



FDACS-P-00124

October - December 2018

Volume 57, Number 4

TRI-OLOGY

A PUBLICATION FROM THE DIVISION OF PLANT INDUSTRY, BUREAU OF ENTOMOLOGY, NEMATOLOGY, AND PLANT PATHOLOGY

Division Director, Trevor R. Smith, Ph.D.



BOTANY

Providing information about plants:
native, exotic, protected and weedy



ENTOMOLOGY

Identifying arthropods, taxonomic
research and curating collections



NEMATOLOGY

Providing certification programs and
diagnoses of plant problems



PLANT PATHOLOGY

Offering plant disease diagnoses
and information



Florida Department of Agriculture and Consumer Services • Division of Plant Industry



Salina tristani Denis, long horned grass springtail.
Photo by Felipe N. Soto-Adames, DPI

ABOUT TRI-LOGY

The Florida Department of Agriculture and Consumer Services-Division of Plant Industry's (FDACS-DPI) Bureau of Entomology, Nematology, and Plant Pathology (ENPP), including the Botany Section, produces TRI-LOGY four times a year, covering three 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.

HOW TO CITE TRI-LOGY

Section Editor. Year. Section Name. P.J. Anderson and G.S. Hodges (Editors). TRI-LOGY Volume (number): page. [Date you accessed site.]

For example: S.E. Halbert. 2015. Entomology Section. P.J. Anderson and G.S. Hodges (Editors). TRI-LOGY 54(4): 9. [Accessed 5 June 2016.]

Copies of TRI-LOGY are kept on the FDACS website for two years. To obtain older copies, contact the FDACS-DPI Library at (352) 395-4722.

ACKNOWLEDGEMENTS

The editors would like to acknowledge the work of all those who contributed information and explanations by providing data, photographs or text, and by carefully reading early drafts.

We welcome your suggestions for improvement of TRI-LOGY. Please feel free to contact the [helpline](#) with your comments at 1-888-397-1517.

Thank you,

Gregory Hodges, Ph.D.
Editor

Assistant Director, Division of Plant Industry

Patti J. Anderson, Ph.D.
Managing Editor
Botanist, Division of Plant Industry

TABLE OF CONTENTS

	HIGHLIGHTS	03
Noteworthy examples from the diagnostic groups throughout the ENPP Bureau.		
	BOTANY	04
Quarterly activity reports from Botany and selected plant identification samples.		
	ENTOMOLOGY	07
Quarterly activity reports from Entomology and samples reported as new introductions or interceptions.		
	NEMATOLOGY	13
Quarterly activity reports from Nematology and descriptions of nematodes of special interest.		
	PLANT PATHOLOGY	15
Quarterly activity reports from Plant Pathology and selected identified plant pest and disease samples.		
	FROM THE EDITOR	18
Articles of interest that vary in subject matter.		

Cover Photo

Momordica charantia L. (balsam-apple, bitter melon)
Photo from Shutterstock



HIGHLIGHTS



1 *Momordica charantia* L. (balsam-apple, balsamito, bitter melon, karela, ku gua) is an annual vine in the plant family Cucurbitaceae that escaped cultivation to grow in disturbed areas throughout much of Florida. The fruit, used as a vegetable, has a warty, wrinkled, yellow-orange exterior that bursts open when ripe to reveal a bright red interior. The seeds are covered with a red aril and red pulp.



1 - *Momordica charantia* L. (balsam-apple, bitter melon)
Photo by Asit K. Ghosh, [Atlas of Florida Vascular Plants](#)

2 *Aphelenchoides besseyi* Christie, 1942, the rice white-tip nematode, is a foliar nematode that parasitizes rice (*Oryza sativa* L.), strawberry (*Fragaria x ananassa* Duchesne), many ornamental herbaceous plants and trees. In the fall of 2018, infestations of *A. besseyi* were observed on the culinary herb, *Ocimum basilicum* L. (basil) and the ornamental plant *Salvia farinacea* Benth. (mealy cup sage). Leaves of these plants were the parts of the plant most affected by this nematode, which behaved as an endoparasite.



2 - *Aphelenchoides besseyi* (rice white-tip nematode) on *Ocimum basilicum*.
Basil leaf severely damaged with concomitant infections by the oomycete *Peronospora* sp.
Photo by Jeffrey W. Lotz, DPI

3 *Melampsoridium cf. betulinum* (birch rust) was collected on leaves of eastern hophornbeam (*Ostrya virginiana* (Mill.) K. Koch.) and American hophornbeam (*Carpinus caroliniana* Walter) at a nature park in Gainesville. *Melampsoridium* rust species parasitize plants in the Betulaceae plant family.



3 - *Melampsoridium cf. betulinum* (birch rust) on underside an infected leaf of *Carpinus caroliniana* (American hophornbeam).
Photo by Hector R. Urbina Yanez, DPI

4 *Brachyrhynchus membranaceus* (Fabricius), a flat bark bug, a new Continental USA record of an Asian species that has established in the Caribbean Basin. Most flat bark bugs feed on fungi found under the bark of dead or dying trees. This species can be a pest of cultivated mushrooms.



4 - *Brachyrhynchus membranaceus* (Fabricius), a flat bark bug.
Photo by Andy Boring, DPI





BOTANY

Compiled by Patti J. Anderson, Ph.D.

This section identifies plants for the division, as well as for other governmental agencies and private individuals. The Botany Section maintains a reference herbarium with over 13,000 plants and 1,400 vials of seeds.

QUARTERLY ACTIVITY REPORT

	OCTOBER - DECEMBER	2018 - YEAR TO DATE
Samples submitted by other DPI sections	1,240	5,984
Samples submitted for botanical identification only	234	1,048
Total samples submitted	1,474	7,032
Specimens added to the Herbarium	70	308

Some of the samples received for identification are discussed below:

1 *Momordica charantia* L. (balsam-apple, balsamito, bitter melon), from a genus of about 40 Old World tropical species in the plant family Cucurbitaceae. This annual is a herbaceous vine to 5 m long and has escaped cultivation to grow in disturbed areas throughout much of Florida. The vines climb with coiled tendrils growing from the point at which the petiole (leaf stalk) attaches to the vine stem and have deeply dissected, alternate leaves with five to seven lobes. The showy, yellow flowers are unisexual with both staminate (male) and pistillate (female) flowers found on the same vine. Male flowers mature before the female flowers, encouraging cross-pollination. The fruit, used as a vegetable, is oblong to ovoid, with a warty, wrinkled, yellow-orange exterior that burst open when ripe to reveal a bright red interior. The seeds are covered with a red aril and red pulp. Several varieties of the cultivated fruit have been bred, for example, the form found in Chinese markets is usually pale green, oblong with blunt ends, with a warty surface texture. The form associated with Indian cuisine has jagged, tooth-like projections on the exterior and both ends of the fruit form sharp points. Numerous intermediates exist between these two examples, as well as miniature forms and ripe fruits in a range of colors. *Momordica charantia* has been used in traditional medicine to treat various illnesses. Rigorous experimental studies of the plant's medicinal efficacy remain inconclusive. (Alachua County; B2018-845; Nancy G. Croley; 9 October 2018; Hernando County; B2018-900; Nora V. Marquez; 24 October 2018; and Sumter County; B2018-961; Nora V. Marquez and Abby L. Bartlett; 2 November



1a - *Momordica charantia* (balsam-apple, bitter melon) flower.
Photo by John R. Park, [Atlas of Florida Vascular Plants](#)



1b - *Momordica charantia* (balsam-apple, bitter melon) fruit.
Photo by Asit K. Ghosh, [Atlas of Florida Vascular Plants](#)



2018.) (Hammer 2002; Huxley 1992; Mabberley 2017; <http://www.hort.purdue.edu/newcrop/cropfactsheets/karela.html> [accessed 2 January 2019]; <http://www.ncbi.nlm.nih.gov/pubmed/20166099> [accessed 2 January 2019].)

