ARCHBOLD AUGUST 2018 NEWS

for curious minds

In This Issue:

1. Modeling Nature
2. Does Wetland Restoration Work?
3. Reading Art & Nature
4. Sand Shifters
5. Deyrup Challenge

Modeling Nature

Archbold Plant Ecology Intern Katie Burns and Research Assistant Brian Josey counting flowering Highlands Scrub Hypericum in a Rosemary scrub patch one year after fire.

When you are an endangered herb and living in a dynamic environment like the Florida scrub, ecologists would love to see your future with a crystal ball. Archbold Plant Ecologists did just that with **sophisticated computer modeling for the endangered, endemic scrub plant Highlands Scrub Hypericum** (*Hypericum cumulicola*). Dr. Pedro F. Quintana-Ascencio (University of Central Florida), Dr. Eric Menges (Archbold Plant Ecology Director),

Donate Now

Archbold Biological Station Website

Subscribe to our Monthly News

Archbold Press

Stephanie Koontz (Archbold), Stacy Smith (Archbold), Vivienne Sclater (Archbold), and Aaron David (University of Miami) just published their research 'Predicting landscape-level distribution and abundance: Integrating demography, fire, elevation and landscape habitat configuration' in the Journal of Ecology. Nature is complex and interactive, but thankfully, so is their model. They entered their hefty Highlands Scrub Hypericum dataset into the model including 38,313 observations from a sample of 10,910 individual plants in 15 Florida rosemary scrub patches between 1994 and 2015. Next, they incorporated the effects of elevation, fire, weather, and the size of the patch of scrub. **Their results show population growth of Highlands Scrub Hypericum was greater with extinction risk lower under more frequent fires, at higher elevations, and in larger patches of scrub with other neighboring scrub patches nearby**. These forecasts are only possible because of Archbold's long-term data. Now, land managers and ecologists have valuable insight into which Highlands Scrub Hypericum populations are likely to survive in the long-term and how to best use fire to maximize their chances. Read a blog summary here.

"Archbold Biological Station is one of America's iconic centers of continuous research and education in field biology. It is a prototype of what we need all across America."
— Edward O. Wilson

Does Wetland Restoration Work?

Wetland in semi-native pasture at Buck Island Ranch.

Millions of acres of wetlands are being restored with help from the USDA Natural Resource Conservation Service Wetland Reserve Easement (WRE) Program. This is critical work because wetlands not only filter water to improve water quality, they provide a home

Queen of Red Hill

Watch our new film about the Gopher Tortoises of Red Hill and the special people whose vision and dedication made this story possible. Watch here on Archbold Facebook or Vimeo.

and food for a large variety of plants and animals. However, few studies monitor results in restored wetland plant communities. **Archbold scientists Dr. Grégory Sonnier, Dr. Betsey Boughton and Dr. Hilary Swain, along with coauthors Dr. Patrick Bohlen (University of Central Florida), Steve Orzell, and Edwin Bridges took a closer look at the restoration success of two restored wetlands at** Archbold's Buck Island Ranch**.** These previously drained wetlands in semi-native cattle pastures were restored by plugging ditches and adding water control structures. They found wetland hydroperiod (the length of time a wetland is wet) increased in one of the wetlands, but there was no significant change detected in the other wetland. The lack of change for the second wetland may be due to the location of the groundwater wells. However, both wetlands showed increases in wetland plant quality, diversity and cover. Cattle grazing did not impact the success of the restoration. Study authors write, 'Overall, **our study shows that hydrological restoration can enhance wetland hydroperiod, water depth and wetland vegetation**, but more resources should be allocated to short- and long-term monitoring of the restoration success.'

Reading Art & Nature

Campers discuss a painting by Christopher Stills.

What's going on in this picture? What do you see that makes you say that? What else is going on? These three simple questions are the backbone of an art appreciation technique called **Visual Thinking**

The Scrub Blog
Nature and Science from Florida's Heartland

Explore The Scrub Blog by Archbold creative staff.

Strategies. Archbold's Ecology Summer Camp participants learned the technique this year while analyzing the nature-filled paintings of Florida by Christopher Still. 'When children are immersed in nature, they can be a bit overwhelmed by the sensory experience. Viewing paintings allows them to practice observation skills without that extra stimulation,' explains Education Coordinator and camp facilitator Dustin Angell. 'The real fun, of course, is getting the campers outside. Whether studying pine cones, identifying differences in habitats or watching wildlife, the campers used these same skills, honing their observations and finding evidence for their claims. It was great to see them using these Visual Thinking Strategies skills with so much enthusiasm.'

Sand Shifters

Jennifer Fuller studying the relationship between active and abandoned Gopher Tortoise burrows and the surrounding vegetation.

Jennifer Fuller has always been interested in vertebrate behavior and habitat interactions. She said, 'Gopher Tortoises are one of those species that really make obvious changes to microhabitats, which is what initially sparked my interest.' Fuller undertook an independent study as an Archbold Plant Ecology intern into how Gopher Tortoise burrow excavations in sandhill affect the surrounding plant community. She investigated the size, leaf litter, plant cover, and plant species in active burrow aprons (the sand mound in front of a burrow entrance), abandoned burrow aprons, and undisturbed control sites on Red Hill at Archbold. **Turns out**

Check out our Youtube Videos!

Connect with us on Instagram!

Connect with us on Facebook!

tortoises not only harbor incredible diversity inside their burrows (i.e, burrow commensals like snakes, mice, insects), but outside their burrows too. Similar to a fire disturbance, Fuller found Gopher Tortoise activity significantly reduced leaf litter and had a positive impact on plant species diversity by lowering competition. A common tortoise food source, Narrowleaf Silkgrass (*Pityopsis graminifolia*), grew taller and was more variable in active aprons compared to abandoned aprons. Gopher Tortoise burrowing and foraging creates a more diverse, varied sandhill community. Fuller added, 'I find the intersection of different fields of ecology (in this case, herpetology and plant ecology) is really exciting, and so important to our understanding of nature'. Learn more about the fascinating lives of Gopher Tortoises at Archbold in our new documentary Queen of Red Hill.

Deyrup Challenge

Dr. Mark Deyrup and Nancy Deyrup in Highlands Hammock State Park for an Archbold gathering.

We are thrilled to announce that Mark and Nancy Deyrup, who have both led distinguished careers at Archbold, have generously issued a Matching Gift Challenge to 'launch new voyages of biological discovery' for young scientists at Archbold. Thanks to the Deyrup's Challenge, any gift you make to Archbold between now and September 30, 2018 will be matched dollar-for-dollar up to a total of $40,000. We hope you will choose to take part in the Deyrup Matching Gift Challenge and play a personal role in assuring that

Archbold Facebook Event Calendar

Directions to Archbold Biological Station

Eight miles south of Lake Placid. Entrance is 1.8 miles south of SR 70 on Old SR 8.

Archbold can continue to answer pressing scientific questions, publicize our findings, and engage more people in protecting nature. Archbold depends on your generosity to fund our programs and continue doing great science for Florida, and beyond. We appreciate your support and consideration. Give now. Every gift truly matters! Thank you.

If you enjoy these stories from Archbold, please consider a gift to support our research and education programs. Donate now. Your gift really makes a difference.

Archbold
123 Main Drive, Venus, FL 33960