TRI-OLOGY

A Publication of the Florida Department of Agriculture and Consumer Services, Division of Plant Industry
Adam H. Putnam, Commissioner
Richard D. Gaskalla, Division Director

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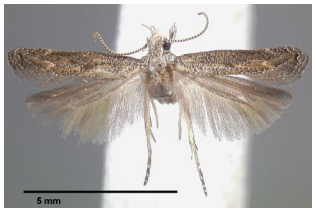
DPI's Bureau of Entomology, Nematology and Plant Pathology (the botany section is included in this bureau) produces TRI-OLOGY six times a year, covering two months of activity in each issue. The report includes detection activities from nursery plant inspections, routine and emergency program surveys, and requests for identification of plants and pests from the public. Samples are also occasionally sent from other states or countries for identification or diagnosis.



Isophrictis similiella **(a gelechiid moth)**
Photograph courtesy of James E. Hayden, DPI

Ficus carica **roots with galls induced by** ***Meloidogyne javanica***
Photograph courtesy of Janete A. Brito, DPI

Abelmoschus esculentus **(okra) infected with both Pseudocercospora abelmoschi and Cercospora malayensis.**
Photograph courtesy of Tim S. Schubert, DPI.

Dalbergia sissoo **(Indian rosewood)**
Photograph courtesy of Dennis Girard
http://florida.plantatlas.usf.edu/Photo.aspx?id=11726

Highlights

Isophrictis similiella, **a gelechiid moth, a Florida State Record.** This species is a pest of sunflowers in Midwest and northern United States. It bores into stems and dry seedheads of Asteraceae.

Meloidogyne javanica **(Treub, 1885) Chitwood, 1949, the Javanese root-knot nematode** was found infecting the roots of the edible fig, *Ficus carica.*

Pseudocercospora abelmoschi **and** ***Cercospora malayensis*** were found on okra (*Abelmoschus esculentus*), one of the few garden vegetables that thrive in the heat of the Florida summer when most other vegetables find the relentless hot and humid conditions unbearable. Rainfall records were set in the late summer of 2013 over much of North Florida. These weather conditions apparently favored severe okra leaf spot problems, mostly due *Pseudocercospora abelmoschi*, but also *Cercospora malayensis.*

Dalbergia sissoo **Roxb. ex DC. (sissoo tree, Indian rosewood, shisham)** was introduced as an ornamental from its native Asia to South Florida by the early 1950s and is now listed by the Florida Exotic Pest Plant Council as a Category II invasive. Category II includes exotic species that have shown aggressive growth, but have not yet demonstrated the ability to disturb native plant communities. This tree has escaped from cultivation and has been found growing in the central and southern Florida from Broward County to the Keys and northward on the west coast to Hillsborough and Pinellas counties.

Section Reports

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We welcome your suggestions for improvement of TRIOLOGY. Please feel free to contact me or Dr. Patti Anderson with your comments.
Dr. Wayne N. Dixon, editor
Assistant Director, DPI

Botany Section

Compiled by Patti J. Anderson, Ph.D.

This section identifies plants for the Division of Plant Industry, as well as for other governmental agencies and private individuals. The Botany Section maintains a reference herbarium with over 11,000 plants and nearly 1,400 vials of seeds.

Some of the samples received for identification are discussed below:

***Dalbergia sissoo* Roxb. ex DC. (sissoo tree, Indian rosewood, shisham),** from a genus of approximately 250 tropical species. Leguminosae/Fabaceae. This tree can grow to 25 m tall with a wide, but open, canopy and rough gray bark marked by vertical fissures. The compound leaves are alternate, 12-18 cm long, usually with three or five leaflets, each of which is up to 8 cm long and 5.5 cm across, broadly ovate to suborbicular, with an acuminate tip and rounded base, arranged in a somewhat zigzag pattern along the leaf rachis. The inflorescence is a dense, axillary panicle, with inconspicuous, fragrant flowers, briefly enclosed by small, deciduous bracts. The calyx is about 5 mm long, with unequal lobes, and the corolla is white to yellowish, about 1.5 cm long. The fruit is a flat legume 4-8 cm long and 1 cm wide, containing one to four flat, kidney-shaped seeds, 8-10 mm long, visible as slight swellings in the unopened pods that persist on the tree for several months. In addition to its tap root, numerous superficial roots develop producing sucker shoots that are sometimes used for propagation, but can be considered a plague by homeowners who want only one specimen. Introduced as an ornamental from its native Asia to South Florida by the early 1950s, Indian rosewood is listed as a Category II species by the Florida Exotic Pest Plant Council. Category II includes exotic species that have shown aggressive growth, but have not yet demonstrated the ability to disturb native plant communities. This tree has escaped from cultivation and has been found growing in Florida from the Keys to Hillsborough and Pinellas counties. Its traditional uses include timber, wood for fine carving, charcoal, fodder (from the leaves) and medicine. (Brevard County; B2013-801; Anthony P. Gubler; 20 September 2013 and Brevard County; B2013-804; Megan R. Lynch; 17 September 2013.) (Huxley 1992; Mabberley 2008; Wunderlin and Hansen 2011; http://www.fleppc.org/list/2013PlantList_HiRes.pdf accessed 2014 January 17; http://www.hort.purdue.edu/newcrop/duke_energy../Dalbergia_sissoo.html accessed 2014 January 17.)