2 *Ipomoea triloba* L. (little bell), from a genus of about 650 tropical and warm temperate species in the plant family Convolvulaceae. This species is native to the West Indies, Mexico, Belize and Trinidad, but it is now widely naturalized throughout the tropics. The plant is found in disturbed sites such as residential landscapes, plant nursery edges, abandoned homesites, agricultural fields, orchards, old pastures and highway and utility corridors. Although littlebell has been documented from many Florida counties, including parts of the central and northern peninsula and the panhandle, some of the reported occurrences of this species in the northern part of the state are suspected to be misidentifications of *I. leucantha*. Littlebell is a vine with a twining or creeping habit often seen scrambling over low shrubs or tall grasses. When the plant stems or petioles are cut, they exude a milky-white sap, as is common among species in this family. The leaves are variable in size (from 2.5 - 6 cm long) and in outline (heart-shaped, three-lobed or five-lobed). The flowers are borne in the leaf axils; sometimes solitary but more often in clusters of two or three. The corolla tubes are pink to pale purple with a darker throat, 1.8 - 2 cm long, with five short lobes, each ending in a short, abrupt point. The small fruits (about 5 - 6 mm long) are globose capsules with a persistent style; containing two to four dark brown seeds. This species is similar to other morning glories, but the small flower with the combination of pale pink or purple flowers with white anthers distinguishes it from other *Ipomoea* species in Florida. (Hernando County; B2018-902; Nora V. Marquez; 24 October 2018; Hernando County; B2018-960; Nora V. Marquez and Abby L. Bartlett; 2 November 2018; Citrus County; B2018-972; and Nora V. Marquez; 13 November 2018.) (Holm *et al.* 1979; Wunderlin *et al.* 2019; <https://www.cabi.org/isc/datasheet/28799> [accessed 2 January 2019]; <https://www.freshfromflorida.com/Divisions-Offices/Plant-Industry/Bureaus-and-Services/Bureau-of-Entomology-Nematology-Plant-Pathology/Botany/Noxious-Weeds/Ipomoea-triloba-littlebell> [accessed 2 January 2019].)



2 - *Ipomoea triloba* L. (little bell).
Photo by Bob Upcavage, [Atlas of Florida Vascular Plants](#)

REFERENCES

- Hammer, R. 2002.** Everglades wildflowers. Falcon Press, Guilford, Connecticut. 231 p.
- Holm, L.G., J.V.Pancho, J.P. Herberger and D.L. Plucknett. 1979.** A geographical atlas of world weeds. John Wiley and Sons, New York, New York, 391 p.
- Huxley, A.J. (editor). 1992.** The new Royal Horticultural Society dictionary of gardening. 4 volumes. Macmillan Press, London, England. 3,240 p.
- Mabberley, D.J. 2017.** Mabberley's plant-book: a portable dictionary of plants, their classification and uses, 4th ed. Cambridge University Press, New York, New York. 1,102 p.
- Wunderlin, R.P., B.F. Hansen and A.R. Franck. 2019.** Flora of Florida, Volume VI: Dicotyledons, Convolvulaceae through Paulowniaceae. University Press of Florida, Gainesville, Florida. 355 p.



🔍 BOTANY IDENTIFICATION TABLE

The following table provides information about **new county** records submitted in the current volume's time period. The table is organized alphabetically by collector name. The full version with more complete data is downloadable as a [PDF](#) or an [Excel](#) spreadsheet also organized by collector name, except new county records are listed first.

NEW RECORD	COLLECTOR NAME	COUNTY	SAMPLE NUMBER	COLLECTION DATE	GENUS	SPECIES
🔍	Abby L. Bartlett, Nora V. Marquez	Lake	B2018-959	11/2/2018	Senna	alata
🔍	Alexander Tasi	Indian River	B2018-815	9/25/2018	Dioscorea	alata
🔍	Carolyn Hall, Melanie Cain	Putnam	B2018-978	11/15/2018	Dioscorea	alata
🔍	Carolyn Hall, Melanie Cain	Flagler	B2018-880	10/17/2018	Phaseolus	polystachios
🔍	Dawn Cermak	Osceola	B2018-844	10/5/2018	Pteridium	aquilinum
🔍	Kevin Loadholtz, Karen Coffey	Volusia	B2018-912	10/25/2018	Dioscorea	alata
🔍	Larry L. Violet, Nora V. Marquez, Abby L. Bartlett	Lake	B2018-859	10/12/2018	Butia	capitata
🔍	Melanie Cain	Flagler	B2018-849	10/11/2018	Eriobotrya	japonica
🔍	Melanie Cain	Putnam	B2018-871	10/16/2018	Euphorbia	cyathophora
🔍	Melanie Cain	Flagler	B2018-941	10/29/2018	Euphorbia	cyathophora
🔍	Melanie Cain	Putnam	B2018-904	10/24/2018	Ipomoea	indica
🔍	Melanie Cain	Putnam	B2018-899	10/23/2018	Kallstroemia	maxima
🔍	Melanie Cain	Putnam	B2018-890	10/22/2018	Lobelia	brevifolia
🔍	Melanie Cain	Putnam	B2018-898	10/23/2018	Malvaviscus	penduliflorus
🔍	Melanie Cain	Flagler	B2018-848	10/11/2018	Senna	pendula
🔍	Melanie Cain, Carolyn Hall, Karen Coffey	Flagler	B2018-1008	12/3/2018	Nuphar	advena
🔍	Morgan Byron, Douglas A. Restom Gaskill	Miami-Dade	B2018-1005	11/27/2018	Sida	santarensis
🔍	Nancy Croley	Alachua	B2018-845	10/9/2018	Momordica	charantia
🔍	Nora V. Marquez	Lake	B2018-874	10/17/2018	Barleria	cristata
🔍	Nora V. Marquez	Hernando	B2018-835	10/3/2018	Clerodendrum	bungei
🔍	Nora V. Marquez	Lake	B2018-873	10/17/2018	Clerodendrum	bungei
🔍	Nora V. Marquez	Citrus	B2018-971	11/13/2018	Clerodendrum	bungei
🔍	Nora V. Marquez	Lake	B2018-865	10/16/2018	Clerodendrum	x speciosum
🔍	Nora V. Marquez	Hernando	B2018-837	10/3/2018	Desmodium	triflorum
🔍	Nora V. Marquez	Citrus	B2018-905	10/23/2018	Eragrostis	spectabilis
🔍	Nora V. Marquez	Hernando	B2018-902	10/24/2018	Ipomoea	triloba
🔍	Nora V. Marquez	Citrus	B2018-972	11/13/2018	Ipomoea	triloba
🔍	Nora V. Marquez	Citrus	B2018-831	10/2/2018	Koeleruteria	elegans
🔍	Nora V. Marquez	Hernando	B2018-836	10/3/2018	Lantana	montevidensis
🔍	Nora V. Marquez	Citrus	B2018-827	10/2/2018	Malvaviscus	penduliflorus
🔍	Nora V. Marquez	Hernando	B2018-900	10/24/2018	Momordica	charantia
🔍	Nora V. Marquez	Lake	B2018-1035	12/10/2018	Richardia	grandiflora
🔍	Nora V. Marquez	Lake	B2018-1038	12/12/2018	Ruellia	blechum
🔍	Nora V. Marquez	Citrus	B2018-901	10/23/2018	Ruellia	simplex
🔍	Nora V. Marquez	Citrus	B2018-826	10/2/2018	Sphagneticola	trilobata
🔍	Nora V. Marquez	Citrus	B2018-829	10/2/2018	Syngonium	podophyllum
🔍	Nora V. Marquez	Hernando	B2018-973	11/14/2018	Syngonium	podophyllum
🔍	Nora V. Marquez	Citrus	B2018-968	11/13/2018	Tithonia	diversifolia
🔍	Nora V. Marquez	Lake	B2018-866	10/16/2018	Tradescantia	pallida
🔍	Nora V. Marquez	Citrus	B2018-970	11/13/2018	Tradescantia	pallida
🔍	Nora V. Marquez	Citrus	B2018-828	10/2/2018	Tradescantia	zebrina
🔍	Nora V. Marquez	Citrus	B2018-830	10/2/2018	Zingiber	zerumbet
🔍	Nora V. Marquez, Abby L. Bartlett	Polk	B2018-960	11/2/2018	Ipomoea	triloba
🔍	Nora V. Marquez, Abby L. Bartlett	Sumter	B2018-961	11/2/2018	Momordica	charantia
🔍	Nora V. Marquez, Abby L. Bartlett	Sumter	B2018-958	11/2/2018	Syngonium	podophyllum





