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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





Ruellia ciliatiflora (hairyflower wild petunia).
Photo by Roger Hammer, Atlas of Florida Plants

ABOUT TRI-OLGY

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-OLGY 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-OLGY

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ACKNOWLEDGEMENTS

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We welcome your suggestions for improvement of TRI-OLGY. 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

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Cover Photo

Macrochlamys indica Benson (horntail snail).
Photo by Holly Hughes, FDACS-DPI



HIGHLIGHTS



1 *Cissus verticillata* (L.) Nicolson & C.E. Jarvis (seasonvine, possum grape). This native vine climbs by tendrils and is sometimes cultivated as an ornamental, but it can also become an aggressive nuisance given good growing conditions in South Florida. This species was submitted for the first time from Lake County during this quarter.



1 - *Cissus verticillata* (seasonvine, possum grape).
Photo from Shutterstock

2 *Macrochlamys indica* Benson, horntail snail, a quarantinable pest. This species is polyphagous, and native to India and Bangladesh, where it feeds on a wide variety of plants including beans, lettuce, yams and chrysanthemums. This snail was collected in Miami-Dade County in August.



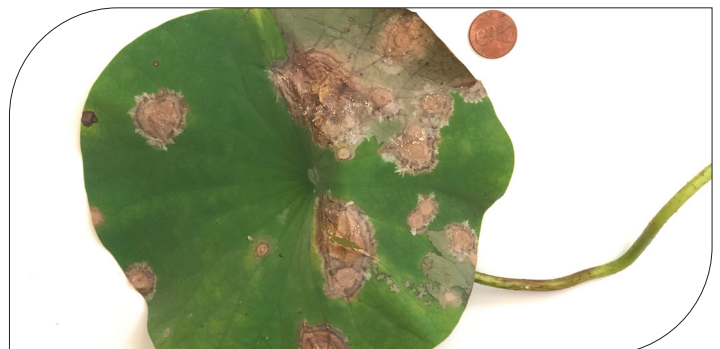
2 - *Macrochlamys indica* Benson, horntail snail.
Photo by Elijah Talamas, FDACS-DPI

3 *Aphelenchoides pseudobesseyi* Subbotin, Oliveira, Álvarez-Ortega, Desaegeer, Crow, Overstreet, Leahy, Vau & Inserra, 2020, a new-to-science foliar nematode species, was described using a population found infecting and reproducing in leaves of leopard plant (*Farfugium japonicum* (L.) Kitam.) in St. Augustine, Florida.

4 *Athelia rolfsii* (Curzi) C.C. Tu & Kimbr. (southern blight) a new host record, was submitted on *Nelumbo nucifera* (lotus). *Athelia rolfsii* is a common pathogen in Florida and is reported as a major cause of disease on at least 260 plant genera including some economically important crops.



3 - *Aphelenchoides pseudobesseyi* on parasitized *Glycine max* (soybean) seedlings.
Image from the journal [Nematology](#)



4 - *Athelia rolfsii* leaf spots on *Nelumbo nucifera*. Notice whitish sclerotia (compact masses of filaments) on the leaf surface.
Photo by Hector Urbina, FDACS-DPI





BOTANY

Compiled by Patti J. Anderson, Ph.D. and Alex de la Paz, B.S.

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 14,000 plant specimens and 1,400 vials of seeds.

QUARTERLY ACTIVITY REPORT

	JULY - SEPTEMBER	2020 - YEAR TO DATE
Samples Submitted by Other DPI Sections	1,103	3,392
Samples Submitted for Botanical Identification Only	151	415
Total Samples Submitted	1,254	3,807
Specimens Added to the Herbarium	237	584

Some of the samples submitted recently are described below.

