

# TRI-OLOGY

A PUBLICATION OF THE FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES, DIVISION OF PLANT INDUSTRY  
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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.



*Hydrocotyle bowlesioides* (largeleaf marshpennywort)  
Photograph courtesy of Forest and Kim Starr, wikipedia



*Stachys officinalis* (wood betony)  
Photograph courtesy of Raffi Kojian, wikipedia



*Ocimum basilicum* (edible basil) flowers  
Photograph courtesy of Eli+, wikipedia

## Highlights

***Hydrocotyle bowlesioides* Mathias & Constance (largeleaf marshpennywort).** Of the six species of *Hydrocotyle* found in Florida, this is the least common, having previously been reported from only a single location in Leon County. Native to Costa Rica and Panama, largeleaf marshpennywort has naturalized in parts of South America, Hawaii and New Zealand. This is only the fourth time the species has been documented from the continental United States, and the first time it has been found in a nursery setting. Previously, it has been reported from lawns in Thomasville, Georgia, and Tallahassee, Florida, and from an unspecified habitat (based on a herbarium specimen with limited data) in western Louisiana.

***Aphelenchoides fragariae* (Ritzema-Bos, 1890) Christie, 1932, the spring crimp nematode,** was detected in leaves of *Stachys officinalis* (a plant known as wood betony, bishop's wort or common hedgenettle). Infestations of this foliar nematode on this ornamental have been known in Europe for more than 50 years, but it is not commonly found in the United States. A serious infestation of this nematode on *S. officinalis* was detected in a nursery in northwestern Florida.

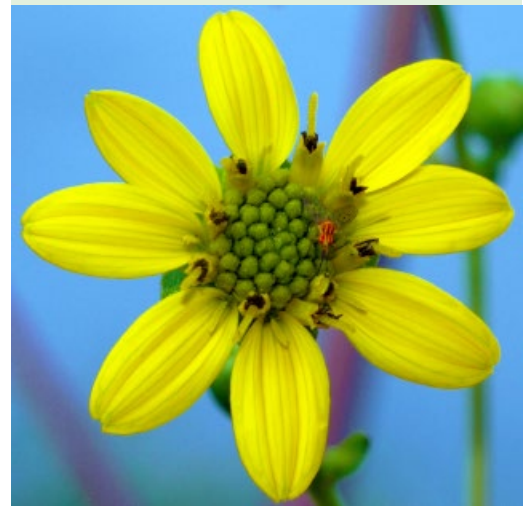
***Fusarium oxysporum* f. sp. *basilici* (Fusarium wilt and canker of basil)** was found on *Ocimum basilicum* (edible basil) in Stuart, Florida, at a hydroponic cultivation operation. Sweet basil is a relatively easily grown herb in the mint family that is widely cultivated both commercially and in home gardens. Among the most common recent problems with this crop are downy mildew, caused by *Peronospora belbahrii*, and bacterial leaf spot, caused by *Pseudomonas cichorii*. *Fusarium* wilt and canker caused by *Fusarium oxysporum* f. sp. *basilici* represents a third major disease of recent origin and is now one of the more serious diseases of this crop.

***Nasuchus* n. sp., an eriophyid mite, a new continental USA record.** Many eriophyid species are leaf vagrants, and while they are phytophagous, they cause no apparent damage to their hosts. The only named species in this genus, *N. pindobates*, is a leaf vagrant on *Geonoma gamiova* (Arecana palm) in São Paulo, Brazil. The Florida record was also a leaf vagrant on *Arecaceae*, *Serenoa repens* (saw palmetto).

***Aceria tournefortiae*, an eriophyid mite, a new continental USA record.** Many species in this genus form leaf galls and are considered economically important in their natural ranges. This species was described from the galls on *Tournefortia hirsutissima* (chiggery grapes) in Cuba. The Florida record was also from *T. hirsutissima*, a native plant that is found in Monroe, Collier and Hendry counties as well as much of the Caribbean region.

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We welcome your suggestions for improvement of TRI-OLOGY. 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:

***Chenopodium ambrosioides* L. (wormseed, Mexican tea, epazote)**, from a genus of about 100 mainly weedy species native to temperate areas. Chenopodiaceae (or more recently, Amaranthaceae; the species name is now considered a synonym of *Dysphania ambrosioides* (L.) Mosyakin & Clemants by some taxonomists). This is an annual or perennial taprooted herb, easily recognized by its strong fetid odor. The glandular stems are erect or ascending, to 1 m tall. Leaves are alternate, oblong to ovate or rhombic-lanceolate, to about 12 cm long and 6 cm broad (size reduced upward on the branches), sinuate-dentate or sinuate-pinnatifid, and may be copiously dotted with resinous, yellow glands. The inflorescences are compact clusters on glandular spikes. Flowers are sessile, greenish, with five sepals, no petals, five stamens and two stigmas. The crushed whole plant, flower spikes, seeds, and seed oil have been widely employed by the native people of the Americas for combating intestinal parasites and many other ailments. Oil of *Chenopodium* (sometimes called Baltimore oil) was sold as a treatment for hookworms and ascarids in humans, cats, dogs, horses and pigs in the early 1900s. In some countries, the plant continues to be used treat worm infections in non-ruminant animals and humans. Unfortunately, the dose needed to treat parasites is similar to the amount that can cause intestinal distress, and the plant extracts are not as effective as other commonly used anthelmintics. Mayans used the leaves as a spice, and it continues to be used for seasoning food in Mexico and Guatemala. An infusion of the leaves is a popular herbal tea in Mexico, Germany and the West Indies. Native to North and South America and established throughout tropical and warm regions of the world, this species is found in almost all Florida counties. (Miami-Dade County; B2014-423; Jake M. Farnum; 4 June 2014 and Orange County; B2014-482; Dr. Belainesh Desta, Division of Animal Industry; 16 June 2014.) (Bryson and DeFelice 2009; Correll and Correll 1982; Morton 1981; <http://www.ansci.cornell.edu/plants/medicinal/epazote.html> [accessed 2014 July 9].)

