UF | IFAS Extension
UNIVERSITY of FLORIDA

THE UF/IFAS PLANT IDENTIFICATION & INFORMATION SERVICE, FLORIDA'S FLORA, AND PLANT ID RESOURCES

Marc S. Frank
Extension Botanist
University of Florida Herbarium
30 March 2018

FLORIDA MUSEUM OF NATURAL HISTORY

The University of Florida Herbarium

- **Established 1891**, became part of the FLMNH in 1981
- Approximately **500,000 specimens-**-the oldest, largest, and most comprehensive botanical collection in Florida
  - 280,000 vascular plants (including 3200 vials of seeds)
  - 160,000 mosses and liverworts
  - 56,500 fungi (housed separately)
  - 15,300 wood samples
  - Library of over 16,000 books, journals, reprints, maps, and illustrations
- Includes specimens from every continent except Antarctica, but the geographic focus is **circum-Caribbean**
- Constantly growing (~ 2500 specimens/year)


FLAS
HERBARIUM
209545
GAINESVILLE
UNIVERSITY OF FLORIDA
Herbarium of the University of Florida
Gainesville, Florida U.S.A.
CULTIVATED PLANTS OF FLORIDA
175
Hibiscus coccineus Walter
< Malvaceae >
ALACHUA COUNTY: N29.61317°, W082.41104° (Map Datum WGS84)(S21,T10S,R19E) Kanapaha Botanical Gardens; Kanapaha Water Gardens; near the gazebo by the lower pond. Growing at water's edge with Canna and Iris species. Plants to 10 feet tall with short side branches. Flowers with bright red petals. Specimen is from a side branch.
coll. S. Barry Davis # 433 9 Aug 2002
det. SBD
"Scarlet Rosemallow"
Voucher for: Floristic Inventory of Kanapaha Botanical Gardens.


HERBARIUM
UNIVERSITY
OF
FLORIDA
AT
GAINESVILLE
AGRICULTURAL EXPERIMENT STATION
139652
CENTIMETERS
Herbarium of the University of Florida
Agricultural Experiment Station
Plants of Florida
110
Sarracenia purpurea L.
CALHOUN CO.,
common in moist forest (with Cyrilla, Nyssa, Taxodium, Cliftonia).
coll. Walter S. Judd #2382 14 Sept. 1979
with Kent D. Perkins
det. Walter S. Judd
Northern Kentucky University Herbarium (KNK)
Sarracenia rosea Naczi, F.W.Case, & R.B.Case
Sida 18: 1188. 1999.
Paratype
Robert F.C. Naczi 2000
PARATYPE

The UF/IFAS Plant Identification and Information Service

- Established1927 as a service to Florida Cooperative Extension personnel
- Currently funded by UF/IFAS and the Florida Museum of Natural History
- Provides authoritative IDs of vascular plants, plant-related information, and educational/outreach presentations
- Serves UF/IFAS, the university community, and the general public

The Process of Plant Identification

Recognition (visual memory)

vs.

Diagnosis and verification

Why bother identifying a plant?

- An accurate pest and host ID is the first step in any integrated pest management program
- An ID is critical when determining if a plant is regulated by law, regarded as invasive, and whether control is warranted
- Knowing what a plant is helps you access information that will improve success in cultivation
- An accurate ID allows you to access a wealth of information about the plant such as native distribution, potential invasiveness, regulatory status, toxicity, cultural requirements, economic uses, etc.

How to get plants identified?

1) Submit a physical sample
   (fresh or dried/pressed)
2) Send photos via email
3) Submit a digital sample via the Distance Diagnostic and Identification System (DDIS)

Remember: Your local cooperative extension office is the best place to go when you need a plant identified or advice how to grow or control it

Collecting Plant Samples for ID

- **Flowering/fruiting** samples are most diagnostic
- At the very least we need to see several whole leaves attached to a stem
- If the plant is badly infested or damaged by insects or disease, try to find a relatively undamaged piece to send as a sample

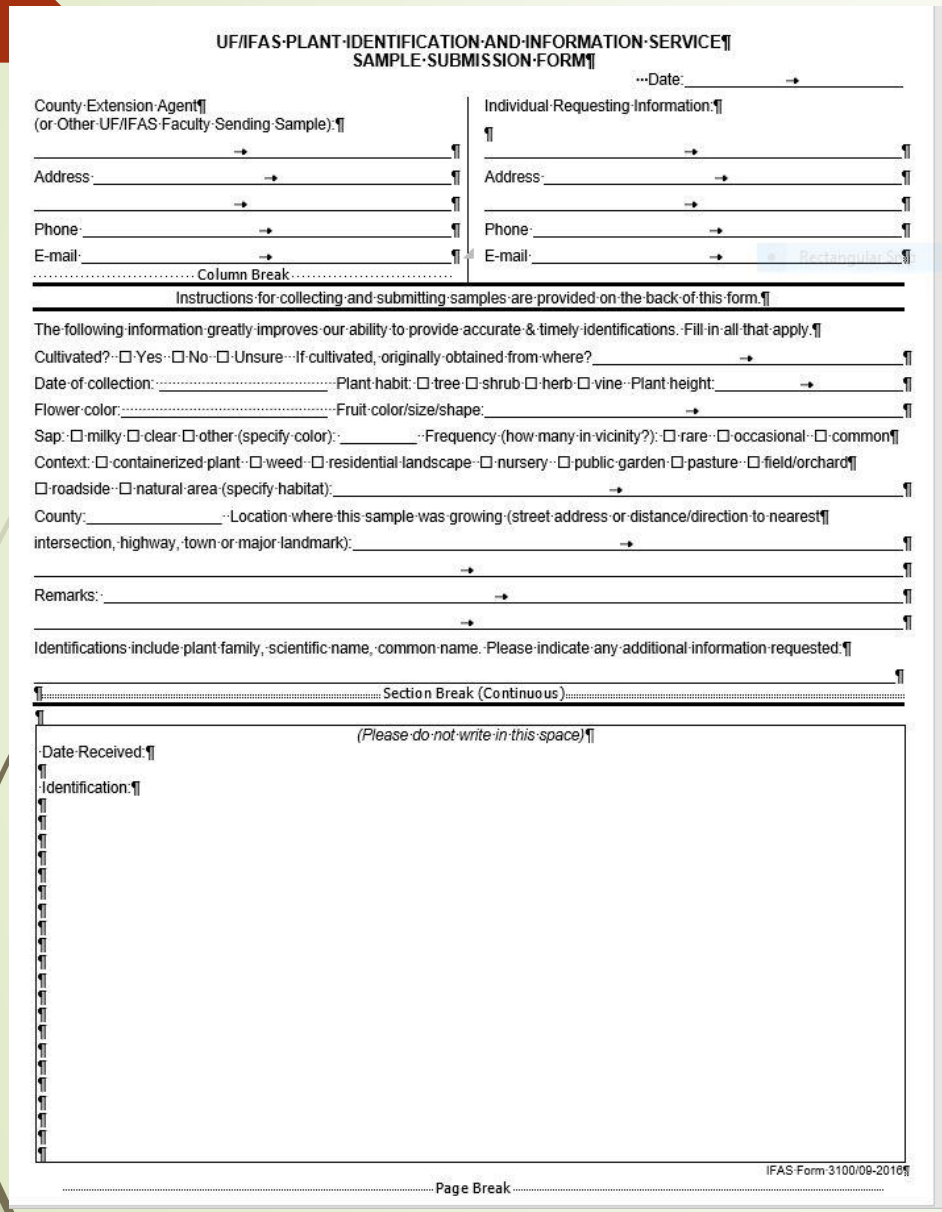
Collecting Plant Samples for ID

- To minimize wilting and defoliation, once you've collected the plant sample put it in a **sealed plastic bag**, and keep it out of the heat and direct sunlight until you are able to send it or press and dry it
- Bagged samples may be refrigerated until they can be shipped, but refrigerated samples that are subsequently subjected to high heat seem to rot very quickly!

