

# THE UF/IFAS PLANT IDENTIFICATION AND INFORMATION SERVICE


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**FLORIDA MUSEUM**  
OF NATURAL HISTORY



# Today's Topics:

- A brief history of the UF/IFAS Plant Identification and Information Service, what we do, and who we serve
  - Understanding the process of plant identification
  - Information that facilitates plant ID
  - Submitting physical samples for ID
  - Submitting digital samples for ID using DDIS
  - Submitting photos for ID by email
- 

# A Brief History of the UF/IFAS Plant ID and Information Service

- Initiated at the University of Florida Herbarium in 1927 as a service to Florida Cooperative Extension personnel
- Identifications were provided by herbarium curatorial staff on an ad-hoc basis
- In 1981, the UF Herbarium was incorporated into the Florida Museum of Natural History
- In 1981, with funding from both IFAS and the Museum, Dr. David Hall was hired as a full-time extension botanist dedicated to providing IDs and outreach to IFAS extension
- Since Dr. Hall retired in 1990, the service has relied on hourly employees to provide identifications
- In July, 2016, Marc Frank was hired as full-time extension botanist and charged with revitalizing and expanding the service

# What We Do

- Identify vascular plant samples
  - Vascular plants include ferns and their relatives, cycads, conifers, and flowering plants
  - Things that we do NOT identify include algae, lichens, fungi (mushrooms and toadstools), mosses, insects, or plant diseases
- Our identifications always include the scientific name of the plant, the common name(s) of the plant (if available), and the plant family

# What We Do

- Answer questions about plant species, such as:
  - Where is the plant native to and what is its current distribution?
  - What is the currently accepted name for this plant?
  - Is this plant invasive?
  - Is this plant regulated (prohibited or protected) by law?
  - Is this plant toxic?
  - Is this plant edible?
  - Can this plant be grown in my zone?

# What We Do



- Refer clients to other IFAS specialists who may be able to help with their specific question or problem
- Refer clients to publications and/or internet resources where they can obtain more information about a specific plant or type of plants
- Provide presentations/outreach on a variety of botanical and horticultural subjects

# Who We Serve



- IFAS Extension and Research faculty and staff
- Master Gardeners
- UF faculty and staff, particularly those in departments that fall under the IFAS umbrella
- The general public

# My Goals

- To provide authoritative plant identifications and botanical information in a speedy, clear, and polite manner
- To insure that clients have access to accurate plant-related information that helps them to learn what they need to know
- To improve the quality of samples we receive so that more of them are suitable for addition to the UF Herbarium collection





# The Process of Plant Identification

**Recognition** (visual memory)

**vs.**

**Diagnosis and verification**

(using plant characteristics to key out an unknown, and then comparing the unknown with known specimens in the herbarium collection to verify the ID)



# The Process of Plant Identification



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

When clients brings you a poor plant sample, please explain that they will get a more accurate and rapid ID if they can provide you with a better sample



# How to get plants identified?

## You have options!

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

# Information that facilitates (and ideally should accompany) all identification requests

- Where is the plant growing (**county**)? Detailed **locality data** is essential if we decide to press your sample to add to the herbarium.
- What is the **context** (residential landscape, commercial landscape, nursery, orchard, natural area, parking lot, roadside, etc.)?
- Is the plant **cultivated**, growing in the wild, a weed, or are you unsure?
- What is the **habit** of the plant (tree, shrub, vine, herb, other)?
- Is there any **sap** when the stem is cut (milky, clear, yellow, red)?
- If flowers or fruit are present, what **color** are they?
- What is the approximate **size and shape** of the fruit?
- Are the leaves, flowers, or fruit **fragrant**? Is the fragrance sweet, musky, spicy, resinous, minty, fecal, like rotted meat?