***Hydrocotyle bowlesioides* Mathias & Constance (largeleaf marshpennywort)**, from a cosmopolitan genus of approximately 200 species. Araliaceae (traditionally placed in the Umbelliferae/Apiaceae). This low-growing, herbaceous groundcover has five-lobed leaves to 5 cm wide, with a deep basal sinus extending to the petiole. Both surfaces of the leaf are hirsute (covered with stiff, uniseriate hairs), and the hairs are frequently crowded at the juncture of the leaf blade and petiole, giving it a conspicuously fuzzy appearance. The inflorescences are simple, axillary umbels borne on slender peduncles 3 to 15 mm long. Individual flowers are white with pink fringe on the outer edge. The tiny (1.5 mm wide) fruit are ribbed and minutely hispid or slightly granular with a persistent style. Of the six species of *Hydrocotyle* found in Florida, this is the least common, having previously been reported from only a single location in Leon County. Native to Costa Rica and Panama, largeleaf marshpennywort has naturalized in parts of South America, Hawaii and New Zealand. This is only the fourth time the species has been documented from the continental United States, and the first time it has been found in a nursery setting. Previously, it has been reported from lawns in Thomasville, Georgia, and Tallahassee, Florida, and from an unspecified habitat (based on a herbarium specimen with

## Sample Submissions

	May June	Year to date
Samples submitted by other DPI sections	1,394	3,920
Samples submitted for botanical identification only	222	513
Total samples submitted	1,616	4,433
Specimens added to the herbarium	64	137



*Chenopodium ambrosioides* (wormseed, Mexican tea, epazote)  
Photograph courtesy of Dennis Girard, Atlas of Florida Vascular Plants <http://florida.plantatlas.usf.edu/Photo.aspx?id=14254>



*Hydrocotyle bowlesioides* (largeleaf marshpennywort)  
Photograph courtesy of Forest and Kim Starr <http://luirig.altervista.org/cpm/albums/bot-hawaii16/07844-Hydrocotyle-bowlesioides.jpg>





*Hydrocotyle bowlesii* (largeleaf marshpennywort)  
 Photograph courtesy of Lorán Anderson, Atlas of Florida Vascular  
 Plants <http://florida.plantatlas.usf.edu/Photo.aspx?id=15792>



*Passiflora foetida* (fetid passionflower, running pop, love-in-a  
 mist), flower  
 Photograph courtesy of Allen Boatman, Atlas of Florida Vascular  
 Plants <http://florida.plantatlas.usf.edu/Photo.aspx?id=15792>



*Passiflora foetida* (fetid passionflower, running pop, love-in-a  
 mist), bracts  
 Photograph courtesy of Allen Boatman, Atlas of Florida Vascular  
 Plants <http://florida.plantatlas.usf.edu/Plant.aspx?id=1740>



*Rayjacksonia phyllocephala* (camphor daisy, Gulf Coast  
 camphor-daisy), flower  
 Photograph courtesy of Bob Upcavage, Atlas of Florida Vascular  
 Plants <http://florida.plantatlas.usf.edu/Photo.aspx?id=13662>

little data) in western Louisiana. In this case, largeleaf marshpennywort was found growing in potted *Dracaena* plants, which had been imported without soil from Costa Rica. It seems likely that the tiny seeds were introduced on the *Dracaena* leaves or stems. The other five species of *Hydrocotyle* found in Florida, four of which are native, typically occur on wet sites such as marshes, floodplain forests, and pond and lake margins. Two species, *Hydrocotyle bonariensis* and *Hydrocotyle umbellata*, both colloquially known as dollarweed, are common weeds in well-irrigated lawns and other wet, disturbed sites. (St. Lucie County; B2014-474; Dagne A. Vasquez; 17 June 2014.) (Ecroyd 2010; Thornhill and Krings 2012.) (Written by Marc S. Frank.)

***Passiflora foetida* L. (fetid passionflower, running pop, love-in-a mist)**, from a genus of about 430 species from tropical and warm regions. Passifloraceae. Native to Texas and Arizona, Mexico, the Caribbean, Central and South America, this weedy species is found on roadsides, disturbed sites, waste areas, riparian habitats, forests and coastal areas in tropical and sub-tropical regions, including seven counties of south and central peninsular Florida. This is a quite variable species with many varieties found over its range. The fetid passionflower is a climbing or scrambling vine with dense, viscous hairs extending over most plant parts and is malodorous when crushed. The alternate, membranous leaves are usually three-lobed, sometimes five-lobed, occasionally entire and 3-11 cm long. Petioles have no glands, unlike those of many passionflowers. Tendrils grow from the bases of the leaves. Flowers are 3-5 cm across, with three showy, finely fringed, gland-tipped bracts and corollas that vary from pinkish to white or purplish. The calyx is whitish to ivory with green streaks. The fruit is yellow, orange or red when ripe, 1.5-4 cm long and partially enclosed by persistent, viscous floral bracts. (Orange County; B2014-301; Ricardo E. Lopez, USDA; 1 May 2014 and Palm Beach County; B2014-429; Frank A. Burgos; 10 June 2014.) (Huxley 1992; [http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a-8d04-0605030c0f01/media/Html/Passiflora\\_foetida.htm](http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a-8d04-0605030c0f01/media/Html/Passiflora_foetida.htm) [accessed 2014 July 10].)

