

ARCHBOLD JANUARY 2016 NEWSLETTER

for curious minds



In This Issue:

1. Hot and Wet 2015
2. Holiday Gifts for the Scrub
3. Scrub Data Wrangler
4. Beetle Bomber
5. Team Archbold

Hot and Wet 2015



Sunset at Archbold during the above average heat in 2015.

Archbold has the scientific privilege of taking the long view of climate data. **Our [daily weather records date back to 1931](#) in one of the longest continuous datasets for inland, peninsular Florida.** Monthly maximum temperatures in 2015 were higher in every month than the long-term averages, except for February. Similarly, the minimum daily temperatures were warmer than average during winter months. Archbold data do not show overall long-term warming trends, but they indicate higher maximum temperatures in late summer and lower winter minimum temperatures. **2015 was also wet.** Total rainfall in 2015 was 60.7" which is about 7" more than the long-term average of 53.5". That is wet, but nothing like the 76.7" recorded in 1953. However, 2015 rainfall fell on top of high groundwater. The combination of high antecedent groundwater and higher than normal rainfall resulted in elevated water levels in seasonal ponds and in Lake Annie throughout the year. What will 2016 bring!?

Holiday Gifts for the Scrub



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Family Nature Day participants decorate a Sand Pine tree with ornaments edible for wildlife.

Archbold invited the public to **decorate a scrub tree for Family Nature Day** on December 19th. Enthusiastic public with many Archbold families met Dustin Angell, Archbold Education Coordinator, at the Learning Center for **a lesson on making a variety of edible ornaments for birds and other animals** using pinecones, orange peels, and cereal. Families carried their sticky creations onto the [Archbold Nature Trail](#) to find and decorate the perfect Christmas scrub tree, which the kids decided was actually three young Sand Pines. Angell said, 'It was great to see the adults enjoying themselves as much as the kids. This was the first time any of these visitors had tried doing this, and **I hope we started a new tradition for them – one where nature and science are part of their celebrations.**'

Scrub Data Wrangler

"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



Check out our Youtube Videos!



Connect with us on Facebook!

Upcoming Public Events

Jan 24: 1:30pm-3:00pm

'Scrub Bugs'

Walking Tour

Dr. Mark Deyrup, Archbold



Kye Ewing poses for a beautiful portrait with the Florida scrub behind her.

Data have been collected at Archbold on just about everything under the subtropical sun. Archbold research biologists are grateful for the person who expertly managed the environmental data for ALL to access. **Kye Ewing is now retiring after being Archbold's Data Manager, and so much more, for ten years!** Ewing said, 'Working with Archbold's treasure troves of environmental data and learning more about the unique Florida scrub has been a **gratifying way to spend the last years of my working life.**' With a passion for astronomy and nature, she and her husband grew tired of big city life. They moved to Venus knowing little about Archbold or the Florida scrub. Ewing soon found her way to work at Archbold with her data management expertise. **Major accomplishments have been organizing the historic climate files and Lake Annie data into easily queried databases, and the development of GRID**, a spatial database created with former GIS Manager Roberta Pickert. GRID uses more than 1.6 million 5x5 m cells to link together many Archbold data with location and date including fire history, Florida Scrub-Jay territories, Florida Sand Skink habitats, Gopher Tortoise data, weather, vegetation, and more. Archbold's new Data Manager is Becky Waskovich.

Feb 6: 9:00am-11:00am

'Fire in the Florida Ecosystem'

Lecture & Demonstration

Kevin Main, Archbold

Feb 28: 1:30pm-3:00pm

'Amphibians and Seasonal Ponds Nature Walk'

Walking Tour

Dr. Betsie Rothermel,
Archbold

Beetle Bomber



One of the [famous photographs](#) produced by Tom Eisner in the early 1980's shot at 4000 frames per second. This remarkable photo set showed the spray being precisely and explosively deployed by a Bombardier Beetle for the first time.