***Macroptilium lathyroides* (L.) Urban (wild bushbean),** from a genus of about 17 tropical American species. Leguminosae/Fabaceae. This is a vine-like, sprawling, annual with trifoliate leaves that can grow to a meter long. The narrowly oblong to ovate-elliptic leaflets are 2 to 7 cm long and glabrate or only sparsely pubescent on the lower surface, in contrast with the similar species in this genus, *M. atropurpureum*, in which the lower surface of leaflets is densely covered with velvety or silky appressed pubescence. The pea-like flower, in a pseudo-raceme inflorescence, has a vivid red-purple to dark maroon corolla with obliquely directed wings that are longer than other petals and a keel that is spirally twisted. The 7-10 cm long legume is linear and flat until maturity when it twists and shatters to release the seeds. This species was likely introduced into Florida and South Georgia from tropical America where it is sometimes used as forage and is frequently found in disturbed sites from the central and western panhandle through the peninsula. (Columbia County; B2013-800; Theresa R. Estok; 19 September 2013.) (Isely 1998; Wunderlin and Hansen 2011; www.tropicalforages.info/key/Forages/Media/Html/Macroptilium_lathyroides.htm accessed 2014 January 21.)

***Pectis prostrata* Cav. (spreading cinchweed),** from a genus of approximately 90 species from warm and tropical America. Compositae. This herbaceous annual is thought to be native to Florida and other Gulf Coast states westward to Arizona, as well as the West Indies. This species often forms mats (to 30 cm across) of

Sample Submissions

	September October	Year to date
Samples submitted by other DPI sections	1,464	**7,031**
Samples submitted for botanical identification only	160	**897**
Total Samples Submitted	1,624	**7,928**
Specimens added to the herbarium	23	**152**

***Macroptilium lathyroides* (wild bushbean)**
Photograph courtesy of Matthew Merritt, Atlas of Florida Vascular Plants
http://florida.plantatlas.usf.edu/Photo.aspx?id=7273

***Pectis prostrata* (spreading cinchweed)**
Photograph courtesy of Keith Bradley, Atlas of Florida Vascular Plants
http://florida.plantatlas.usf.edu/Photo.aspx?id=14541

***Millettia pinnata* (Indian beech, pongamia)**
Photograph courtesy of Pat Howell, Atlas of Florida Vascular Plants
http://florida.plantatlas.usf.edu/Photo.aspx?id=13999

dense leaves attached to a prostrate or somewhat ascending stems. The opposite, narrow leaves are glabrous, and the lower margins of each leaf have 4–12 pairs of bristles 1–3 mm long. Although the leaves are dotted with oil glands, they have no noticeable fragrance. The inconspicuous inflorescences are solitary or in dense clusters and may be terminal or axillary. The five ray florets are 2.5–3.5 mm long and disc florets are 1.8–2.5 mm (2-lipped). This species is self-fertile and spreads rapidly into new habitats without the need of local pollinators. It is found on roadsides, grasslands and forests, with roads and highways in Florida providing an ideal habitat. In Florida, this species is found scattered from Escambia County in the panhandle through the peninsula south into the Keys, flowering from summer through fall.(Manatee County; B2013-756; Jason B. Sharp; 10 September 2013 and Lake County; B2013-779; Mary C. Sellers; 19 September 2013.) (Hall *et al*. 2011; Wunderlin and Hansen 2011; http://digitalcommons.calpoly.edu/cgi/viewcontent.cgi?article=1213&context=bio_fac accessed 2014 January 21; http://efloras.org/florataxon.aspx?flora_id=1&taxon_id=250005102 accessed 2014 January 21.)

***Millettia pinnata* (L.) Panagrahi (formerly *Pongamia pinnata* (L.) Pierre) (Indian beech, poonga-oil tree, pongamia),** from a genus of about 150 species, native to the Old World tropics. Leguminosae/Fabaceae. We recently joined other taxonomists in recognizing the name change for this species although with regrets for leaving the pleasantly alliterative name behind. One of the common names continues to be pongamia. This fast-growing tropical tree is found along streets in South Florida as a planted ornamental with a few reports of escaped individuals in natural areas of Broward, Palm Beach, Lee and Sarasota counties. The Indian beech or pongamia can grow to 25 m tall, and the dense canopy provides shade, but care should be taken to avoid planting this species near natural areas. The leaves of the tree are odd-pinnate, usually with five or seven leaflets. The new leaves are briefly deciduous, with a reddish color in spring, changing to a glossy green in summer. This tree has fragrant, white to pinkish pea-like flowers in drooping clusters. The fruit is a flat, leathery, one-seeded legume with a short beak. The seeds have been used as a source of biodiesel. (Monroe County; B2013-768; Jake M. Farnum; 10 September 2013 and Pinellas County; B2013-769; Linda G. McRay; 10 September 2013.) (Isely 1998; http://www.florida.plantatlas.usf.edu/ accessed 2014 January 23; http://www.hort.purdue.edu/newcrop/duke_energy/Pongamia_pinnata.html accessed 2014 January 23 as *Pongamia pinnata*.)

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Sample/Specimen Submissions

September	
Samples Submitted	779
Specimens Identified	12,847
October	
Samples Submitted	838
Specimens Identified	13,508
Year to Date	
Samples Submtted	7,926
Specimens Identified	64,391

***Clastoptera sp.* (a spittlebug) adult**
Photograph courtesy of Lyle J. Buss, University of Florida

***Clastoptera sp.* (a spittlebug) nymphs**
Photograph courtesy of Mark J. Rothschild, FSCA Research Associate

Entomology Section

Compiled by Susan E. Halbert, Ph.D.