***Rayjacksonia phyllocephala* (DC.) R. L. Hartman & M. A. Lane (camphor daisy, Gulf Coast camphor-daisy)**, from a genus of three North American species. Compositae. Known as *Haplopappus phyllocephalus* DC. until fairly recently (1996), this unusual sounding genus is now named for Ray Jackson (Raymond Carl Jackson, 1928-2008, botanist and plant geneticist). The plant is usually considered an annual, but can grow as a perennial, to 1 m tall with a white pubescent stem and has a tap root that can become woody. The alternate leaves are sessile to subpetiolate with oblong to oblanceolate blades and coarsely serrate (with widely separated teeth) margins that for Florida populations have bristle-tipped teeth. Crushed leaves emit a camphor odor, suggesting the common name. The inflorescences are often surrounded by leaves or leaf-like peduncular bracts that continue to base of the heads. Both ray and disc florets are yellow. At first glance, this beach-dwelling species can be mistaken for *Borrchia frutescens*, the sea-oxeye daisy, but that species has opposite, not alternate, leaves with entire, not spinulose serrate margins. Although it can be a common plant through most of its native range in dunes, salt flats, pinelands and dry fields in Mexico, Colorado, Texas and Louisiana, in Florida, it is found in only a few coastal counties (Levy, Pasco to Sarasota, Lee and Monroe (Keys) counties) in dunes and open coastal areas. (Pinellas County; B2014-471; Linda G. McRay; 17 June 2014.) (Hammer 2004; Lane and Hartman 1996; Nesom et al. 2013; [http://www.efloras.org/florataxon.aspx?flora\\_id=1&taxon\\_id=250067438](http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=250067438) [accessed 2014 July 17]; [http://lee.ifas.ufl.edu/Hort/GardenPubsAZ/Camphor\\_daisy\\_Rayjacksonia\\_phyllocephala.pdf](http://lee.ifas.ufl.edu/Hort/GardenPubsAZ/Camphor_daisy_Rayjacksonia_phyllocephala.pdf) [accessed 2014 July 15]; <http://txmarspecies.tamug.edu/vegdetails.cfm?scinameID=Rayjacksonia%20phyllocephala> [accessed 2014 July 15].)

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*Rayjacksonia phyllocephala* (camphor daisy, Gulf Coast camphor-daisy), leaf  
 Photograph courtesy of James Rodwell, Atlas of Florida Vascular Plants <http://florida.plantatlas.usf.edu/Photo.aspx?id=15948>



## Sample/Specimen Submissions

May	
Samples Submitted	857
Specimens Identified	9,282
June	
Samples Submitted	753
Specimens Identified	10,803
Year to Date	
Samples Submitted	4,496
Specimens Identified	84,476



*Tounefortia hirsutissima* (chigger mites)  
 Photograph courtesy of Keith Bradley, Atlas of Florida Vascular Plants <http://florida.plantatlas.usf.edu/Photo.aspx?id=13939>



*Araneus gadus*, an orbweaver  
 Photograph courtesy of G. B. Edwards, DPI



*Arhyssus parvicornis*, a scentless plant bug  
 Photograph courtesy of Paul E. Skelley, DPI, and Vince Golia, FSCA

## 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.

### ***Aceria tournefortiae*, an eriophyid mite, a new continental USA record.**

Many species in this genus form leaf galls and are considered economically important in their natural ranges. This species was described from the galls on *Tounefortia hirsutissima* (chigger mites) in Cuba. The Florida record was also from *T. hirsutissima*, a native plant that is found in Monroe, Collier and Hendry counties as well as much of the Caribbean region. Many eriophyid mites are very host specific, and *A. tournefortiae* probably is found throughout the host range. (Miami-Dade County; E2014-3105; Olga Garcia and Frank A. Burgos; 7 May 2014.) (Dr. W. C. 'Cal' Welbourn.)

### ***Nasuchus n. sp.*, an eriophyid mite, a new continental USA record.**

Many eriophyid species are leaf vagrants, and while they are phytophagous, they cause no apparent damage to their hosts. The only named species in this genus, *N. pindobates*, is a leaf vagrant on *Geonoma gamiova* (Arecana palm) in São Paulo, Brazil. The Florida record was also a leaf vagrant on Arecaceae, *Serenoa repens* (saw palmetto). It is not expected to be a significant plant pest. (Brevard County; E2014-2653; W. C. 'Cal' Welbourn, Megan R. Lynch, Anthony P. Gubler, Kyle E. Schnepf, James E. Hayden, Jeanie P. Kennedy and Marc S. Frank; 7 May 2014.) (Dr. W. C. 'Cal' Welbourn.)

