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Milkvines of Florida • WeDigFLPlants • Policy & Plants • Encouraging News for Land Conservation

Article by Austin Mast and Joel Timyan

WeDigFLPlants has completing the historical baseline for the *Flora of Florida* in its sights and needs your help to do it.

How do we reconstruct the changes to Florida's flora over the past 200 years and determine where our plant species are distributed today? Largely from the million-plus plant specimens collected in Florida during that time and now curated in the world's herbaria. However, our ability to use the data associated with those Florida-collected specimens (including identification, date and collection location, and other information) is hindered by the fact that perhaps only half of the specimens are currently represented digitally and available for discovery at common go-to sites for finding the data online (Fig. 1).

The WeDigFLPlants project seeks to expeditiously mobilize all of the remaining data largely languishing in herbarium cabinets for more effective conservation, management, and enjoyment of our flora. The project's strategy is to engage everyone with an interest in Florida's flora in the process in ways they find to be satisfying – educational, social, or otherwise fun. Furthermore, the WeDigFLPlants vision of a completed historical baseline for our flora aligns nicely with the FNPS mission to "promote the preservation, conservation, and restoration of the native plants and native plant communities of Florida." Here, we briefly describe how you can contribute to a completed picture of our flora and make the most of existing educational and social event resources.

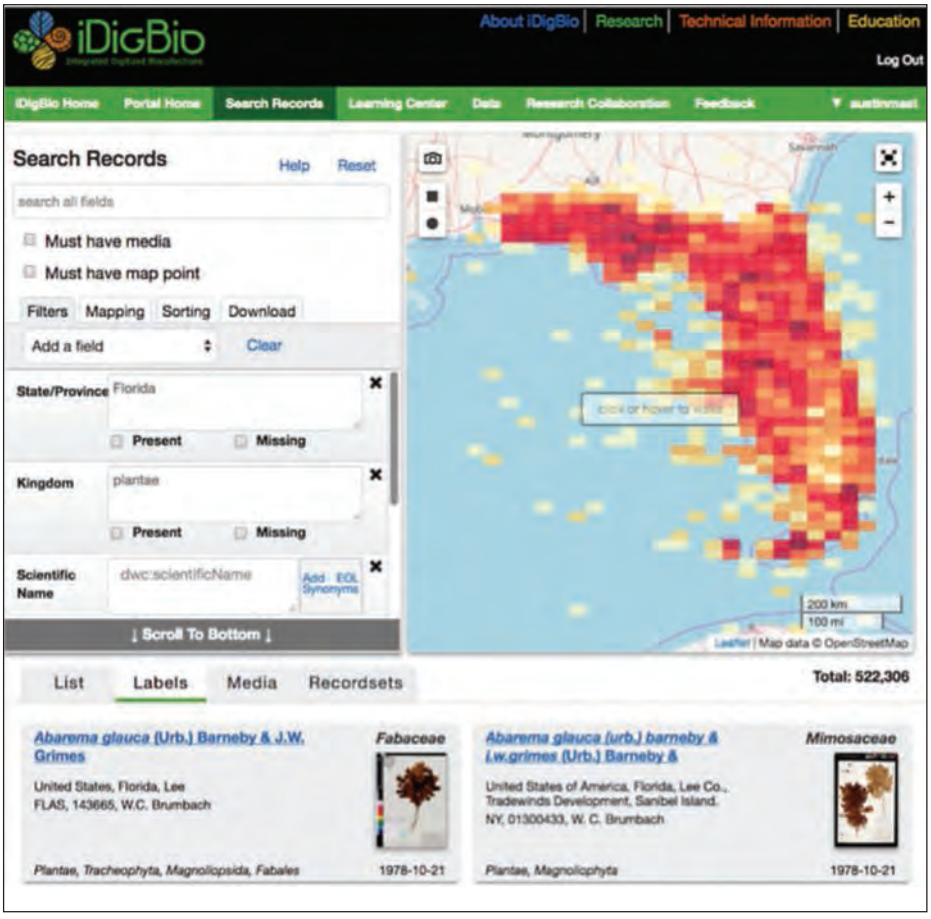

Figure 1: A summary view of the 522,000+ Florida-collected herbarium specimens already digitized and available online. iDigBio (iDigBio.org) aggregates specimen data from many of the world's herbaria. Researchers, conservationists, natural resource managers, and others rely on this specimen data, and you might find it useful as you plan a hike, search for a species to photograph, or plan public policy.

Notes from Nature

At present, the core activity of the WeDigFLPlants project occurs on the Notes from Nature platform (notesfromnature.org). At Notes from Nature, biodiversity collections like herbaria post images of their specimens that include the specimen label, and then guide participants through a short series of responses. As illustrated by Fig. 2, a participant might be asked to type in

the locality, habitat, and plant description from the label. Other requested entries for this particular example are seen on other pages, including county, collector number, and collection date. Some important fields, including scientific name, country and state, were collected by the imaging technician at the herbarium curating the specimen and so do not need to be input by the participant. A brief project tutorial and help buttons provide guidance as the participant works.