ENTOMOLOGY

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 (FSCA) with over 10 million specimens) and investigates the biology, biological control, and taxonomy of arthropods.

QUARTERLY ACTIVITY REPORT

	OCTOBER - DECEMBER	2018 - YEAR TO DATE
Samples submitted	1,333	6,529
Lots Identified	1,846	8,793
Specimens Identified	17,551	58,556

1 *Brachyrhynchus membranaceus* (Fabricius), a flat bark bug, a new Continental USA record. This insect is an Asian species now established in the Caribbean Basin (Henry *et al.* 2013). Most flat bark bugs feed on fungi found under the bark of dead or dying trees. This species can be a pest of cultivated mushrooms. It is much bigger than any of the flat bark bugs previously known from Florida. The insect is attracted to lights, which could explain its expanding geographical range. (Hillsborough County; E2018-5551; homeowner; 8 October 2018.) (Dr. Susan E. Halbert.)



1 - *Brachyrhynchus membranaceus* (Fabricius), a flat bark bug.
Photo by Andy Boring, DPI

2 *Salina tristani* Denis, grass springtail, a new Continental USA record. This species was originally described from Costa Rica, but more recently has been recorded in Puerto Rico, Brazil, Mexico, Venezuela and the Dominican Republic. In the Caribbean, the species is common and abundant in disturbed habitats, mostly on grasses growing along roadside. *Salina tristani* belongs to the group of unmarked, yellowish green species with square mucrones, which also includes the native *S. banksi* MacGillivray and the pattern-less form of the adventive *S. celebensis* (Schäffer). *Salina tristani* is the sixth species of *Salina* reported for Florida. (Hernando County; E2018-5274; Training Class 90, DPI; 2 October 2018.) (Dr. Felipe N. Soto-Adames.)



2 - *Salina tristani* Denis, long horned grass springtail.
Photo by Felipe N. Soto-Adames, DPI

3 *Xestocephalus subtessellatus* Linnavuori, a leafhopper, a new Continental USA record. This small leafhopper is a Neotropical species now established in Florida. The leafhopper is not known to be a pest. So far, all collections have been from Jackson traps (sticky boards for monitoring fruit flies) in Collier County. The first collection had only a female, but a subsequent collection a week later had over 20 specimens, including males, which allowed a positive identification. (Collier County; E2018-5778; Mary E. Graham; 1 November 2018.) (Dr. Susan E. Halbert.)



4 *Eotetranychus caryae* Reeves, a spider mite, a new Florida State record. New to Florida, this mite was collected from *Castanea* sp., one of its few known hosts. Other hosts include *Carya* spp. and *Aesculus* spp. This mite is easy to recognize due to its distinctive aedeagus (a reproductive organ of males). (Alachua County; E2018-5308; Peter B. Sommer, nursery employee; 26 Sep 2018.) (Dr. Samuel J. Bolton.)

5 *Neolasioptera ambrosiae* Felt, a gall midge, a new Florida State record. The larvae of this species make inconspicuous, tapered stem swellings on various ragweeds, *Ambrosia* spp. The gall midge has been reported previously from New York, South Carolina, Nebraska, Texas, and California. (Alachua County; E2018-4895; Mark J. Rothschild and Susan E. Halbert; 11 September 2018.) (Dr. Gary J. Steck.)

6 *Sminthurus butcheri* Snider, globular springtail, a new Florida State record. This colorful species was first discovered in Michigan, but it is now known from Illinois, Indiana, Louisiana, New York and Utah. The large range distribution and color pattern variation across the area suggest this may represent a species complex; however, nothing is known about its natural history. Until samples from northern states are available for comparison, it is best to retain the Florida population in *S. butcheri*. This record is only the second species of *Sminthurus* from Florida. The other species, *S. floridanus* McGillivray, is endemic to Florida. (Hernando County; E2018-5274; Training Class 90, DPI; 2 October 2018.) (Dr. Felipe Soto-Adames.)

REFERENCES

Henry, T.J., D.E. Perez-Gelabert, W.E. Steiner, Jr. and E. Heiss. 2013. *Brachyrhynchus membranaceus* (Fabricius), an Old World flat bug (Hemiptera: Heteroptera: Aradidae: Mezirinae) newly discovered in the Western Hemisphere. *Proceedings of the Entomological Society of Washington* 115(4): 342-348.



3 - *Xestocephalus subtessellatus* Linnavuori, a leafhopper.
Photo by Andy Boring, DPI



5 - Stem galls of *Neolasioptera ambrosiae*, a gall midge, on *Ambrosia artemisiifolia*, common ragweed.
Photo by Gary J. Steck, DPI



6 - *Sminthurus butcheri*, globular springtail.
Photo by Felipe N. Soto-Adames, DPI



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 below. The full version with more complete data is downloadable as a [PDF](#) or [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, the entries with no plant information included are organized by arthropod.

PLANT SPECIES	PLANT COMMON NAME	ARTHROPOD GENUS AND SPECIES	COLLECTOR	RECORD
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Aspidiotus cryptomeriae</i>	Jeanie P. Frechette	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Aspidiotus cryptomeriae</i>	Abby L. Bartlett	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Chionaspis pinifoliae</i>	Lisa M. Hassell	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Adel L. Pena	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Dawn Cermak	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Dawn Cermak	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Dawn Cermak	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Dawn Cermak	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Abby L. Bartlett, Nora V. Marquez	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Abby L. Bartlett, Nora V. Marquez	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Lisa M. Hassell	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Laura Ureta	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Dawn Cermak	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Laura Ureta	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Mary P. Sellers	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Dawn Cermak	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Alexander D. Tasi	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Abby L. Bartlett, Stephen R. Jenner	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Adel L. Pena	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Sara M. White, Stephen R. Jenner	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Jeanie P. Frechette	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Jeanie P. Frechette	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Jeanie P. Frechette	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Jeanie P. Frechette	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Abby L. Bartlett	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Scott D. Krueger	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Jeanie P. Frechette	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Jeanie P. Frechette	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Melanie Cain	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Melanie Cain	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Carolyn P. Hall, Melanie Cain	REGULATORY SIGNIFICANT
<i>Abies fraseri</i>	Fraser's fir, southern balsam fir	<i>Fiorinia externa</i>	Alexander D. Tasi	REGULATORY SIGNIFICANT
<i>Abies</i> sp.	fir	<i>Fiorinia externa</i>	Dawn Cermak	REGULATORY SIGNIFICANT
<i>Abies</i> sp.	fir	<i>Fiorinia externa</i>	Melanie Cain	REGULATORY SIGNIFICANT
<i>Ambrosia artemisiifolia</i>	common ragweed	<i>Neolasioptera ambrosiae</i>	Mark J. Rothschild, Susan E. Halbert	NEW FLORIDA STATE RECORD
<i>Angelonia</i> sp.		<i>Salina tristani</i>	Training Class 90	NEW FLORIDA STATE RECORD
<i>Angelonia</i> sp.		<i>Sminthurus butcheri</i>	Training Class 90	NEW FLORIDA STATE RECORD
<i>Annona muricata</i>	soursop; guanabana	<i>Phenacoccus multicararii</i>	Carlene Sargeant	NEW FLORIDA HOST RECORD
<i>Annona</i> sp.		<i>Stethoconus praefectus</i>	Scott D. Krueger	NEW FLORIDA COUNTY RECORD
<i>Apium graveolens</i>	celery	<i>Hyadaphis foeniculi</i>	Catherine E. White, Dyrana N. Russell-Hughes, Logan Cutts	REGULATORY SIGNIFICANT