### ***Callyntrotus schlechtendali*, the rose rust mite, a new Florida state record.**

This eriophyid is a lower leaf vagrant on *Rosa spp.* Feeding may cause some rusting, but according to Keifer (1952), the damage does not attract attention and is easily overlooked. The mites leave characteristic white streaks consisting of skin castings on the leaves. At low population levels, the mite is not easily detected. (Alachua County; E2014-3113; Cheryl A. Jones; 9 May 2014.) (Dr. W. C. 'Cal' Welbourn.)

### ***Araneus gadus*, an orbweaver, a new Florida state record.**

This species is one of the least common of a group of colorful small orbweavers distributed over eastern North America. Its previous known range is from Arkansas to New England, with the southernmost record from western central Alabama. This record represents a considerable range extension (Escambia County; E2014-3407; Johanna K. Welch and Randal E. St. Louis; 15 May 2014.) (Dr. G. B. Edwards.)

### ***Arhyssus parvicornis*, a scentless plant bug, a new Florida state record.**

This is the tiniest species in the genus. It is widespread in the western United States and ranges into Central America. This species is not likely to become a pest. (Palm Beach County; E2014-3521; Vince Golia, Florida State Collection of Arthropods Research Associate; 9 July 2009.) (Dr. Thomas J. Henry, USNM, and Dr. Susan E. Halbert.)

### ***Limataphalara brevicephala*, a psyllid, a significant find.**

This psyllid was rediscovered after about a decade. It is rare and apparently restricted to *Ocotea coriacea* (lancewood). (Collier County; E2014-2836; Scott D. Krueger and Susan E. Halbert; 22 April 2014.) (Dr. Susan E. Halbert.)

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## 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.



*Limataphalara brevicephala*, a psyllid (adult)  
Photograph courtesy of Lyle J. Buss, University of Florida



*Limataphalara brevicephala*, a psyllid (colony)  
Photograph courtesy of Lyle J. Buss, University of Florida