1 *Cissus verticillata* (L.) Nicolson & C.E. Jarvis (seasonvine, possum grape), from a genus of about 350 species in warm and tropical regions in the plant family Vitaceae. This native vine climbs by tendrils and is sometimes cultivated as an ornamental, but it can also become an aggressive nuisance given good growing conditions. The stem of this vine, up to 20 m long, is slightly fleshy, sometimes warty and usually glabrous, with simple tendrils. Leaves are alternate, with simple, somewhat succulent and asymmetrical blades 5-15 cm long. The blades are variable in shape, with rounded, truncate or cordate bases and may be densely pubescent to glabrous. The margins are finely serrate, at least toward the tip of the leaf blade, again being quite variable. The inflorescence is a many-branched cyme (cluster), with individual flowers having pale yellow to yellow-green petals. The petals are free (not fused), and each flower has four tiny sepals, four 1-3 mm long petals and four stamens as well as a nectar-producing ring around the ovary. The ripe fruit is a blue-black, 6-9 mm berry with a single seed or occasionally two seeds. This species was submitted for the first time from Lake County during this quarter. In addition to Florida, where it has been documented in several counties in the southern two-thirds of the peninsula, the native distribution of this species includes Mexico, Central America, South America and the West Indies. (Lake County; B2020-359; Abby Bartlett, Mary Sellers and Harry Morrison; 31 August 2020.) (Correll and Correll, 1982; Mabberley, 2017; Wunderlin and Hansen, 2011 and 2016; <https://www.cabi.org/isc/datasheet/82702108> [accessed 2 September 2020].)



1 - *Cissus verticillata* (possum grape).
Photo by Roger Hammer, *Atlas of Florida Plants*



2 - *Ruellia ciliatiflora* (hairyflower wild petunia).
Photo by Roger Hammer, *Atlas of Florida Plants*



2 *Ruellia ciliatiflora* Hook. (hairyflower wild petunia), from a genus of about 300 species native to tropical and temperate regions worldwide, in the plant family Acanthaceae. The genus *Ruellia* was named by Linnaeus in 1753 to commemorate Jean Ruelle (1474-1537), a French physician and botanist. This species is native to South America and introduced to the southeastern United States. It was introduced in Florida as an ornamental plant in gardens and landscapes but has since escaped from cultivation and become naturalized in disturbed sites of Broward, Hillsborough, Leon and Miami-Dade counties. Species in the genus *Ruellia* are often popular ornamentals with attractive, colorful tubular flowers inviting pollinators such as butterflies and bees. The sample submitted for identification this reporting period is a new county record for Palm Beach County. *Ruellia ciliatiflora* is an erect perennial herb that grows to 1 m tall. The stems are obtusely four-angled like many members of the Acanthaceae and other closely related families (*i.e.*, Lamiaceae, Linderniaceae and Verbenaceae). The leaves are opposite and ovate with irregularly toothed margins and somewhat pubescent surfaces. The flowers are distinctly pedicellate and arranged in terminal or axillary cymes. The uppermost inflorescence branches are densely glandular-pubescent. Each flower has five glandular-pubescent, linear sepals fused at the base as well as five blue-purple petals fused at the base to form a tubular corolla with a broad opening. The four stamens are didynamous, meaning they occur in two pairs of unequal length (two short and two long). The ovary is superior and consists of two united carpels (two-carpellate and two-loculate) with one conjoined style. The fruit is an elliptic, puberulent capsule 2-3 cm long. After a fruit ripens, it splits open to explosively launch numerous small, disc-shaped, pale-colored seeds for up to 7 m in distance. This method of seed dispersal is typical of the Acanthaceae. Flowering and fruiting occur from spring through fall. (Palm Beach County; B2020-315; Matthew Miller; 29 July 2020.) (Cooper, *et al.*, 2018; Weakley, 2015; Wunderlin and Hansen, 2011; <https://florida.plantatlas.usf.edu/Plant.aspx?id=35> [accessed 11 September 2020].)

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- Weakley, A. S. (2015). *Flora of the southern and mid-Atlantic states*. Working draft of 21 May 2015. University of North Carolina Herbarium, North Carolina Botanical Garden, University of North Carolina. Chapel Hill, North Carolina.
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🔍 BOTANY IDENTIFICATION TABLE

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

NEW RECORD	COLLECTOR NAME	COUNTY	SAMPLE NUMBER	COLLECTION DATE	PLANT NAME
🔍	Abby Bartlett, Mary C. Sellers, Harry L. Morrison	Lake	B2020-359	8/31/2020	<i>Cissus verticillata</i>
🔍	Alexander Tasi	Indian River	B2020-394	9/3/2020	<i>Desmodium tortuosum</i>
🔍	Anna Gourlay	Orange	B2020-280	7/7/2020	<i>Myriophyllum aquaticum</i>
🔍	Brian Alford	Dixie	B2020-357	8/28/2020	<i>Sabal palmetto</i>
🔍	Brian Alford	Gilchrist	B2020-356	8/28/2020	<i>Sabal palmetto</i>
🔍	Dagne A. Vazquez	St. Lucie	B2020-381	9/15/2020	<i>Ludwigia leptocarpa</i>
🔍	Matthew Miller	Palm Beach	B2020-316	7/29/2020	<i>Commelina benghalensis</i>
🔍	Matthew Miller	Palm Beach	B2020-315	7/29/2020	<i>Ruellia ciliatiflora</i>
🔍	Nora V. Marquez	Hernando	B2020-387	9/16/2020	<i>Barleria cristata</i>
🔍	Nora V. Marquez	Lake	B2020-321	8/5/2020	<i>Tithonia diversifolia</i>





