

# Florida First Detector Training: Sample Submission



FLORIDA FIRST DETECTOR



## How do you survey for pests?

- Use a Systematical approach
  - Search every plant the same way.
- Document your methods
  - e.g. I searched every other plant, every fifth plant, 10 plants on the outer row and 10
- Quantify the effort
  - e.g. Number of plants searched/number of total plants plants on the innermost row, etc.



We ask that when participants look for the invasive species that they do so in a systematic way (looking from the base of the plant and going up to the top or looking at the leaves, followed by the stem, etc.) and document the survey method on the sample submission form. We also ask them to report the number of plants that they surveyed and report that on the form.

## How to Package your Submission

Insects that are difficult to remove from the plant (mites, scales, thrips, etc.)

- Capture multiple life stages on 6 to 8 inches of a plant; wrap the plant material in a paper towel or newspaper and double bag it.
  - Plant identification can help with pest identification
- Capture multiple life stages on a smaller piece of plant and put them in a vial along with a preservative.
- Put the vial in a bag and seal it.
- Put both of these bags plus the sample submission form in yet another bag.
- Box your sample and take it to your county agent.
- <http://www.youtube.com/watch?v=Ma42IE02pDo>



There are different methods for submitting a sample for identification.

In this slide, we cover how to submit a sample of an insect (or arthropod) that is difficult to remove from the plant. These types of insects (or arthropods) include mites, thrips, whiteflies, and scales. We ask for 6 to 8 inches of plant material because host plant identification can help with the insect (or arthropod) identification. It also allows us to document hosts in case the host range is incomplete (which often happens with new invasive species). Wrap the plant sample completely in paper towels or newspaper to absorb excess moisture in the plastic bag.

We ask for live samples and well as preserved samples for these groups. The reason we ask for live samples is that depending on the type of insect (or arthropod), identification keys are only known from one life stage (i.e. pupae or adult or larvae). We may need to allow the organism to complete one life stage and move on to the next for identification purposes. Please emphasize the importance of double bagging all live samples!

Place both bags in yet another bag along with the sample submission form.

The video link provided shows how to collect and prepare a sample of insects that are hard to remove from the plant.

## How to Package your Submission

Hard bodied insects (beetles, stink bugs, grasshoppers, etc.)

- Capture multiple specimens if possible and put them in a vial along with a preservative.
- Put the vial in a bag and seal it.
- Put this bag plus the sample submission form in yet another bag.
- Box your sample and take it to your county agent.
- <http://www.youtube.com/watch?v=DPSOddSQxD>  
[E](#)



Hard bodied insects such as grasshoppers, beetles, earwigs, stink bugs, etc. are easily removed from the plant for sample submission. In addition, there are many keys for both mature and immature stages of these insects so it is not necessary to submit them live.

Put the specimen in a preservative filled vial and put that in a zippered plastic bag. Then place this bag in yet another bag along with the sample submission form.

The video link provided shows how to collect and prepare a sample of hard bodied insects.

## How to Package your Submission

### Soft bodied insects (caterpillars, grubs, etc.)

- Capture multiple specimens if possible and put them in boiling water.
  - Be sure to get the water boiling first, then add the sample to the boiling water
- Remove the specimens from the water and put them in a preservative-filled vial.
- Put the vial in a bag.
- Put this bag plus the sample submission form in yet another bag.
- Box your sample and take it to your county agent.
- <http://www.youtube.com/watch?v=2HA06HW4Kc4>



Soft bodied insects include caterpillars or grubs. In order for these to be identified properly, we ask that they be “fixed” with boiling water first. Because soft bodied insects are usually quite chunky, this “fixing” process prevents the inside of the body from rotting even though the outside of the body is preserved in alcohol. There are several internal structures that are key to identifying these species.

Please emphasize that you do not want the insect in the water when the water is being brought to a boil. Boil the water first, then put the soft bodied insect in the water. Let the water cool, then remove the insect and place it in the preservative filled vial or container. Then place this vial in a zippered bag.