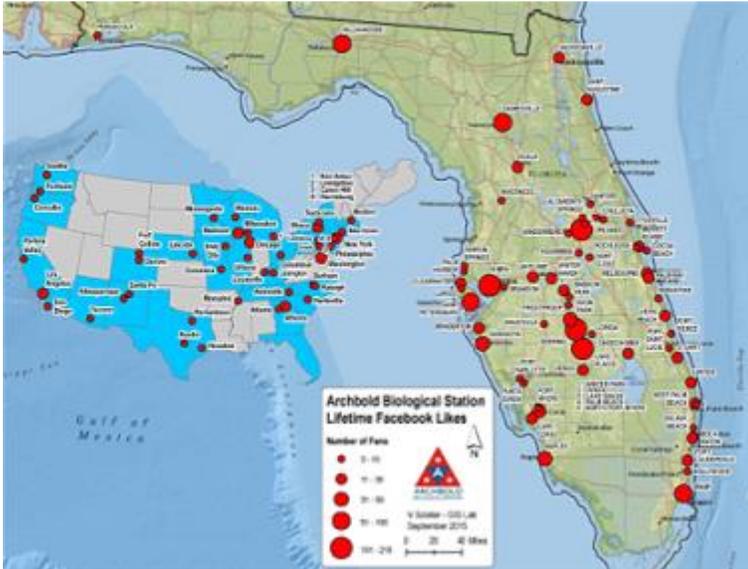
Archbold has eight species of **Bombardier Beetles** that remain hidden during the day, but move around the ground at night. Humorist Dave Barry wrote that the **bombardier has 'an internal reaction chamber where it mixes chemicals that actually explode, enabling the beetle to shoot a foul-smelling, high-temperature jet of gas out its rear end with a distinct "crack".'** Dr. Mark Deyrup said, 'Bombardier Beetles were a favorite [study animal](#) for [Dr. Tom Eisner](#) (1929-2011) (Archbold Research Associate for 54 years). Tom discovered the mechanism that produces the explosion of defensive chemical spray from the rear of the beetle. He was able to show the effectiveness of bombardier spray against predatory vertebrates like frogs'. **Many wondered how the beetles produce a super-heated noxious spray without damaging their bodies.** Now, a [new study](#) has helped solve this puzzle. Eric Arndt and Christine Ortiz at MIT used [high-speed X-ray imaging](#) to show that the **pulsed spray is controlled in two chambers.** The beetle mixes two chemicals to synthesize the irritant benzoquinone in a protective chamber in their hindquarters almost to boiling point. The second chamber is an explosion chamber. A flexible chamber membrane and a valve between the chambers that rapidly opens and closes allows repeated "pulse jets" to form. Check out the Bombardier in action [here](#).

[Archbold Facebook Event Calendar](#)



Did you see '[The Jumping Spider Spectacular](#)' short video on our Facebook page? It features a female Regal Jumping Spider filmed by [Into Nature Films](#) at Archbold. It has been viewed 43,000 times around the world!!

Team Archbold



Many of our Facebook fans are local, or live in coastal and urban areas of Florida. Not surprisingly in the rest of the USA, it's clear you abide in major university cities!

Thank you to everyone who made a gift to Archbold in 2015. **We are grateful for those who contributed to our Year End Appeal, gifts from our board, and from many of you.** Click [here](#) if you would still like to donate. We raised \$92,266 in Nov-Dec towards our research, education, and conservation programs! 2015 also saw Archbold greatly expand our communications reach thanks in part to the talented Jennifer Brown, who compiles this [newsletter](#)—distributed monthly to >6,000 recipients—as well as her inspiring videos, and [Facebook](#) postings. Shout out to our many talented staff and interns who contribute science findings, events happening at Archbold, videos, and beautiful images. We appreciate the fans on our [Facebook page](#) who doubled from 2,000 to >4,000 during 2015. **We hope you continue to read this newsletter, Like Us and Share posts on Facebook.** Watch out for a new Instagram presence. Thank you for being Archbold's ambassadors, and sharing our great work with the world.

Team Archbold

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

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