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

QUARTERLY ACTIVITY REPORT

	JULY - SEPTEMBER	2020 - YEAR TO DATE
Samples Submitted	1,329	3,845
Lots Identified	3,246	8,831
Specimens Identified	12,885	66,740

1 *Brachyplatys subaeneus* (Westwood), black bean bug, a new Continental USA record. Black bean bugs are native to much of Asia, from the Indian subcontinent in the west to Japan and Southeast Asia in the East. In the Western Hemisphere, it has become established in Central America, Dominican Republic and Ecuador, where it is reported as a pest of *Cajanus cajan* (L.) Huth (pigeon peas) and some other plants. The first find was a response to a post on iNaturalist in September 2020 (<https://www.inaturalist.org/observations/57059868>) spotted by a University of Florida Doctor of Plant Medicine (DPM) student, Adam Pitcher, and Dr. Amanda Hodges, the director of the DPM program. (Miami-Dade County; E2020-3609; Phellicia Perez, CAPS; 16 September 2020.) (Dr. Susan Halbert.) See: [Pest Alert](#).



1 - *Brachyplatys subaeneus* (Westwood), black bean bug on *Canavalia rosea* (seaside bean).
Photo by Cory Penca, USDA/APHIS/PPQ

2 *Gordialycus tuzetae* Coineau, Fize and Delamare Deboutteville, a dragon mite, a new Continental USA record. This is the first record of *Gordialycus tuzetae* on the continent of North America. Hundreds of specimens were recovered from the surface sand of Crescent Beach, near St. Augustine. This is the only described species of mite known to move along using peristalsis of the integument. Despite having no known mode of long-distance dispersal, this species has been collected from several distantly separated countries, namely Australia, Brazil, France, Hungary, Iran, Namibia, South Africa, Turkmenistan and now the United States. (St. Johns County; E2020-2661; Samuel Bolton; 11 June 2020.) (Dr. Samuel Bolton.)



2 - *Gordialycus tuzetae* Coineau, Fize and Delamare Deboutteville, a dragon mite.
Photo by Elijah Talamas, FDACS-DPI

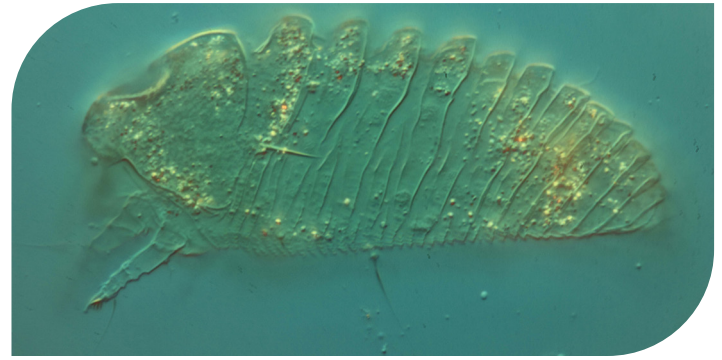
3 *Macrochlamys indica* Benson, horntail snail, a quarantinable pest. This species is polyphagous and native to India and Bangladesh, where it feeds on a wide variety of commercially grown plants including beans, lettuce, yams and chrysanthemums. The snails are voracious feeders and will consume seedlings entirely. It is not yet reported to have caused damage to commercial plants in Florida. (Miami-Dade County; E2020-3059; Mary Yong-Cong and Phellicia Perez; 10 August 2020.) (Dr. Elijah Talamas.)



3 - *Macrochlamys indica* Benson (horntail snail).
Photo by Elijah Talamas, FDACS-DPI



4 *Tegoprionus* Keifer, a genus of Eriophyoidea, a new Continental USA record. This is the first record of this genus on the continent of North America. This undescribed species, which may be native to Florida, appears to be the cause of leaf deformation observed on a submission of *Fraxinus* sp. This genus can be readily distinguished from most other genera of Eriophyoidea by the dorsal lobes that project from their annuli (see photo). (Levy County; E2020-3155; Julieta Brambila; 15 August 2020.) (Dr. Samuel Bolton.)



