 9-member Leadership committee that guides the vision and direction of the national LTAR network.

“All in all,” Swain continues, “it was a successful, highly productive meeting that enabled Archbold and University of Florida to add our expertise and research about Florida’s ranches to this national science debate. There was a lot of energy in the room generated by new teams of researchers, with widely different areas of expertise and from very dissimilar locations, asking questions and planning how to combine data from multiple sites to undertake nation-wide research projects. We are excited to be part of the LTAR program fostered by the U.S. Department of Agriculture, and to be working with their big science approach to building a solid ecological, social, and economic foundation for understanding the future of U.S. agriculture.”



Photo 1: Archbold scientists Dr. Hilary Swain, Dr. Betsey Boughton, and Shefali Azad meet with other LTAR network scientists in El Reno, Oklahoma earlier this year. Photo credit: Archbold Biological Station.



Photo 2: This machine's new technology can measure methane emissions as a cow is grazing, which is why scientists cleverly call it "The Munchinator." Photo by Hilary Swain.



Photo 3: Archbold's Executive Director, Dr. Hilary Swain, speaks up in a breakout group discussion at the LTAR meeting last month. Photo credit: Archbold Biological Station.