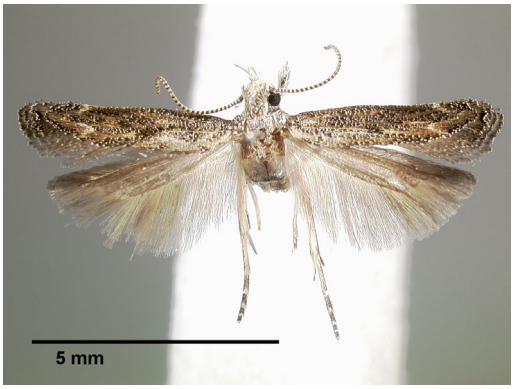
This section provides the division's plant protection specialists and other customers with accurate identifications of arthropods. The entomology section also builds and maintains the arthropod reference and research collection (the Florida State Collection of Arthropods with over 9 million specimens), and investigates the biology, biological control and taxonomy of arthropods.

***Clastoptera* sp., a spittlebug, a new continental USA Record.** Spittlebugs were found colonizing leaves of at least two species of oak trees. Numbers were high enough that the insect attracted the attention of concerned homeowners who contacted the local county extension office. The insect is widespread this year, with collection records from nearly a dozen peninsular Florida counties. So far, we have not been able to find any matching specimens from Florida or elsewhere in the United States or adjacent areas, although the genus occurs in the New World from Canada to Argentina. Thus, the origin of this spittlebug is unknown, and its permanence as a pest of oaks in Florida is uncertain. Other species of the genus *Clastoptera* have been suspected as vectors of *Xylella fastidiosa*, a xylem inhabiting bacterial pathogen. *Xylella fastidiosa* causes several plant diseases, most notably Pierce's Disease of grape and Bacterial Leaf Scorch (BLS) in a number of tree species. It has been implicated as a cause of BLS in several Florida oaks. (Pinellas County; E2013-5599; Robert J. Albanese, University of Florida IFAS Extension, and Mark A. Spearman; 2 August 2013.) (Dr. Vinton Thompson, Metropolitan College of New York, and Dr. Susan E. Halbert.)

***Caliothrips fasciapennis* (a thrips) a new Florida State Record.** This species is native to the continental United States and Mexico. The closest previous report was from Georgia. Although the genus *Caliothrips* is noted for having some legume hosts, this species was described from grass and is not known as a pest. (Hillsborough County; E2013-7312; Travis J. Streeter; 4 October 2013.) (http://www.itis.gov [accessed 2014 January 13].)(Dr. G.B. Edwards.)

***Dactylopius opuntiae*, a dactylopid, a new Florida State Record.** This cochineal scale, native to Mexico the southwestern United States as far east as Texas, was collected at a small nursery where cactus (nopales) plants were being grown for consumption. It can become a serious pest of nopales. *Dactylopius confusus* is the other species recorded from Florida and is much more widely spread. This latter species has been in Florida for several decades and is common on both naturally occurring and cultivated *Opuntia* species. Although the wax produced by the two species is slightly different in character and appearance on the pad, confirmation of species requires slide mounted specimens. *Dactylopius* contains ten morphologically identifiable species, some of which are worldwide in distribution, but recent molecular analyses indicate that there may be more than 40 species. (Miami-Dade County; E2013-5319; Jake M. Farnum; 31 July 2013.) (Dr. Ian C. Stocks.)

Diaphania costata **(a crambid moth)**
Photograph courtesy of James E. Hayden, DPI



Isophrictis similiella **(a gelechiid moth)**
Photograph courtesy of James E. Hayden, DPI

Diaphania costata**, a crambid moth, a new Florida State Record.** This species also is placed in the genus *Stemorrhages*. Pictures online and specimens from Georgia and South Carolina indicate significant range expansion from Texas in the past decade. The modified antenna base and black abdominal tuft of the males are diagnostic. This species ties and grazes leaves of *Vinca major* in Georgia, so plants in the family Apocynaceae should be checked for damage. There is no previously reported economic damage due to this species. (Leon County; E2013-7022; homeowner; 19 September 2013.) (Dr. James E. Hayden.)

Isophrictis similiella**, a gelechiid moth, a Florida State Record.** This species is a pest of sunflowers in Midwest and northern United States. It bores into stems and dry seedheads of Asteraceae. (Broward County; E2013-5132; James E. Hayden; 21 July 2013.) (Dr. James E. Hayden.)

Steneotarsonemus konoi**, a tarsonemid mite, a new Florida State Record.** This species was confirmed in Florida for the first time feeding on St. Augustine grass (*Stenotaphrum secundatum*) in Hillsborough County. This mite was described from Bermuda grass (*Cynodon dactylon*) in California and reported on *Oryzopsis miliacea, Poa pratensis* and *Agropyron crislatum* in Greece. *Stenotarsonemus konoi* probably was introduced into the United States from the Mediterranean region. This species probably is widespread, but its small size (<0.15 mm) makes it difficult to find. Feeding by *S. konoi* can cause necrosis of the leaves and stems, but the species is also reported to attack the inflorescence. (Orange County; E2013-5105; landscape business employee; 9 July 2013.) (Dr. W. C. 'Cal' Welbourn.)

Entomology Specimen Report
Following are tables with entries for records of new hosts or new geographical areas for samples identified in the current volume's time period as well as samples of special interest. An abbreviated table, with all the new records, but less detail about them, is presented in the body of this web page and another version with more complete data is downloadable as a PDF or an Excel spreadsheet.

The tables are organized alphabetically by plant host if the specimen has a plant host. Some arthropod specimens are not collected on plants and are not necessarily plant pests. In the table below, those entries that have no plant information included are organized by arthropod name.