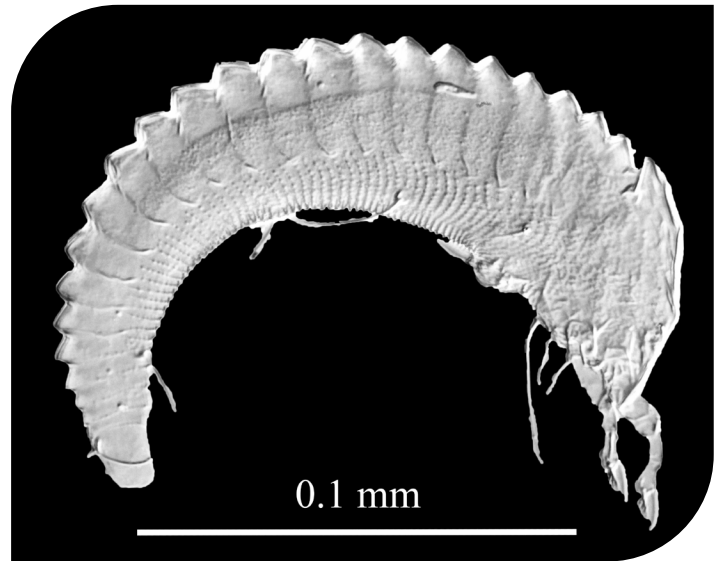
4 - *Tegoprionus* Keifer.
Photo by Samuel Bolton, FDACS-DPI

5 *Thrips parvispinus* (Karny), 1922, a new Continental USA record. This is the first record for *T. parvispinus* in the continental United States. This species is native to the Asian tropics, where it ranges from India to the Philippines in the north, and south to Australia and the Solomon Islands. However, during the last 20 years, the species has been expanding its range and is now found in Europe and Hawaii. DNA barcode sequences from specimens collected in Orange County are identical to those found in populations in Indonesia. *Thrips parvispinus* feeds on many plants but is most damaging to papaya in Hawaii and Indonesia, peppers and other solanaceous crops in Indonesia and ornamentals in Europe and Indonesia. (Orange County; E2020-2895; Paul Bellinger, Wakiwa Gardens, Inc.; 9 July 2020) (Dr. Felipe Soto-Adames.)



5 - *Thrips parvispinus* adult female.
Photo by Felipe Soto-Adames, FDACS-DPI

6 *Aculops cannabicola* (Farkas), hemp russet mite, a new Florida State record. This mite has been found to feed only on *Cannabis sativa*. Efforts to rear this mite on other plants in Cannabaceae have failed. This mite is widely distributed across Eurasia and North America, including much of the United States. Although this mite may be common on *Cannabis* in Florida, it is difficult to detect because symptoms are often absent or too mild to be noticed. However, heavy infestations can cause major damage to the flowers, which are used to produce cannabidiol (CBD). This mite is therefore an important pest on *Cannabis*. (Suwanee County; E2020-3111; Scott Wright; 13 August 2020.) (Dr. Samuel Bolton.)



6 - *Aculops cannabicola* (Farkas), hemp russet mite.
Photo by Samuel Bolton, FDACS-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 in the body of this web page and another version with more complete data is downloadable as a [PDF](#) or an [Excel](#) spreadsheet.

