



ARCHBOLD OCTOBER 2018 NEWS for curious minds



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Scrub Fairy Shrimp



New species of Fairy Shrimp discovered by Ann Dunn in a seasonal pond at Archbold.

A few years ago, nobody thought fairy shrimp lived in central Florida. That all changed in 2016 when Ann Dunn, then an undergraduate student at Cornell University, decided to visit Archbold for her spring break. She was inspired by [Dr. Tom Eisner's chemical ecology insect studies](#). After searching for and finding the Florida Rosemary Grasshopper, she decided to take a shortcut and waded through a seasonal pond on her walk back to the Station. Dunn had raised fairy shrimp, or as they are sometimes known 'Sea Monkeys', as a



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child and she immediately recognized them swimming on the surface of the pond. They measure 1/2 inch long. After consulting with fairy shrimp expert [Dr. Christopher Rogers](#) from the University of Kansas, they confirmed this was a new species. This year, after finishing her undergraduate degree, Dunn returned to Archbold as a volunteer intern to learn more about this fascinating little creature. **She found fairy shrimp to be common throughout Archbold and rare in other central Florida wetlands. Dunn shared, 'Very little is known about this new species.**

Swimming along with them are other small crustaceans called clam shrimp and water fleas. They all live exclusively in ephemeral bodies of freshwater where fish cannot get to them. I am working with Dr. Rogers to describe the new species in a paper that's now ready for review. I'm also studying the behavior of the shrimp by collecting their eggs and raising them in captivity. They appear to have good vision. And the male shrimp have interesting dominance behaviors, which I'm hoping to study more in the future'.

"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

What's the Next Instar for Mark Deyrup?



Over Dr. Deyrup's storied career, he discovered new species and illuminated the special Florida scrub community. Deyrup also wrote and illustrated '[Ants of Florida](#)', an innovative field guide with fascinating natural history stories.

So, why is Dr. Mark Deyrup still in [Archbold's 'Bug Lab'](#) looking into his microscope at a little known wasp genus *Heterospilus*? On this steamy September day, Dr. Deyrup is working surrounded by a clothesline with dead wood in ziplock bags like some sort of biological

Deyrup Matching Gift Challenge

Thanks to you, we have met the goal set forth by Mark and Nancy Deyrup, and surpassed it for even greater impact!

Archbold's friends, colleagues, and collaborators helped to raise over \$52,000 to fuel and engage more science, more discovery, and protect more of the natural world around us!

Public Events

laundry. He is, after all, retired from his position as Archbold Senior Research Biologist since June 2018.

Turns out a dedicated and hyper-curious scientist like Dr. Deyrup does not, or cannot, retire from a life of discovery. Archbold houses one of the largest field station collections of insects in the world (many collected by Deyrup). Deyrup finds this collection a source of endless attraction. Always the innovative scientist, he continues to find new patterns and species in the hidden world of Florida scrub ecology. He wants to know, 'What is going on here? How much exploring of biodiversity is left to be done? What is supporting biodiversity here?' For example, he and his wife, Nancy Deyrup, helped build the list of 1,709 species of beetles recorded at Archbold. Studies like his show that many of them (370 to date) emerge from or are associated with downed or dead wood, a dependable resource in the subtropical Florida scrub. **Deyrup sees something greater in his lifelong work than a simple hierarchical organization in nature. He sees a multidimensional world of 'nodes and networks' connecting creatures and habitats.** Some more answers to his questions will likely emerge from the collected wood in those bags neatly pinned to the clothesline inside his lab. When they do, his discerning eyes, drawing from four decades of experience and observation, will be there.

Oct 18: 3:30 pm-4:30 pm

Intern Research on Sky Blue Lupine and Fire

Marisa Grillo, Archbold

Job Opportunities

[Avian Ecology Research Internships \(3-4\)](#)

[Post-Doctoral Research Associate – Remote Sensing/Carbon Flux in Subtropical Grasslands](#)

Off to College



Bryan Resendiz at Archbold in August 2018 for a seminar days before he left for college at Texas A & M University.