Plant Name	Plant Common Name	Arthropod	Arthropod Common Name	County	Records
Adonidia merrillii	Christmas palm;Manila palm	*Raoiella indica*	red palm mite	Brevard	COUNTY
Afrocarpus sp.	yellowwood	*Neophyllaphis* sp.	a podocarpus aphid	Monroe	COUNTY & HOST
Allium ampeloprasum	wild leek, garden leek, pearl onion	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Allium ampeloprasum	wild leek, garden leek, pearl onion	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Bidens alba	beggarticks, romerillo	*Calycomyza platyptera*	a leaf miner fly	Volusia	COUNTY
Brassica juncea	mustard greens; leaf mustard; indian mustard; brown mustard	*Bactericera cockerelli*	potato psyllid	Nassau	INTERDICTION INTERCEPTION
Brassica oleracea	broccoli, cauliflower	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Brassica oleracea	kale, decorative kale, flowering kale, flowering cabbage, collards, cole, borecole	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Brassica rapa	pak-choi, bok-choi, pak-choy, bok-choy, chinese mustard, celery mustard	*Liriomyza langei*	California pea leafminer	Suwannee	INTERDICTION INTERCEPTION
Brassica rapa	pak-choi, bok-choi, pak-choy, bok-choy, chinese mustard, celery mustard	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Brassica rapa	pak-choi, bok-choi, pak-choy, bok-choy, chinese mustard, celery mustard	*Lygus* sp.	a lygus bug	Escambia	INTERDICTION INTERCEPTION
Capsicum annuum	poblano pepper	*Bactericera cockerelli*	potato psyllid	Escambia	INTERDICTION INTERCEPTION
Capsicum annuum	pepper	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Capsicum sp.	pepper	*Bactericera cockerelli*	potato psyllid	Miami-Dade	INTERCEPTION
Carphephorus corymbosus	coastalplain chaffhead	*Misumenoides formosipes*	a crab spider	Hernando	COUNTY
Chrysobalanus icaco	cocoplum, icaco	*Clastoptera* sp.	a spittlebug	Collier	COUNTY
Cichorium endivia	endive, escarole, frisee	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Citrus sinensis	sweet orange	*Clastoptera* sp.	a spittlebug	Manatee	COUNTY
Citrus x *paradisi*	grapefruit	*Aphis eugeniae*	an aphid	Glades	COUNTY
Citrus x *paradisi*	grapefruit	*Clastoptera* sp.	a spittlebug	Volusia	COUNTY
Clitoria ternatea	Asian pigeonwings	*Echinothrips americanus*	a thrips	Hillsborough	HOST
Cocos nucifera	coconut palm	*Raoiella indica*	red palm mite	Hillsborough	COUNTY
Couroupita guianensis	cannonball tree	*Phalacrococcus howertoni*	croton scale	Miami-Dade	HOST
Cynodon dactylon	bermuda grass	*Atherigona reversura*	bermudagrass stem maggot	Nassau	COUNTY
Eriobotrya japonica	loquat, Japanese plum	*Aphis eugeniae*	an aphid	Martin	COUNTY
Eriobotrya japonica	loquat, Japanese plum	*Aphis eugeniae*	an aphid	Citrus	COUNTY
Fragaria x *ananassa*	garden strawberry	*Rhinachloa forticornis*	a plant bug	Suwannee	INTERDICTION INTERCEPTION
Fraxinus sp.	ash	*Ptosima gibbicollis*	redbud borer	Jackson	COUNTY
Gossypium sp.		*Theridion melanostictum*	a spider	Monroe	COUNTY
Inga feuilleei	ice cream bean; pacae	*Euceropsylla xerxa*	an inga psyllid	Collier	COUNTY
Itea virginica	Virginia-willow, Virginia sweetspire	*Ceroplastes ceriferus*	Indian wax scale	Alachua	HOST
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Acyrthosiphon lactucae*	lettuce aphid	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Acyrthosiphon lactucae*	lettuce aphid	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Acyrthosiphon lactucae*	lettuce aphid	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Aeolus* sp.	an elaterid beetle	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	Autographa californica	alfalfa Looper	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	Bagrada hilaris	Bagrada bug	Suwannee	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Ceratagallia* sp.	a leafhopper	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Ceratagallia* sp.	a leafhopper	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Deltocephalus fuscinervosus*	a leafhopper	Suwannee	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Deltocephalus fuscinervosus*	a leafhopper	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Deltocephalus fuscinervosus*	a leafhopper	Escambia	INTERDICTION INTERCEPTION
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Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Suwannee	INTERDICTION INTERCEPTION
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Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Manatee	INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Manatee	INTERCEPTION
Lactuca sativa	romaine lettuce	*Liriomyza langei*	California pea leafminer	Leon	INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Suwannee	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Suwannee	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Suwannee	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Suwannee	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Suwannee	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Manatee	INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION

Plant Name	Plant Common Name	Arthropod	Arthropod Common Name	County	Records
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Manatee	INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Manatee	INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Suwannee	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Suwannee	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Hamilton	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Manatee	INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Suwannee	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Suwannee	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Clay	INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Suwannee	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Lygus hesperus*	a western lygus bug	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Nasonovia ribisnigri*	currant-lettuce aphid	Escambia	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Trioza* sp.	a jumping plant louse	Suwannee	INTERDICTION INTERCEPTION
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Trioza* sp.	a jumping plant louse	Escambia	INTERDICTION INTERCEPTION
Laurus nobilis	laurel; bay leaf	*Brachyleptura rubrica*	a cerambycid beetle	Escambia	COUNTY
Ligustrum sp.		*Palpita persimilis*	olive shoot worm	Duval	COUNTY
Lycopersicon esculentum	garden tomato, tomate, jitomate	*Disonycha varicornis*	a leaf beetle	Escambia	INTERDICTION INTERCEPTION
Opuntia cochenillifera	cochineal nopal cactus	*Dactylopius opuntiae*	a dactylopid	Miami-Dade	STATE
Opuntia sp.	cactus	*Hyperaspis trifurcata*	a ladybird beetle	Alachua	COUNTY
Phoenix dactylifera	date palm	*Hentzia chekika*	a jumping spider	Hillsborough	COUNTY
Phoenix dactylifera	date palm	NA	an elaterid beetle	Escambia	INTERDICTION INTERCEPTION
Pinus sp.	pine	*Euwallacea fornicatus*	tea shot-hole borer	St Lucie	COUNTY
Podocarpus macrophyllus	Japanese yew	*Neophyllaphis* sp.	a podocarpus aphid	Brevard	COUNTY
Podocarpus macrophyllus	Japanese yew	*Neophyllaphis* sp.	a podocarpus aphid	Charlotte	COUNTY
Podocarpus macrophyllus	Japanese yew	*Neophyllaphis* sp.	a podocarpus aphid	Indian River	COUNTY
Pontederia cordata	pickerelweed	*Megamelus palaetus*	a delphacid planthopper	Martin	HOST
Psidium cattleianum	cattley guava; strawberry guava	*Acanalonia excavata*	an acanaloniid planthopper	Palm Beach	COUNTY
Psidium friedrichsthalianum	Costa Rican guava	*Zaprionus indianus*		St Lucie	HOST
Quercus hemisphaerica	Darlington's oak; laurel oak	*Clastoptera* sp.	a spittlebug	Alachua	COUNTY
Quercus sp.	oak	*Clastoptera* sp.	a spittlebug	Hillsborough	COUNTY
Quercus sp.	oak	*Clastoptera* sp.	a spittlebug	Polk	COUNTY
Quercus sp.	oak	*Platnickina mneon*	cobweb weaver	Glades	COUNTY
Quercus virginiana	live oak	*Clastoptera* sp.	a spittlebug	Pinellas	STATE
Quercus virginiana	live oak	*Clastoptera* sp.	a spittlebug	Marion	COUNTY
Schefflera actinophylla	schefflera; octopus tree	*Coccus capparidis*	capparis soft scale	Hillsborough	HOST
Solidago canadensis	Canada goldenrod	*Eurosta solidaginis*	goldenrod gall fly	Escambia	COUNTY

Plant Name	Plant Common Name	Arthropod	Arthropod Common Name	County	Records
Spinacia oleracea	spinach	*Liriomyza langei*	California pea leafminer	Suwannee	INTERDICTION INTERCEPTION
Stenotaphrum secundatum	St. Augustine grass	*Steneotarsonemus konoi*	a tarsonemid mite	Orange	STATE
Stevia rebaudiana	sweetbush; candyleaf; sweet honey leaf	*Aphis gossypii*	cotton aphid/melon aphid	Duval	HOST
Terminalia arjuna	arjuna, arjun, white marudah	*Tuckerella* sp.	tuckerellid mite	Miami-Dade	HOST
Vernonia gigantea	giant ironweed	*Phenacoccus parvus*	a mealybug	Pinellas	HOST
Vitis cinerea	graybark grape; florida grape	*Jobertus chryselectrus*	a mirid bug	Hillsborough	COUNTY
Ximenia americana	tallowwood; hog plum	*Acacesia hamata*	an orbweaver	Orange	COUNTY
		Achatina fulica	giant African land snail	Broward	TRIOLOGY
		Achatina fulica	giant African land snail	Broward	TRIOLOGY
		Caliothrips fasciapennis	a thrips	Hillsborough	STATE
		Clastoptera sp.	a spittlebug	Palm Beach	COUNTY
		Clastoptera sp.	a spittlebug	Orange	COUNTY
		Clastoptera sp.	a spittlebug	Hernando	COUNTY
		Cnestus mutilatus	camphor shot borer	Alachua	COUNTY
		Diaphania costata	a crambid moth	Leon	STATE
		Dichrorampha manilkara	a tortricid moth	Broward	COUNTY
		Dictyna volucripoides	a meshweb weaver	Hillsborough	COUNTY
		Dryas iulia	Florida Julia butterfly	Brevard	COUNTY
		Eoreuma loftini	Mexican Rice Borer	Marion	COUNTY
		Eustala cepina	an orbweaving spider	Hillsborough	COUNTY
		Euwallacea fornicatus	tea shot-hole borer	Collier	COUNTY
		Faiditus globosus	a kleptoparasitic cobweb spider	Broward	COUNTY
		Habronattus brunneus	a jumping spider	Hillsborough	COUNTY
		Hahncappsia neomarculenta	a crambid moth	Alachua	COUNTY
		Hypsosinga pygmaea	an orbweaver	Pinellas	COUNTY
		Hypsosinga rubens	an orbweaving spider	Hillsborough	COUNTY
		Isophrictis similiella	a gelechiid moth	Broward	STATE
		Loxosceles rufescens	Mediterranean recluse spider	Hillsborough	
		Mangora spiculata	an orbweaver	Hillsborough	COUNTY
		Menemerus bivittatus	gray wall jumper	Hillsborough	COUNTY
		Myllocerus undecimpustulatus	a weevil	Alachua	COUNTY
		Neoscona arabesca	a spotted orbweaver	Pinellas	COUNTY
		Pardosa pauxilla	a wolf spider	Hillsborough	COUNTY
		Parectecephala maculiceps	a grass fly	Broward	COUNTY
		Sinoxylon anale	Auger beetle	Duval	COUNTY
		Smeringopus pallidus	a cellar spider	Hillsborough	COUNTY
		Stromatium sp.	a cerambycid beetle	Broward	INTERCEPTION
		Tennesseellum formicum	a sheetweaver	Broward	COUNTY
		Trischidias georgiae	a scolytid beetle	Volusia	COUNTY
		Trupanea eclipta	a fruit fly	Hillsborough	COUNTY
		Xyleborus viduus	a scolytid beetle	Nassau	COUNTY
		Zygoballus rufipes	a jumping spider	Hillsborough	COUNTY
		Zygoballus sexpunctatus	a jumping spider	Hillsborough	COUNTY