Challenges!

The process of diagnosis is much more challenging and time-consuming when the plant sample is very small, sterile, wilted, fragmented, or decomposed

The Sample Submission Form (for physical samples)



UF/IFAS PLANT IDENTIFICATION AND INFORMATION SERVICE
SAMPLE SUBMISSION FORM

Date:

County Extension Agent
(or Other UF/IFAS Faculty Sending Sample):

Address

Phone

E-mail

Column Break

Individual Requesting Information:

Address

Phone

E-mail

Instructions for collecting and submitting samples are provided on the back of this form.

The following information greatly improves our ability to provide accurate & timely identifications. Fill in all that apply.

Cultivated? ☐ Yes ☐ No ☐ Unsure If cultivated, originally obtained from where?

Date of collection: Plant habit: ☐ tree ☐ shrub ☐ herb ☐ vine Plant height:

Flower color: Fruit color/size/shape:

Sap: ☐ milky ☐ clear ☐ other (specify color): Frequency (how many in vicinity?): ☐ rare ☐ occasional ☐ common

Context: ☐ containerized plant ☐ weed ☐ residential landscape ☐ nursery ☐ public garden ☐ pasture ☐ field/orchard

☐ roadside ☐ natural area (specify habitat):

County: Location where this sample was growing (street address or distance/direction to nearest

intersection, highway, town or major landmark):

Remarks:

Identifications include plant family, scientific name, common name. Please indicate any additional information requested:

Section Break (Continuous)

(Please do not write in this space)

Date Received:

Identification:

IFAS Form 3100/09-2016

Page Break

GUIDELINES FOR COLLECTING & SUBMITTING PLANT SAMPLES FOR IDENTIFICATION
UF/IFAS PLANT IDENTIFICATION AND INFORMATION SERVICE

A service supported by the University of Florida Institute of Food and Agricultural Sciences and the Florida Museum of Natural History

Complete one form for each sample and send to:

University of Florida Herbarium
Florida Museum of Natural History
379 Dickinson Hall
PO Box 117800
Gainesville, FL 32611-7800

1. For a quick response, we encourage you to submit sample information and photos via the UF/IFAS Distance Diagnostic and Identification System (DDIS) and mail a physical sample with a printout of the DDIS sample information. We will respond with an identification via DDIS.
2. Do not send more than 5 plant samples at one time unless you have made arrangements with us in advance. If you are sending multiple samples, please number each sample and the corresponding form, and we will use these numbers when providing you with identifications.
3. Each sample must be accompanied by IFAS Form 3100/11-2016 or a printout of the DDIS sample information. Our ability to provide an accurate and timely identification is dependent on the quality of the sample, as well as the quality of the information provided on the sample submission form. Please try to provide the requested information as completely as possible. Potentially diagnostic characteristics such as color, fragrance, and the presence of latex often do not persist in shipment, so we rely on you to report this information to us.
4. Ideally, each sample should consist of a stem with multiple complete leaves attached, and flowers or fruit. A single leaf or part of a compound leaf is rarely sufficient for identification. Please include the roots of herbaceous plant samples whenever possible, but be sure to remove all soil from the plant roots.
5. If you are not able to send a good quality sample…
   - Provide as much supplemental information as possible on the sample submission form
   - Take some photos and send them by email or print out and include with the physical sample
   - Wait until the plant is larger and/or fertile
6. You may submit a fresh plant sample or a dried/pressed sample. Fresh samples are preferred, but are prone to rotting in shipment, especially during the hottest months of the year. If you are submitting fresh plant material be sure to ship by the quickest means possible (hand delivery, overnight, or priority mail).
   - For fresh plant material, bend or fold as needed, wrap completely in dry paper towels (to exclude air and light), and place inside a sealed plastic bag. If the sample includes large, juicy fruit, remove the fruit and bag it separately from the rest of the plant. Fresh, bagged samples are best shipped in boxes, but padded envelopes may be appropriate for smaller or more succulent plants. It is critical that fresh plant material be shipped promptly after collection.
   - To press a sample for shipment, place it between a folded piece of newspaper, spread out the plant so that leaf arrangement and flowers/fruit are obvious, fold the newspaper over the plant, and place between 2 pieces of cardboard. Use rubber bands, tape, or paper clips to secure the edges of the cardboards (to prevent the plant material from sliding out), and place inside an envelope or box. Please do not tape the plant to the paper or use staples to close the newspaper.
7. If the sample you have submitted is not sufficient for a confident species-level identification, we may request that you provide additional information or additional samples with diagnostic features.
8. We make every effort to provide accurate identifications. However, some plant groups are taxonomically complex or poorly known, and we may not always be able to provide a species-level identification. We may be able to request identification assistance from specialists at other institutions, but that process requires additional specimens and can take several months or longer.
9. Samples sent in for identification will NOT be returned.
10. For more information about submitting samples (or if you have a large/unusual sample that you're unsure how to submit) contact Marc S. Frank, Extension Botanist at mfrank@flmnh.ufl.edu or (352) 273-1994.

http://edis.ifas.ufl.edu/pdffiles/sr/sr02400.pdf

Submitting photos by email

- Identifying plants from photos is challenging, so it is especially helpful if you include the same **location**, **context**, and **plant description** information that you would provide on a sample submission form
- Please be sure to tell us **what county** the plant is growing in. If the plant was photographed out of state or out of country, it is very useful if you tell us where!