# Providing information about the sample

- Feel free to include any other information describing the location, context, or appearance of the plant that seems distinctive or potentially useful
- If it is a cultivated plant, providing the origin of the plant can be helpful—especially if country of origin is known
- Remember that characteristics like color and fragrance may not hold up once the sample is dried or shipped, so we are dependent on you to report those features to us



# Collecting Plant Samples

- Flowering/fruitleting 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, please try to find a relatively undamaged piece to send as a sample

# Collecting Plant Samples

- 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!

# You can help us to provide you with more accurate and timely IDs!

- Our ability to quickly and confidently identify a plant sample is dependent on:
  - the type and quantity of plant material provided (*more is better!*)
  - the quality of the sample (*fresh & fertile is better!*)
  - information provided on the sample submission form





# Sending Fresh Plant Samples


- Wrap in **dry** paper towels
- Put in a **sealed** plastic bag
- Attach the completed sample submission form to the bag with a rubber band, paper clip, or staple
- Mail **promptly** (overnight, next day, or priority)
- Time, air, light, temperature extremes, and excessive moisture all contribute to sample decomposition



# Drying and Pressing Plant Samples to Submit for ID

- The objective is to spread out the plant and flatten it to reveal features that will help with ID
- If you don't have a plant press, you can spread out, arrange, and flatten the plant inside a folded piece of newspaper and then put a couple of heavy books on top
- Keep the pressed plant in a low humidity environment until it is dry
- Then secure the edges of the newspaper, and attach the sample submission form before shipping





# If you're not able to collect/obtain a good plant sample...

- Try to provide all of the requested info on the sample submission form in as much detail as possible
- Take some photos and send them along with the physical sample (or ask client to provide photos)
- Wait until the plant is larger and/or fertile



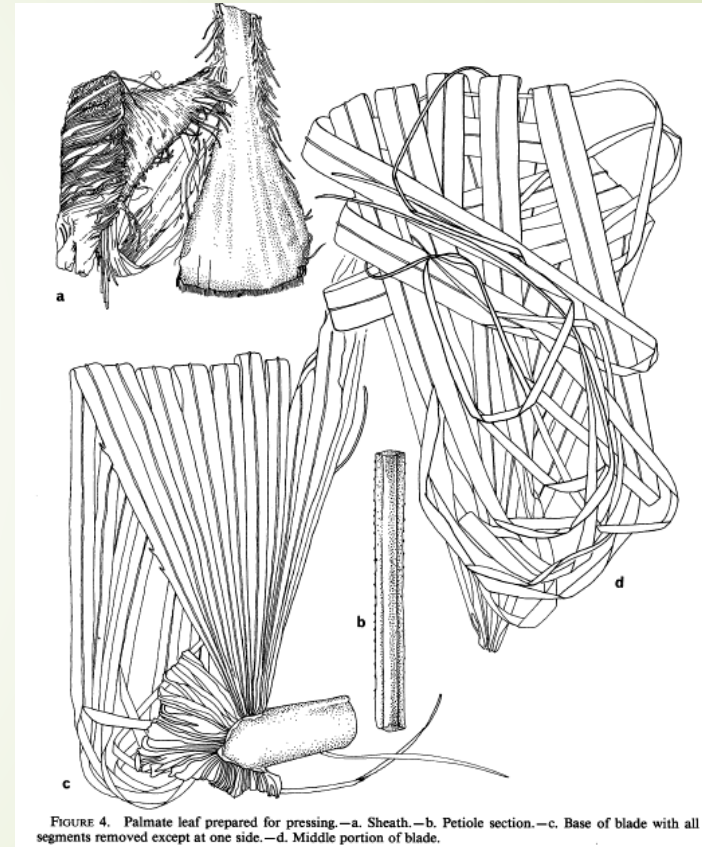
# Fern Samples

- Should include an entire frond, from the base of the stipe (frond stalk) to the tip
- Fold as needed to fit into plant press or bag
- Try to select a frond with sori (clusters of spores) on the underside whenever possible—the shape and position of sori are very diagnostic!