WeDigFLPlants bundles the specimens into what Notes from Nature playfully calls "expeditions." These are sets of specimens grouped in a way to make them interesting to the target audience, perhaps using taxonomy, geography, or something else. The specimen shown in Fig. 2 is a part of the WeDigFLPlants' Comfort Food Relatives of Florida expedition, which includes Florida-collected specimens from the plant families that give us potato, sweet potato, yam and the Andean starch *oca*. As of May 2018, eighteen Florida-focused expeditions have been completed involving just over 62,000 transcriptions. WeDigFLPlants expeditions typically include "WeDigFLPlants" in the title so it is easy for participants to find them among the available Notes from Nature expeditions.

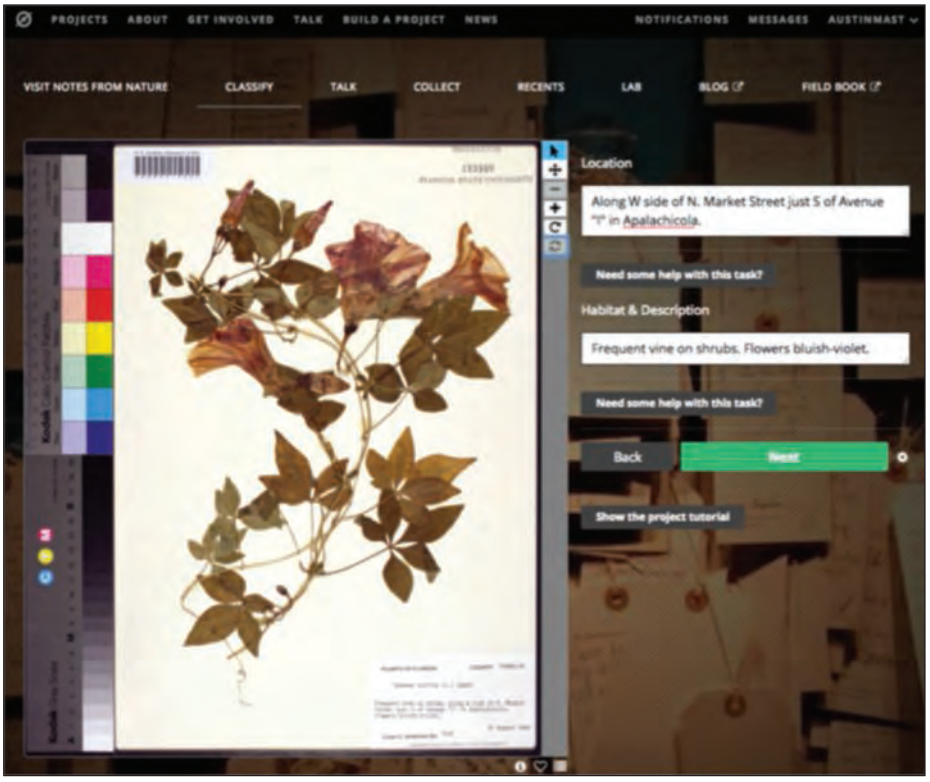

Figure 2: The Notes from Nature interface. WeDigFLPlants participation is currently centered on Notes from Nature (notesfromnature.org). Herbaria digitally image their specimens, then WeDigFLPlants participants provide information from the specimen labels (e.g., location, habitat, and description). Participants initially see the entire specimen but can then zoom and pan so that the label is larger and more easily read.

Biospex

Biospex might be thought of as the base-camp for the Notes from Nature expeditions. Its name is shorthand for "Biodiversity Specimen Expeditions." The WeDigFLPlants administrators bundle specimen images into Notes from Nature expeditions at Biospex, steps that are perhaps not interesting to most people. But what is potentially interesting is the public dashboard that Biospex creates for each of its projects. The WeDigFLPlants page (https://biospex.org/project/wedigflplants) plots the number of transcriptions through time across expeditions and produces a heat map showing the number of specimens transcribed from each Florida county (Fig. 3) as well as providing further information about WeDigFLPlants.