Submitting photos by email

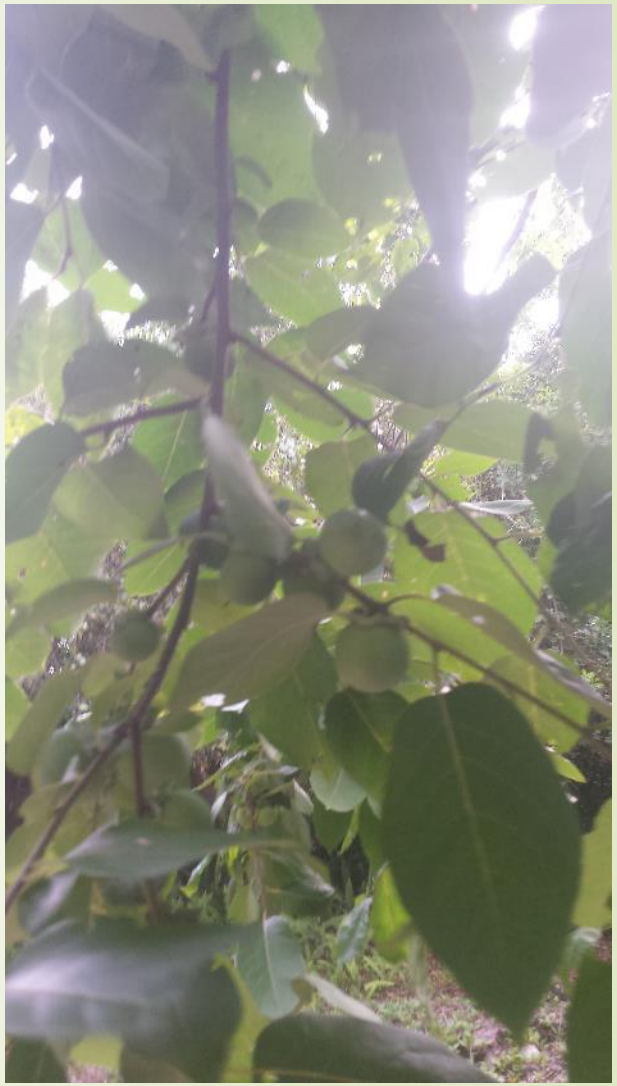
- Generally a single photo is not sufficient for confident identification. Try to take:
  - a photo of the **entire plant**
  - a close-up of the **stem with leaves** (so we can see leaf arrangement)
  - a close-up of **flowers or fruit**
- Include a ruler, coin, or person in the photo for scale if possible

Submitting photos by email: photo quality is very important!

- Make sure your photos are **in focus** and the plant you want identified is **clear and obvious**, not obscured by glaring sunlight or shade
- Photos need to be **high** enough **resolution** that we can zoom in and see plant details without the image become pixilated

Examples of photos showing diagnostic characteristics:

Examples of photos of limited diagnostic value:

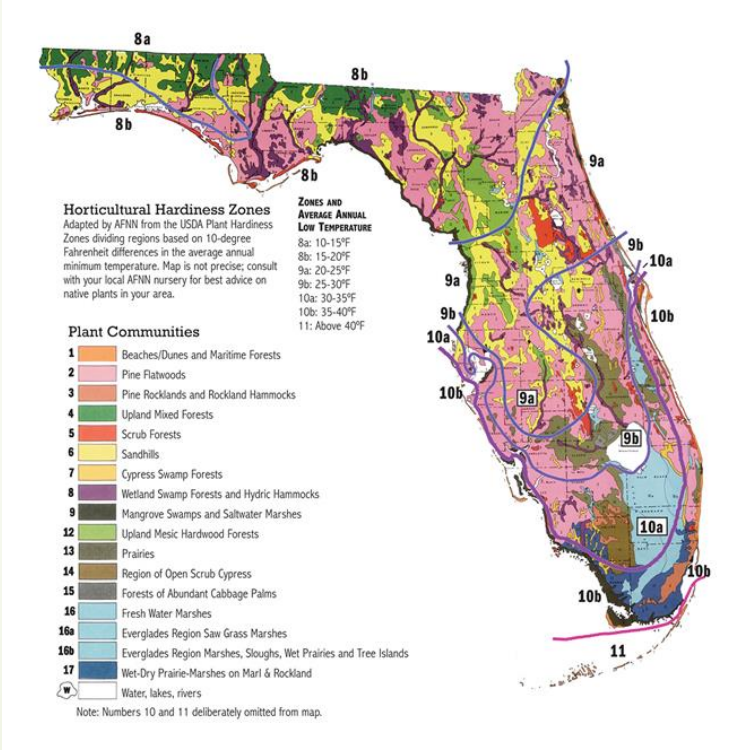


Florida's Vascular Flora

~4300 plant species native or naturalized (ranked 6th most diverse in USA)—representing 243 plant families

- 3000 native species
- 1300 naturalized species

~**10,000** plant species cultivated in Florida



Florida's Native Flora

3000 native plant species

- 230 endemic
- 553 species protected by the Florida Department of Agriculture, Division of Plant Industry
  - 431 endangered
  - 114 threatened
  - 8 commercially exploited

For more information about Florida's protected plants see:
https://www.freshfromflorida.com/Divisions-Offices/Plant-Industry/Bureaus-and-Services/Bureau-of-Entomology-Nematology-Plant-Pathology/Botany/Florida-s-Endangered-Plants

Florida's Naturalized Flora

~1300 naturalized plant species

- ~150 invasive (FLEPPC)
- ~100 regulated (prohibited by law) by the Florida Department of Agriculture, Division of Plant Industry as noxious weeds or prohibited aquatics plants

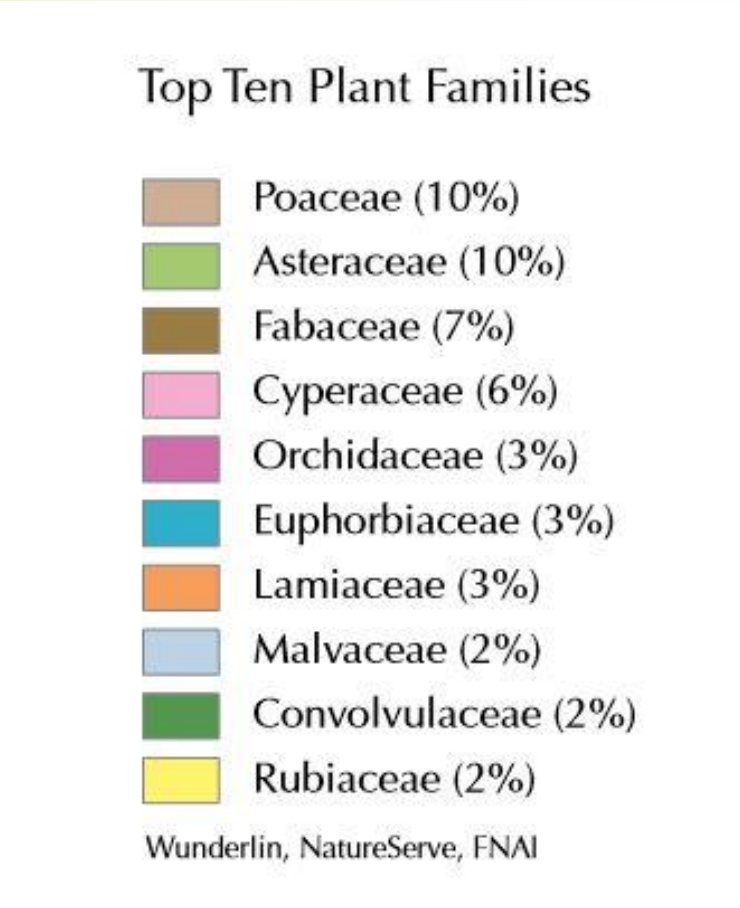
For more information about Florida's prohibited plant species see:
https://www.freshfromflorida.com/Divisions-Offices/Plant-Industry/Bureaus-and-Services/Bureau-of-Entomology-Nematology-Plant-Pathology/Botany/Noxious-Weeds