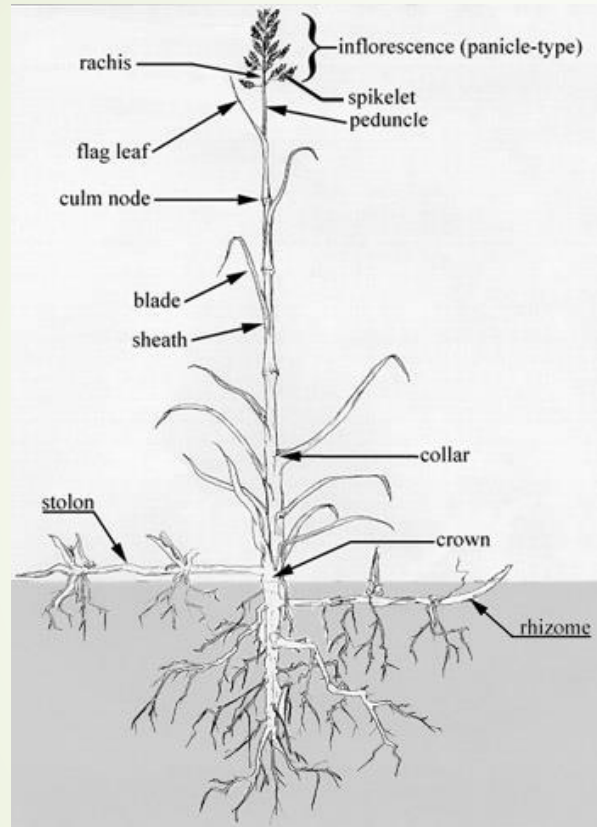


# Palm Samples

- Should include:
  - Leaf tips
  - A section of the petiole (leaf stalk)
  - Hastula (area where the leaf blade and leaf stalk intersect)
- Cut up and fold as needed to fit into bag!
- Since palms can be challenging to press and are quite durable in shipment, fresh samples are generally preferable



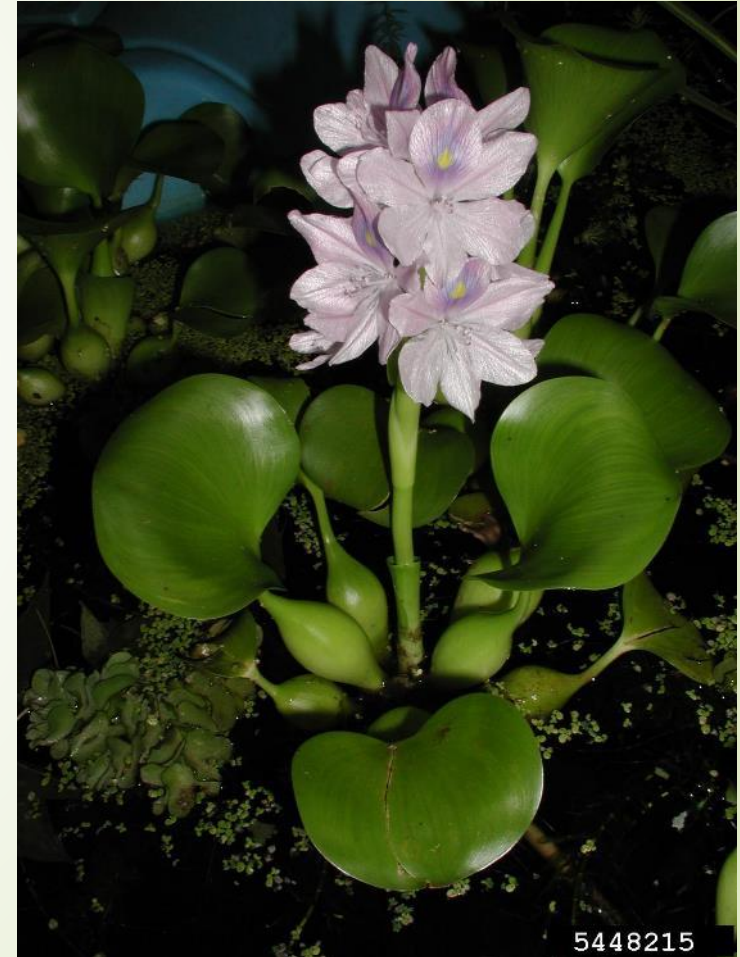
# Grass and Sedge Samples



- Send a whole plant whenever possible
- Flowering/fruitlet samples are almost always necessary for a genus- or species-level identification

