



Meredith He

ARCHBOLD NOVEMBER 2022 NEWS for curious minds



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Tracking Tortoise Secrets



Juvenile Gopher Tortoise on Archbold's Red Hill. Photo by Leyna Stemle.

Archbold Biological Station (ABS) began monitoring Gopher Tortoises on Red Hill in 1967 with field observations of marked adults. Recent studies incorporated radio tracking, genetics, and motion-triggered cameras to reveal the fascinating lives of these long-lived reptiles. **Still, the daily habits of juvenile tortoises were largely a secret.** Always attuned to



Allen McPherson

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potential threats, juveniles quickly retreat into their burrows before we see them. A new study by University of Miami graduate student Leyna Stemle and her advisor Dr. Christopher Searcy, in collaboration with Dr. Betsie Rothermel, Archbold Herpetology Director, reveals some of their secrets. **The research team attached high-resolution GPS tags to ten Gopher Tortoises between three and seven years old.** They discovered young tortoises defy conventional wisdom. In their recent [Journal of Herpetology publication](#), they write, "Despite the relatively short duration of our study (≤ 40 d), immature Gopher Tortoises at ABS had home-range sizes ranging from 0.38 to 1.46 ha, which are approximately 6.6-fold larger than previously reported annual home-range estimates. Tortoises also left their burrows more often (4.0 ± 3.2 SD times per day) and for longer duration (31.5 ± 10.6 SD min per emergence) than in studies conducted elsewhere." **In short, juvenile tortoises spent more time out of their burrow. And, they ranged farther from their burrows each day than previously known.** Stemle added, "We also found that they are more social than previously thought. We were likely underestimating the young tortoise's role in populations. I want to understand the unique behaviors and habitat use of juvenile Gopher Tortoises, so conservation managers can better protect the species." Gopher Tortoises are state threatened in Florida due to habitat loss and fragmentation.

Maehr Corridor Fellowship



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— Edward O. Wilson

Job Announcements

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Wetland in Archbold's Florida scrub. Photo by Dustin Angell.

Archbold awarded the David S. Maehr Florida Wildlife Corridor Applied Science Fellowship to Dr. Janardan Mainali, a Post-Doctoral Researcher at Stetson University's Institute for Water and Environmental Resilience (IWER). The fellowship aims to catalyze the science needed to effectively and efficiently conserve the Florida Wildlife Corridor, and the ecological processes and societal benefits it provides. The fellowship is named for [Dr. David Maehr](#), renowned conservation biologist known internationally as a world expert on large carnivores, most notably Black Bear and Florida Panther. Maehr conducted research at Archbold Biological Station for 25 years. His work helped form the backbone of knowledge on which the Florida Wildlife Corridor geography and conservation campaign are built. Janardan said, "Here in central Florida, humans interact with wetlands, lakes, rivers, and the ocean frequently. Our proposed research will examine this relationship scientifically and contribute to a better understanding of the role of east-central Florida's natural ecosystem in the water quality of wetlands, lakes, and rivers. We also plan to explore loss in natural systems like how fragmented habitats and increased human footprint have impacted the aquatic ecosystems in this region. **The insights we derive will feed into Florida's Wildlife Corridor discourse to suggest ways to expand the corridor to protect the terrestrial habitats, increase the habitat quality of the aquatic ecosystem, and advocate for a better understanding of the land-water connectivity.**"

Florida Filmmaker Journey



Jennifer Brown filming [Where Birds Can Be Birds](#) on a Tampa Bay National Wildlife Refuge. Photo by Dave Howard.