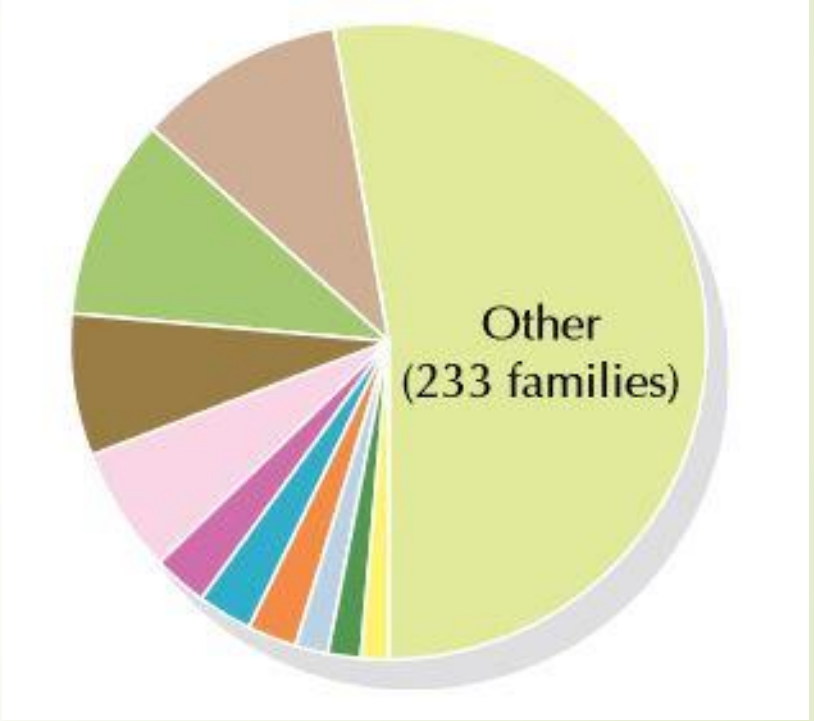
Florida's Cultivated Flora

~10,000 cultivated plant species

- Includes ornamentals, fruits, vegetables, herbs, forage crops, turfgrass, and more!
- Ranges from temperate species in the northern panhandle to tropical species on the southern peninsula

Florida's Vascular Plants: 243 Native/Naturalized Plant Families!





Graphic from *Atlas of Florida's Natural Heritage* 2011, Florida Natural Areas Inventory

Florida's Top Six Plant Families: **No. 1: Poaceae (the grass family)**

- Approx. 121 genera & 454 species native or naturalized in Florida
- Pollinated by wind, so flowers are generally small, inconspicuous, lacking petals
- This family is of great economic importance--providing most of the cereal grains on which civilization is based

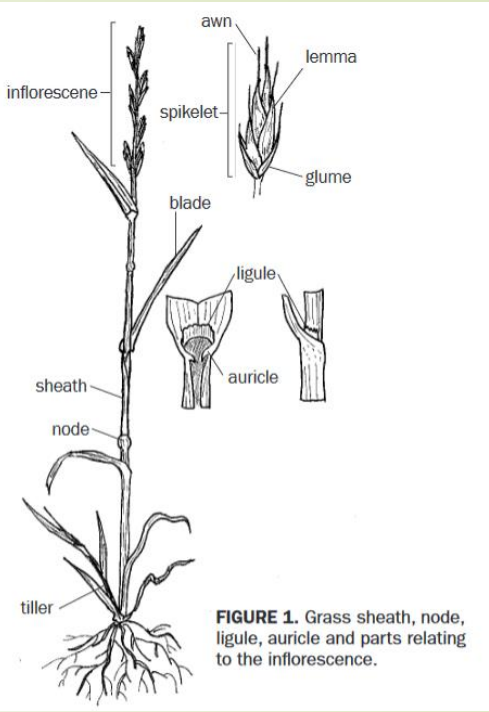
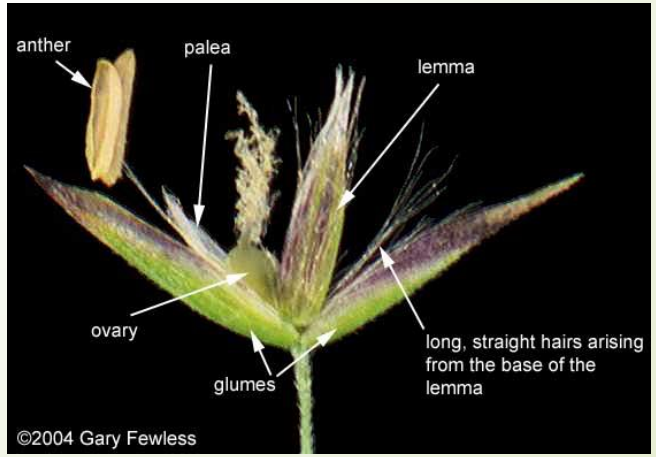
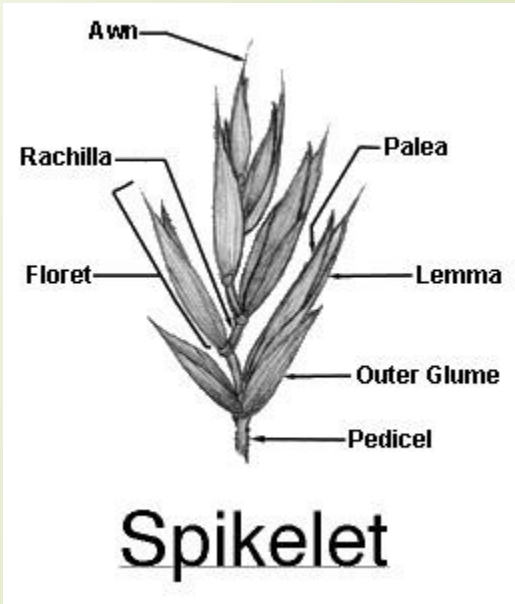


FIGURE 1. Grass sheath, node, ligule, auricle and parts relating to the inflorescence.

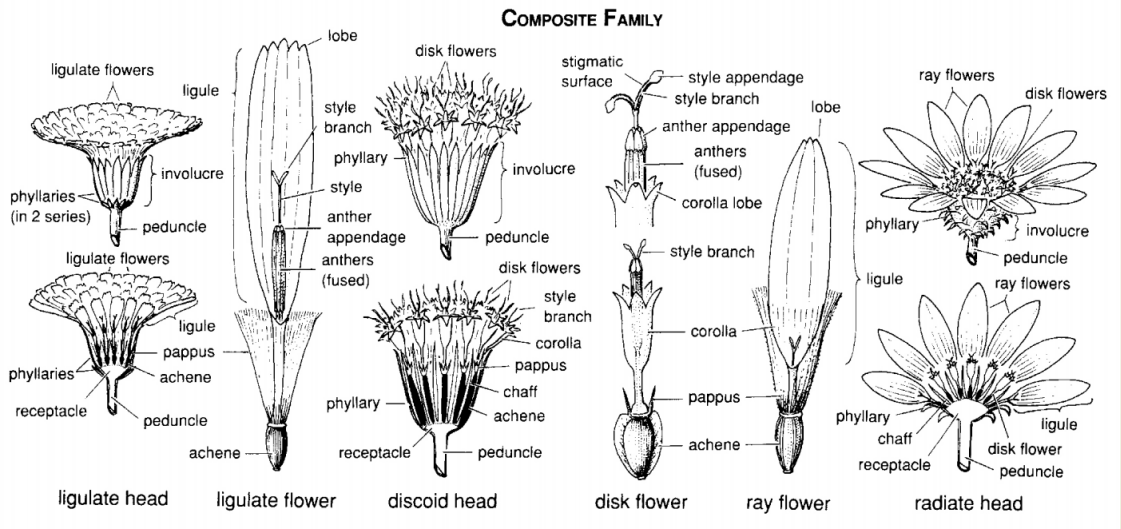




For more info on landscape grasses for Florida see *Native Bunchgrasses: A Natural Alternative To Turf*
http://www.fnps.org/assets/pdf/pubs/fnpsfactsheetbgrass.pdf