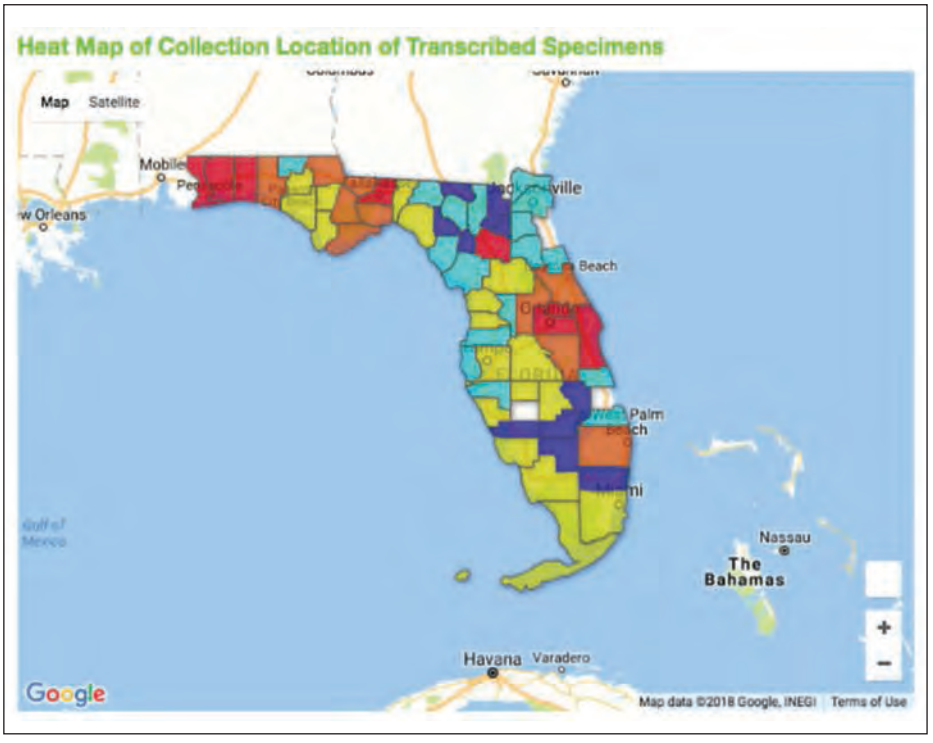

Figure 3: WeDigFLPlants heat map on the project's Biospex dashboard. Biospex provides a plot of transcriptions through time and this heat map shows the number of specimens transcribed from each county, as well additional project information, at https://biospex.org/project/wedigflplants.

Online Educational Resources

Should you still be unclear on the value of herbarium specimens to science and society, or simply interested in learning more, two online videos originally created for high school science classes are a good place to start. The first, "Library of Scientific Plant Samples: Step inside an Herbarium," provides an overview of the process of plant specimen collecting, archiving, and digitizing (http://www.cpalms.org/Public/PreviewResourcePerspectivesVideo/Preview/166547). The second, "Crowd-sourced Herbarium Data Transcription," explains the process of entering the information from herbarium labels at Notes from Nature (http://www.cpalms.org/Public/PreviewResourcePerspectivesVideo/Preview/166555).

If you are a teacher interested in using Notes from Nature to engage your high school or undergraduate students in an authentic science activity, use the reviewed, Americans with Disabilities Act-compliant lesson plan entitled "Help Behind-the-Scenes at a Museum as a Citizen Scientist," mapped to Florida education standards (www.cpalms.org/Public/PreviewResourceLesson/Preview/171734). Additional online educator resources can be found at WeDigBio's Education Exercises page (https://www.wedigbio.org/content/educational-exercises).

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WeDig Project Names

You will notice the similarity between the project names WeDigFLPlants and WeDigBio. The Worldwide Engagement for Digitizing Biocollections (WeDigBio) project produces a popular annual 4-day event during which museums, universities, libraries, and other organizations host specimen digitization blitzes. Organizations such as the Field Museum in Chicago, Natural History Museum in London, *Naturhistorisk* Museum in Oslo, and Australian Museum in Sydney participate. WeDigFLPlants began as a WeDigBio pilot project for autonomous "WeDigInterest" groups that could maintain the excitement and productivity of the annual global WeDigBio Event throughout the year.

WeDigFLPlants is piloting this strategy of aligning specimens in need of digitization, in this case, Florida-collected plant specimens, with the missions of existing organizations including Florida's herbaria, the Florida Native Plant Society (FNPS), and others. We then produce resources to ensure mutual benefits among the parties such as online educational resources. You can see how the initial and, we hope, future successes of WeDigFLPlants could be replicated with other states and other groups (birds, fossils, insects, etc.), and parallel projects have emerged in Virginia, Arkansas, and other places.

WeDigFLPlants hosted an August 2017 workshop that engaged representatives of Florida's herbaria, FNPS, the Florida Master Gardener and Master Naturalists programs, the Florida Wildflower Foundation, Notes from Nature, Biospex, and a few other interested projects to identify shared education and outreach goals for the project. WeDigFLPlants emerged as the earliest WeDigInterest group because several of the founders of WeDigBio, Notes from Nature, and Biospex are based at Florida universities.