The Scrub Blog

Nature and Science from Florida's Heartland

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

Archbold's recent film ['The Science of Life'](#) featured the amazing summer research experience of Ashley Engle and Miranda Bunnell as 2018 High School Research Assistants in the Plant Ecology Program. These two explorers were following in the footsteps of their friend and alumni of the program, Bryan Resendiz. [Archbold's Plant Ecology Program](#), led by Dr. Eric Menges, mentored Resendiz in the summer of 2017 before his senior year at Lake Placid High School. The Resendiz family owns a local business of alligator farming, but Bryan knew little about the surrounding Florida scrub. In August, Resendiz returned to Archbold to support Engle and Bunnell for their final seminar presentation where he shared, **'Because of my time at Archbold, I have more extensive knowledge about my home (the scrub). It opened up my mind. I know how to protect it and educate others because there is nothing like it around the world.'** This fall, Resendiz entered his freshman year at Texas A & M University to study engineering and horticulture. He is the first member of his family to go to college. Menges shared, 'Bryan showed a lot of enthusiasm for science and plants and was always a joy to work with. He showed a lot of courage going to school out of state'. Resendiz added, 'After college, I know I'll come back here and help my community. Thank you to everybody at Archbold. You guys have been great. I know you will be in my life forever.'

Fire Ant King (s)



Dr. Josh King treats a Red Imported Fire Ant mound with hot water.

The Science of Life



Watch 'The Science of Life' about the 2018 Archbold Plant Ecology High School Research Assistants Ashley Engle and Miranda Bunnell. A day in the Florida scrub with the engaging duo is filled with comedy, drama, blunders, and pure joy. Watch on Archbold [Facebook](#) or [Vimeo](#).



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As steam rises over a Red Imported Fire Ant (*Solenopsis invicta*) mound and hot water overflows like a volcano, [Dr. Josh King](#) says with a smile, 'They are no longer a threat to the birds. So, happy birds'. King just flushed out and killed an entire fire ant colony meters away from a Florida Grasshopper Sparrow ground nest at the Avon Park Air Force Bombing Range in collaboration with Greg Thompson, [Archbold Avian Ecology](#) Research Assistant. When Archbold biologists find a sparrow nest, they call Dr. King to treat nearby fire ant mounds. **King, a research ecologist and entomologist at the University of Central Florida, developed a nontoxic method to kill fire ant colonies using hot water with his mentor Dr. Walter Tschinkel.** Traditional fire ant treatments use chemical baits that impact non-targeted insects, like native ants and grasshoppers. **Gallons of hot water delivered through a wand at a flow rate comparable to a garden hose kills the entire fire ant colony instantly.** King said, 'This is the perfect way to do it because you take advantage of the architecture the fire ants create belowground. You are just trying to flood the spaces they create.' While ants recolonize over time, [King's research](#) shows hot water treatments suppress the local fire ant population. Thanks to video footage from sparrow nests, biologists know fire ants kill more nestlings on semi-native ranchlands compared to native Florida Dry Prairie. Occasionally, King and his specially formulated 450 gallon 'superheater' are not available during the sparrow nesting season. No worries. Thompson developed his own portable fire ant demolisher with a gas-powered water cooker, funnel buckets, and a barbell. The critically endangered Florida Grasshopper Sparrows need all the help they can get.

The Sky is the Limit



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Directions to Archbold Biological Station

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





Sky Blue Lupine (*Lupinus diffusus*) blooming in recently burned sandhill at Archbold.

Last February, Marisa Grillo journeyed from her New Jersey home to intern with the Archbold Plant Ecology Program. **Grillo said, 'I was attracted to the internship program at Archbold for the chance to join a well-known lab with decades of interesting research and for the opportunity to design my own research project.'** Grillo got the idea for her independent research project after a public walk on Archbold's Red Hill. In a recently burned area, she saw seedlings everywhere of the beautiful Sky Blue Lupine (*Lupinus diffusus*). Grillo said, 'I am trying to understand why the lupine population skyrocketed in this recently burned area.' Archbold's internal funding and grants support most of Archbold's interns, but an award from the [Vaughn-Jordan Foundation](#), which has a mission of furthering botanical and horticultural science, funds Grillo's internship. **The [Archbold Plant Ecology Program](#) is grateful to receive awards from the Foundation for the last five successive years.** Dr. Eric Menges, Archbold Plant Ecology Director, said, 'The Vaughn-Jordan award allows us to hire an additional intern and augment their experience with an opportunity to present their work at a regional scientific conference. These awards can make an incredible impact on a student's career.' Grillo feels the impact already sharing, 'The scrub was a foreign land to me before I arrived, and it is really changing the way I think about ecology. I love that Archbold scientists care about rare and endemic plants, and that the research we do can inform important conservation decisions that may save their populations.'

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