Plant Name	Plant Common Name	Arthropod	Arthropod Common Name	County	Records
<i>Adonia merrillii</i>	Christmas palm; Manila palm	<i>Zachrysia provisoria</i>	Cuban land snails	Seminole	COUNTY
<i>Ananas comosus</i>	pineapple	<i>Steneotarsonemus comosus</i>	Pineapple multiple crown mite	Escambia	INTERDICTION INTERCEPTION
<i>Apium graveolens</i>	celery	<i>Euaresta bella</i>	a fruit fly	Hendry	COUNTY
<i>Araucaria heterophylla</i>	Norfolk Island pine	<i>Hemichyelia scutellata</i>	a cheyletid mite	Hendry	COUNTY & HOST
<i>Araucaria heterophylla</i>	Norfolk Island pine	<i>Pretydeus floridensis ?</i>	tydeid mite	Hendry	COUNTY & HOST
<i>Ardisia escallonioides</i>	marlberry	<i>Oligonychus puniceae</i>	a spider mite	Brevard	HOST
<i>Avicennia germinans</i>	black mangrove	<i>Leptopyga morrisoni</i>	mangrove lace bug	Broward	COUNTY
<i>Bauhinia</i> sp.		<i>Mononychellus planki</i>	a spider mite	Brevard	HOST
<i>Brassica juncea</i>	mustard greens; leaf mustard; Indian mustard	<i>Erigone dentosa</i>	a dwarf sheetweb weaver	Suwannee	REGULATORY INCIDENT
<i>Brassica rapa</i>	ruvo kale, Italian turnip, broccoli raab	<i>Phyllotreta</i> sp.	a flea beetle	Escambia	INTERDICTION INTERCEPTION
<i>Cakile edentula</i>	American searocket	<i>Hellula phidilealis</i>	a crambid moth	Brevard	HOST
<i>Callicarpa americana</i>	American beautyberry; French mulberry	<i>Pheidole metallescens</i>	harvester ant	Sumter	COUNTY
<i>Carica papaya</i>	papaya	<i>Phyllomydas parvulus</i>	a mydid fly	Palm Beach	COUNTY
<i>Cedrela odorata</i>	Spanish cedar	<i>Mastigimas ernstii</i>	cedrela psyllid	Miami-Dade	SIGNIFICANT FIND
<i>Chrysobalanus icaco</i>	cocoplum, icaco	<i>Deinodryinus atriventris</i>	parasitic wasp	Miami-Dade	COUNTY
<i>Cichorium endivia</i>	endive, escarole, frisee	<i>Autographa californica</i>	alfalfa looper	Escambia	INTERDICTION INTERCEPTION
<i>Cichorium endivia</i>	endive, escarole, frisee	<i>Deltocephalus fuscineruosus</i>	a leafhopper	Escambia	INTERDICTION INTERCEPTION
<i>Cichorium endivia</i>	endive, escarole, frisee	<i>Nasonovia ribisnigri</i>	currant-lettuce aphid	Escambia	INTERDICTION INTERCEPTION
<i>Cichorium endivia</i>	endive, escarole, frisee	<i>Nasonovia ribisnigri</i>	currant-lettuce aphid	Sarasota	REGULATORY INCIDENT
<i>Cichorium endivia</i>	endive, escarole, frisee	<i>Nasonovia ribisnigri</i>	currant-lettuce aphid	Suwannee	INTERDICTION INTERCEPTION
<i>Citrus aurantium</i>	sour orange	<i>Ora discoidea</i>	a scirtid beetle	Pinellas	COUNTY
<i>Citrus reticulata</i>	tangerine, mandarin	<i>Trachyderes mandibularis</i>	a longhorn beetle	Polk	COUNTY
<i>Citrus x paradisi</i>	grapefruit	<i>Poecilognathus punctipennis</i>	a bee fly	De Soto	COUNTY
<i>Citrus x paradisi</i>	grapefruit	<i>Thionia simplex</i>	a planthopper	Hillsborough	COUNTY
<i>Coccoloba uvifera</i>	seagrape	<i>Ctenodactylomia watsoni</i>	a cecid fly	Brevard	COUNTY
<i>Coccoloba uvifera</i>	seagrape	<i>Scirtothrips coccolobae</i>	sea grape thrips	Miami-Dade	SIGNIFICANT FIND
<i>Cynara cardunculus</i>	cardoon, artichoke, globe artichoke	<i>Platyptilia carduidactyla</i>	artichoke plume moth	Escambia	INTERDICTION INTERCEPTION
<i>Dioscorea bulbifera</i>	air potato; potato yam; air yam	<i>Spartocera batatas</i>	giant sweet potato bug	Indian River	COUNTY
<i>Eriobotrya japonica</i>	loquat, Japanese plum	<i>Cyrtocapsus caliginus</i>	a plant bug	Hendry	COUNTY
<i>Eriobotrya japonica</i>	loquat, Japanese plum	<i>Lupettiana mordax</i>	a ghost spider	Lee	COUNTY
<i>Eriobotrya japonica</i>	loquat, Japanese plum	<i>Odontomera ferruginea</i>	a richardiid fly	Hardee	COUNTY
<i>Eriobotrya japonica</i>	loquat, Japanese plum	Undetermined	minute pirate bug	Lee	COUNTY
<i>Erythrina variegata</i>	coral tree; sunshine tree	<i>Quadrastichus erythrinae</i>	erythrina gall wasp	Hendry	COUNTY
<i>Ficus carica</i>	common fig	<i>Ormenoides venusta</i>	a flatid planthopper	Santa Rosa	COUNTY
<i>Fragaria x ananassa</i>	garden strawberry	<i>Sitona lineatus</i>	pea leaf weevil	Escambia	INTERDICTION INTERCEPTION
<i>Gymnocalycium ragonesei</i>		<i>Pinnaspis aspidistrae</i>	fern scale	Indian River	HOST
<i>Juniperus</i> sp.		<i>Tetyra bipunctata</i>	a shield-backed bug	Lake	COUNTY
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Acyrtosiphon lactucae</i>	lettuce aphid	Escambia	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Acyrtosiphon lactucae</i>	lettuce aphid	Escambia	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Acyrtosiphon malvae</i>	an aphid	Escambia	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Autographa californica</i>	alfalfa looper	Escambia	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Autographa californica</i>	alfalfa looper	Escambia	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Ceratagallia californica</i>	a leafhopper	Escambia	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Ceratagallia californica</i>	a leafhopper	Escambia	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Ceratagallia californica</i>	a leafhopper	Escambia	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Ceratagallia californica</i>	a leafhopper	Escambia	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Ceratagallia californica</i>	a leafhopper	Escambia	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Ceratagallia californica</i>	a leafhopper	Escambia	INTERDICTION INTERCEPTION