Nine years ago, documentary filmmaker Jennifer Brown met Dr. Hilary Swain, Archbold Executive Director. Brown had recently moved to Venus and was looking for film opportunities. The result was a short film featuring the brash, boisterous, and blue Florida Scrub-Jay titled [At Home in the Florida Scrub](#). Brown went on to produce many films with Archbold's talented staff, including [Queen of Red Hill](#), [Surviving Fire: In the Florida Scrub](#), [The Science of a Florida Ranch](#), and [We Are Archbold](#). Brown said, "I became enamored with Florida nature while studying Eastern Bluebirds and filming the imperiled pine rocklands of the Everglades in 2008. That curiosity grew as I swam the bays, filmed the prairies burning, and explored the sandy scrub of the Lake Wales Ridge. Because of my partnership with Archbold, I got a foothold in south-central Florida to grow my company [Into Nature Films](#). **With my films, I tell stories of people, places, and species that are often overlooked.**" Thanks to a referral from Swain, Brown got an exciting opportunity with the Friends of Weedon Island in St Petersburg to create [Gulf Islanders: The Story of Weedon Island](#). This led to her most recent project, [Where Birds Can Be Birds](#), with the Friends of the Tampa Bay National Wildlife Refuges, which screened at the M nigoute International Ornithological Film Festival in France on October 29. Brown said, "We had the trip of a

Online Events

Nov 30: 3:30 PM-4:30 PM

'Impacts on Nutrients of West Indian Marsh Grass Management Methods'

Luca Kuziel, Archbold Intern

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lifetime in France. And I'm excited to announce the release of our film [Dreaming of the Everglades](#) with Everglades National Park. I am forever grateful for Archbold welcoming me into their community back in 2013."

Ranch Rainout Project & Microbes



Kyle Kirejevas collects a soil core at Archbold's Buck Island Ranch. Photo by Claire Christiana.

Global climate models predict an increase in climate variability on our changing planet. We've seen this already with record summer temperatures in Europe, flooding in Pakistan, and record-breaking Hurricane Ian in Florida. Central Florida climate models tend to predict slightly less precipitation year-round but with likely increases in heavy rainfall events, periodic flooding, and extended droughts in the future. **The Rainout Project was initiated in 2021 at Archbold's Buck Island Ranch to explore interactions between cattle grazing and land management under variable rainfall.** Funded by the National Institute of Food and Agriculture to [Dr. Jiangxiao Qiu](#) at the University of Florida and Dr. Betsey Boughton at Buck Island Ranch, the project manipulates five precipitation treatments year-round ranging between drought and flood in eight pastures. **Kyle Kirejevas, Archbold Agroecology**

Intern, was curious how the changing seasonable rainfall patterns from The Rainout Project relate to the underground microbe community. He said, "Soil microbes play an important role in soil health. Previous studies showed that soil microbes could offer resilience to ecosystems when faced with a changing climate." Kirejevas collected soil cores in both semi-native and improved pastures. To reveal the microbe community, he obtained an extensive soil and microbial analysis. He discovered that improved pastures had the highest microbial biomass, organic matter, microbe diversity, and phosphorus. The microbial composition from both pastures was mostly bacteria, with a small percentage of fungi. Bacteria help with decomposition, nitrogen fixation, and bioavailability of nutrients. Semi-native pastures contained a higher abundance of gram-positive bacteria and fungi. He concluded that precipitation and grazing treatments were perhaps too recent to show any significant effect yet on the microbe community.

500 Gifts for 500 Miles



Pin of Florida Black Bear M34.

Florida Black Bear M34's epic 500-mile journey shaped the future of conservation in Florida by highlighting the connectivity between public and private lands

The Scrub Blog

Nature and Science from Florida's
Heartland

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throughout the state. His journey inspired what is now formally recognized as the Florida Wildlife Corridor and continues to inspire Archbold biologists. **We need your help this [#GivingTuesday](#), November 29, to reach our goal of 500 gifts, honoring each mile of M34's trek.** With your gift, Archbold will continue working to understand the cycles and movements of species across our state to inform conservation efforts. Your gift is an investment in our future by supporting Archbold scientists and their work to ensure protection of the Florida Wildlife Corridor forever. Mark your calendar for Tuesday, November 29, and help us spread the word to participate in our [#GivingTuesday](#) campaign. Together, we will honor M34's journey and fuel conservation efforts to protect the essential corridor that M34 and hundreds of other unique species call home. Thank you for your support. The first 100 donors will receive this special edition M34 pin. **Keep an eye on your email for more Giving Tuesday information and make your gift early to reserve your pin!**

Directions to Archbold Biological Station

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

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