PLANT SPECIES	PLANT COMMON NAME	ARTHROPOD GENUS AND SPECIES	COLLECTOR	RECORD
<i>Apium graveolens</i>	celery	<i>Hyadaphis foeniculi</i>	Dyrana N. Russell-Hughes, Logan Cutts	REGULATORY SIGNIFICANT
<i>Apium graveolens</i>	celery	<i>Hyadaphis foeniculi</i>	Catherine E. White, Dyrana N. Russell-Hughes, Logan Cutts	REGULATORY SIGNIFICANT
<i>Brassica oleracea</i>	broccoli, cauliflower	<i>Hyadaphis foeniculi</i>	Dyrana N. Russell-Hughes, Logan Cutts	REGULATORY SIGNIFICANT
<i>Capsicum annuum</i>	pepper	<i>Aleurotrachelus trachoides</i>	Rosalba Pina	QUARANTINABLE PEST
<i>Capsicum annuum</i>	poblano pepper	<i>Bactericera cockerelli</i>	Justin K. Anto	REGULATORY SIGNIFICANT
<i>Capsicum annuum</i>	poblano pepper	<i>Bactericera cockerelli</i>	Justin K. Anto	REGULATORY SIGNIFICANT
<i>Capsicum annuum</i>	poblano pepper	<i>Bactericera cockerelli</i>	Susan B. Youngblood	REGULATORY SIGNIFICANT
<i>Capsicum annuum</i>	poblano pepper	<i>Bactericera cockerelli</i>	Walter W. Golden	REGULATORY SIGNIFICANT
<i>Capsicum annuum</i>	poblano pepper	<i>Bactericera cockerelli</i>	Training Class 90, Abby L. Bartlett, Susan E. Halbert	REGULATORY SIGNIFICANT
<i>Capsicum annuum</i>	poblano pepper	<i>Bactericera cockerelli</i>	Alexander D. Tasi	REGULATORY SIGNIFICANT
<i>Capsicum annuum</i>	poblano pepper	<i>Bactericera cockerelli</i>	Alexander D. Tasi	REGULATORY SIGNIFICANT
<i>Capsicum annuum</i>	poblano pepper	<i>Bactericera cockerelli</i>	Carlos Averhoff-Chirino, Jeanie P. Frechette	REGULATORY SIGNIFICANT
<i>Capsicum annuum</i>	pepper	<i>Bactericera cockerelli</i>	James E. 'Eddie' Anderson	REGULATORY SIGNIFICANT
<i>Capsicum annuum</i>	pepper	<i>Bactericera cockerelli</i>	James E. 'Eddie' Anderson	REGULATORY SIGNIFICANT
<i>Capsicum annuum</i>	bell pepper	<i>Bactericera cockerelli</i>	Jennifer K. Serviss	REGULATORY SIGNIFICANT
<i>Capsicum annuum</i>	jalapeno pepper	<i>Bactericera cockerelli</i>	Jennifer K. Serviss	REGULATORY SIGNIFICANT
<i>Capsicum annuum</i>	poblano pepper	<i>Bactericera cockerelli</i>	Susan B. Youngblood	REGULATORY SIGNIFICANT
<i>Capsicum annuum</i>	bell pepper	<i>Bactericera cockerelli</i>	Jennifer K. Serviss	REGULATORY SIGNIFICANT
<i>Capsicum annuum</i>	poblano pepper	<i>Bactericera cockerelli</i>	Jennifer K. Serviss	REGULATORY SIGNIFICANT
<i>Capsicum annuum</i>	poblano pepper	<i>Bactericera cockerelli</i>	Aguada C. 'Cristina' Urbina	REGULATORY SIGNIFICANT
<i>Capsicum annuum</i>	poblano pepper	<i>Bactericera cockerelli</i>	Carolyn P. Hall, Melanie Cain	REGULATORY SIGNIFICANT
<i>Capsicum annuum</i>	poblano pepper	<i>Bactericera cockerelli</i>	Kevin M. Williams	REGULATORY SIGNIFICANT
<i>Capsicum annuum</i>	poblano pepper	<i>Bactericera cockerelli</i>	Jimmy Hernandez	REGULATORY SIGNIFICANT
<i>Castanea sp.</i>	chestnut	<i>Eotetranychus caryae</i>	Peter B. Sommer	NEW FLORIDA STATE RECORD
<i>Citrus aurantium</i>	sour orange	<i>Anotia uhleri</i>	Carolyn P. Hall, Melanie Cain	NEW FLORIDA COUNTY RECORD
<i>Citrus aurantium</i>	sour orange	<i>Fulvius brevicornis</i>	Mary E. Graham	NEW FLORIDA COUNTY RECORD
<i>Citrus sinensis</i>	sweet orange, navel orange	<i>Ocyptamus antiphates</i>	Michael A. Dina	NEW FLORIDA COUNTY RECORD
<i>Citrus sinensis</i>	sweet orange, navel orange	<i>Rhagoletis juniperina</i>	Catherine D. Turner	NEW FLORIDA COUNTY RECORD
<i>Citrus sinensis</i>	sweet orange, navel orange	<i>Tomoplagia obliqua</i>	Elnora Baskin	NEW FLORIDA COUNTY RECORD
<i>Citrus sinensis</i>	sweet orange, navel orange	<i>Trupanea eclipta</i>	Catherine D. Turner	NEW FLORIDA COUNTY RECORD
<i>Citrus sp.</i>		<i>Fiorinia proboscidea</i>	Melanie Cain	NEW FLORIDA COUNTY RECORD
<i>Citrus sp.</i>		<i>Nesothrips lativentris</i>	Olga Garcia	NEW FLORIDA COUNTY RECORD
<i>Citrus sp.</i>		<i>Prepops crucifera</i>	Olga Garcia	NEW FLORIDA COUNTY RECORD
<i>Citrus sp.</i>		<i>Toxoptera citricida</i>	Callie E. Walker, Jason A. Johnson, Jeremy T. Gilbert, Justin T. Ezell	NEW FLORIDA COUNTY RECORD
<i>Citrus x paradisi</i>	grapefruit	<i>Curtara insularis</i>	Melanie Cain	NEW FLORIDA COUNTY RECORD
<i>Colocasia esculenta</i>	dasheen; wild taro; taro	<i>Tarophagus colocasiae</i>	Lisa M. Hassell	NEW FLORIDA COUNTY RECORD
<i>Couropita guianensis</i>	cannonball tree	<i>Nipaeococcus viridis</i>	Jake M. Farnum	NEW FLORIDA HOST RECORD
<i>Cycas revoluta</i>	king sago, king sago-palm	<i>Aulacaspis yasumatsui</i>	Victoria R. Cáceres	SIGNIFICANT FIND
<i>Cynara cardunculus</i>	cardoon, artichoke, globe artichoke	Pulmonata: Helicidae	Jennifer L. Mestas	REGULATORY SIGNIFICANT
<i>Dichanthelium commutatum</i>	variable panicgrass; variable witchgrass	<i>Stemmatomerinx adenticulata</i>	Carolyn P. Hall, Melanie Cain, Tracy L. Wright	NEW FLORIDA COUNTY RECORD
<i>Dracaena fragrans</i>	corn plant	<i>Lepidosaphes laterochitinosia</i>	Lane M. Smith	QUARANTINABLE PEST
<i>Eriobotrya japonica</i>	loquat, Japanese plum	<i>Aphis eugeniae</i>	Jennifer K. Serviss	NEW FLORIDA COUNTY RECORD



