



ARCHBOLD JUNE 2020 NEWS for curious minds



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Beneficial Rosemary Microbes



Florida Rosemary seedling in the high elevation scrub at Archbold.

University of Miami researchers were curious about the relationships between soil microbes and specialized plants living in high stress habitats. Led by Dr. Aaron David, they found the ideal conditions to study the microbe-plant connection in the Florida Rosemary scrub at Archbold with colleague Dr. Eric Menges, [Archbold Plant Ecology](#) Director. Rosemary scrub occurs in high elevation open patches along the Lake Wales Ridge with many plants found nowhere else (i.e., endemic). The higher the elevation, the higher the stress with less nutrients and moisture. After collecting 12 species of plant seeds (6 specialists and 6 non-specialists) and soil from this ancient habitat along an elevational gradient, the researchers manipulated the microbes in their sandy soil samples back in their laboratory. Published in ['Ecology'](#), the authors reveal microbes boosted the germination of 1/2 of the specialist species with greatest benefit to species with low-frequency germination. Menges commented, **"Overall, the microbes were most helpful in the high elevation (high stress) environments."** The researchers write, "Our work suggests that these facilitative microbial interactions are a common,



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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

though not ubiquitous, pattern in this environment." So, the next time you walk through the sandy Florida Rosemary scrub during peak dry season (i.e., drought) on a hot afternoon, remember these hardy plants have some underground microbes giving them an ancient evolutionary boost.

Jay Tracking Research in the News



Florida scrub-jays seem to flock to Reed Bowman, a research biologist at Archbold who has studied the Central Florida birds for three decades. Researchers are permitted to work close with scrub-jays but discourage people from feeding them.

Screenshot of Dr. Reed Bowman with a Florida Scrub-Jay from the [Miami Herald](#). Photo and story by Anders Gyllenhaal.

Archbold's new research endeavor to track resident Florida Scrub-Jays using advanced cellular technology from the company Cellular Tracking Technologies is getting attention. For good reason, as writer Anders Gyllenhaal asks in a [recent article published in the Miami Herald](#): "**As rare Florida bird loses ground to development, can technology help scientists save it?**". Dr. Reed Bowman, [Archbold Avian Ecology](#) Director, and Young Ha Suh, Cornell University PhD candidate, created a grid of many small receivers mounted on 10' posts throughout the scrub. These nodes receive the location data from tiny solar-powered tags attached to scores of young jays and, in turn, transmit those data to a large antennae installed on the Archbold water tower. From there, the data beams to computers consisting of simultaneous locations detected every 2-4 seconds from hundreds of birds during daylight. **The radio telemetry is revealing how young jays explore their environment, what habitats they prefer, and who they interact with illustrating the social networks of jays.** These young jays are exploring in groups with other young birds searching for breeding space. Like cliques of teens, the membership of these groups is often consistent, but there are always a few that move from group to group. Bowman shared, "It turns out, the young jays have very complicated social lives that aren't that different from ourselves. The answers to these questions will help us better manage the protected scrub and prioritize the scrub that still needs protection to create a network of connected patches for the jays to settle into."

Online Events

June 9: 9:30 AM

Archbold Virtual Field Trip: Florida Scrub

Dustin Angell, Archbold

June 11: 3:30 PM

Conservation Photography Techniques: Three Approaches

Dustin Angell, Dr. Reed Bowman, & Bill Parken, Archbold

June 16: 9:30 AM

Virtual Field Trip: Seasonal Pond

Dustin Angell, Archbold

June 18: 3:30 PM

How birds can save the world: lessons from eBird, the world's largest citizen science project

Dr. John Fitzpatrick, Cornell Lab of Ornithology

Goldspiel in Galapagos



Harrison Goldspiel next to a Giant Tortoise in the Santa Cruz highlands of the Galapagos Islands. Photo by Harrison.