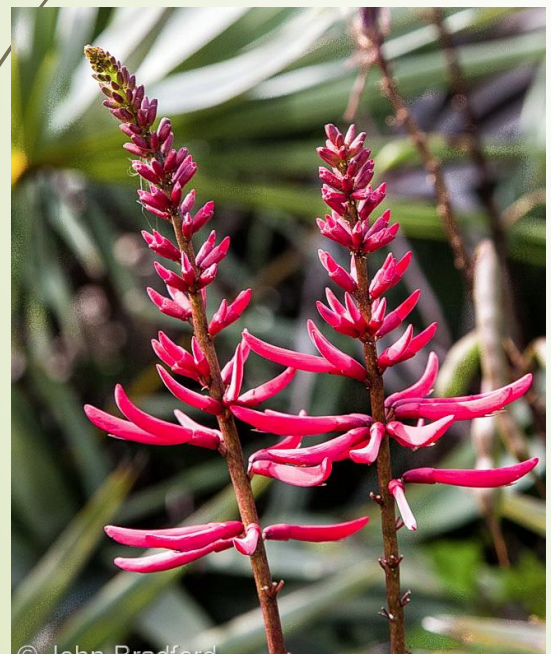
Florida's Top Six Plant Families: **No. 2: Asteraceae (the aster family)**

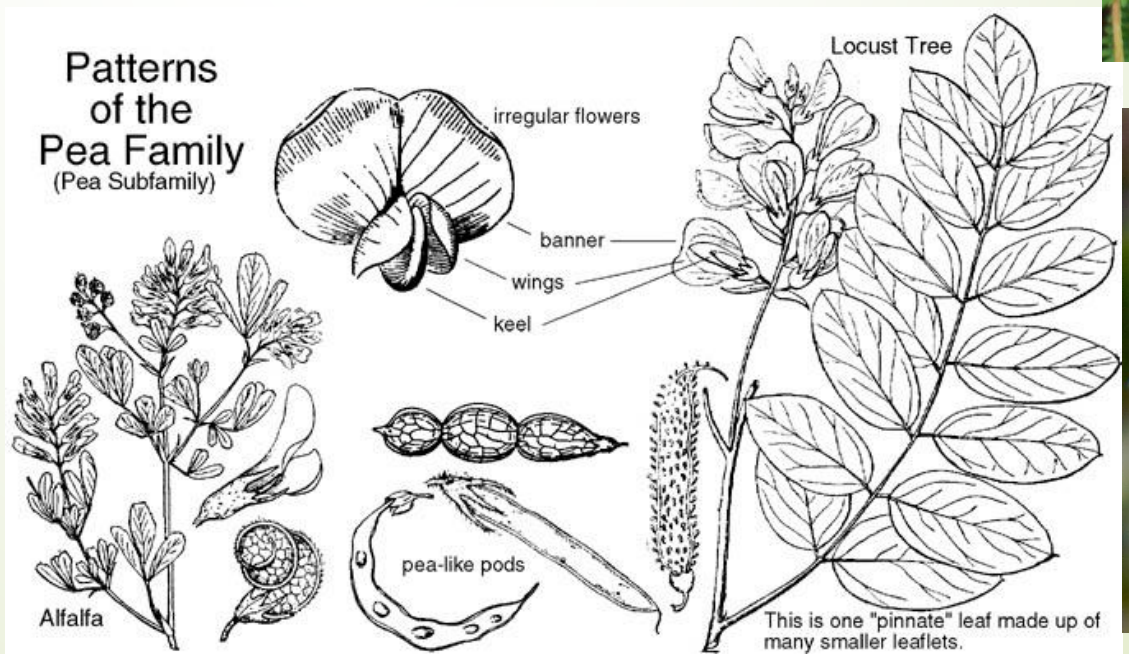
- Also known as Compositae, which alludes to the fact that what appears to be a single flower is actually a head consisting of many tiny flowers
- Approx. 140 genera & 435 species native or naturalized in Florida
- Mostly herbaceous, varied in form



Florida's Top Six Plant Families: **No. 3: Fabaceae (the legume family)**

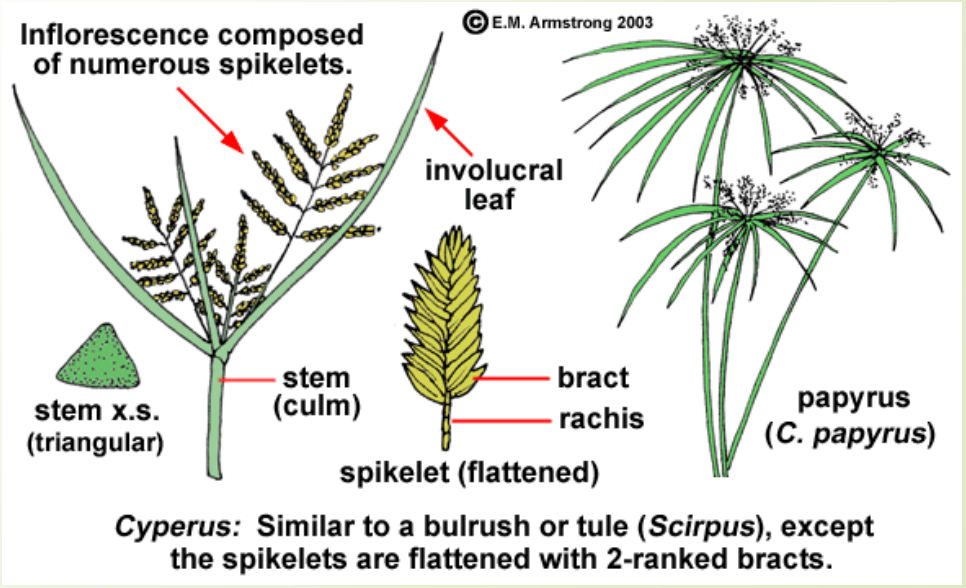
- Also known as Leguminosae
- Approx. 91 genera & 334 species native or naturalized in Florida
- Extremely diverse in habit, including herbs, shrubs, trees, and vines





Florida's Top Six Plant Families:
No. 4: Cyperaceae (the sedge family)

