

# Where's the Proof?

## The Importance of Herbarium Specimens

by Dr. Richard P. Wunderlin, Department of Biology, University of South Florida

The *Atlas of Florida Vascular Plants* (<http://www.plantatlas.usf.edu>) of the University of South Florida (USF) Institute for Systematic Botany and the Florida Center for Community Design and Research provides the user with distribution and nomenclature information on all native and naturalized seed plant and fern species reported for Florida. The most used feature on the website is the mapping feature, which provides county by county distribution of species. The atlas is continuously updated as new information becomes available. It now receives about 25,000 hits a week.

Since the atlas became available on the web in 1995, communications from people reporting the sighting of new county records or even species they believe to be new to the state have increased each year. After checking the atlas database to verify that the species is not documented from a particular county or from the state, my usual response is: "Did you collect an herbarium (or a voucher) specimen?" In other words, "do you have the proof?"

Depending on the expertise of the person, the response varies considerably. Some know exactly what I mean and usually provide me with a specimen or information that a specimen has been deposited in another herbarium. Some of them actually seek out new records and collect specimens for us to "fill in the gaps." Others who deposit or file specimens on a regular basis in other herbaria, such as Loran Anderson at Florida State University, Kent Perkins at the University of Florida, and Keith Bradley who puts his specimens in the Fairchild Tropical Garden, send us new information on a regular basis. This type of cooperation is greatly appreciated and contributes to our knowledge of the distribution of Florida species, making our easily accessed database even more useful. Funding for development and maintenance of the website is currently provided by the Florida Department of Transportation.

Science requires proof through experi-

mentation and documented observation. The report of the occurrence of a plant species in Florida, and subsequently its report on the atlas or in publication, needs to be substantiated. This is done by the collection of a specimen and placing it in an herbarium where it will be permanently preserved and available for study by others when necessary. If the species is not documented in this manner, there is no record that the plant ever existed at that location

---

**If the species is not documented in this manner, there is no record that the plant ... ever existed at all.**

---

or even existed at all. It is like the Loch Ness Monster, Bigfoot, the Skunk Ape, and UFOs, where the evidence is circumstantial and hearsay; there may be something there, but without physical evidence, all is speculation. For years I have been hearing second-, third-, and fourth-hand reports of lady'slipper orchids in northern Florida, but no one has ever produced a specimen of one as proof of its existence in the state. About 4100 taxa of seed plants are documented to occur in Florida. However, there are over a thousand further taxa reported, both verbally and in the scientific and popular literature, for which an herbarium specimen is not known to exist. There is, therefore, no proof of their occurrence here. In other cases, many reports of species have proved to be erroneous because the plant was originally misidentified. This can only be determined when the herbarium specimen that provided the basis for the original report is found and correctly identified. This happens even among the best botanists! For example, there are recent reports in *The Palmetto* and *Florida Scientist* made by a highly respected Florida botanist of a certain exotic species in South Florida heretofore unknown from the state. Requests to see a specimen of the plant were unsuccessful for nearly a year because the person making the report had not both-

ered to collect one or a collection was made but was "temporarily misplaced." When a specimen was finally studied, my suspicion was confirmed that the material had been misidentified and actually represented a different species of the genus, one already known from the state.

At the recent Florida Exotic Plant Council (FLEPPC) Symposium in St. Augustine, it was mentioned that some distribution maps maintained by FLEPPC do not agree with those of the *Atlas of Florida Vascular Plants*. Part of the problem is that databases maintained by some groups, such as FLEPPC, may include reports based on undocumented "sight records," that is, records based on "I saw it then and

there with my own eyes." No doubt these observations are made by knowledgeable individuals and the species really does occur where stated, but the report is only anecdotal and not "good science." In some cases, a valid reason exists why an herbarium collection could not be made, but in most cases, it was just "too much bother." Each distribution record on the atlas website is documented by an herbarium specimen or a reliable published source, such as a monograph or revision. These records are traceable to the source. In the event of a question on the identification or locality information, the specimen can be located and examined. FLEPPC members, and FNPS members as well, need to get on board and document their observations. Research funding for exotic pest plant research and control is often dependent on the degree of the problem. If the problem is not properly documented, it becomes more difficult to obtain funding.

