Herbarium How-To

Gillespie Museum



What is a Herbarium?

A herbarium is a collection of primary data, similar to the archives of a library.

It stores, in biological form—as pressed and dried plant specimens with annotated labels—information critical for research in ecology, biodiversity, evolution and genetics.

Definition

A collection of preserved plant specimens and associated data used for scientific study.

Concession and



The First Herbarium: Early Medicine

Luca Ghini, a sixteenth-century professor of botany and medicine, founded the Botanic Garden of Pisa in 1544. Luca Ghini is often credited with creating **the first recorded herbarium—a volume of sheets with attached dried botanical specimens.**



Linnaeus kept his botanical specimens in this herbarium cabinet.

Collecting and Taxonomy

Known as the "father of modern taxonomy" (formalizing binomial *nomenclature*, the modern system for naming organisms), the famous Swedish naturalist Carolus Linnaeus advised readers in his Philosophia Botanica (1751) to mount just one pressed plant specimen per sheet and to refrain from binding sheets together.



VOLUSIA

SANDHILL

ECOSYSTEM



The Gillespie Museum has started collecting specimens from the adjacent **Volusia Sandhill Ecosystem** to record the progress of ecological restoration.

Undergraduate biology students and volunteers have contributed to a study of species diversity and persistence in this urban reforestation, begun in 2011.

Learn more about the Volusia Sandhill Ecosystem at the Gillespie Museum: <u>https://www.stetson.edu/other/gillespie-museum/vse/index.php</u> Download a Volusia Sandhill plant list: <u>https://www.stetson.edu/other/gillespie-museum/media/Plant%20List%202019.pdf</u>



1. Prepare your plant press.

Professional plant presses are available online, as well as DIY instructions for building them. Most importantly, you need porous, absorbent blotting paper (newspaper works too) and flat, rigid panels to press specimens—with weight or mechanical pressure—while they dry.



2. Select your specimen.

Make a label for it in the field and assign it a number. Record the number on the label and in your field journal, along with notes about where you found it, when, and any other observations that might help with identification and study.

Shown: Firewheel (Gaillardia pulchella)



3. Carefully collect your specimen.

Full plants from blooms to roots are traditional, but smaller clippings work too.

Place your plant in a rigid container or a plastic bag, with moist paper towels around it to prevent wilting, and return to your work area as soon as possible.

Prepare your specimen by gently cleaning. Brush off loose soil and blot off moisture.



4. Arrange the plant on a sheet of blotting paper.

Next to it, place the identification label with its name, the location where it was collected, when it was collected, and by whom. Make sure the same information is recorded in a notebook or spreadsheet. Place another piece of blotting paper or newspaper on top of the plant.



Multiple specimens can be stacked on top of one other; just separate each with a piece of cardboard, as shown.

Herbarium How-to: Create Your Own

5. Make layers.

Place the sheets of blotting paper containing your specimen between more layers of blotting paper (or newspaper) for extra absorbency. Then place those layers between two pieces of corrugated cardboard, to allow air to circulate through.





6. Place the resulting package in the plant press.

Gently secure it in place using screws or straps. If you don't have a special plant press, you can use heavy objects (books, bricks) to weigh down your rigid top panel.

You can dry several plants in the press at a time; just make sure each specimen is arranged in the aforementioned layers.



7. Check the plants every two or three days.

Replace the damp papers with dry ones. It will take from two to four weeks before the specimens are completely dry.



8. Mount each pressed and dried specimen onto a separate herbarium sheet with an identifying label.

Use archival glue to adhere your specimens along with a suitable label onto acid free mounting paper.

(Instructions modified from American Museum of Natural History's *How to Press and Preserve Plants.*)



Clockwise from left: Herbarium specimen (*Casuarina equisetifolia*) collected 1955 on Stetson campus; Firewheel (*Gaillardia pulchella*) collected 2020 from Volusia Sandhill Ecosystem, Stetson; Digital image of herbarium specimen Firewheel (*Gaillardia pulchella*), Atlas of Florida Plants ISB.



Display

To display, a specimen can be mounted and framed to gallery standards or in a simple acrylic frame.

A digital archive, like that of the University of South Florida Herbarium, can be shared.



Other Herbarium Resources:

The **Atlas of Florida Plants** is a joint effort by the Institute for Systematic Botany, the University of South Florida, and the USF Water Institute to provide a comprehensive searchable database of plants in the state of Florida. Click 'Herbarium Specimen Search' to find images of thousands of mounted specimens. https://florida.plantatlas.usf.edu/

The **University of Florida Herbarium (FLAS)** is the oldest (est. 1891), largest, and most comprehensive botanical collection in Florida with almost 500,000 specimens from around the world. It is the 4th largest herbarium in the southeastern United States.

https://www.floridamuseum.ufl.edu/herbarium

About Herbaria: https://www.floridamuseum.ufl.edu/herbarium/herbariaandspecimens.htm

North American Alliance of Small Herbaria has links to smaller collections, including the herbarium at Archbold Biological Station, Venus, Florida.

http://nansh.org/portal/collections/index.php

Herb Society of America offers a guide, The Use and Methods of Making a Herbarium/Plant Specimens. https://www.herbsociety.org/file_download/inline/2c81731f-ecd5-4f5d-a142-666830a89ed2

Herbarium Specimen Demonstration from the **Denver Botanic Garden**: https://www.youtube.com/watch?v=YTdPx6rhnUI



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www.stetson.edu/gillespie