- Approx. 17 genera & 280 species native or naturalized in Florida
- Sedges are similar to grasses in appearance, but can be distinguished by their triangular stems with solid pith (grasses have round, hollow stems)
- Most common in wet habitats



Florida's Top Six Plant Families: **No. 5: Orchidaceae (the orchid family)**

- Approx. 56 genera & 119 species native or naturalized in Florida
- Exclusively herbaceous, both terrestrial and epiphytic in habit
- Flowers are highly specialized for insect pollination

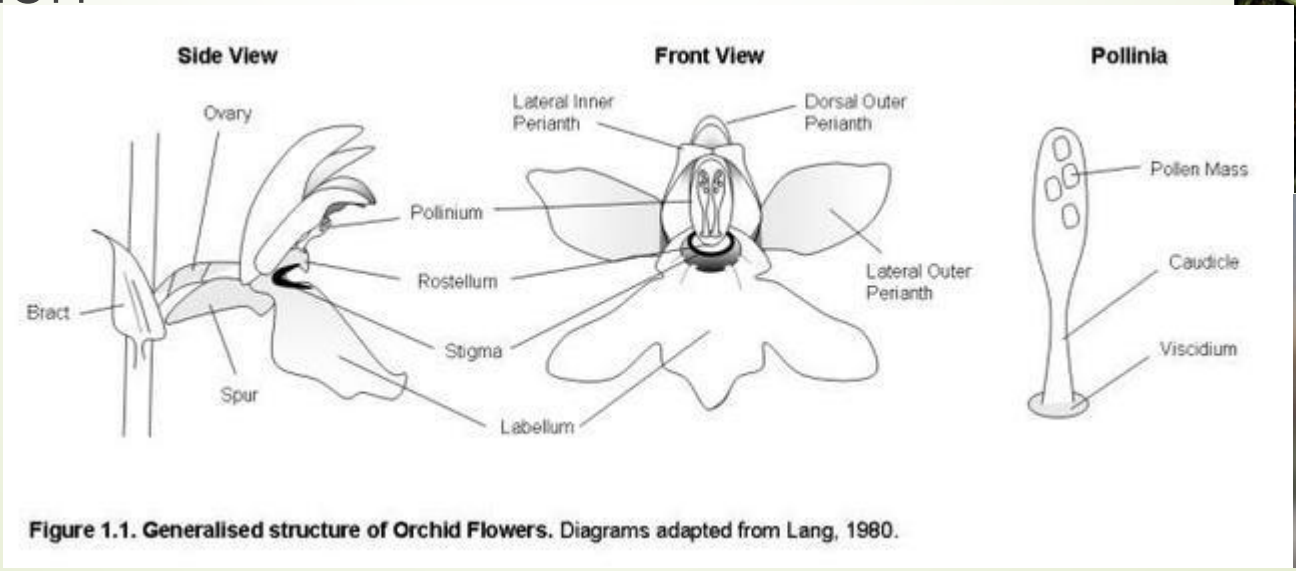
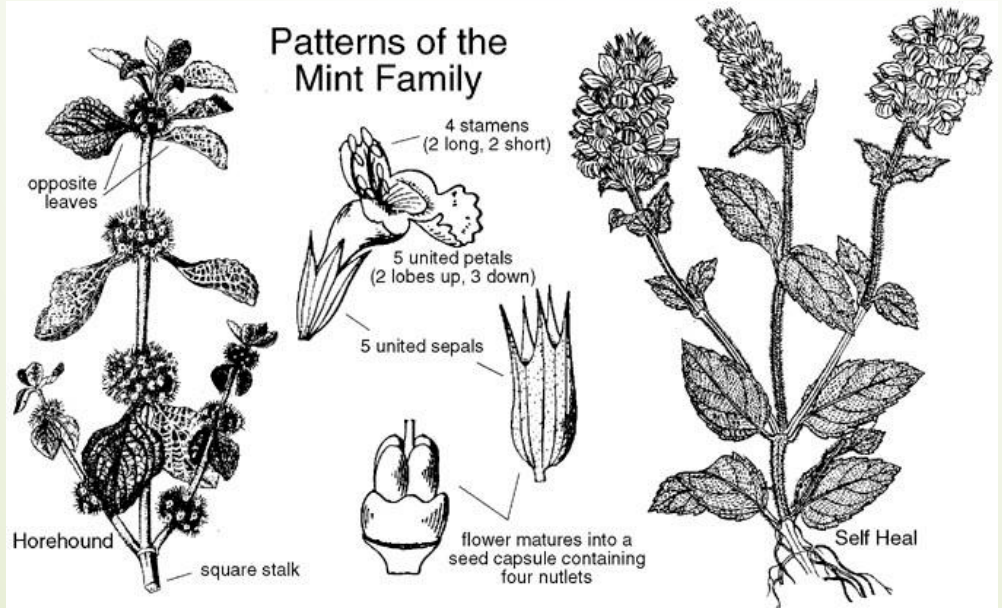


Figure 1.1. Generalised structure of Orchid Flowers. Diagrams adapted from Lang, 1980.

Florida's Top Six Plant Families: **No. 6: Lamiaceae (the mint family)**

- Approx. 41 genera & 118 species native or naturalized in Florida
- Includes both herbaceous and woody species
- Many with aromatic oil glands in leaves, some used as culinary & medicinal herbs



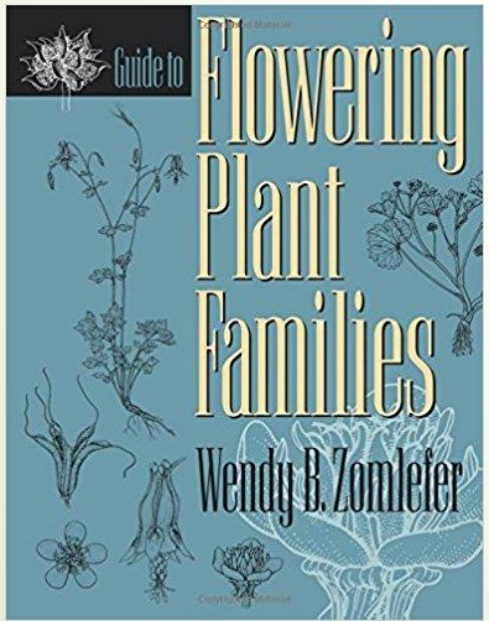
Plant Identification Resources: Online

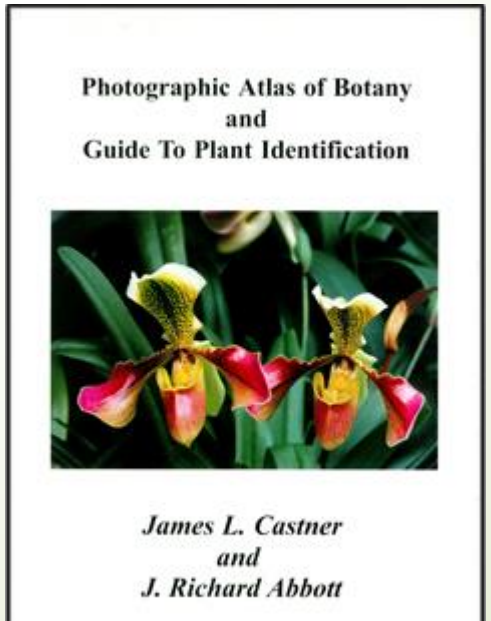
- **Atlas of Florida Plants**: **http://florida.plantatlas.usf.edu/**
  - Searchable by scientific name or common name or browse by plant family
  - Includes county distribution maps and often images
  - Includes only those species that are native or naturalized in Florida
  - Links to specimen images from the USF Herbarium