PLANT SPECIES	PLANT COMMON NAME	ARTHROPOD GENUS AND SPECIES	COLLECTOR	RECORD
<i>Eriobotrya japonica</i>	loquat, Japanese plum	<i>Hyalomyzus eribotryae</i>	Melanie Cain	NEW FLORIDA COUNTY RECORD
<i>Eriobotrya japonica</i>	loquat, Japanese plum	<i>Ocyptamus dimidiatus</i>	Robert S. Longtin	NEW FLORIDA COUNTY RECORD
<i>Eriobotrya japonica</i>	loquat, Japanese plum	<i>Spodoptera pulchella</i>	Ricardo E. Lopez	NEW FLORIDA COUNTY RECORD
<i>Euthamia caroliniana</i>	slender flattop goldenrod, coastal plain goldentop	<i>Asteromyia euthamiae</i>	Charles "Andy" A. Boring, Katherine E. O. Fairbanks, Paul T. Corogin, Susan E. Halbert	NEW FLORIDA COUNTY RECORD
<i>Euthamia caroliniana</i>	slender flattop goldenrod, coastal plain goldentop	<i>Craspedolepta</i> sp.	Charles "Andy" A. Boring, Katherine E. O. Fairbanks, Paul T. Corogin, Susan E. Halbert	NEW FLORIDA COUNTY RECORD
<i>Euthamia caroliniana</i>	slender flattop goldenrod, coastal plain goldentop	<i>Pleotrichophorus</i> sp.	Charles "Andy" A. Boring, Katherine E. O. Fairbanks, Paul T. Corogin, Susan E. Halbert	NEW FLORIDA COUNTY RECORD
<i>Ficus racemosa</i>	clustertree	<i>Fiorinia phantasma</i>	Jake M. Farnum, Phellicia P. Perez	QUARANTINABLE PEST, NEW FLORIDA HOST RECORD
<i>Ficus rubiginosa</i>	Port Jackson fig; rusty fig	<i>Fiorinia phantasma</i>	Jake M. Farnum, Phellicia P. Perez	QUARANTINABLE PEST, NEW FLORIDA HOST RECORD
<i>Howea forsteriana</i>	kentia palm, sentry palm	<i>Fiorinia phantasma</i>	Jake M. Farnum, Larry R. Noblick	QUARANTINABLE PEST, NEW FLORIDA HOST RECORD
<i>Hyparrhenia rufa</i>	jaragua	<i>Hysteroneura setariae</i>	Scott D. Krueger	NEW FLORIDA HOST RECORD
<i>Ilex cornuta</i>	Chinese holly	<i>Fiorinia proboscidea</i>	Carolyn P. Hall, Melanie Cain, Tracy L. Wright	NEW FLORIDA HOST RECORD
<i>Juniperus chinensis</i>	Chinese juniper	<i>Sanbornia juniperi</i>	Abby L. Bartlett	NEW FLORIDA COUNTY RECORD
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Ceratagallia californica</i>	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Liriomyza langei</i>	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Liriomyza langei</i>	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Lygus hesperus</i>	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Nasonovia ribisnigri</i>	Catherine E. White, Dyrana N. Russell-Hughes, Logan Cutts	REGULATORY SIGNIFICANT
<i>Lagerstroemia indica</i>	crape myrtle	<i>Hemiberlesia neodiffinis</i>	Jennifer K. Serviss	NEW FLORIDA COUNTY RECORD
<i>Leucaena leucocephala</i>	leadtree	<i>Acanthoscelides macrophthalmus</i>	Edward T. Putland	NEW FLORIDA COUNTY RECORD
<i>Livistona chinensis</i>	Chinese fan palm, fountain palm	<i>Fiorinia phantasma</i>	Amy L. Roda, Carina Teri L. Allen, Jake M. Farnum	QUARANTINABLE PEST, NEW FLORIDA HOST RECORD
<i>Mosiera longipes</i>	mangrove berry	<i>Aleuroplatus validus</i>	Jake M. Farnum	NEW FLORIDA HOST RECORD
<i>Nymphaea mexicana</i>	yellow water lily; Mexican water lily	<i>Megamelus toddi</i>	Megan K. Reid	NEW FLORIDA COUNTY RECORD
<i>Nypa fruticans</i>	nipah palm, mangrove palm; swamp palm	<i>Fiorinia phantasma</i>	Jake M. Farnum, Larry R. Noblick	QUARANTINABLE PEST, NEW FLORIDA HOST RECORD
<i>Phoenix sylvestris</i>	wild date palm, silver date palm	<i>Xystrologa grenadella</i>	James E. Davis	NEW FLORIDA COUNTY RECORD
<i>Physalis philadelphica</i>	Mexican groundcherry; husk tomato; tomatillo	<i>Bactericera cockerelli</i>	Catherine E. White, Dyrana N. Russell-Hughes, Logan Cutts	REGULATORY SIGNIFICANT
<i>Pilea depressa</i>	miniature peperomia; depressed clearweed; baby's tears	<i>Myzus fataunae</i>	Jesse M. Krok, Katherine E. O. Fairbanks, Susan E. Halbert	NEW FLORIDA HOST RECORD
<i>Pilea microphylla</i>	rockweed, artillery plant	<i>Myzus fataunae</i>	Jesse M. Krok, Katherine E. O. Fairbanks, Susan E. Halbert	NEW FLORIDA HOST RECORD
<i>Pilea nummulariifolia</i>	creeping charlie, false mint	<i>Myzus fataunae</i>	Jesse M. Krok, Katherine E. O. Fairbanks, Susan E. Halbert	NEW FLORIDA HOST RECORD
<i>Pinus clausa</i>	sand pine	<i>Thione championi</i>	Brian D. Saunders	NEW FLORIDA COUNTY RECORD
<i>Pinus</i> sp.	pine	<i>Aradus kormilevi</i>	Abby L. Bartlett	NEW FLORIDA COUNTY RECORD
<i>Pinus</i> sp.		<i>Chionaspis pinifoliae</i>	Lisa M. Hassell	REGULATORY SIGNIFICANT