Social Event Resources

Individual participation in WeDigFLPlants can happen throughout the year, but you might also be motivated by the social opportunities that a digitization blitz provides. Digitization blitzes are informal social events that might have a specific digitization goal and could be complemented by other activities such as a collection tour, field trip, or research talk. Many digitization blitzes are organized during the WeDigBio Event, but they need not be.

The WeDigBio Event began in 2015, and Florida herbaria have been involved since the beginning in holding digitization blitzes and producing resources for other digitization blitz planners. For example, Florida State University's Robert K. Godfrey Herbarium developed several of the games now widely used during the WeDigBio Event, including Timeline Tracker, Habitat Bingo, Morphology Bingo, and Geolocator (http://wedigbio.org/content/games). Each of the games encourages participants to think more deeply about what they are seeing as they contribute, and to recognize how each of the specimens adds a piece to a larger picture of diversity and distribution.

We encourage FNPS chapters to consider hosting a local event focused on WeDigFLPlants activities, especially during the four days of the 2018 WeDigBio Event (Oct. 18–21). The WeDigBio project provides event planning resources (https://www.wedigbio.org/content/event-planning), and we encourage you to consider organizing a chapter event during the WeDigBio Event. Biospex is currently testing an interface that permits Notes from Nature contributors to form teams (as defined by chapter membership) during events like WeDigBio and to monitor the team's progress.

Thank You For Your Participation

As of March 2018, WeDigFLPlants has a new logo, which is now appearing on stickers and hats (Fig. 4). The "I" in "DIG" represents Sea Oats (*Uniola paniculata*), and we have

added the tagline "Digitizing Natural History Together." "Dig" in WeDigFLPlants is pronounced with a hard G, but it is a reference to the word "digitizing." We will be pleased to send you a sticker as a token of our thanks for contributing 50 transcriptions, or if you contribute 200 transcriptions to WeDigFLPlants at Notes from Nature, you will receive a hat. If you think you qualify for one of these, please contact Austin at amast@bio.fsu.edu.

Figure 4: WeDigFLPlants hat and sticker. As a sporty token of appreciation, WeDigFLPlants will send a sticker to those who complete 50 transcriptions for the project and a hat to those who complete 200. Photo by Jillian Goodwin.

Conclusion

Herbaria are our community's observatories. They provide an expansive view of plant diversity across time and space to benefit science and society. Let's work together to build the most complete view of Florida's flora possible. Join us on WeDigFLPlants activities at Notes from Nature (notesfromnature.org), track WeDigFLPlants progress on Biospex (https://biospex.org/project/wedigflplants), follow @WeDigFLPLants on Twitter, and contact us should you have any questions or suggestions. Thanks for considering this!

About the Authors

Austin Mast is a professor in Florida State University's Department of Biological Science, director of FSU's Robert K. Godfrey Herbarium, and current president of the Society of Herbarium Curators. He teaches Field Botany, Plants & Society, and other courses at FSU. Austin cofounded the WeDigBio Project and is deeply involved in iDigBio, Notes from Nature, Biospex, and WeDigFLPlants.

Joel Timyan is an ecologist and international consultant in environmental management, tropical forestry, geospatial applications, and botany. He serves on the IUCN Species Survival Commission and the Global Tree Specialist Group that is assessing the threatened status of trees worldwide.

Endowment Grant Research Awards, Conservation Grant Awards and the Dan Austin Award for Ethnobotany

Florida Native Plant Society 2019 Conference

ENDOWMENT RESEARCH GRANTS

The Florida Native Plant Society maintains an Endowment Research Grant program for the purpose of funding research on native plants. These are small grants ($1500 or less), awarded for a 1-year period, and intended to support research that forwards the mission of the Florida Native Plant Society which is "to promote the preservation, conservation, and restoration of the native plants and native plant communities of Florida."

CONSERVATION GRANTS

FNPS Conservation Grants support applied native plant conservation projects in Florida. These grants ($5000 or less) are awarded for a 1-year period. These projects promote the preservation, conservation, or restoration of rare or imperiled native plant taxa and rare or imperiled native plant communities. To qualify for a Conservation Grant, the proposed project must be sponsored by an FNPS Chapter.

THE DAN AUSTIN AWARD FOR ETHNOBOTANY

The Dan Austin Award for Ethnobotany will provide up to $1500 to graduate or undergraduate students who are studying Florida ethnobotany – i.e., the study of the relationship between peoples or cultures with plants native to Florida or Florida ecosystems. These can be current uses or historic uses.

Application guidelines and details are on the FNPS Web site (www.fnps.org), click on 'What We Do/Grants and Awards'. Questions regarding the grant programs should be sent to info@fnps.org.

Application deadline for the 2019 Awards is March 3, 2019. Awards will be announced at the May 2019 FNPS Annual Conference at the Plantation on Crystal River, Crystal River, Florida. Awardees do not need to be present at the Conference to receive an award.