# Aquatic Plant Samples

- Aquatic plants tend to degrade very quickly when removed from the water, so put in a ziploc or vial of water (double bag to prevent leakage in shipment!)
- Be sure to note:
  - submerged or emergent
  - free-floating or rooted
  - type of water body (still or moving?)





# Distance Diagnostic & Identification System



The screenshot shows the DDIS web interface. At the top left is the UF IFAS Extension logo. At the top right is the DDIS logo. Below the logos is a navigation menu with links for Home, Media Library, Diagnostic Labs, Equipment, Training, and Contact Us. A login section includes fields for user name and password, and a Sign In button. The main content area features a large image of a daylily leaf with rust spots. To the right of the image is a list of diagnostic details: Common Name: Daylily Rust, Scientific Name: *Puccinia hemerocallidis*, Host Common Name: Daylily, Host Scientific Name: *Hemerocallis* spp. hybrids, Sample Type: Plant Disease, Sample Location: Florida, USA, and Photographer: Carrie Harmon. Below this is a note about the magnification of the images. A search bar is located above the main content area. Below the search bar is a 'Quick Links' section with links to DDIS Mobile, Meet Your Diagnosticians, Latest Pest Info, DDIS Brochure, Web Resources, and Get GPS code. Below the Quick Links is a 'Support' section with links to User Guidelines and DDIS How To and FAQs. At the bottom of the page, there is a footer with social media icons and the text 'DDIS: Protecting agriculture in Florida and beyond.'

**UF IFAS Extension**  
UNIVERSITY of FLORIDA

**DDIS**  
Distance Diagnostic and Identification System

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Become a User | [Forgot Your Password](#)

user name  password  Sign In



**Common Name:** Daylily Rust  
**Scientific Name:** *Puccinia hemerocallidis*  
**Host Common Name:** Daylily  
**Host Scientific Name:** *Hemerocallis* spp. hybrids  
**Sample Type:** Plant Disease  
**Sample Location:** Florida, USA  
**Photographer:** Carrie Harmon

**Note:** Images of lower leaf surface of daylily at 60X and 125X magnification.

**Distance Diagnostic and Identification System (DDIS)**

The DDIS for Extension is developed jointly by the extension agents, specialists and faculty of UF/IFAS Information Technology. The system is designed specifically for university agricultural specialists and diagnostic laboratories or clinics. DDIS provides a collaboration and communication platform for first detectors, extension specialists and diagnosticians to share information on plant insects and diseases. The system uses field data and digital media as tools for enhancement of diagnosis of plant diseases, insects, weeds, invasive species, plant management, physiology, and nutrient problems.

Through interactions on the Internet between extension agents and specialists, problems can be communicated immediately and assessed. Specialists around the state can perform diagnosis and identification and provide the best management practice recommendations to the users. The archived DDIS database becomes a resource for research, educational programs, and classroom teaching.

The threat of pests and plant diseases has the potential to seriously damage our agriculture and food supply. The DDIS can be used as a tool to enhance the capacity for screening, early detection, monitoring, pest mapping, and rapid communication to protect agriculture.

DDIS: Protecting agriculture in Florida and beyond.

