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To: Highlands News-Sun

From: Archbold Biological Station

Date Published: February 16, 2018

Author: Archbold Biological Station

Archbold and the Environmental Data Initiative

Scientific research at Archbold Biological Station is based on observations, data, and experiments. After 75 years of research, Archbold has data in spades! Among many datasets at the Station, Research programs have collected numerous datasets spanning generations of rare plants and animals. Data collected on individual plants and animals over long periods of time are known as long-term demographic studies. “These data help scientists understand how populations of rare species change from year to year and also across larger timespans, such as the long-term effects of drought, disease, and other large natural events” says Avian Ecology Program Director, Dr. Reed Bowman. Many of these datasets, such as data collected on the Florida Scrub Jay, Gopher Tortoises, and rare plants found in this region of Florida, extend over 30 years. Datasets of this length are hard to come by and require dedicated scientists and strong institutional support. Archbold is very unusual in the United States in that it is committed to the continuity of many long-term datasets. Archbold’s long-term datasets therefore are often sought after by other scientists to tie in with their own research allowing cross-site and cross-species science. For this to happen, data need to be available.

A key part of science is collaboration, including the sharing of information and data. The data in many long-term datasets collected by scientists at Archbold may have already been used for analysis in many publications. “Scientists from other biological field stations, universities, government agencies, and non-profit organizations often use Archbold data in ways not conceived by those who originally collected the data. For example, a 25-year dataset on the federally endangered plant Scrub Hypericum collected at Archbold was included in a larger

analysis looking across the tree of life at how plants and animals age, and was published in the highly-respected science journal, Nature.” explains Stephanie Koontz, a Research Assistant in the Plant Ecology Program. “The Avian Ecology Program has mapped the genetic structure of generations of Florida Scrub-Jay families and these data are used by conservation biologists to set conservation goals based on the biology of the birds rather than in political boundaries.” To make the sharing of data easier, scientists from Archbold are joining many global and nationwide efforts to archive and share data, plant and animal demography data are part of the Environmental Data Initiative.

The Environmental Data Initiative (EDI) is a collaboration among scientists, with funding from the National Science Foundation, to create an online data portal to make sharing environmental data easier. Through this internet portal (<https://environmentaldatainitiative.org>) any scientist can now search and download data from many locations. “This encourages data sharing and collaborations,” says Plant Ecology Program Director, Dr. Eric Menges. “By having access to others’ data, we can look at population trends of the same or similar species in other areas and compare them to our populations.” On the portal, scientist can search for and download data, and from there, the possibilities are endless. “Fire is a dominant ecological disturbance here in the Florida scrub, with many plants and animals relying on periodic fire to survive,” explains Dr. Menges. “This is not only true in Florida, but in ecosystems around the world. This data portal allows scientist to combine multiple datasets focused on a single subject, such as fire, to ask broader questions relevant to ecosystems across the globe.” This is the goal of the Environmental Data Initiative team; to promote data sharing and broadening research to answer more questions and expand our understanding about the environment around us. “Archbold science gets credit and acknowledgement when Archbold data are used for publications”, says Director Dr. Hilary Swain. She adds, “Sharing data at the global stage has a powerful ripple effect on the impact of Archbold science. It means we can be a part of an increasing number of research partnerships contributing vital data around the nation and the world for numerous environmental challenges from conserving biodiversity to maintaining the natural cycles that support life.”

Photo 1: Scrub Mint, *Dicerandra frutescens*. Archbold has been studying this species since 1988. Photo by Reed Bowman.



Photo 2: Florida Scrub-Jay, *Aphelocoma coerulescens*. Archbold has been studying scrub-jays for nearly 50 years. Photo by Reed Bowman.

