



Reed Bowman

# ARCHBOLD OCTOBER 2017 NEWS for curious minds

## HURRICANE IRMA EDITION



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### Irma Science



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Sunrise view from the swamp buggy on a flooded road for the post-Irma Florida Scrub-Jay census.

When severe storms come our way, we shutter our homes and take refuge. And, if you are a scientist sheltering from Hurricane Irma at Archbold, you head to the field after the storm to collect data. While science takes time, **early reports show relatively little impact to the short, dense Florida scrub from hurricane force winds but significant damage around the main campus buildings.** Dr. Hilary Swain, Archbold Executive Director, noted 'The pine trees that bent whipsaw-like in the wind gusts are



Allen McPherson

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largely standing, with only a few limbs missing.' Dr. Reed Bowman, Archbold Avian Ecology Director, said, 'Florida Scrub-Jays likely hunker down close to the ground in the dense foliage. The **census several days after Irma revealed 9 breeding scrub-jays (7 males, 2 females) were missing out of a total population of 152 breeders** (about double the usual loss for this time of year)'. Dr. Mark Deyrup, Archbold Entomology Director, always opportunistic, immediately started collecting bugs from the rotten wood at the heart of old Laurel Oaks that had fallen, a microhabitat that's usually completely inaccessible. **Deyrup found four tiny species of beetle, all new records for Archbold.** Dr. Betsie Rothermel, Archbold Restoration Ecology Director, did a rapid sweep of the seasonal ponds and reported, '**Our small seasonal wetlands are holding 10" more water than they were before the hurricane.** Water is flowing down sand roads that are acting as mini rivers.' Lake Annie rose two feet. Dr. Evelyn Gaiser, Archbold Research Associate and Aquatic Ecologist from Florida International University, said, 'It's **impressive how much the winds from the hurricane mixed the normal temperature profile of the lake from the warm surface waters well down towards the bottom of the lake.**' Did this temperature inversion affect the lake's plankton communities? Time will tell.

## Guardians of Knowledge



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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

## Public Events

Watch our [Facebook page](#) for upcoming events.

Hurricane Irma blew down heavy branches of many old Laurel Oaks planted in the 1930s. This oak was lifted then twisted presumably by tornadic activity, and slammed onto the roof of the 40' water treatment plant. Ouch!

One of the community roles Archbold plays is to be a guardian of knowledge, the data record keeper of what has happened in the past. **We hold the data from previous storms in our archives dating back to 1931.** For example, the major NoName hurricanes of early years that passed across Archbold included one in 1933. Another, on the same track as the 1933 hurricane, occurred on August 27, 1949 but had weakened quickly from a Cat 4 after moving inland over Lake Okeechobee. 1960 brought Hurricane Donna, a Cat 4 when the eye passed to the west of Archbold and left the campus parking lot underwater for days. The terrible trio of 2004 that directly affected Archbold were Charley, Frances, and Jeanne. This year on September 10th, 2017, the eye of Hurricane Irma passed just to the west of Archbold. We experienced the ominous winds of the northeast quadrant of the eye of the storm. The Archbold weather station kept running and recorded sustained winds of around 50 mph between 8:30 and 9:30 pm with multiple gusts close to 100 mph. **The highest gust was 97.4 mph between 9:00 and 9:15 pm. Hurricane Irma moved fast and did not deliver extreme rain.** Archbold intern Aliza Fassler braved the winds the next morning to record the rainfall data manually and wrote, 'The morning of September 10th, we had 2.89 inches in the previous 24 hours and the morning of September 11th we recorded 5.96 inches. So in total 8.85 inches over the course of the storm.' All these hurricane data are archived in Archbold's records and preserved forever. **Knowledge of the past helps us put natural and human experiences during storms into a historical context and perspective.**

## Weathering the Storm



65 Archbold staff, collaborators, family and friends (as well as a bunch of dogs and even a few cats) weathering Hurricane Irma at Archbold Biological Station 9/10/2017.

Rachael Lallensack, a writer for [Nature Magazine](#), called Archbold's Director Hilary Swain right after Hurricane Irma. What do scientists do for a storm? What happens at Archbold? Rachael featured us in her [article](#) last week '[Hurricanes Harvey and Irma Send Scientists Scrambling for Data](#)'. Here are the Top 8 things Archbold does for a storm:

### **1. Take shelter in our storm-resistant facilities.**

Archbold is fortunate—we work in a fortress of concrete and steel built by the [Roebblings](#), the great engineering family that constructed the Brooklyn Bridge. Every hurricane, we pay homage to their 1930 foresight—a behemoth of a building, wells and water system, a campus-wide integrated electrical distribution network. We are like a small town. And having replaced nearly every roof in the last 20 years, there was minimal roof wind damage.