PLANT SPECIES	PLANT COMMON NAME	ARTHROPOD GENUS AND SPECIES	COLLECTOR	RECORD
<i>Pittosporum tobira</i>	pittosporum, Japanese pittosporum, Japanese cheesewood	<i>Fiorinia phantasma</i>	Amy L. Roda, Carina Teri L. Allen, Jake M. Farnum	QUARANTINABLE PEST, NEW FLORIDA HOST RECORD
<i>Protea cynaroides</i>	king protea	<i>Delottococcus confusus</i>	Jennifer L. Mestas	REGULATORY SIGNIFICANT
<i>Protea</i> sp.		Anthomyiidae	Lis Santos-Piloto, Yarosky Rodriguez Castillo	REGULATORY SIGNIFICANT
<i>Protea</i> sp.		<i>Delottococcus confusus</i>	Lis Santos-Piloto, Yarosky Rodriguez Castillo	REGULATORY SIGNIFICANT
<i>Pseudotsuga menziesii</i>	Douglas fir	<i>Fiorinia externa</i>	Melanie Cain	REGULATORY SIGNIFICANT
<i>Psidium cattleianum</i>	cattley guava; strawberry guava	<i>Ocyptamus parvicornis</i>	Catherine D. Turner	NEW FLORIDA COUNTY RECORD
<i>Quercus</i> sp.	oak	<i>Ambrosiodmus minor</i>	Catherine E. White, Dyrana N. Russell-Hughes, Logan Cutts	NEW FLORIDA COUNTY RECORD
<i>Rhododendron</i> sp.	azalea	<i>Illinigina illinoensis</i>	Mary P. Sellers	NEW FLORIDA COUNTY RECORD
<i>Sabal mexicana</i>	Rio Grande palmetto	<i>Fiorinia phantasma</i>	Jake M. Farnum, Larry R. Noblick	QUARANTINABLE PEST, NEW FLORIDA HOST RECORD
<i>Sabal palmetto</i>	cabbage palm, palmetto	<i>Homaledra</i> sp. 2	Alexander D. Tasi	NEW FLORIDA COUNTY RECORD
<i>Sabal palmetto</i>	cabbage palm, palmetto	<i>Homaledra</i> sp. 2	Jimmy Hernandez	NEW FLORIDA COUNTY RECORD
<i>Schinus terebinthifolia</i>	Brazilian pepper tree; Florida holly; Christmas berry	<i>Fiorinia phantasma</i>	Jake M. Farnum, Phellicia P. Perez	QUARANTINABLE PEST, NEW FLORIDA HOST RECORD
<i>Serenoa repens</i>	saw palmetto	<i>Homaledra</i> sp. 2	Alexander D. Tasi	NEW FLORIDA HOST RECORD
<i>Symphotrichum simmondsii</i>	Simmonds' aster	<i>Aonidomytilus solidaginis</i>	Abby L. Bartlett, Charlie L. Spriggs, Harry L. Morrison, Larry L. 'Mo' Violett, Lisa M. Reynes, Mary P. Sellers, Nora V. Marquez, Robert T. Lawton, Stephen R. Jenner	NEW FLORIDA COUNTY RECORD, NEW FLORIDA HOST RECORD
<i>Tahina spectabilis</i>	suicide palm; tahina palm	<i>Fiorinia phantasma</i>	Amy L. Roda, Carina Teri L. Allen, Jake M. Farnum, Silvia R. Durand	QUARANTINABLE PEST, NEW FLORIDA HOST RECORD
<i>Ulmus</i> sp.	elm	<i>Tinocallis ulmiparvifoliae</i>	Lisa M. Hassell	NEW FLORIDA COUNTY RECORD
<i>Vitis rotundifolia</i>	muscadine	<i>Myxosargus nigricornis</i>	Carolyn P. Hall, Melanie Cain	NEW FLORIDA COUNTY RECORD
<i>Vitis rotundifolia</i>	muscadine	<i>Sophonia orientalis</i>	Carolyn P. Hall	NEW FLORIDA COUNTY RECORD
<i>Zinnia</i> sp.	zinnia	Pulmonata: Helicidae	Jennifer L. Mestas, Michael L. Golub	REGULATORY SIGNIFICANT
		<i>Acanthocinus nodosus</i>	Taylor L. Smith	NEW FLORIDA COUNTY RECORD
		<i>Ambrosiodmus minor</i>	Morgan A. Byron, Robert M. Leahy	NEW FLORIDA COUNTY RECORD
		<i>Brachyrhynchus membranaceus</i>	Homeowner	NEW US CONTINENTAL RECORD
		<i>Cedusa redusa</i>	Monica Triana	NEW FLORIDA COUNTY RECORD
		<i>Chrysobothris acutipennis</i>	Douglas A. Restom-Gaskill	NEW FLORIDA COUNTY RECORD
		<i>Cnestus mutilatus</i>	Brian M. Alford	NEW FLORIDA COUNTY RECORD
		<i>Heteropsylla flexuosa</i>	Jake M. Farnum	NEW FLORIDA COUNTY RECORD
		<i>Lacinipolia parvula</i>	Jake M. Farnum	NEW FLORIDA COUNTY RECORD
		<i>Xestocephalus subtessellatus</i>	Mary E. Graham	NEW US CONTINENTAL RECORD



NEMATOTOLOGY

Compiled by Renato N. Inserra, Ph.D.; Janete A. Brito, Ph.D.; Brian M. Alford; Hector R. Urbina Yanez, Ph.D.; Silvia J. Vau, Ph.D.; Lisa M. Hassell and Robert M. Leahy, M.S.

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.

QUARTERLY ACTIVITY REPORT

	OCTOBER - DECEMBER	2018 - YEAR TO DATE
Morphological identifications	3,549	13,654
Molecular identifications *	362	822
Total identifications	3,911	14,476

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

Nematodes of Special Interest

1 *Aphelenchoides besseyi* Christie, 1942 (rice white-tip nematode), a foliar nematode. This species parasitizes rice (*Oryza sativa* L.), strawberry (*Fragaria x ananassa* Duchesne) and numerous other plants (Franklin and Siddiqi 1972). In Florida, many ornamental herbaceous plants and trees are damaged by this nematode. In the fall of 2018, infestations of *A. besseyi* were observed on the leaves of both the herb *Ocimum basilicum* L. (basil) and the ornamental plant *Salvia farinacea* Benth. (mealy cup sage). In both plants, the nematode behaved as an endoparasite, damaging the plant leaves. The population levels recorded were 75 and 81 specimens per gram of fresh leaf tissues in basil and mealy cup sage, respectively. The nematode penetrated the epidermis of the leaves and colonized the mesophyll. Feeding and tunneling in the mesophyll resulted in dark and necrotic spots on the leaf blades of both species. Chlorotic areas delineated by the leaf veins were also observed. The results of analyses for the presence of other pathogenic organisms in the basil leaf tissue showed association of the foliar nematode with the oomycete ("watermold") *Peronospora* sp. Concomitant infections of foliar nematodes with other pathogens have been reported in the literature. The spring crimp nematode, *Aphelenchoides fragariae* (Ritzema Bos, 1891) Christie, 1932, can cause a severe foliar disease in the Philippine violet (*Barleria christata* L.) when it is associated with the bacterium *Pseudomonas chitorii* (Swingle) Stapp causing a synergetic injurious effect (Lehman and Miller 1988). Our observations on declining basil plantings, in the areas of Gainesville, indicated infections by *Peronospora* sp.



1a - *Aphelenchoides besseyi* (rice white-tip nematode) damage on basil leaf with concomitant infections of the oomycete *Peronospora* sp.
Photo by Jeffrey W. Lotz, DPI

alone are more common than those of the foliar nematode. In some stunted basil plants, *Peronospora* sp. was found also associated with a *Pseudocercospora* fungus species. (Duval County; N18-00968; Lisa M. Hassell; 20 September 2018 and St. Johns County; N18-00997; Robert M. Leahy, USDA; 2 October 2018.)

REFERENCES

Franklin, M.T. and M.R. Siddiqi. 1972. *Aphelenchoides besseyi*. In: CIH Descriptions of plant-parasitic nematodes. Set 1. No. 4. 3 p.