[Search DDIS](#)

**Quick Links**

- [DDIS Mobile >>](#)
- [Meet Your Diagnosticians >>](#)
- [Latest Pest Info >>](#)
- [DDIS Brochure >>](#)
- [Web Resources >>](#)
- [Get GPS code >>](#)

**Support**

- [User Guidelines >>](#)
- [DDIS How To and FAQs >>](#)

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DDIS is a web-based system for submitting and identifying digital images of plants, insects, and plant problems.

Master Gardeners should check with their county agent to see if it's OK for them to register as a DDIS user.

<http://ddis.ifas.ufl.edu/>

# DDIS

MyDDIS >> Submit a Sample

### Submit a DDIS Sample, Step 2 of 3

Select Sample Type    Fill Sample Data    Upload Digital Sample

#### Grower and Sample Information

Check here and don't fill customer information if you are the customer of this sample.

Customer name:     Data confidentiality:

Address:     City\*:

County\*:     State:     Zip:

Email:     Phone:

A short name for this sample \*:

Sample source \*:

Choose a security option:  [Help](#)

Sample was collected on:  (mm/dd/yyyy)

If physical sample, check here.

Physical sample has been sent on:  (mm/dd/yyyy)

Longitude/Latitude:   [Get GeoCode](#)  
(WGS84 -- DDD decimal degrees)

#### Plant/Weed Data

cultivated     native/undisturbed     weed     unknown    other:

Prevalence:     Habit:

Sample growth stage:

Height:     Fruit color:

Flower color:     Fruit size:

Habitat:

Location:   
(street address or direction and distance to nearest major landmark, highway, lake, town, etc.)

Foliage fragrant     Flower fragrant    Sap:

#### Additional Description of the Sample

#### Select a Clinic or Specialist to Send Your Sample

Choose clinic(s) or specialist(s) by clicking on their names to add them into your submission list. [Help](#)

The sample data requested by DDIS is very similar to the info required on the sample submission form that accompanies physical samples, but instead of a physical sample you attach digital images of the plant (or pest or disease) to be identified

# DDIS

UF IFAS Extension UNIVERSITY of FLORIDA

DDIS Distance Diagnostic and Identification System

Home Media Library Diagnostic Labs Equipment Training Contact Us

Welcome Marc S. Frank | My DDIS | Quick Start | My Account | My Role | Sign Out

My Samples

Search Samples Prospects By: Year  Status  Search

? New sample ✓ Inspected ✓ Tentative ID ✓ Positive ID 🔒 Private sample 📅 Overdue sample

DDIS ID	Status	Name	Sample Type	Submission Date	Operation
16-1304	✓	Morgan fruit	Plant/Weed	Jul 6 2016 5:40PM	<a href="#">View</a> , <a href="#">Diagnosis</a>
16-2201	✓	Gaydos plant	Plant/Weed	Jun 24 2016 3:33PM	<a href="#">View</a> , <a href="#">Diagnosis</a>
16-5422	✓	Grass	Plant/Weed	Jun 23 2016 3:43PM	<a href="#">View</a> , <a href="#">Diagnosis</a>
16-1169	✓	unknown.nursery.plant.6.17.16	Plant/Weed	Jun 17 2016 1:53PM	<a href="#">View</a> , <a href="#">Diagnosis</a>
16-1805	✓	Pasture weed	Plant/Weed	Jun 15 2016 10:40AM	<a href="#">View</a> , <a href="#">Diagnosis</a>
16-7444	✓	Unidentified Plant	Plant/Weed	Jun 6 2016 2:17PM	<a href="#">View</a> , <a href="#">Diagnosis</a>
16-7681	✓	test	Plant Disease	May 26 2016 9:17AM	<a href="#">View</a> , <a href="#">Diagnosis</a>
16-2119	✓	Exotic Weed	Plant/Weed	May 24 2016 10:28AM	<a href="#">View</a> , <a href="#">Diagnosis</a>
16-9276	✓	Pasture sample - Luis Salazar	Plant/Weed	May 9 2016 11:05AM	<a href="#">View</a> , <a href="#">Diagnosis</a>
16-9041	✓	Pasture vine	Plant/Weed	Apr 29 2016 8:51AM	<a href="#">View</a> , <a href="#">Diagnosis</a>
16-1457	✓	parsley bean weed	Plant/Weed	Apr 28 2016 2:47PM	<a href="#">View</a> , <a href="#">Diagnosis</a>
16-6371	✓	Small tree	Plant/Weed	Apr 20 2016 6:18PM	<a href="#">View</a> , <a href="#">Diagnosis</a>
16-4487	✓	Plant or Gall?	Plant/Weed	Apr 20 2016 12:18PM	<a href="#">View</a> , <a href="#">Diagnosis</a>
16-9545	✓	tree identification	Plant/Weed	Apr 19 2016 3:26PM	<a href="#">View</a> , <a href="#">Diagnosis</a>
16-4466	✓	Herbaceous plant	Plant/Weed	Apr 6 2016 9:12AM	<a href="#">View</a> , <a href="#">Diagnosis</a>
16-4435	✓	Lawn weed	Plant/Weed	Apr 1 2016 2:08PM	<a href="#">View</a> , <a href="#">Diagnosis</a>
16-5708	✓	1PokeAlso	Plant/Weed	Mar 30 2016 11:14AM	<a href="#">View</a> , <a href="#">Diagnosis</a>
16-7458	✓	Flowering tree	Plant/Weed	Mar 28 2016 10:27AM	<a href="#">View</a> , <a href="#">Diagnosis</a>