Then place this bag in yet another bag along with the sample submission form.

The video link provided shows how to collect and prepare a sample of soft bodied insects.

# How to Package your Submission

## Butterflies and moths

- Capture multiple specimens if possible.
- Put some in a preservative-filled vial and put it in a zippered plastic bag.
- Put others in the freezer overnight to submit a dry sample.
  - Place a tissue in the vial to prevent damage during transit and place the vial in a zippered plastic bag.
- Put these bags plus the sample submission form in yet another bag.
- Box your sample and take it to your county agent.



In order for butterflies and moths to be identified properly, we ask that, when possible, you submit both a dry and wet sample for identification.

Primarily, because many of these moths are identified through their reproductive structures, you can submit your sample in alcohol or another preservative. Place the specimen in its preservative-filled vial in a zippered bag.

Secondarily, because many key identifying characteristics are found on the wings of butterflies and moths and that these wings are covered in scales which come off in alcohol, we also ask that you submit a **dry** sample if possible. To do this, when you capture the butterfly or moth in a container, place it in the freezer immediately and keep it there overnight. This kills the butterfly or moth and keeps it from fluttering around and losing its scales. When you remove it the next day, place a tissue in the container with the butterfly or moth sample to prevent the specimen from being damaged in transit. Place the dry sample in another zippered bag.

Place both bags in yet another bag along with the sample submission form.

# How to Package your Submission

## Plant disease sample

- Collect 6 to 8 inches of plant material with symptoms, wrap it in paper towels or newspaper, and bag it.
  - Best if you can get the whole plant, but that may not be feasible.
- Collect 6 to 8 inches of plant material without symptoms, wrap it in paper towels or newspaper, and bag it separately.
- Put both these samples plus the sample submission form in yet another bag.
- Box your sample and take it to your county agent.
- <http://www.youtube.com/watch?v=JOrNi8HrIpl>



Some invasive pests that are discussed in these workshops include plant diseases. In order to submit a plant disease sample, there are a few steps to follow.

If you can submit the whole plant, wrap the roots in a separate bag and tape it or seal it off, then wrap the rest of the plant in paper towels or newspaper to absorb excess moisture. Finally, place the entire plant in another plastic bag. If you cannot take the whole plant, diagnosticians will need at least 6 to 8 inches of the plant, wrapped completely in paper towels or newspaper.

Also, if you cannot collect the whole plant, you need to collect a healthy part of the plant as well as the diseased part of the plant. Wrap them separately in paper towels or newspapers and put them in separate bags. Then place both of them in one bag along with the sample submission form.

## What if you do not find any pests?

It is okay if you do not find a pest!

- We need to know that you looked.
- Quantify your effort, and tell us the methods you used, too.



We need to know about monitoring efforts when it comes to invasive species. If you look for one of these invasive species, but do not find it, that is valuable information. Should there be a positive detection, this information will help state and federal agencies to determine the best management or eradication strategy possible.




**FEE: \$40.00 per sample - Free with this coupon**

Note to lab staff: cc final report to pdc@ifas.ufl.edu and ackndges@ufl.edu  
Bill to project, not client.

THIS FORM CANNOT BE REPRODUCED. COUPON EXPIRES MAY 2019

<p>Collection information:</p> <p>Date collected: _____</p> <p>County: _____</p> <p>Name: _____</p> <p>Address: _____</p> <p>City/Zip: _____</p> <p>E-mail: _____</p> <p>Phone: _____</p>	<p>Submitted by (if different from collector):</p> <p>Extension Agent: _____</p> <p>Name: _____</p> <p>Company: _____</p> <p>Address: _____</p> <p>City/Zip: _____</p> <p>E-mail: _____</p> <p>Phone: _____</p>
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<p>Response method:</p> <p><input type="checkbox"/> E-mail (preferred)</p> <p><input type="checkbox"/> FAX</p> <p><input type="checkbox"/> Telephone</p>	<p>Notify:</p> <p><input type="checkbox"/> Collector</p> <p><input type="checkbox"/> Submitter</p> <p><input type="checkbox"/> Agent only</p>	<p>Information requested:</p> <p><input type="checkbox"/> Control information</p> <p><input type="checkbox"/> Species identification</p> <p><input type="checkbox"/> Other (please explain)</p>	<p>Priority:</p> <p><input type="checkbox"/> Routine</p> <p><input type="checkbox"/> Urgent (explain why)</p> <p><input type="checkbox"/> Regular mail</p>
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What insect or disease did you survey for? \_\_\_\_\_ Plant name: \_\_\_\_\_