"Seems like forever ago that I was chest deep in seasonal ponds at Archbold trying to catch tadpoles!", reflects Harrison Goldspiel, former Archbold Herpetology & Restoration Ecology Intern. He continued, "**Archbold defined the beginning of my career in herpetology and conservation biology.** During my Archbold research in 2014, I came across the Herpetologist Dr. James Gibbs who became my graduate advisor (studying land-use legacy effects on amphibians in northeastern forests). He is now my supervisor at the [Galapagos Conservancy](#)." Goldspiel works with the [Giant Tortoise Restoration Initiative](#) (GTRI) to advance tortoise conservation in the Galapagos Islands. He shared, "Over the last year, I've been fortunate to participate in several incredible scientific expeditions to islands and volcanoes, where we monitored tortoise populations, searched for hybrid descendants of extinct species, and examined how ecosystems have responded to restoration efforts. We work collaboratively with the Galapagos National Park Directorate to restore tortoise populations to their historical ranges and sizes. **Never in my wildest dreams did I ever imagine I would be camping on volcanoes and riding helicopters in search of relatives of Lonesome George!**"

Lonesome George is the famous last known Pinta Island tortoise who died in 2012. "My Archbold internship with Dr. Betsie Rothermel completely shaped how I think about scientific research and wildlife conservation. Ironically, I spent precious little time with the tortoises at Archbold, mostly gazing at them from afar while jogging around Red Hill."

June 23: 9:30 AM

Archbold Virtual Field Trip: Ranch

Dustin Angell, Archbold

June 25: 3:30 PM

Ecology of semi-aquatic snake communities

Dr. Andrew Durso, Florida Gulf Coast University

June 30: 9:30 AM

Archbold Virtual Field Trip: Lake Annie

Dustin Angell, Archbold



Check out our Youtube Videos!



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Virtual Scrub Camp



Dustin leads a virtual tour with a phone and selfie stick.

Archbold's 29th year of summer camp will go virtual this year. Registration for virtual camp is free and open now. Campers, ages 7-12, are undertaking science expeditions into their yards and neighborhoods, and making connections between their observations and the research conducted at Archbold. During week-long sessions, camp meets three times on Zoom for short sessions. In these small groups, campers share their progress on at-home science projects and watch live science demonstrations with Dustin Angell, Archbold's Director of Education. Despite the unorthodox summer camp situation, Dustin sees a new opportunity too, explaining, "Nature is often overlooked at home and seen as something found only in parks and preserves. I've always valued how our programs help children see nature in new ways, but this is the first time camp is directly focusing on 'backyard science'." **My goal is to transform their understanding of science and nature in their everyday lives and grow their appreciation for where they live."** [Camp registration is free.](#) All supplies needed are common household items. Virtual camp is not limited to Florida, but could be done by children anywhere with an Internet connection.



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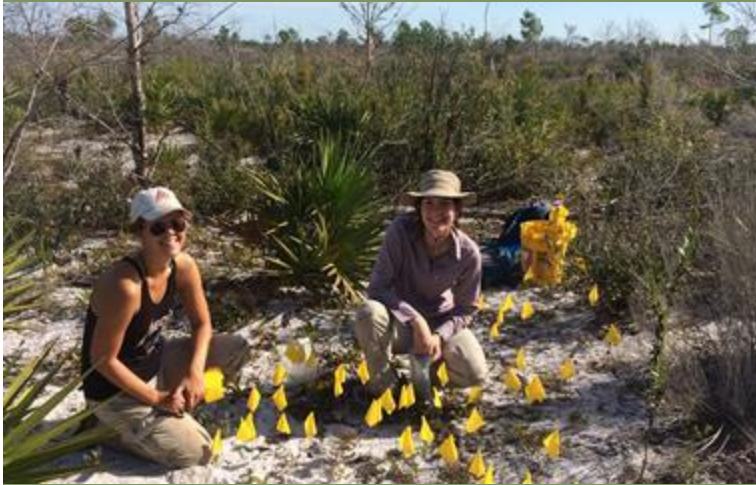
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The Scrub Blog
Nature and Science from Florida's
Heartland

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

52 Years of the Real World



Interns Katherine Charton and Jane Jordan from the Plant Ecology Program flag individuals of a rare plant species as they contribute to long-term research in the Florida scrub.

2020 marks the 52nd year of Archbold's Research and Education Internship Program, which began in 1969. More than 575 post-baccalaureate students have completed this 'real-world' internship with Archbold gaining exceptional field experience, strong mentoring, and critical, independent research training, while also supporting the work of their chosen program. **With your help, we will promote the next generation of researchers, science educators, and scientists who will make it their life's work to study, share, and protect rare and threatened species in Florida, and beyond.** [There is still time to help us!](#) And, thanks to your support, Archbold's passion for protecting our natural world has been felt across the globe and will continue to impact generations to come.

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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