When you submit a sample, it will go to your county agent, who determines which clinic or specialist to send it to.

The appropriate diagnostic specialist receives an email telling him or her that a sample is waiting for them in DDIS

# DDIS

Sample Information DDIS ID: 16-1805

Printer-Friendly

**DDIS ID: 16-1805**

Submitted by: Bodrey, Ray  
Phone: (850) 639-3200  
Email: [rbodrey@ufl.edu](mailto:rbodrey@ufl.edu)  
Submission date: Jun 15 2016 10:40AM

Manage My Sample

Submit this sample to Media Library  
Email this sample to a colleague

**Grower Information**  
County: Gulf State: FL

**Sample Information**  
Sample name: Pasture weed  
Sample source: farmer  
Sample was collected on: Jun 15 2016 12:00AM  
Is this sample a physical sample? no

**Plant/Weed**  
Plant type: Cultivated No, Native No, Weed Yes, Unknown No  
Plant type other:  
Prevalence: unknown  
Habit: unknown  
Sample growth stage: unknown  
Height:  
Fruit color:  
Flower color:  
Fruit size:  
Habitat:  
Location:  
Foliage fragrant: No  
Flower fragrant: No  
Sap: none

**Media**



**Diagnosis**

Diagnosed by Frank, Marc S. ([mfrank@fmnh.ufl.edu](mailto:mfrank@fmnh.ufl.edu)) on Jul 8 2016 3:23PM

	Common Name	Scientific Name
Diagnosis 1	rustweed, Juniperleaf	<i>Polypremum procumbens</i> L.

Family 1: Tetrachondraceae (Tetrachondra Family)

**Toxicity:**

**Comments:**  
This species is native to the eastern and central USA, the Bahamas, the Greater Antilles, Mexico, Central America, and northern South America. In Florida, it is commonly found on disturbed sites and pond margins nearly statewide. This species was traditionally included in Loganiaceae (the Logania family) but modern phylogenetic classifications place it in Tetrachondraceae.

Is this an invasive species? no

This diagnosis is based on: digital sample

The status of this sample is: Images and/or physical sample is sufficient for diagnosis.