What type of plant did you survey? \_\_\_\_\_

<input type="checkbox"/> Ornamentals	<input type="checkbox"/> Field crop	Number of plants surveyed: _____	% of plants infested: _____
<input type="checkbox"/> Fruit	<input type="checkbox"/> Greenhouse		
<input type="checkbox"/> Vegetables	<input type="checkbox"/> Pasture		
<input type="checkbox"/> Forest/Shade tree	<input type="checkbox"/> Turf		

<p>Parts where pest/pathogen located:</p> <p><input type="checkbox"/> Leaves</p> <p><input type="checkbox"/> Growing tips</p> <p><input type="checkbox"/> Buds</p> <p><input type="checkbox"/> Blossoms</p> <p><input type="checkbox"/> Fruit/Nut/Seeds</p> <p><input type="checkbox"/> Stem/Trunk</p> <p><input type="checkbox"/> Branches/Twigs</p> <p><input type="checkbox"/> Roots</p> <p><input type="checkbox"/> Tubers/Bulbs</p>	<p>Symptoms:</p> <p><input type="checkbox"/> Dieback</p> <p><input type="checkbox"/> Leaf discoloration</p> <p><input type="checkbox"/> Leaf drop</p> <p><input type="checkbox"/> Tip burn</p> <p><input type="checkbox"/> Fruit injury</p> <p><input type="checkbox"/> Abnormal growth</p> <p><input type="checkbox"/> Galls</p> <p><input type="checkbox"/> Stunting</p> <p><input type="checkbox"/> Slow decline</p> <p><input type="checkbox"/> Sudden collapse</p> <p><input type="checkbox"/> Other: _____</p>
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ADDITIONAL INFORMATION ABOUT SAMPLE: \_\_\_\_\_



This is the sample submission form. We need information on date, county, name of collector/person submitting sample, address, email, phone, and fax (if applicable). The above pest survey form is a modification of the UF/IFAS EDIS sample submission form for the UF Insect Identification Lab. Using the form found on the Florida First Detector website ([www.flfirstdetector.org](http://www.flfirstdetector.org)) means that there will be no charge for the sample and it makes it easier to track samples that were submitted as a direct result of these workshops.





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**FEE: \$40.00 per sample -**  
**Free with this coupon**  
 Note to lab staff: cc final report to  
 pdc@ufl.edu and achodges@ufl.edu  
 Bill to project, not client.

Mail insect samples to:  
 Lyle Buss  
 1881 Natural Area Dr.  
 P.O. Box 110620  
 Gainesville, FL 32611-0620

Mail disease samples to:  
 Dr. Carrie L. Harmon  
 Bldg. 1291, 2570 Hall Rd.  
 PO Box 110830  
 Gainesville FL 32611-0830

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THIS FORM CANNOT BE REPRODUCED. COUPON EXPIRES MAY 2019.

**Collection Information:**

Date collected: \_\_\_\_\_

County: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City/Zip: \_\_\_\_\_

E-mail: \_\_\_\_\_

Phone: \_\_\_\_\_

Submitted by (if different from collector): \_\_\_\_\_

Extension Agent: \_\_\_\_\_

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

City/Zip: \_\_\_\_\_

E-mail: \_\_\_\_\_

Phone: \_\_\_\_\_

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Response method:	Notify:	Information requested:	Priority:
<input type="checkbox"/> E-mail (preferred)	<input type="checkbox"/> Collector	<input type="checkbox"/> Control information	<input type="checkbox"/> Routine
<input type="checkbox"/> FAX	<input type="checkbox"/> Submitter	<input type="checkbox"/> Species identification	<input type="checkbox"/> Urgent (explain why)
<input type="checkbox"/> Telephone	<input type="checkbox"/> Agent only	<input type="checkbox"/> Other (please explain)	<input type="checkbox"/> Regular mail