Nematology Section

Compiled by R. N. Inserra, J. D. Stanley, J. B. Brito, L. L. Violett and S. A. Subbotin (California Department of Food and Agriculture)

This section analyzes soil and plant samples for nematodes, conducts pest detection surveys and provides diagnoses of plant problems, in addition to completing identification of plant parasitic nematodes involved in regulatory and certification programs. State of Florida statutes and rules mandate the predominant regulatory activities of the section. Analyses of plant and soil samples include those from in-state programs, plant shipments originating in Florida destined for other states and countries, as well as samples intercepted in Florida from outside the United States.

Nematodes of Special Interest

***Meloidogyne javanica* (Treub, 1885) Chitwood, 1949, the Javanese root-knot nematode,** was found infecting the roots of the edible fig, *Ficus carica*. (Hernando County; N13-01127; Stephen R. Jenner; 1 October 2013).

Root-knot nematodes (*Meloidogyne* spp.) have been reported associated with several fruit trees including acerola (*Malpighia glabra*), banana (*Musa* spp.), fig (*Ficus carica*), kiwi (*Actinidia deliciosa*), mango (*Mangifera indica*), papaya (*Carica papaya*), passionfruit (*Passiflora edulis*) and pomegranate (*Punica granatum*). Damage of *Meloidogyne* spp. to fig trees has been observed in orchards in several fig producing areas in the world, including the Mediterranean, North and South America, and southern Africa. Fig trees are known to be hosts of *M. arenaria*, *M. javanica* and *M. incognita*. Root-knot nematodes can be a limiting factor in commercial fig production in the United States, France and Brazil, where *M. incognita* is reported to be associated with reduction of fruit yield and plant death. Recently, a containerized fig plant was found parasitized with *M. javanica*, in Hernando County, Florida. The plant exhibited stunted growth, leaf yellowing and root galling, typical symptoms induced by this nematode species. To our knowledge, this is the first report of *M. javanica* infecting fig in Florida. Sanitation practices should be implemented to avoid the dissemination of this nematode species within and between plant nurseries. Planting material should be produced in medium free of this pathogen to avoid its introduction into uninfested nurseries, orchards and field operations.

Sample Submissions

	September October	Year to date
Morphological Identifications	1,727	10,151
Molecular Identifications	182	1,042
Total Samples Submitted	1,909	11,193

Certification and Regulatory Samples

	September October	Year to date
Multistate Certification for National and International Export	1,057	6,856
California Certification	219	1,860
Pre-movement (Citrus Nursery Certification)	42	218
Site or Pit Approval (Citrus Nursery and Other Certifications)	30	82

Other Samples

	September October	Year to date
Identifications (invertebrate)	4	8
Plant Problems	22	94
Intrastate Survey, Random	353	1,033
Molecular Identifica-tions*	182	1,042

* The majority of these analyses involved root-knot nematode species.

***Ficus carica*, edible fig infected with *M. javanica*, showing stunted growth and yellowing leaves**
Photograph courtesy of Janete A. Brito, DPI

Ficus carica roots with galls induced by M. javanica
Photograph courtesy of Janete A. Brito, DPI

Collectors submitting five or more samples that were processed for nematological analysis during September - October 2013

Anderson, J. Mikaela	15		Ochoa, Ana L.	63
Bailey, W. Wayne	11		Smith, Lane M.	11
Blaney, Richard, L.	5		Spriggs, Charles L.	143
Burgos, Frank A.	150		Tannehill, Ellen J.	9
Clanton, Keith B.	86		Terrell, Mark R.	9
Hassell, Lisa M.	7		Vasquez, Dagne A.	6
Keen, Emily I.	33		Violett, Larry L.	121
LeBoutillier, Karen W.	109			

References

McSorley, R. 1992. Nematological problems in tropical and subtropical fruit trees. Nematropica 22:103-116.

El-Boraim, F.E. and L. Duncan. 2005. Nematodes parasites of subtropical and tropical fruit tree crops. Pp. 467-491 In M. Luc, R. A. Sikora and J. Bridge (eds.). Plant parasitic nematodes in subtropical and tropical agriculture, 2nd edition. CAB Publishing: Wallingford, United Kingdom.

Plant Pathology Section

Compiled by Timothy S. Schubert, Ph.D.

This section provides plant disease diagnostic services. The agency-wide goal of protecting Florida agriculture very often begins with accurate diagnosis of plant problems. Disease management recommendations are offered where appropriate and available. Our plant pathologists are dedicated to keeping informed about plant diseases outside Florida in order to be prepared for potential introductions of new pathogens.