**2. Be prepared.** This is Florida, so we have our to-do lists ready for when the storm comes, because they always do: Bring in loose boats, trash and outdoor stuff; fill 500 and 1000 gallon gas and diesel tanks; move vehicles and park in open areas; check the

## Inside the Race to Save the Florida Grasshopper Sparrow, North America's Most Endangered Bird



Archbold avian ecologists including Dr. Reed Bowman, research assistant Becky Windsor, and former research assistant Natalie Sweeting feature prominently in this wonderful [Audubon Magazine article](#) about saving the Florida Grasshopper Sparrow. Super photos by [Mac Stone](#). Archbold is a big part of the race to save the Florida Grasshopper Sparrow.

generator; lower the shop doors; have chain saws out and gassed. WE ARE READY!

**3. Field science equipment.** We bring those sensitive flux tower instruments at the [Ranch](#) down early, all parts labeled, with photos to help when we are ready to re-deploy. For equipment that stays out, like the Lake Annie buoy, we have a superbly engineered 'catenary' mooring system that allows the buoy to ride out a storm.

**4. Relax the rules!** Archbold is a very safe place. We offer hurricane sanctuary for staff, interns and scientist evacuees from the coast, family and friends, retirees, line crews from the power companies—they can all stay. We even welcome cats and dogs, temporarily. Bring your own food, drink, and congeniality. Good conversations rule.

**5. Be safe in the storm.** Power down all peripheral buildings and get the generator going—everyone cheers. Eyes on the radar. The Director is captain of the ship, announcing when it's lock down time and hauling interns and staff back inside when the winds start to howl.

**6. Recovery.** Check that everything is working. Be kind to staff with damage at home, children out of school, or no power, some for 12 days. Take immediate photos and nowadays also drone flights. Post-hurricane damage and flooding can be fleeting and changeable. These images are valuable records.

**7. Collect the next set of long-term data.** Hurricanes are times when field station long-term data are precious—the intermittent perturbations. Every long-term dataset tells a new story after a storm. But how to get out there? Well we can walk and wade, or nowadays our teams can resort to the swamp buggy.

**8. Keep communications going.** Hurray for the ease of social media to let folks know whether everything is ok. Truly celebrate the Station and Ranch crews—they are the heroes!

## Old Faithful Shout Out



Archbold's 1960 Generator nicknamed 'Old Faithful'.

**'Thank goodness for Old Faithful, Archbold's Generator!'** said Director, Hilary Swain. 'She may be deafening noisy but we are always very happy to hear her screeching, throaty roar in a storm. She gave comfort, light, and cool to 65 people at Archbold during Irma while running the Main Building and the Lodge.

**She is a 1960 Detroit Delco A.C. diesel**

**[@demanddetroit](#)**. Old Faithful ran almost non-stop from 9/10/2017 at 16:02 until 9/15/2017 at 13:02. 117 hours of brilliant service at 4.85 gallons an hour costing just ~\$9.73 per hour. Old Faithful is truly beloved—we posted her photo on Facebook and she got 418 Likes!

**Bert Crawford, Archbold's long-time Operations Manager, looks after her so well. Thank you, Bert!**



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## Help Archbold Recover From Irma



Bert Crawford, Operations Manager, and Lupe Gonzalez, Senior Crewman, removing heavy branches of pines and oaks toppled on buildings at the Station.

Archbold is grateful for the many messages of concern and kind words of encouragement throughout this past month in response to Hurricane Irma. When damage is caused by a natural event, we want to fix what is broken—to make an impact, to make a difference. Archbold, like so many in Florida, will rebuild. **Our crews will be working for many months hauling fallen trees and repairing roofs and structures. For the long-term, we need to plant new oak trees and redo landscaping to get the campus at the Station and Ranch back to pre-Irma beauty.** But, this is costly, although below our insurance deductible. One piece of rental equipment we are using will cost the Station more than \$12,000. There are roads and trails to be cleared across the whole 20,000 acres: the expense is daunting. **Thank you to those of you who sent generous gifts to aid our recovery from Irma.** We have received more than \$4,000 from friends who were sheltered during the storm, or who simply anticipated our need. **If you would like to make a gift to aid our recovery, click [here](#).** Thank you so much.

## 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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