Lab methods used in this diagnosis: Image

When the sample has been identified both you and your county agent will receive emails letting you know that you have a diagnosis to view on DDIS

You then log onto DDIS to see the diagnosis

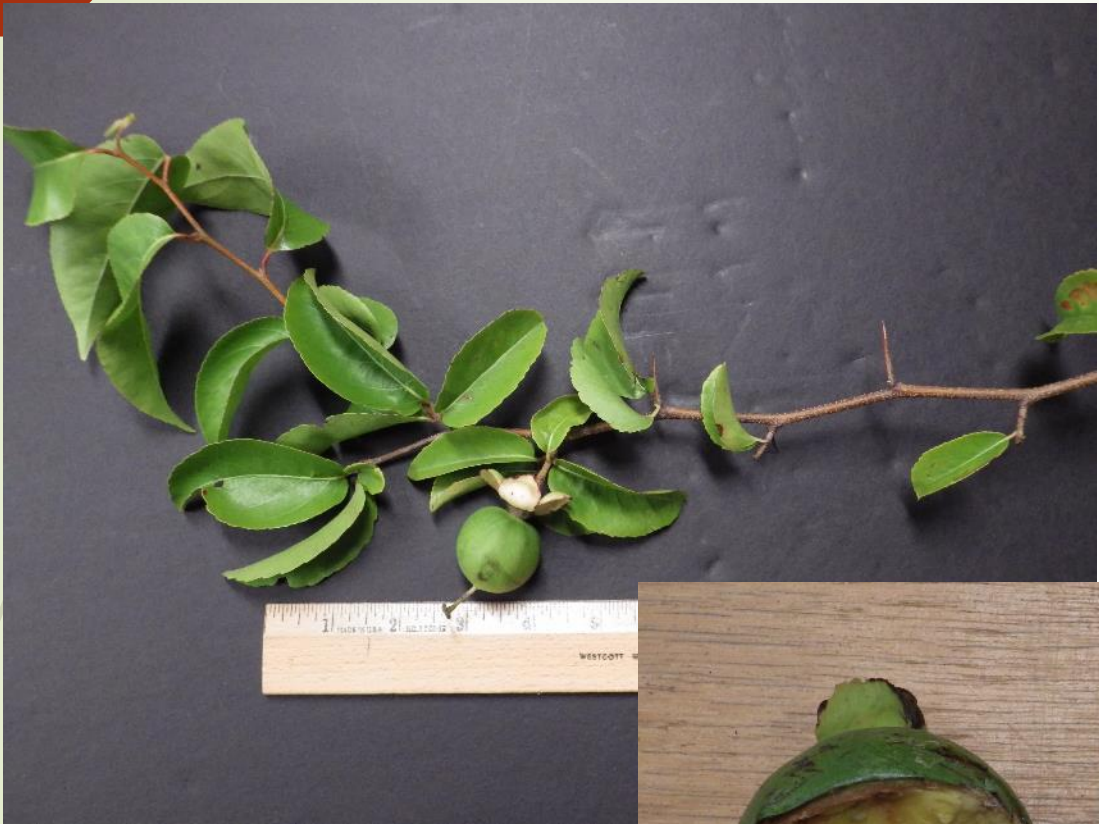
# Submitting photos by email

- 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 or in DDIS
- 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 or coin in the photo for scale if possible

# Examples of photos showing diagnostic characteristics:



# Examples of photos of limited diagnostic value:







# 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



# Submitting photos by email— just doesn't work for certain types of plants

- Generally, we are not able to provide genus- or species-level IDs on grasses or sedges based on photos. For grasses and sedges, we need to look at a physical sample under a microscope

# Contact us if you have questions about submitting a sample or have not received a diagnosis on a sample you submitted

- **Marc Frank**  
**(352) 273-1994**  
**[mfrank@flmnh.ufl.edu](mailto:mfrank@flmnh.ufl.edu)** or  
**[plantid@flmnh.ufl.edu](mailto:plantid@flmnh.ufl.edu)**
- **When Marc is out of town or unavailable:**  
**Kent Perkins**  
**(352) 273-1990**  
**[kperkins@flmnh.ufl.edu](mailto:kperkins@flmnh.ufl.edu)**



# QUESTIONS?