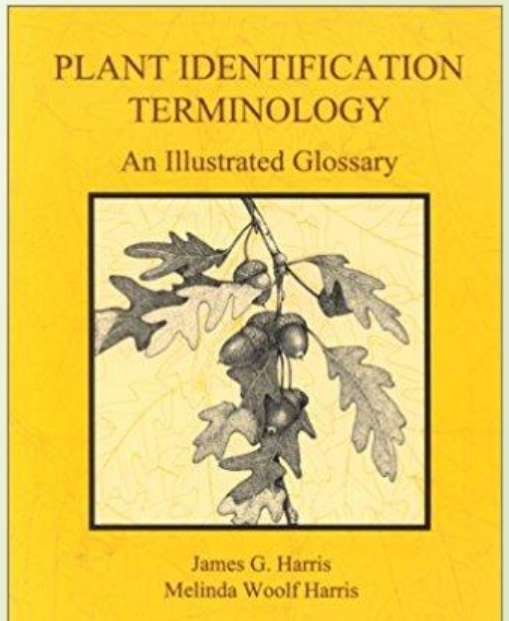
- **The University of Florida Herbarium—digital imaging search**: **https://www.floridamuseum.ufl.edu/herbarium/cat/imagesearch.asp**
  - Searchable by scientific name, common name, plant family, or project/thematic sets
  - High resolution scans zoomable to ~10x magnification
  - Currently only 60,000 of the ~280,000 vascular specimens in the UF Herbarium have been scanned

Plant Identification Resources: Printed General Botany References

- W.B. Zomlefer 1994 ***Guide to Flowering Plant Families***. University of North Carolina Press.
- J. L. Castner & J.R. Abbott 2005 ***Photographic Atlas of Botany & Guide to Plant Identification***. Feline Press.
- J.G. Harris & M.W. Harris 2001 ***Plant Identification Terminology: An Illustrated Glossary*** (2nd ed.). Spring Lake Publishing.

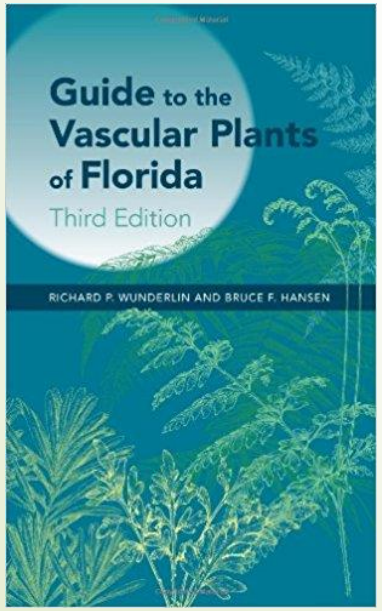


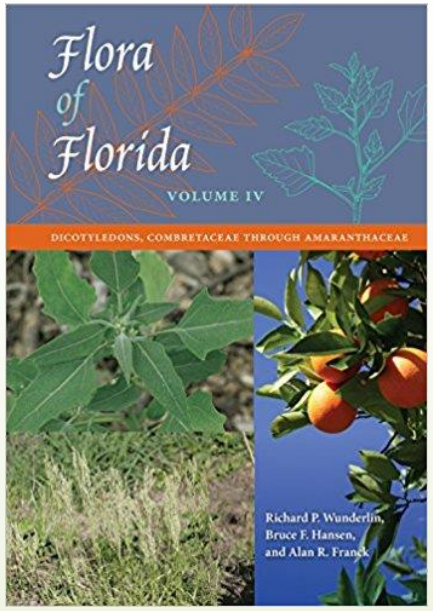




Plant Identification Resources: Printed Florida References (academic)

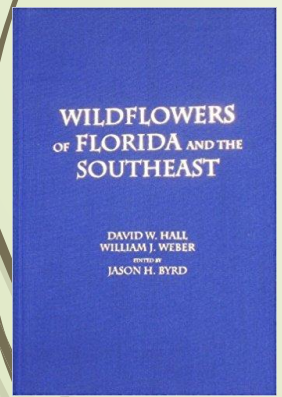
- R.P. Wunderlin and B.F. Hansen ***Guide to the Vascular Plants of Florida*** (3rd ed.). University Press of Florida.
- R. Wunderlin & B. Hansen 2000-2017 ***Flora of Florida*** (4 of 10 volumes published so far). University Press of Florida.

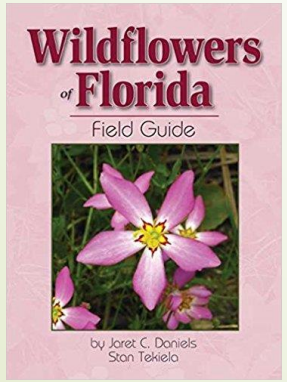


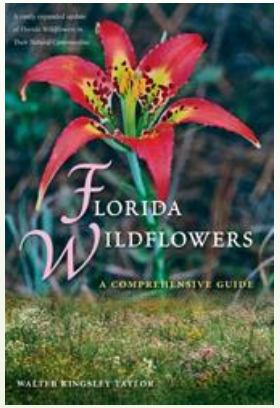


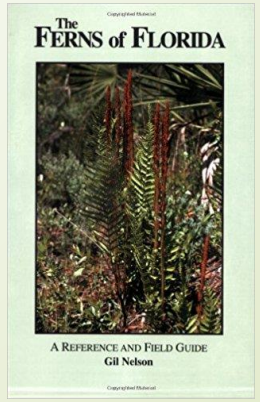
Plant Identification Resources: Printed Florida Reference (field guides)

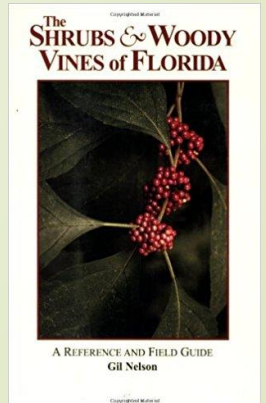
- D.W. Hall & W.J. Weber 2011 ***Wildflowers of Florida and the Southeast***. D.W. Hall Consulting.
- J.C. Daniels & S. Tekiela 2010 ***Wildflowers of Florida Field Guide***. Adventure Publications.
- W.K. Taylor 2013 ***Florida Wildflowers: A Comprehensive Guide***. University Press of Florida.
- G. Nelson 2010 ***The Trees of Florida***. Pineapple Press.
- G. Nelson 2000 ***The Ferns of Florida***. Pineapple Press.
- G. Nelson 1996 ***The Shrubs and Woody Vines of Florida***. Pineapple Press.