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**What insect or disease did you survey for?** \_\_\_\_\_ **Plant name:** \_\_\_\_\_

**What type of plant did you survey?**

<input type="checkbox"/> Ornamentals	<input type="checkbox"/> Field crop	Number of plants surveyed: _____	% of plants infested: _____
<input type="checkbox"/> Fruit	<input type="checkbox"/> Greenhouse		
<input type="checkbox"/> Vegetables	<input type="checkbox"/> Pasture		
<input type="checkbox"/> Forest/Shade tree	<input type="checkbox"/> Turf		

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<b>Parts where pest/pathogen located:</b>	<b>Symptoms:</b>
<input type="checkbox"/> Leaves	<input type="checkbox"/> Dieback
<input type="checkbox"/> Growing tips	<input type="checkbox"/> Leaf discoloration
<input type="checkbox"/> Buds	<input type="checkbox"/> Leaf drop
<input type="checkbox"/> Blossoms	<input type="checkbox"/> Tip burn
<input type="checkbox"/> Fruit/Nut/Seeds	<input type="checkbox"/> Fruit injury
<input type="checkbox"/> Stem/Trunk	<input type="checkbox"/> Abnormal growth
<input type="checkbox"/> Branches/Twigs	<input type="checkbox"/> Galls
<input type="checkbox"/> Roots	<input type="checkbox"/> Stunting
<input type="checkbox"/> Tubers/Balls	<input type="checkbox"/> Slow decline
	<input type="checkbox"/> Sudden collapse
	<input type="checkbox"/> Other: _____

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ADDITIONAL INFORMATION ABOUT SAMPLE: \_\_\_\_\_

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We will also need information on the pest that was surveyed. Please note the pest, the plant name, the number of plants surveyed and the percentage of those plants that were infested with the suspect pest.




**FEE: \$40.00 per sample - Free with this coupon**

Note to lab staff: cc final report to pdc@ufl.edu and achodges@ufl.edu  
Bill to project, not client.

THIS FORM CANNOT BE REPRODUCED COPIES MAY 2019

<p>Mail insect samples to: Lyle Buss 1881 Natural Area Dr. P.O. Box 110620 Gainesville, FL 32611-0620</p>	<p>Mail disease samples to: Dr. Carrie L. Harmon Bldg 1291, 2570 Hall Rd. PO Box 110830 Gainesville, FL 32611-0830</p>
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<p>Collection Information:</p> <p>Date collected: _____</p> <p>County: _____</p> <p>Name: _____</p> <p>Address: _____</p> <p>City/Zip: _____</p> <p>E-mail: _____</p> <p>Phone: _____</p>	<p>Submitted by (if different from collector): Extension Agent: _____</p> <p>Name: _____</p> <p>Company: _____</p> <p>Address: _____</p> <p>City/Zip: _____</p> <p>E-mail: _____</p> <p>Phone: _____</p>
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Response method:	Notify:	Information requested:	Priority:
<input type="checkbox"/> E-mail (preferred)	<input type="checkbox"/> Collector	<input type="checkbox"/> Control information	<input type="checkbox"/> Routine
<input type="checkbox"/> FAX	<input type="checkbox"/> Submitter	<input type="checkbox"/> Species identification	<input type="checkbox"/> Urgent (explain why)
<input type="checkbox"/> Telephone	<input type="checkbox"/> Agent only	<input type="checkbox"/> Other (please explain)	<input type="checkbox"/> Regular mail

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What insect or disease did you survey for? \_\_\_\_\_

