Year One of An Arthropod Biodiversity Survey of Fern Forest Nature Center, a Unique Habitat in the Greater Everglades

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Why Fern Forest?

Fern Forest Nature Center contains a variety of precinctive habitats that are under-surveyed in Broward County, making it a prime area for biodiversity research. Specifically, Fern Forest lacks an established baseline of arthropod diversity. The small amount of research that has been done at Fern Forest has been focused on the flora in the area, with little to no focus being put towards the insect diversity in the area.

Fern Forest Habitats

Fern Forest is comprised of wetlands, hardwood hammock, an Oak & Cabbage Palm forest, dry Prairie, and Red Maple swamp areas, with over 30 unique species of ferns, as documented in a joint paper published by Florida Atlantic University and Broward College in 1979 in *American Fern Journal.*

Collaborations

We are collaborating with the following organizations in an effort to assist with ongoing efforts to monitor the presence of invasive insects and forest pests during the course of our survey. We are currently seeking and accepting researcher collaborations as we continue working at Fern Forest.

Broward County Parks and Recreation

Florida Department of Agriculture & Consumer Services

University of Florida – Fort Lauderdale Research & Education Center.

Dr. Carly Tribull (SUNY-Farmingdale)

Collaboration requests and survey inquiries can be sent to dserrano@broward.edu

Goals

- Utilize data to help establish a baseline of arthropod diversity of Fern Forest Nature Center.
- Gain an understanding of current or future restoration and conservation needs.
- Utilize specimens as part of the ongoing collection and research of the Broward College Insect Collection.
- Upload taxonomic data as possible to the Broward College Insect Collection's digital database (BROW:BCIC) on SCAN/iDigBio.
- Initiate biodiversity analysis of specimens collected.

Abstract

Historically, Broward County has been overlooked as a survey area for insect fauna. Student researchers from Broward College's Environmental Science Bachelors Program surveyed Fern Forest Nature Center to assess biodiversity among insect fauna and their associated flora in its various habitats that make it "the last remaining stronghold of ferns in southeastern Florida". Students utilized a variety of collection methods including but not limited to, hand, SLAM, and light trapping to gather data with collection efforts being focused on disturbed and undisturbed areas in the dry prairie, and the Maple Oak and Cabbage Palm forest during the first year. The data collected will be used to establish the environmental health of these areas in an effort to gain an understanding of current and/or future restoration and conservation needs. Students will upload the record of collected insects and associated data to SCAN/iDigBio where it will be accessible to other students and researchers worldwide, with up to date data being presented.

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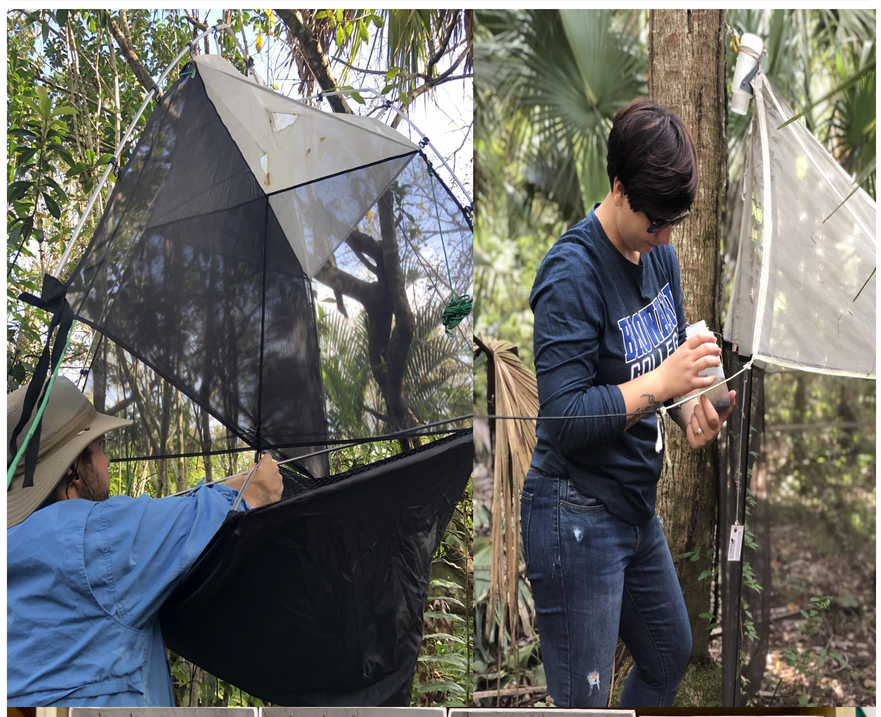

Survey Design

Fern Forest

Three malaise traps were set up at the end of May 2018 to collect samples for one year (through May 2019), with students servicing traps and performing sweeps regularly. Malaise traps are currently placed through the North and South ends of the Dry Prairie, and in the Maple Oak & Cabbage Palm Forest. As the first year of this survey ends, we are moving malaise and SLAM traps into the Maple Swamp and conducting pollinator sampling (with pan/vane traps) into the heart of the Dry Prairie

All collection was permitted under Broward County Parks Permit # ES2018-004

Broward College Insect Collection Digital Database

Students and faculty will curate the specimens for the Broward College Insect Collection, then upload data to SCAN/iDigBio (BROW:BCIC) digital database to be accessed by students and external researchers.

Analysis Progress

As we approach a full year of surveying at Fern Forest Nature Center, student researchers have started to analyze collected specimens.

Student researchers are currently sorting specimens to morpho species from each malaise trap (Dry Prairie North, Dry Prairie South, and Maple Oak & Cabbage Palm Forest) during three different collection periods. Sorting and analysis began in February 2019 and will continue throughout the summer.

Current Morpho Species Counts

Total Specimens Sorted to Morpho Species: 2,088

Morpho Species – Order Breakdown

Diptera: 53
Hymenoptera: 42
Coleoptera: 32
Hemiptera: 30
Orthoptera: 5

In addition to these figures, students have come across unique morpho species in the following orders that are still being sorted and identified:

Collembola
Mantodea
Lepidoptera
Ephemeroptera
Thysanoptera
Blattodea
(Termitidae and Roaches)

Acknowledgments

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References

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