

Student Leader

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Sponsor

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Title of project

An Inventory of NATL's Resident Mosses

Project summary

Moss, although they surround us, are often among the most overlooked plants, due to both their small stature and their unassuming nature. For the untrained naturalist and even sometimes the trained botanist, it can be hard to discern what species or even family of moss one is looking at, or if it is even a moss at all. In most cases, the great bulk of Florida's 265+ species of moss are effectively invisible except for those with a handy microscope. This project seeks to identify and create interpretive markers for representative native mosses (est. 30+) within the different zones of NATL, and begin to integrate them into the online NATL "Plant List" for future botanists and visitors to gain an appreciation for a quite underappreciated clade.

Starting date

January 2017 (Spring semester)

Completion date

May 2017 (graduation)

Description of project, Experience

The main objective of this project is to increase awareness about moss—an often omitted, but diverse group of plants. The University of Florida is unique in the number of faculty that study non-flowering plants, and several of them have been instrumental in kindling my interest in moss. Dr. Stuart McDaniel and Dr. E. Christine Davis have both provided me relevant experience in collecting, keying, and identifying moss around campus—many of them from NATL, and many of the same procedures that I've developed working on these projects will be used in this project. I've also had the opportunity to teach and present about moss before to groups such as the Alachua County Master Gardeners and at conventions such as Evolution 2016 (poster). I've worked in the McDaniel lab with moss for almost a year and have been a NATL visitor since I first got to UF. These experiences have given me a clear view of the materials I'll need and skills and timeframe required. Following is a preliminary budget and estimated cost.

Budget

Microscope supplies (cover slips, slides, dropper, razors).....	\$50
Collecting supplies (hand lens, collecting knife/tool, bottles, bags).....	\$50
<u>Curating supplies (archival paper, archival glue).....</u>	<u>\$30</u>
TOTAL	\$130

*Not included: costs of making interpretive signs, pamphlets, if applicable

As mentioned before, mosses are very present in our part of Florida, but the resources available to the public to identify them are exceedingly scarce. Dr. Ruth Schornherst Breen’s 1963 book *Mosses of Florida* is still the seminal work for bryologists like myself that aim to identify local mosses, but it is technical enough to be quite inaccessible to the public. No widely available nontechnical resources exist as far as I’ve seen to identify common mosses of Florida for the beginning biology student or naturalist. Accordingly, misconceptions and misattributions related to moss are very common in my experience teaching the public through lectures, although many are interested in learning about them.

A central goal of this project is to delineate in plain terms what a moss *is* and *isn’t* (for instance, not Spanish moss, reindeer moss, Irish moss, etc.) and what species are commonly encountered in NATL by the use of photographs, interpretive signs, and paper handouts. This aspect of the project will be valuable both to the community of young scientists at UF who utilize NATL much as I do, as well as the budding naturalist or hiker that likely has no resources at their disposal to demystify moss—much less local species.

The second aspect of this project aims to begin incorporating moss into the NATL Plant List. It is quite rare for parks that do have a species inventory to contain a section of bryophytes (moss, liverworts, and hornworts) in the area. I have found that those few which do not only give a greater appreciation for the inherent biodiversity of the area, but also are an integral resource for scientists like me that study these plants. For instance, the species inventory for Mike Roess Gold Head Branch State Park has about 50 bryophytes, and this resource is the only local, published bryophyte inventory I’ve found at the public’s disposal. By beginning to add moss to NATL’s inventory, we are not only making it a more comprehensive collection of the biota of the area, but also encouraging others to continue to add and refine this evolving catalog.

I have seen firsthand during Barry Kaminsky’s 2014 NAAC mini-grant *Inventory of the common lichens of the Natural Area Teaching Laboratory* what the trajectory of a project of this size is. My plan is to begin by making collections from the onset of the project from each of the main areas of NATL both on understory areas and on tree trunks, and begin to identify the each collection using microscopes provided by Dr. McDaniel and materials outlined in the budget. Updates will be provided monthly, and social media posts created regularly. From each species, one voucher specimen will be taken and submitted to the UF Herbarium for use by future

botanists. I expect these collections to be unobtrusive and not harmful to the current mosses or other plants and animals of NATL in any way. Following my preliminary species list, I will begin to upload the inventory to the online plant list, and prepare interpretive signs (est. ~10; see bottom) that may be placed near conspicuous moss sites. I would also like to explore creating a pamphlet or larger interpretive sign about more general information about moss or bryophytes of NATL and North Central Florida.

My hope that this grant will enable me to provide a public asset that will elucidate a fascinating and overlooked group of plants that is sure to surprise the visitors of NATL and help make this valuable on-campus resource more diverse and comprehensive.

Example of interpretive sign:

Leucobryum albidum
LEUCOBRYACEAE

Pincushion moss

This widespread, conspicuous moss can be found in both in sandy or acidic pine forests and on rich humus or roots in hardwood forest floors. The common name refers to the characteristic bunching habit. When wet, the thick finger-like leaves soak up water in specialized glass-like cells, and air bubbles are collected in leucocysts, where they are used for gas exchange.

Student _____ Date _____

Sponsor _____ Date _____