What type of plant did you survey? \_\_\_\_\_ Plant name: \_\_\_\_\_

<input type="checkbox"/> Ornamentals	<input type="checkbox"/> Field crop	Number of plants surveyed: _____	% of plants infested: _____
<input type="checkbox"/> Fruit	<input type="checkbox"/> Greenhouse		
<input type="checkbox"/> Vegetables	<input type="checkbox"/> Pasture		
<input type="checkbox"/> Forest/Shade tree	<input type="checkbox"/> Turf		

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<p>Parts where pest/pathogen located:</p> <p><input type="checkbox"/> Leaves</p> <p><input type="checkbox"/> Growing tips</p> <p><input type="checkbox"/> Buds</p> <p><input type="checkbox"/> Blossoms</p> <p><input type="checkbox"/> Fruit/Nut/Seeds</p> <p><input type="checkbox"/> Stem/Trunk</p> <p><input type="checkbox"/> Branches/Twigs</p> <p><input type="checkbox"/> Roots</p> <p><input type="checkbox"/> Tubers/Bulbs</p>	<p>Symptoms:</p> <p><input type="checkbox"/> Dieback</p> <p><input type="checkbox"/> Leaf discoloration</p> <p><input type="checkbox"/> Leaf drop</p> <p><input type="checkbox"/> Tip burn</p> <p><input type="checkbox"/> Fruit injury</p> <p><input type="checkbox"/> Abnormal growth</p> <p><input type="checkbox"/> Galls</p> <p><input type="checkbox"/> Stunting</p> <p><input type="checkbox"/> Slow decline</p> <p><input type="checkbox"/> Sudden collapse</p> <p><input type="checkbox"/> Other: _____</p>
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ADDITIONAL INFORMATION ABOUT SAMPLE: \_\_\_\_\_



Also note where the pest was located on the plant and what the damage was that you suspect was caused by the pest.

Bring symptomatic plant tissue or arthropod samples to your local county agent. Please use the sample submission form found at [www.flfirstdetector.org](http://www.flfirstdetector.org).

All samples can then be submitted to:

Lyle Buss

University of Florida Insect ID Lab

970 Natural Area Drive

Gainesville, FL 32611

More information on the lab can be found at:

<http://entnemdept.ufl.edu/insectid/index.html>



Participants should bring samples to their county agent first. The county agent sends it to the appropriate NPDN identifier (in Florida, this is Lyle Buss at UF). This point person will send the sample to the insect identifier or the plant disease clinic. In Florida, if Lyle cannot identify the specimen, he will consult with appropriate taxonomic specialists at Florida Department of Agriculture and Consumer Services, Division of Plant Industry. Plant disease samples will be taken to the UF/IFAS Plant Diagnostic Center.

## Sample Submission Exception

### Giant African Land Snail

1. Do not collect live suspect samples.
2. Call the FDACS-DPI Hotline-  
888-397-1517



The Giant African Land Snail has been eradicated in the state of Florida. All suspect samples should be reported to the DPI hotline at 888-397-1517. More information is available at: <http://www.freshfromflorida.com/pi/gals/>

Remember that the UF-IFAS extension clinics are available to you whether or not you have completed a training. Your local county extension office can be found at: <http://solutionsforyourlife.ufl.edu/map/index.html> The UF Insect Identification Lab web page is available at: <http://entnemdept.ifas.ufl.edu/InsectID/index.html> The UF-Plant Disease Clinic web address is available at: <http://plantpath.ifas.ufl.edu/clinic/>. Sample processing fees may apply.

The University of Florida Distance Diagnostics and Identification System can be useful for screening pests  
<http://ddis.ifas.ufl.edu/>

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## Collaborating Agencies

- U.S. Department of Agriculture Animal and Plant Health Inspection Service (USDA-APHIS)
- Cooperative Agricultural Pest Survey Program (CAPS)
- Florida Department of Agriculture and Consumer Services (FDACS)
- National Plant Diagnostic Network (NPDN)
- Sentinel Plant Network (SPN)
- Protect U.S.
- University of Florida Institute of Food and Agricultural Sciences (UF-IFAS)



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# Educational Disclaimer and Citation

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