Plant Name	Plant Common Name	Arthropod	Arthropod Common Name	County	Records
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Delphacodes consimilis</i>	a delphacid planthopper	Escambia	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Deltocephalus fuscineruosus</i>	a leafhopper	Escambia	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Deltocephalus fuscineruosus</i>	a leafhopper	Escambia	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Deltocephalus fuscineruosus</i>	a leafhopper	Escambia	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Deltocephalus fuscineruosus</i>	a leafhopper	Escambia	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Liriomyza langei</i>	California pea leafminer	Suwannee	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Liriomyza langei</i>	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Liriomyza langei</i>	California pea leafminer	Suwannee	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	greenleaf lettuce	<i>Liriomyza langei</i>	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Liriomyza langei</i>	California pea leafminer	Suwannee	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Liriomyza langei</i>	California pea leafminer	Escambia	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	romaine lettuce	<i>Liriomyza langei</i>	California pea leafminer	Manatee	REGULATORY INCIDENT
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Metopolophium dirhodum</i>	rose grass aphid	Escambia	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Metopolophium dirhodum</i>	rose grass aphid	Escambia	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Nasonovia ribisnigri</i>	currant-lettuce aphid	Escambia	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Nasonovia ribisnigri</i>	currant-lettuce aphid	Escambia	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Nasonovia ribisnigri</i>	currant-lettuce aphid	Escambia	INTERDICTION INTERCEPTION
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Sipha maydis</i>	a cereal aphid	Suwannee	REGULATORY INCIDENT
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Xysticus cunctator</i>	a crab spider	Suwannee	REGULATORY INCIDENT
<i>Ligustrum</i> sp.		<i>Myzinum maculatum</i>	tiphiid wasp	Pasco	COUNTY
<i>Mangifera indica</i>	mango	<i>Theridion melanostictum</i>	a spider	Collier	COUNTY
<i>Medicago sativa</i>	alfalfa; lucerne	<i>Dictyna cholla</i>	a meshweb weaver	Escambia	REGULATORY INCIDENT
<i>Morus alba</i>	white mulberry	<i>Tmarus floridensis</i>	a crab spider	Hendry	COUNTY
<i>Ocotea coriacea</i>	lancewood	<i>Limataphalara brevicephala</i>	ocotea psyllid	Collier	SIGNIFICANT FIND
<i>Persea americana</i>	avocado; alligator pear; aguacate	<i>Abgrallaspis aguacatae</i>	an armored scale	Hamilton	INTERDICTION INTERCEPTION
<i>Persea americana</i>	avocado; alligator pear; aguacate	<i>Abgrallaspis aguacatae</i>	an armored scale	Escambia	INTERDICTION INTERCEPTION
<i>Persea americana</i>	avocado; alligator pear; aguacate	<i>Abgrallaspis aguacatae</i>	an armored scale	Escambia	INTERDICTION INTERCEPTION
<i>Persea americana</i>	avocado; alligator pear; aguacate	<i>Abgrallaspis aguacatae</i>	an armored scale	Escambia	INTERDICTION INTERCEPTION
<i>Persea americana</i>	avocado; alligator pear; aguacate	<i>Abgrallaspis aguacatae</i>	an armored scale	Suwannee	INTERDICTION INTERCEPTION
<i>Persea americana</i>	avocado; alligator pear; aguacate	<i>Aceria</i> sp.	erriophyid mite	Duval	HOST
<i>Phaseolus vulgaris</i>	snapbean, stringbean, pole bean, foot-long bean	<i>Megacopta cribraria</i>	bean plataspid	Santa Rosa	COUNTY
<i>Phoenix dactylifera</i>	date palm	<i>Anchastus bicolor</i>	a click beetle	Escambia	INTERDICTION INTERCEPTION
<i>Phoenix dactylifera</i>	date palm	<i>Hoplisoides floridicus</i>	wasp	Hillsborough	COUNTY
<i>Phoenix dactylifera</i>	date palm		a wireworm	Escambia	INTERDICTION INTERCEPTION
<i>Phoenix dactylifera</i>	date palm		a wireworm	Escambia	INTERDICTION INTERCEPTION
<i>Physalis walteri</i>	Walter's groundcherry; stellate haired physalis	<i>Aceria</i> sp.	erriophyid mite	Pinellas	HOST
<i>Pinus elliotii</i>	slash pine	<i>Eurwallacea fornicatus</i>	tea shothole borer	Orange	COUNTY
<i>Pinus</i> sp.	pine	<i>Ambrosiodmus atratus</i>	a scolytid beetle	Hamilton	COUNTY
<i>Pisum sativum</i>	snow pea; sugar pea; edible-pod pea	<i>Liriomyza huidobrensis</i>	pea leafminer	Manatee	REGULATORY INCIDENT
<i>Pluchea rosea</i>	rosy camphorweed	<i>Acutalis tartarea</i>	a treehopper	Levy	HOST
<i>Pogostemon heyneanus</i>	patchouli, false patchouli, Java patchouli, Indian patchouli	<i>Planchonia stentae</i>	euphorbia pit scale	Miami-Dade	HOST
<i>Protea cynaroides</i>	king protea	<i>Delottococcus confusus</i>	a mealybug	Miami-Dade	REGULATORY INCIDENT
<i>Pueraria montana</i>	kudzu; kudzu vine; foot-a-night-vine; vine-that-ate-the-south; ko-hemp	<i>Megacopta cribraria</i>	bean plataspid	Hernando	COUNTY
<i>Quercus</i> sp.	oak	<i>Euxesta notata</i>	a ulidiid fly	Glades	COUNTY
<i>Quercus</i> sp.	oak	<i>Rhytidops floridensis</i>	a ropalomerid fly	Brevard	COUNTY
<i>Quercus</i> sp.	oak	<i>Theridion melanostictum</i>	a spider	Hendry	COUNTY
<i>Rosa</i> sp.	rose	<i>Callyntrotus schlehtendali</i>	an eriophyid mite	Alachua	STATE