### How the Process Works

**HOW DO I GET MY NEW RECORD LISTED ON THE ATLAS OF FLORIDA VASCULAR PLANTS WEB SITE OR THE FLEPPC WEB SITE?** To get a new county record on the atlas, it is required that a voucher specimen be deposited in a recognized herbarium. Once the identification is

*continued on page 8*

# Where's the Proof? The Importance of Herbarium Specimens

continued from page 6

confirmed by someone at the herbarium, the data will be entered into the USF database immediately available on the web. To get your plant into the FLEPPC database, you must fill out a field form ([www.fleppc.org/database/data\\_intro.htm](http://www.fleppc.org/database/data_intro.htm)) and mail a hard copy of it to:

Florida Exotic Plant Pest Council  
3915 Commonwealth Blvd.  
MS 710  
Tallahassee, FL 32399

**WHAT IS A VOUCHER SPECIMEN?** A voucher specimen is a pressed, dried plant deposited in a recognized herbarium for future reference and study. This is the documentation of the species' occurrence at a specific location.

**HOW IS A VOUCHER SPECIMEN MADE?** The plant specimen, consisting of a stem with attached leaves and, if possible, flowers and/or fruit, is placed in a single sheet of newspaper folded in half (roughly 11 1/2" x 13 1/2" folded, depending on the newspaper), pressed flat by squeezing or putting a weight on it, and dried. Information containing the scientific name, detailed location, habitat, plant habit (e.g. growth form and approximate height), frequency of occurrence in the area, collector(s) name, and date of collection is written on a sheet of paper and placed with the specimen. For detailed information on preparation of a voucher specimen, visit the following websites:

[www.fleppc.org/her\\_prep.htm](http://www.fleppc.org/her_prep.htm)  
[www.flmnh.ufl.edu/natsci/herbarium/voucher.htm](http://www.flmnh.ufl.edu/natsci/herbarium/voucher.htm)  
[www.science.siu.edu/herbarium/potpouri/prepare.htm](http://www.science.siu.edu/herbarium/potpouri/prepare.htm)  
[www.virtualherbarium.org](http://www.virtualherbarium.org)

When obtaining a specimen, be aware that you may need permission from the landowner to take a plant from private land, or a collecting permit for public lands.

**WHAT SHOULD BE DONE AFTER A VOUCHER SPECIMEN HAS BEEN MADE?** The specimen should be sent by mail or personally delivered to the person in charge (curator, collections manager, or director) of maintaining a recognized herbarium which is committed to long term maintenance of the specimen. Someone at the herbarium will verify the identification of your specimen, prepare a permanent label (if necessary), mount the specimen on acid-free paper, and file the specimen in a specially designed herbarium storage case. If the specimen is not acceptable or more information is needed, the

herbarium manager will tell you what is needed. It is always a good idea to contact someone at the herbarium by phone or email for instructions before sending any specimen. Sometimes a specimen can be sent unpressed in fresh condition in a plastic bag, but the herbarium needs to be contacted before shipment so that special instructions can be given and that the herbarium manager can anticipate its arrival and can process it immediately on receipt.

**WHAT IS A RECOGNIZED HERBARIUM?** A recognized institutional herbarium is one with an official listing in Index Herbariorum (<http://nybg.org/bsci/ih/ih.html>), an international listing of herbaria, and with an official code to be used whenever a specimen from that herbarium is cited. In Florida, the main herbaria (over 100,000 specimens) and their official codes are:

- University of South Florida Herbarium (USF)
- Florida Museum of Natural History, University of Florida (FLAS)
- Florida State University Herbarium (FSU)
- Fairchild Tropical Garden Herbarium (FTG)
- Marie Selby Botanical Garden Herbarium (SEL)

For more information, please feel free to contact me: Richard P. Wunderlin, Department of Biology, University of South Florida, Tampa, FL 33620-5200, [rwunder@chuma1.cas.usf.edu](mailto:rwunder@chuma1.cas.usf.edu). ✨

**ABOUT THE AUTHOR:** Dr. Wunderlin is a tireless and very modest volunteer on FNPS' behalf, very actively serving on our Board of Directors as a Director at Large, Publications Committee Co-Chair, Past President FNPS, and current President of the Suncoast Chapter.



## NATIVE GREEN CAY

Experience, Expertise, Excellence

Field and Container Grown  
Native Florida Trees and Shrubs

**(561) 496-1415**

Michael Jameson  
Silvia Winsberg

12750 Hagen Ranch Rd, Boynton Beach FL 33427  
Wholesale to the Trade (all messages promptly returned)

REG. #047198861