

Where's the Proof?

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The *Atlas of Florida Vascular Plants* (<http://www.plantatlas.usf.edu>) of the University of South Florida 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 gets 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 has 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 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 web site is currently provided by the Florida Department

of Transportation.

Science requires proof through experimentation and documented observation. The report of the occurrence 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 will be 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 or even existed at all. It is like the Loch Ness Monster, Bigfoot, the Skunk Ape, UFO's, where the evidence

For the Record:

Florida Exotic Pest Plant Database

Established in 1995, this database contains over 5,000 occurrence records of Florida EPPC Category I and II pest plant species on public lands, currently with 322 public conservation lands represented in 91% of Florida's 67 counties. The intent is to raise awareness among the public, policy makers, and land managers of the extent of the invasive exotic plant problem in conservation lands. For example, the information has been quite useful in supporting legislative funding for the recently established statewide control program targeting these pest plants.

Building the database has been almost entirely a volunteer effort by conservation land managers and other veteran observers of Florida's natural landscapes. Since 1999, the Florida Department of Environmental Protection's (DEP) Bureau of Invasive Plant Management has supported data entry and maintenance in collaboration with the Florida Exotic Pest Plant Council (EPPC). The Bureau is now funding a pilot project with the Florida Natural Areas Inventory, Florida State University, to begin filling in data gaps and improving the database to include links to a GIS-based mapping system. Eventually this work will allow generation of distribution maps with an estimated acreage of infestations by species in public conservation lands (local, state, and federal). Right now, no maps are "maintained," i.e., regularly generated, from the database.

Accessibility of the location details for each record does allow anyone to check a listed occurrence—to "see for themselves." Nonetheless, because most of these records constitute "sight records," "observational data," or "anecdotal evidence" in scientific parlance, the preparation of herbarium voucher specimens has been encouraged since the beginning as additional confirming documentation. It is especially important when the occurrence represents an infestation in a county not previously documented for the species in the herbarium-based Plant Atlas database housed at the University of South Florida, a basic resource on vascular plant distributions in the Sunshine State.

The EPPC-DEP occurrence database provides a focus on Florida's exotic pest plants. With continued contributions and updates, it is and will be an essential tool in determining priorities and policies for invasive plant management. To contribute to it, query it, or comment on it, visit the website: HtmlResAnchor www.fleppc.org/database. —K.C. Burks, FDEP

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 4,100 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 southern 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 bothered 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 September 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 here 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 there and then 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, 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. State and Federal 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.

Here are some basics for those unfamiliar with the process:

- **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 confirmed by someone at the herbarium, the data will be entered into the database at USF and will be immediately available on the web. To get your plant into the FLEPPC database, you must fill out a field form (available at 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 how to preparation a voucher specimen, visit the following websites:

www.flmnh.ufl.edu/natsci/herbarium/voucher.htm

www.science.siu.edu/herbarium/potpouri/prepare.htm

www.fleppc.org/her_prep.htm

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 that 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 (nybg.org/bsci/ih/ih.html), which is 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 ones (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 by email (rwunder@chuma1.cas.usf.edu).