Plant Name	Plant Common Name	Arthropod	Arthropod Common Name	County	Records
<i>Secchium edule</i>	chayote, choy yot	<i>Tetranychus</i> sp.	a spider mite	Escambia	INTERDICTION INTERCEPTION
<i>Serenoa repens</i>	saw palmetto	<i>Nasachus n. sp.</i>	an eriophyid mite	Brevard	US CONTINENTAL
<i>Thrinax radiata</i>	Florida thatch palm, Jamaica thatch palm, silk-top thatch palm	<i>Acharia stimulea</i>	saddleback caterpillar	Palm Beach	HOST
<i>Tournefortia hirsutissima</i>	chiggery grapes	<i>Aceria tournefortiae</i>	an eriophyid mite	Miami-Dade	US CONTINENTAL
<i>Vitis</i> sp.		<i>Phidippus californicus</i>	a jumping spider	Suwannee	REGULATORY INCIDENT
<i>Vitis</i> sp.		<i>Schizomyia viticola</i>	a gall midge	Levy	COUNTY
		<i>Acanalonia pumila</i>	an acanaloniid planthopper	Broward	COUNTY
		<i>Adaina simplicius</i>	a plume moth	Brevard	COUNTY
		<i>Ambrosiophilus atratus</i>	a scolytid beetle	Duval	COUNTY
		<i>Araneus gadus</i>	an orbweaver	Escambia	STATE
		<i>Archasia auriculata</i>	a treehopper	Columbia	COUNTY
		<i>Arhyssus parvicornis</i>	a scentless plant bug	Palm Beach	STATE
		<i>Camponotus planatus</i>	carpenter ant	Hendry	COUNTY
		<i>Cheiracanthium inclusum</i>	yellow sac spider	Pasco	COUNTY
		<i>Choropleca terpsichorella</i>	dancing moth	Brevard	COUNTY
		<i>Cnestus mutilatus</i>	camphor shoot borer	Collier	COUNTY
		<i>Crossopriza lyoni</i>	a cellar or longlegged spider	Lee	COUNTY
		<i>Hermetia sexmaculata</i>	a soldier fly	Volusia	COUNTY
		<i>Hypsosinga pygmaea</i>	an orbweaver	Hillsborough	COUNTY
		<i>Jobertus chryselectrus</i>	a mirid bug	Collier	COUNTY
		<i>Lehmannia valentiana</i>	three-banded garden slug	Seminole	REGULATORY INCIDENT
		<i>Oecobius navus</i>	a flatmesh weaver	Hendry	COUNTY
		<i>Sephina gundlachi</i>	coreid bug	Seminole	COUNTY
		<i>Spartocera batatas</i>	giant sweet potato bug	Monroe	COUNTY
		<i>Streptopalpia minusculalis</i>	a pyralid moth	Orange	COUNTY
		<i>Trachelas volutus</i>	red sac spider	Pasco	COUNTY
		<i>Trachelas volutus</i>	red sac spider	Lake	COUNTY
		<i>Trischidias georgiae</i>	a scolytid beetle	Alachua	COUNTY
		<i>Tropidosteptes quercicola</i>	a mirid plant bug	Volusia	COUNTY
		<i>Zophobas subnitens</i>	a tenebrionid beetle	Hillsborough	REGULATORY INCIDENT

## Nematology Section

Compiled by [R. N. Inserra](#), [J. D. Stanley](#), [J. B. Brito](#), [L. L. Violet](#) 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

***Aphelenchoides fragariae*** (Ritzema-Bos, 1890) Christie, 1932, the spring crimp nematode, was detected in leaves of *Stachys officinalis* (a plant known as wood betony, bishop's wort or common hedgenettle). (Santa Rosa County; N14-00725; J. Mikaela Anderson; 27 May 2014.)

***Aphelenchoides fragariae*** parasitizes many ornamental plants including wood betony (*Stachys officinalis*). Infestations of this foliar nematode on this ornamental have been known in Europe for more than 50 years (Junges 1938). Damage caused by *A. fragariae* on *Stachys* spp. is not commonly found in the United States. A serious infestation of this nematode on *S. officinalis* was detected in a nursery in northwestern Florida. The damage on this ornamental includes the following symptoms: extended leaf discoloration, blotches on and necrosis of leaf areas between the veins on the upper side of the leaves, and defoliation. Nematode feeding and tunneling in the leaf tissues results in deterioration of vigor and quality of the plants, which then become unmarketable.

Conditions of elevated humidity and water condensation on plants favor nematode invasion and penetration of the leaf tissues. Chemical management of the nematode using approved systemic compounds can suppress nematode infestation levels, but does not eradicate the parasite. Cultural and sanitation practices are the most economical and effective approaches to preventing foliar nematode problems on wood betony. Avoiding overhead watering reduces nematode dissemination by splashing and prevents the formation of a water film necessary for the nematode to move on the surface of leaves and stems. The use of soil mixes free from spring crimp nematodes, sanitized benches and containers, and nematode certified propagative material are imperative in nurseries with history of foliar nematode infestations. Plants obtained from unverified sources should be kept isolated and under observation for foliar nematode symptoms at least four weeks.

## Sample Submissions

	May June	Year to date
Morphological Identifications	2,658	6,378
Molecular Identifications	387	826
Total Samples Submitted	3,045	7,204

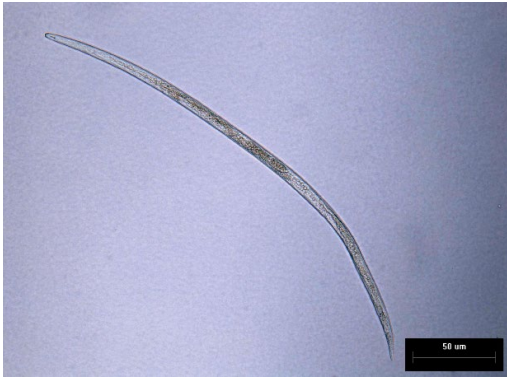
## Certification and Regulatory Samples

	May June	Year to date
Multistate Certification for National and International Export	1,567	4,233
California Certification	717	1,096
Pre- movement (Citrus Nursery Certification)	76	132
Site or Pit Approval (Citrus Nursery and Other Certifications)	11	134

## Other Samples

	May June	Year to date
Identifications (invertebrate)	0	24
Plant Problems	31	60
Intrastate Survey, Random	256	699
Molecular Identifica- tions*	387	826

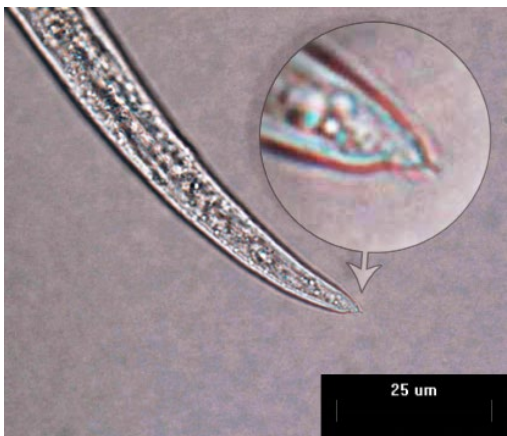
\* The majority of these analyses involved root-knot nematode species.