Lehman, P.S. and J.W. Miller. 1988. Symptoms associated with *Aphelenchoides fragariae* and *Pseudomonas cichorii* infections of Philippine violet. Nematology Circular No. 159, Florida Department of Agriculture and Consumer Services, Division of Plant Industry, Bureau of Entomology, Nematology and Plant Pathology, Gainesville, Florida. 4 p.

Marlatt, R.B. 1970. Transmission of *Aphelenchoides besseyi* to *Ficus elastica* leaves via *Sporobolus poiretii* inflorescences.

COLLECTORS

Collectors submitting five or more samples that were processed for nematological analysis during October – December 2018.

COLLECTOR NAME	SAMPLES PROCESSED
Alford, Brian M.	21
Bentley, Michael A.	10
Berryman, Scott D.	60
Bloom, Richard T.	19
Boyar, Jillian	108
Burgos, Frank A.	334
Carbon, Peter	5
Clanton, Keith B.	10
Landress, Craig J.	9
McMahan, Michael C.	27
Ochoa, Ana L.	23
Rojas, Eric P.	159
Smith, Lane M.	7
Spriggs, Charles L.	278
St. John, David	68
Wolfe, C. David	47



1b - *Aphelenchoides besseyi* (rice white-tip nematode) damage on leaves of *Salvia farinacea* (mealy cup sage). Note the presence of dark and necrotic areas delineated by the veins on the leaf blade upper surface due to nematode feeding in the mesophyll.
Photo by Silvia J. Vau, DPI

SAMPLES FOR MORPHOLOGICAL ANALYSIS

	OCTOBER - DECEMBER	2018 - YEAR TO DATE
Multistate certification for national and international export	1,989	7,278
California certification	394	1,383
Pre-movement (citrus nursery certification)	50	232
Site or pit approval (citrus nursery and other certifications)	47	169

OTHER PURPOSES

	OCTOBER - DECEMBER	2018 - YEAR TO DATE
Identifications (other organisms)	0	2
Nematology Investigation	0	90
Plant Problems	41	168
Intrastate Survey, Random	207	622
Total	2,728	10,144

SAMPLES FOR MOLECULAR ANALYSIS

	OCTOBER - DECEMBER	2018 - YEAR TO DATE
Regulatory	76	76
Other Purposes	286	286
Surveys	0	460
Total	362	822





PLANT PATHOLOGY

Compiled by Hector R. Urbina Yanez, Ph.D.; Jodi L. Hansen, M.S.; Taylor E. Smith, M.S.; Kishore Dey, Ph.D.; and Callie M. Jones

The Plant Pathology section provides plant disease diagnostic services for the department. The agency-wide goal of protecting the flora of Florida very often begins with accurate diagnoses of plant problems. Management recommendations are offered where appropriate and available. Our plant pathologists are dedicated to keeping informed about endemic plant diseases along with those diseases and disorders active outside Florida in order to be prepared for potential introductions of new pathogens to our area.

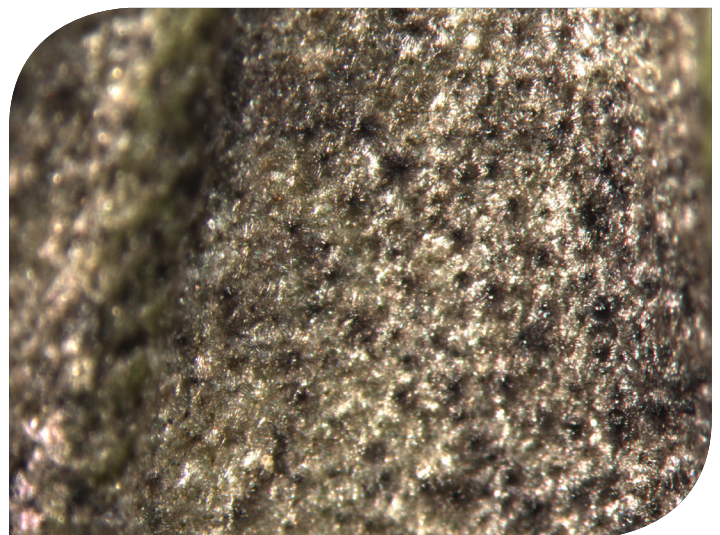
1 *Zasmidium citri-griseum* (F.E. Fisher) U. Braun (greasy spot) (Capnodiales, Ascomycota) was identified on the underside of leaves of *Olea europaea* L. (edible olive) collected at a residence in Ocala. Previous reports of *Z. citri-griseum* in Florida occurred on *Citrus* spp., nagami kumquat (*Fortunella margarita* Swingle), orange-jessamine (*Murraya paniculata* (L.) Jack), trifoliate orange (*Poncirus trifoliata* (L.) Raf.) and *Musa* L. *Zasmidium citri-griseum* is known to occur on *Olea europea* in Italy. Symptoms of infection with *Z. citri-griseum* are abundant, granulated, black spots that occur on the undersides of leaves. A pure culture of the fungus was obtained from leaf lesions and identified by molecular means. This host record is the first report of *Z. citri-griseum* on *Olea europea* in Florida. (Marion County; P2018-98300; Luis J. Clavijo, graduate student in the Department of Environmental Horticulture; University of Florida; 27 October 2018.)

2 *Melampsoridium cf. betulinum* (birch rust) (Pucciniales, Basidiomycota) was collected at Loblolly Woods Nature Park in Gainesville, on leaves of eastern hophornbeam (*Ostrya virginiana* (Mill.) K. Koch.) and American hophornbeam (*Carpinus caroliniana* Walter). This rust fungus is likely to be widely distributed on Betulaceae plants in Florida based on a previous FDACS-DPI record of *Melampsoridium* sp. occurring on river birch (*Betula nigra* L.) in Pasco County in June 1993 (P932278). *Melampsoridium* rust species parasitize plants in the Betulaceae plant family. This family is abundant in the temperate regions of the Northern Hemisphere with a few species present in the Southern Hemisphere. In Florida, Betulaceae species are found only as far south as central Florida, with *C. caroliniana* reaching farthest south to Manatee County. Symptoms of infection with *M. cf. betulinum* are scattered to dense, bright yellow, angular lesions found on the undersides of the leaves. The bright yellow lesions are noticeable on the host. The identification of the rust fungi was based on morphology, ecology and molecular analysis, using total DNA extracted from spores. The preliminary molecular identification of this Florida rust is not conclusive because there are few *Melampsoridium* sequences for comparison. For this reason, the identification presented here is still debatable (reported as cf. *betulinum*). This Florida rust could represent an uncharacterized species circumscribed within the *Melampsoridium* genus; however, more work is needed to clarify the phylogenetic relationships of species in *Melampsoridium*. A sample was also



1a - *Zasmidium citri-griseum* (greasy spot) on the underside of *Olea europaea* leaves.

Photo by Hector R. Urbina Yanez, DPI



1b - *Zasmidium citri-griseum* (greasy spot), close view.

Photo by Hector R. Urbina Yanez, DPI



collected from *C. caroliniana* by a faculty member of the School of Forest Resources and Conservation, University of Florida. (Alachua County; P2018-98716; Jason A. Smith, University of Florida; 6 December 2018 and Alachua County; P2018-98599 & P2018-98600, Hector R. Urbina Yanez, John D. McVay and Jodi L. Hansen; 29 November 2018.)