Bad Season for Okra leaf spot disease

Okra (*Abelmoschus esculentus*) is among the few garden vegetables that thrive in the heat of the Florida summer. Okra, along with sweet potatoes, squash, pole beans, peppers and cowpeas, are the main crops of the Florida summer vegetable garden. Okra is relatively carefree and easily grown organically, assuming the gardener accommodates its susceptibility to root knot, reniform and sting nematode damage through cultural practices such as crop rotation, soil amendments and soil solarization.

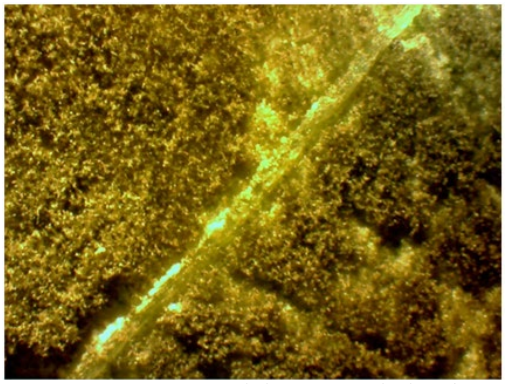
In the late summer of 2013, previous rainfall records were broken over much of North Florida. These weather conditions apparently favored severe okra leaf spot problems, mostly due *Pseudocercospora abelmoschi*, but also *Cercospora malayensis.*

After leaves begin to show gray-black mold on the leaf underside and/or distinct necrotic spots, defoliation can reduce productivity dramatically, especially if conducive weather conditions prevail. Fungicides can mitigate some damage, but few are labeled for use on okra, and these are not especially effective. The University of Florida EDIS publication at http://edis.ifas.ufl.edu/pdffiles/PI/PI09700.pdf has more information about control measures.

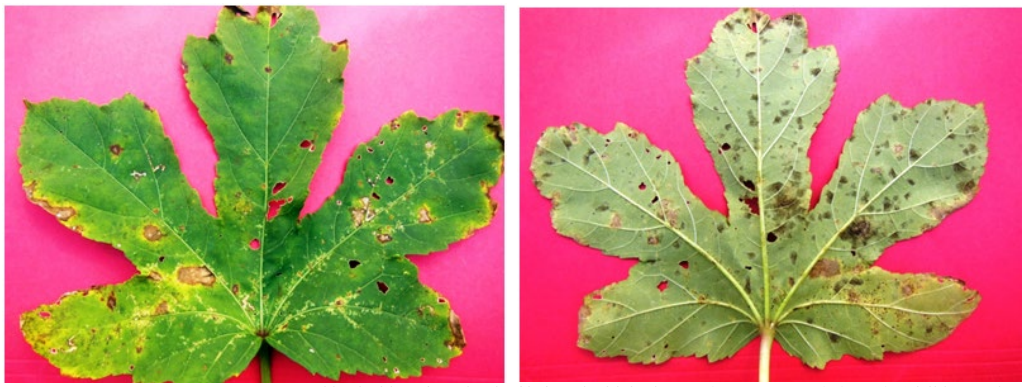
Inoculum will persist on crop residues, so it is important to completely compost, burn or bury all infected plant parts well before starting next summer's crop. Lesions form not only on leaves, but also on petioles and stems. Spores produced on infected plant parts disperse by wind.

Sample Submissions

	September October	Year to date
Pathology	458	2,563
Bee	3	16
Black Spot	51	87
Box Blight	0	6
Citrus Canker	468	1,513
Greening	349	2,725
Interdiction	26	66
Laurel Wilt	15	84
Soil	7	34
Sudden Oak Death	2	28
Sweet Orange Scab-like Disease	0	11
Water	0	1
Miscellaneous	9	33
Total Samples	1,1388	7,140



Pseudocercospora abelmoschi lesion. Macroscopic view of a gray fuzzy lesion made up of masses of wind-disseminated conidia (inoculum) of the fungal pathogen.
Photograph courtesy of Tim S. Schubert, DPI.



***Abelmoschus esculentus* (okra)** Front and back sides of an okra leaf infected with both *Pseudocercospora abelmoschi* (visible mostly as gray diffuse patches on the leaf underside, right) and *Cercospora malayensis* (causing distinct tan-brown necrotic spots visible on both sides of leaf).
Photographs courtesy of Timothy S. Schubert, DPI.

Abelmoschus esculentus (okra) Front and back sides of an okra leaf lobe showing the indistinct darkening that eventually appears on the upper leaf surface (left) some time after *Pseudocercospora abelmoschi* has caused the indistinct gray-black patches on the leaf underside (right). Most leaves infected to this degree will curl up and abscise prematurely.
Photographs courtesy of Timothy S. Schubert, DPI.