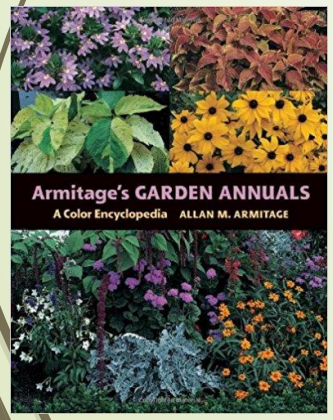


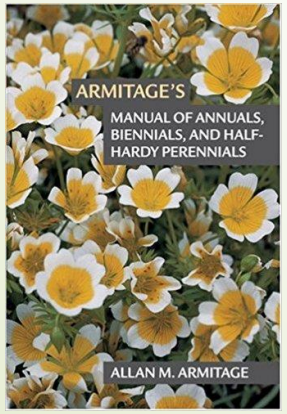


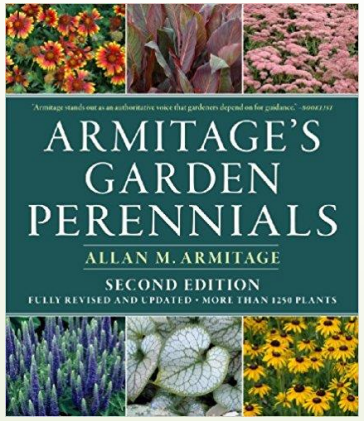


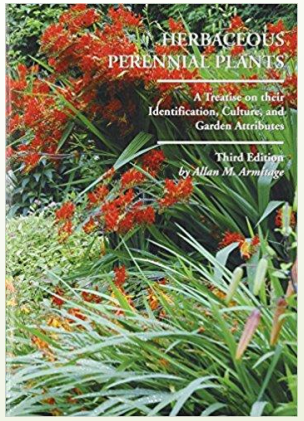
Plant Identification Resources: Cultivated Plants (temperate)

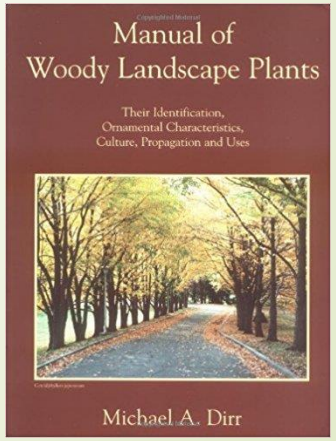
- Alan M. Armitage:
  - ***Armitage's Garden Annuals: A Color Encyclopedia***. 2004 Timber Press.
  - ***Armitage's Manual of Annuals, Biennial, and Half-Hardy Perennials***. 2001 Timber Press.
  - ***Armitage's Garden Perennials*** (2nd ed.). 2011 Timber Press.
  - ***Herbaceous Perennial Plants*** (2nd ed.). 1997 Stipes Publishing.
- Michael A. Dirr:
  - ***Manual of Woody Landscape Plants***. 1998 Stipes Publishing.
  - ***Dirr's Trees and Shrubs for Warm Climates***. 2002 Timber Press.

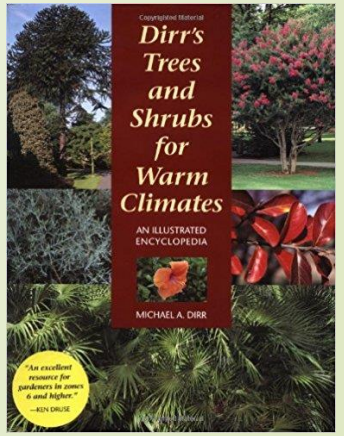






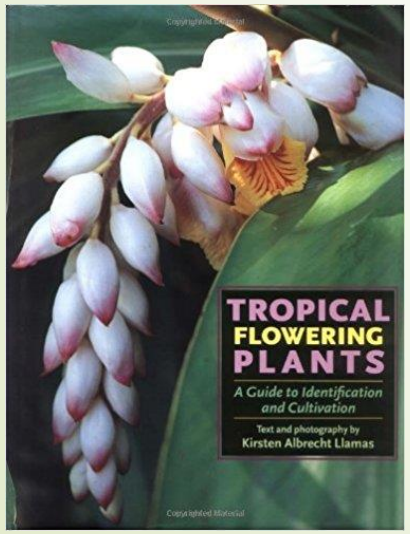


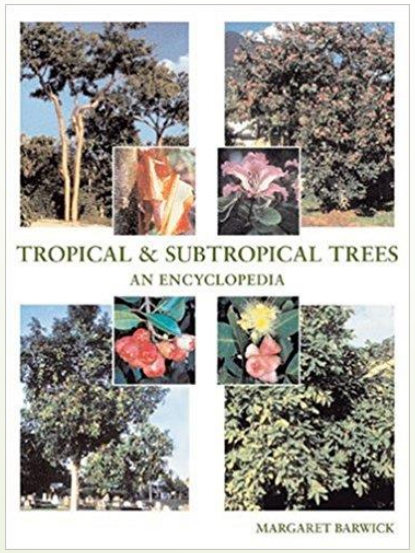


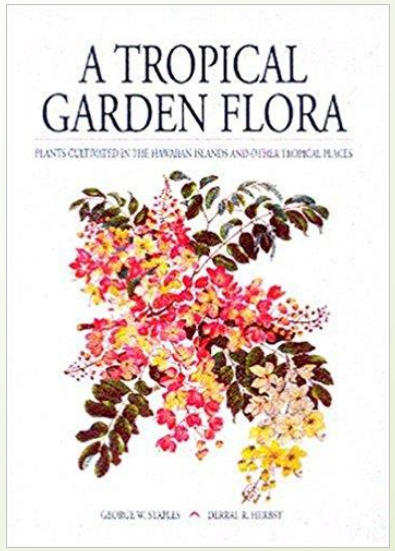


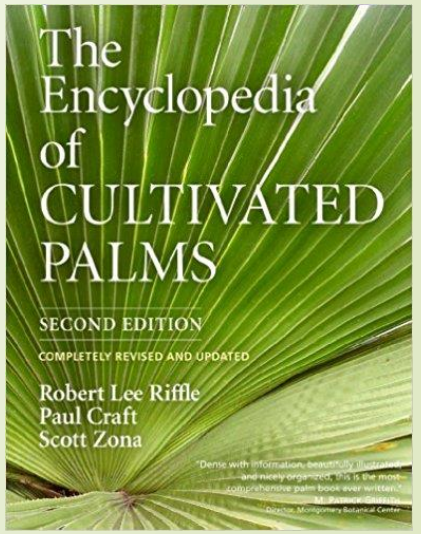
Plant Identification Resources: Cultivated Plants (tropical)

- K.A. Llamas 2003. ***Tropical Flowering Plants: A Guide to Identification and Cultivation***. Timber Press.
- M. Barwick 2004. ***Tropical and Subtropical Trees: An Encyclopedia***. Timber Press.
- G.W. Staples & D.R. Herbst 2005. ***A Tropical Garden Flora***. Bishop Museum Press.
- R.L. Riffle, P. Craft, and S. Zona 2012. ***The Encyclopedia of Cultivated Palms*** (2nd ed.). Timber Press.









QUESTIONS?