REFERENCES

- Abdelfattah A., M.G. Li Destri Nicosia, S.O. Cacciola, S. Droby and L. Schena. 2015.** Metabarcoding analysis of fungal diversity in the phyllosphere and carposphere of olive (*Olea europaea*). PLoS ONE 1 July 2007: 10(7), e0131069.
- Braun U., P.W. Crous and C. Nakashima. 2014.** Cercosporoid fungi (Mycosphaerellaceae) 2. Species on monocots (Acoraceae to Xyridaceae, excluding Poaceae). IMA Fungus 5: 203-390.
- Fungal Databases, U.S. National Fungal Collections,** <https://nt.ars-grin.gov/fungaldatabases/> [accessed 18 October 2018].
- Liang, Y.-M., C.-M. Tian and M. Kakishima. 2006.** Phylogenetic relationships on 14 morphologically similar species of *Pucciniastrum* in Japan based on rDNA sequence data. Mycoscience 47: 137-144.
- Maier W., D. Begerow, M. Weiß and F. Oberwinkler. 2003.** Phylogeny of the rust fungi: an approach using nuclear large subunit ribosomal DNA sequences. Canadian Journal of Botany 81: 12-23.



2a - *Melampsoridium cf. betulinum* (birch rust) on underside of *Carpinus caroliniana* (American hophornbeam) infected leaf. Photo by Hector R. Urbina Yanez, DPI



2b - *Melampsoridium cf. betulinum* (birch rust), detail of the angular lesions. Photo by Hector R. Urbina Yanez, DPI



2c - *Melampsoridium cf. betulinum* (birch rust), uredinospores. Photo by Hector R. Urbina Yanez, DPI

QUARTERLY ACTIVITY REPORT

	OCTOBER - DECEMBER	2018 - YEAR TO DATE
Budwood samples	0	968
Citrus black spot	158	67
Citrus canker	69	382
Citrus greening / HLB	66	1,129
Honeybees	0	1
Interdictions	21	33
Laurel wilt	2	3
Pathology, general	696	1,662
Soil	46	151
Sudden oak death	1	56
Sweet orange scab-like disease	0	7
Texas Phoenix palm decline	7	169
Water	4	4
Miscellaneous	8	22
Totals	1,078	4,654

PLANT PATHOLOGY IDENTIFICATION TABLE

The following table provides information about samples identified between October-December 2018. The table is organized alphabetically by plant species, with new records listed on the right.

PLANT SPECIES	PLANT COMMON NAME	CAUSAL AGENT	DISEASE NAME	LOCATION TYPE	SPECIMEN NUMBER	COUNTY	COLLECTOR	DATE	NEW RECORDS
<i>Adenium obesum</i>	desert rose	Frangipani mosaic virus	virus	nursery	98359	Palm Beach	Jimmy Hernandez, William Churchill	11/16/2018	country and host
<i>Begonia</i> sp.	begonia	<i>Chaetomella raphigera</i>	fungus	nursery	98053	Sarasota	Jennifer K. Serviss	10/5/2018	host
<i>Carpinus caroliniana</i>	American hornbeam	<i>Melampsorium</i> cf. <i>betulinum</i>	rust fungus	nature park	98600	Alachua	Hector R. Yanez Urbina, John D. McVay, Jodi L. Hansen	11/29/2018	
<i>Carpinus caroliniana</i>	American hornbeam	<i>Melampsorium</i> cf. <i>betulinum</i>	rust fungus	nature park	98716	Alachua	Jason A. Smith, UF	12/6/2018	
<i>Echeveria</i> sp.	succulent	<i>Botryosphaeria</i> sp.	fungus	nursery	97913	Lake	Mary C. Sellers	9/25/2018	host
<i>Gaillardia pulchella</i>	firewheel	Tomato spotted wilt virus	virus	nursery	98735	Manatee	Jennifer K. Serviss	12/6/2018	state
<i>Ixora</i> sp.	ixora	Cucumber mosaic virus	virus	nursery	98247	Sarasota	Jennifer K. Serviss	10/25/2018	state
<i>Jacquemontia tamnifolia</i>	hairy clustervine	<i>Coleosporium plumeriae</i>	fungus	farm	98356	Suwannee	Robert M. Leahy, USDA/CAPS, Morgan A. Byron	11/9/2018	host
<i>Jasminum dichotomum</i>	Gold Coast jasmine	Jasmine virus H	virus	agriculture center	98776	St. Lucie	Scott Adkins, Kishore Dey	12/12/2018	state
<i>Malvaviscus arboreus</i>	turk's-cap	<i>Pyrenochaeta</i> sp.	fungus	agriculture center	98066	St. John's	Robert M. Leahy, USDA/CAPS, Ashleigh Martin	10/8/2018	host
<i>Olea europea</i>	edible olive	<i>Zasmidium citri-griseum</i>	fungus	nursery	98300	Marion	Jonatha Clavijo Herrera, UF graduate student	12/3/2018	host
<i>Ostrya virginiana</i>	hophornbeam	<i>Melampsorium</i> cf. <i>betulinum</i>	rust fungus	nature park	98599	Alachua	Hector R. Yanez Urbina, John D. McVay, Jodi L. Hansen	11/29/2018	





FROM THE EDITOR

By Patti J. Anderson

Inquiring minds want to know...about dodder!

The Bureau of Entomology, Nematology, Plant Pathology and Botany receives many questions about plant pests and diseases, as well as invasive plants and noxious weeds. Recently, several members of the public have asked about the parasitic plant known as dodder.

Q: What is this strange bright yellow-orange vine with no leaves growing on trees and shrubs along the highway?

A: A slender, yellow/orange vine with no obvious leaves or roots is likely to belong to one of two genera of parasitic vines found in the state: a *Cuscuta* or *Cassytha*. *Cassytha filiformis* is the only species of this genus found in Florida, and it is native to the state. There are eight species of *Cuscuta* recognized as native to Florida, but exotic species also find their way to the state.



Cuscuta (dodder)
Photograph from Shutterstock

Q: Are there any state regulations or programs to control dodder?

A: Although no Florida Department of Agriculture and Consumer Services programs are aimed at dodder removal or control in natural areas, all *Cuscuta* species require a mandatory quarantine of infested nursery stock. The State of Florida regulates plants listed as noxious weeds and invasive species in the Florida Administrative Code, Rule 5B-57, including non-native species of *Cuscuta*. The native Florida species excluded from the state noxious weed list include: *C. americana*, *C. compacta*, *C. exaltata*, *C. gronovii*, *C. indecora*, *C. obtusiflora*, *C. pentagona* and *C. umbellata*.

Q: How can you be sure the vine is dodder and not something else?

A: *Cassytha filiformis* is quite similar to dodder species, but there are a few differences that might allow a non-botanist to distinguish them. In 1996, Division of Plant Industry published a circular with botanical information from our emerita botanist, Dr. Nancy Coile, [Botany Circular # 30](#). This table summarizes a few points from the circular:

<i>Cuscuta</i>	<i>Cassytha</i>
Usually grows on herbaceous plants	Usually grows on trees
No odor when stem is crushed	Pungent scent when crushed
Smooth stems	Ridged stems

Interestingly, the odd structure of *Cuscuta* species has captured the imagination of observers around the world and is reflected in the many names for this vine (Austin 2004). The Latin name *Cuscuta* is from a word meaning tangled wisp of hair in Arabic (*kusuta*). In Spanish, the charm of English common names such as love vine, dodder and wild vermicelli is equaled by *cabellos de Venus* (hair of Venus), *abrazos* (hugging plant), and *bejuco fideo* (noodle vine).

REFERENCES

Austin, D.F. 2004. Florida ethnobotany. CRC Press, Boca Raton, Florida. 909 p.





TRI-LOGY

www.FreshFromFlorida.com/TRI-LOGY

1-888-397-1517

Florida Department of Agriculture and Consumer Services
Division of Plant Industry
1911 SW 34th St.
Gainesville, FL 32608-1201