Plant Species	Common Name	Causal Agent	Disease Name	Location	Specimen #	County	Collector	Date	New Records	Comments
Abelmoschus esculentusf	okra	*Pseudocercospora abelmoschi*	leaf spot	Commercial farm	74798	Nassau	Robert M. Leahy CAPS/ USDA, Bradley A. Danner CAPS/DPI	9/11/2013		This pathogen is capable of early defoliation of the crop.
Abelmoschus esculentus	okra	*Pseudocercospora abelmoschi*	leaf spot	Dooryard	75820	Alachua	Timothy S. Schubert	10/28/2013		The pathogen was damaging okra in private gardens also.
Amaranthus hybridus	green; pigweed; slim amaranth	*Pyrenochaeta* sp.	leaf spot	Weed in disturbed area	75291	Alachua	Robert M. Leahy, CAPS/ USDA; Bradley A. Danner, CAPS/DPI; Rebecca Barroco, University of Florida	10/1/2013	Host	This host is sometimes grown as a crop for its edible foliage and seed. This sample was a weed.
Amaranthus hybridus	green; pigweed; slim amaranth	*Colletotrichum capsici*	leaf spot	Weed in disturbed area	75291	Alachua	Robert M. Leahy, CAPS/ USDA; Bradley A. Danner, CAPS/DPI; Rebecca Barroco, University of Florida	10/1/2013	Host	This host is sometimes grown as a crop for its edible foliage and seed. This sample was a weed.
Amaranthus hybridus	green; pigweed; slim amaranth	*Dendryphiella vinosum*	assocated with dead plant tissue	Weed in disturbed area	75291	Alachua	Robert M. Leahy, CAPS/ USDA; Bradley A. Danner, CAPS/DPI; Rebecca Barroco, University of Florida	10/1/2013	Host	This host is sometimes grown as a crop for its edible foliage and seed. This sample was a weed.
Andropogon sp.	grass	*Davisiella elymina*	tar spot hyperparasite	Park	75065	Duval	Robert M. Leahy CAPS/ USDA, Bradley A. Danner CAPS/DPI, Rebecca Barroco, University of Florida	10/8/2013	State	A nice example of a mycopathogen on a plant pathogen.
Chamaerops humilis	European fan palm	*Cylindrocladium* sp.	leaf spot	Nursery	74725	Miami-Dade	Ciro Milian	9/9/2013		Cylindrocladium can be a serious foliage pathogen on this host.
Cichorium endivia	Endive, escarole	*Corynespora* sp.	leaf spot	Nursery	75414	Polk	Albert L. Wright	10/24/2013	Host	This pathogen has a very wide host range and causes foliar problems on many ornmentals and vegetables.
Gramineae	grass	*Ramularia pusilla*	leaf spot	Dooryard	75855	Hamilton	Robert M. Leahy CAPS/ USDA, Bradley A. Danner CAPS/DPI	10/30/2013	State	This subtle leaf spotter has not been reported from Florida before. The grass could not be identified; there were no flowers.

Plant Species	Common Name	Causal Agent	Disease Name	Location	Specimen #	County	Collector	Date	New Records	Comments
Ludwigia repens	creeping primrose willow	*Cylindrocladium spathiphylli*	leaf spot & stem lesions	Nursery	75412	Hillsborough	William R. Stokes, Howard L. Wallace	10/18/2013	Host	*C. spathiphylli* has not been reported on Ludwigia before.
Pandanus sp.	pandanus	*Phytophthora nicotianae*	stem blight	Nursery	75408	Miami-Dade	Ciro Milian	10/4/2013	Host	This wide host range pathogen is always a serious threat, worse under wet conditions
Persea borbonia	red bay	*Raffaelea lauricola*	laurel wilt	Nursery	75047	Charlotte	Richard L. Blaney	10/1/2013	County	Laurel wilt continues its westward migration to the Gulf in the penninsula of Florida.
Persea palustris	swamp bay	*Raffaelea lauricola*	laurel wilt	Dooryard	74621	Calhoun	Ariel B. Sewell, Florida Forest Service	9/13/2013	County	New county record in the Florida Panhandle.
Pilocereus robinii	key tree cactus	*Bipolaris cactivora*	Bipolaris cactus rot	Botanical garden	74991	Monroe	Garden employee	9/17/2013	Host	This cactus is the subject of a re-establishment program.
Pilocereus robinii	key tree cactus	*Phomopsis* sp.	stem necrosis	Botanical garden	74991	Monroe	Garden employee	9/17/2013	Host	This cactus is the subject of a re-establishment program.
Pontederia cordata	pickerelweed	*Phomopsis* sp.	blight	Golf course	75589	Martin	Landscape contractor	10/16/2013	Host	Decline of pickerel weed in a water hazard on the course.
Pontederia cordata	pickerelweed	*Nigrospora sphaerica*	on dead plant matter	Golf course	75589	Martin	Landscape contractor	10/16/2013	Host	Decline of pickerel weed in a water hazard on the course.

Our Mission

The mission of the Division of Plant Industry is to protect Florida's native and commercially grown plants and the State's apiary industry from harmful pests and diseases. Florida's native plants include many species that are listed as endangered and threatened on the state's Regulated Plant Index. Perhaps you'd be interested how plants are added to or removed from that Index.

Changes to the list of endangered and threatened plant species are based on recommendations from the Endangered Plant Advisory Council and the general public. Proposals for changes are considered at least once annually in open meetings of the Endangered Plant Advisory Council. These meetings are announced in the Florida Administrative Weekly. All changes to the list are based on a completed Ranking System for Plant Species of Potential Special Concern form (if you would like to see a copy of this form, please contact DPI).

The Endangered Plant Advisory Council consists of seven persons appointed by the Commissioner of Agriculture. One member represents each of the following organizations: Florida Federation of Garden Clubs, Florida Nurserymen and Growers Association, Committee for Rare and Endangered Plants and Animals, Florida Forestry Association and Florida Native Plant Society. Two additional members are botanists, associated with a Florida state university.

One example of a species under consideration for listing is *Warea cuneifolia* (Carolina pinelandcress) known in Florida from Gadsden, Jackson and Liberty counties. The specimen of this species was collected near Marianna, Florida, by a member of the Endangered Plant Advisory Council, Dr. Loran Anderson, and donated to the DPI herbarium.

***Warea cuneifolia* (Carolina pinelandcress)** live plant
Photograph courtesy of C. Stewart, landowner

***Warea cuneifolia* (Carolina pinelandcress)** herbarium specimen
Photograph courtesy of Mariana P. Beckman, DPI