*Aphelenchoides fragariae* (the spring crimp nematode). Entire female body.  
Photograph courtesy of Jason D. Stanley, DPI

Collectors submitting five or more samples that were processed for nematological analysis during March-April 2014

Bailey, W. Wayne	7		Keen, Emily I.	66
Bentley, Michael A.	59		LeBoutillier, Karen W.	208
Blaney, Richard L.	7		Lynch, Megan R.	12
Brodie, Matthew W.	5		Ochoa, Ana L.	232
Burgos, Frank A.	269		Sellers, Mary C.	6
Clanton, Keith B.	52		Southerland, Lane P.	22
Farnum, Jake M.	9		Spriggs, Charles L.	85
Garcia, Olga	5		Violett, Larry L.	240
Gubler, Anthony P.	6		Welch, Johanna	13



*Aphelenchoides fragariae* (the spring crimp nematode). Posterior portion of the body ending in a small, non-branched spike.  
Photograph courtesy of Jason D. Stanley, DPI

## References

**Junges, W. 1938.** Systematik und Variabilität der pflanzenparasitischen Aphelenchen, sowie deren Verbreitung a verschiedenen Wirtspflanzen. Zeitschrift für Pflanzenernahrung und Bodenkunde 10 (5): 559-607.



*Stachys officinalis* (woody betony). Leaves showing symptoms induced by *Aphelenchoides fragariae* infestations. A healthy leaf (left), a discolored and chlorotic nematode infested leaf (right).  
Photograph courtesy of R.N. Inserra and J.W. Lotz, DPI



## Plant Pathology Section

Compiled by [Timothy S. Schubert, Ph.D.](#), and [David A. Davison, M.S.](#)

This section provides plant disease diagnostic services and conducts a citrus germplasm introduction program. The agency-wide goal of protecting Florida agriculture very often begins with accurate diagnoses 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.

***Fusarium oxysporum* f. sp. *basilici* (Fusarium wilt and canker of basil)** was found on *Ocimum basilicum* (edible basil) in Stuart, Florida at a hydroponic cultivation operation. (Martin County; P2014-79988; Joel R. Allingham; 21 May 2014.)

Sweet basil (*Ocimum basilicum*) is a relatively easily grown herb in the mint family that is widely cultivated both commercially and in home gardens. Among the most common recent problems with this crop have been downy mildew, caused by *Peronospora belbahrii*, and bacterial leaf spot, caused by *Pseudomonas cichorii*. *Fusarium* wilt and canker caused by *Fusarium oxysporum* f. sp. *basilici* represents a third major disease of recent origin and is now one of the more serious diseases of this crop, especially in hydroponic cultivation. The disease was first reported from Russia in the late 1950s, and then appeared some time later in Italy (1975) and France (1982). Still later in the 1990s, the disease popped up in many states in the United States, including Florida. The pathogen can persist in an infested area for a very long time. There is good evidence the inoculum is moved long distances on seed, just as it is for downy mildew and bacterial leaf spot.

In May of this year, a sample of basil infected with *Fusarium oxysporum* f. sp. *basilica* with the classic distorted and twisted growth accompanied by basal and stem cankers was submitted from a hydroponic greenhouse operation Martin County. The ease with which inoculum of a *Fusarium* wilt pathogen is spread in water makes the appearance in a hydroponic setting especially daunting. Extreme attention to seed quality is of paramount importance to avoid serious and persistent problems with this and other basil diseases. Varieties of sweet basil show varying degrees of susceptibility to the pathogen. Some of the other culinary and ornamental varieties such as lemon basil (*O. americanum*), purple ruffles basil (*O. basilicum* "Purple Ruffles") and 'Spicy Globe' (*O. basilicum* 'Spicy Globe') are resistant, as is the more traditional Genovese green-leaved basil *O. basilicum* 'Nufar F-1'.

Additional information and pictures of *Fusarium* wilt of basil plus other major basil diseases is available in an excellent publication on the crop published in the APS journal Plant Disease at this web address:  
<http://apsjournals.apsnet.org/doi/pdfplus/10.1094/PDIS.1997.81.2.124>  
 [accessed 2014 July 17].

## Sample Submissions

	May June	Year to date
Pathology	561	1,556
Bee	0	7
Black Spot	2	48
Canker	297	593
Greening	407	1,235
Interdictions	7	31
Laurel Wilt	13	41
Soil	5	14
Sudden Oak Death	0	10
Sweet Orange Scab- Like Disease	0	6
Texas Phoenix Palm Decline	32	32
Water	0	9
Miscellaneous	7	17
Total	1,331	3,599



*Ocimum basilicum* (edible basil)  
 Photograph courtesy of wikipedia