



Haoyu Li

ARCHBOLD DECEMBER 2019 NEWS for curious minds



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Digging into Tortoise Demography



Jen Brown

Young Gopher Tortoise in mowed sandhill on Red Hill.

Gopher Tortoises need open, sunny habitats for nesting, basking, and feeding. So what happens to tortoise populations when their homes become overgrown due to lack of fire? **On Archbold's Red Hill, tortoises persisted during decades of fire suppression by crowding into an open field maintained by mowing.** A [new study](#) of the Red Hill tortoise population just published in [The Journal of Wildlife Management](#) proposes human-created, grass-dominated areas "may be important components of the habitat mosaic currently available to this at-risk species." Authors Hunter Howell (University of Miami), Dr. Betsie Rothermel (Archbold Herpetology Program Director), Nicole White (University of Georgia), and Dr. Chris Searcy (University of Miami) analyzed 1,039 captures of 125 tortoises between 2012-2017 and compared communities of tortoises living in three adjoining habitats on Red Hill: 1) Former sandhill that now resembles a grassy pasture due to past shrub removal and regular mowing; 2) Closed-canopy, long-unburned sandhill; and 3) Open-canopy sandhill restored by clearing trees and



Allen McPherson

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"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

reintroducing fire. **Despite high densities, tortoises living in the pasture-like mowed habitat had the highest adult survivorship, as well as larger body sizes and larger egg clutches.** Rothermel shared, "Our results suggest we should pay attention to how we are managing both native and non-native habitats for tortoises. We also need to learn more about juvenile habitat use and survivorship to gain the full picture."

SFWMD Board Visits Ranch



Great Egrets foraging in a pond at Buck Island Ranch.

The South Florida Water Management District (SFWMD) "manages the water resources in the southern half of Florida, covering 16 counties from Orlando to the Florida Keys and serving 8.7 million residents". The SFWMD Governing Board is responsible for managing and protecting water resources of this vast region, a complex balancing act of decision-making about flood control, water supply, water quality, and ecosystems. **In the last few months, four newly-appointed members of the 9-member Board including Chair Chauncey Goss and members Carlos "Charlie" Martinez, Charlette Roman, and Jay Steinle visited Buck Island Ranch individually** (to comply with FL's Sunshine Law provisions). These visits were a special opportunity for Dr. Betsey Boughton, Dr. Hilary Swain and Ranch Manager Gene Lollis to discuss our agroecology research while addressing their questions about water management on Florida's cattle ranches. Questions included: How can we reduce water flow off ranches by retaining water onsite (known as dispersed water management)? What are the Best Management Practices that offer effective options for addressing legacy phosphorus (the large amount of phosphorus remaining in soils from fertilizer applications 25 or more years ago)? Is cattle grazing compatible with conservation of wetlands? The search for solutions to improve water management is essential. We also need to avoid unintended consequences that may leave

Public Events

Dec 12: 1:00-5:00 PM

4th Annual Archbold Research Symposium

Archbold staff will deliver presentations & posters from 2019.

Come and learn about the exciting range of Archbold research over the last year!

Public is encouraged to attend this free community event.

Refreshments provided after the symposium.

Dec 19: 3:30-4:30 PM

'Environmental Impact Assessment of U.S. Beef Systems'

Jasmine Dillon, Colorado State University

ranchers with limited options and may result in land use change from grazing land to intensive row crops or sale for development. The Board members asked good questions, and are looking for collaborative, workable solutions. **We are grateful they are taking the time to learn about the science on a Florida ranch.**

Studying Your Home



Dr. Katie Stuble at the Holden Arboretum.

Dr. Katie Stuble lives among northern hardwood trees like Sugar Maple and American Beech on the shores of Lake Erie. As a community ecologist at the [Holden Arboretum](#) outside Cleveland, Ohio, her research explores how global changes (e.g., climate) impact species and shape the hardwood forest ecosystem. In November, Stuble returned to Archbold to give a seminar about her current work. She attributes her Archbold Plant Ecology Internship with Dr. Eric Menges from 2004-2005 in addition to experience at the J.W. Jones Ecological Research Center in Georgia for her current trajectory working her dream job as a scientist at a non-profit. She shared, "Archbold really demonstrated to me what place-based ecology can look like. **There's something very powerful about working in the same system for years, observing your study system across the seasons and learning how all the pieces interact.** The perspective gained by this sort of long-term place-based research also empowers a scientist to become an effective advocate for conservation in their system. It's something that Archbold scientists do very well. And, I hope to do the same for northern hardwood forests as I grow and gain perspective in my new home system."

The Scrub Blog

Nature and Science from Florida's
Heartland

Explore [The Scrub Blog](#) by
Archbold creative staff.

Science-Art Connections



AIRIE artists in the Florida scrub at Archbold (left to right): Deborah Mitchell, Allison Matherly, Jeffrey Noble, Jessica Bennet, Grant Livingston, Sasha Wortzel, Dale Andree (behind), Archbold's Hilary Swain, and Cristina Molina. Photo credit: AIRIE.

Archbold's science-art connections continue to diversify and grow. In November, we welcomed Artists in Residence in Everglades ([AIRIE](#)), a non-profit that offers residencies for visual artists, writers, choreographers and composers in Everglades National Park. Dustin Angell, Archbold's Director of Education, led these creative professionals on tours around the Station and the Ranch so they could gain experience and insight into Archbold's wilderness. He also participated in a Petcha Kutcha group exercise where everyone shares stories about their art. Deborah Mitchell, AIRIE Creative Director, wrote, "Thank you so much for organizing the PERFECT weekend for AIRIE artists. I am delighted with the content, pace and attention to detail that you all suggested and executed. Dustin is such a wonderful guide, and really clicked with this group." Mitchell stayed for a few extra days, adding to her personal Archbold art portfolio. She emailed Dr. Reed Bowman, "Tomorrow is my last full day at this amazing Station, and I wonder if you or one of your interns can help with a quick request. I would like to see/photograph three specimens in your bird collection: an intact scrub jay and some loose feathers, and an owl (great horned if possible). I suppose that if I want to see an Ambrosia beetle, it would be in another building/collection." We are left to wonder what wonderful artwork Deborah Mitchell will produce next!

**Directions to Archbold
Biological Station**

Matching Gift for Archbold



Eastern Meadowlark adult feeding young at Buck Island Ranch.

Thanks to all of the dedicated supporters of Archbold's mission, we've had a tremendous success on [#GivingTuesday](#), getting [Archbold's year-end matching challenge](#) off to a fantastic start! We are so grateful for your ongoing dedication to our work. We have exciting news, our generous donor has offered an additional \$25,000 toward our matching gift challenge, bringing the total match to \$100,000! **If Archbold can raise a total of \$100,000 from and other dedicated Archbold donors, they will match your contribution dollar-for-dollar, making your gift have twice the impact.** In 2019 help from our supporters contributed to research studies such as the genetic composition of Florida Scrub-Jays, Gopher Tortoise habitat use and home range, and well- managed cattle-grazing's effects on grasslands and the carbon stored within them. Because of the generosity and commitment of our supporters, we can continue this level of world-class scientific research.

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



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.

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