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

PLANT SPECIES	PLANT COMMON NAME	ARTHROPOD GENUS AND SPECIES	ARTHROPOD COMMON NAME	COLLECTOR	RECORD
<i>Acacia auriculiformis</i>	earleaf acacia	<i>Acizzia</i> sp.	psyllid	Alexander Tasi	NEW FLORIDA COUNTY RECORD
<i>Asparagus setaceus</i>	asparagus fern	<i>Dysmicoccus brevipes</i>	pineapple mealybug	Lily Deeter	NEW FLORIDA HOST RECORD
<i>Canavalia rosea</i>	baybean, seaside jackbean	<i>Brachyplatys subaeneus</i>	black bean bug	Cory Penca	NEW FLORIDA HOST RECORD
<i>Cannabis sativa</i>	hemp	<i>Aculops cannabicola</i>	hemp russet mite	Jimmy Hernandez	REGULATORY SIGNIFICANT
<i>Cannabis sativa</i>	hemp	<i>Aculops cannabicola</i>	hemp russet mite	Scott Wright	NEW FLORIDA STATE RECORD, QUARANTINABLE PEST
<i>Cannabis sativa</i>	hemp	<i>Norvellina seminuda</i>	leafhopper	Abby Bartlett, Jimmy Hernandez	NEW FLORIDA COUNTY RECORD
<i>Cannabis sativa</i>	hemp	<i>Zicca taeniola</i>	coreid bug	Abby Bartlett, Mary Sellers	NEW FLORIDA COUNTY RECORD
<i>Capsicum annuum</i>	pepper	<i>Bactericera cockerelli</i>	potato psyllid	Jeanie Frechette, Teresa Ortelli	REGULATORY SIGNIFICANT
<i>Celtis laevigata</i>	hackberry, sugarberry	<i>Pachypsylla celtidisvesicula</i>	hackberry blister gall psyllid	Jimmy Hernandez, Nora Marquez	NEW FLORIDA COUNTY RECORD
<i>Chamaedorea cataractarum</i>	cat palm, cascade palm	<i>Macrochlamys indica</i>	horntail snail	Mary Yong-Cong, Phelicia Perez	QUARANTINABLE PEST
<i>Cirsium horridulum</i>	purple thistle	<i>Seira brasiliana</i>	springtail	Abby Bartlett, Mary Sellers, Harry Morrison	NEW FLORIDA COUNTY RECORD
<i>Citrus sinensis</i>	sweet orange, navel orange	<i>Nipaecoccus viridis</i>	lebbeck mealybug	William Mackey	NEW FLORIDA COUNTY RECORD, QUARANTINABLE PEST
<i>Citrus unshiu</i>	satsuma, satsuma mandarin	<i>Diaprepes abbreviatus</i>	diaprepes root weevil	Muhammad Haseeb	NEW FLORIDA COUNTY RECORD, QUARANTINABLE PEST
<i>Coccoloba uvifera</i>	seagrape	<i>Brachyplatys subaeneus</i>	black bean bug	Phelicia Perez	NEW US CONTINENTAL RECORD, NEW FLORIDA HOST RECORD, QUARANTINABLE PEST
<i>Desmodium incanum</i>	zarzabacoa comun	<i>Leptopharsa machalana vinnula</i>	lace bug	Julieta Brambila, Felipe Soto-Adames	NEW FLORIDA COUNTY RECORD
<i>Dimocarpus longan</i>	longan	<i>Salina celebensis</i>	Sulawesi grass springtail	Matthew Miller	NEW FLORIDA COUNTY RECORD
<i>Eugenia uniflora</i>	Surinam cherry, Cayenne cherry	<i>Xestocephalus subtessellatus</i>	leafhopper	Mary Graham	NEW FLORIDA COUNTY RECORD
<i>Fraxinus</i> sp.	ash tree	<i>Tegoprius</i> sp.	eriophyoid mite	Julieta Brambila, Felipe Soto-Adames	NEW US CONTINENTAL RECORD
<i>Ixora coccinea</i>	ixora, flame-of-the-jungle	<i>Macrochlamys indica</i>	horntail snail	Alexander Tasi	QUARANTINABLE PEST
<i>Lablab purpureus</i>	hyacinthbean, Egyptian bean	<i>Opistheurista clandestina</i>	plant bug	Julieta Brambila	NEW FLORIDA HOST RECORD
<i>Lactuca sativa</i>	green leaf lettuce	<i>Nasonovia ribisnigri</i>	currant-lettuce aphid	Logan Cutts	REGULATORY SIGNIFICANT
<i>Mangifera indica</i>	mango	<i>Cyrtolobus rufulus</i>	treehopper	Jennifer Patterson	NEW FLORIDA COUNTY RECORD
<i>Persea americana</i>	avocado, alligator pear	<i>Oligonychus perseae</i>	persea mite	Tavia Gordon	REGULATORY SIGNIFICANT
<i>Petroselinum crispum</i>	parsley	<i>Ceratagallia californica</i>	leafhopper	Logan Cutts	REGULATORY SIGNIFICANT
<i>Petroselinum crispum</i>	parsley	<i>Hyadaphis foeniculi</i>	honeysuckle aphid	Logan Cutts	REGULATORY SIGNIFICANT
<i>Phaseolus vulgaris</i>	snapbean, stringbean	<i>Megalurothrips usitatus</i>	Asian bean thrips	crop scout	NEW FLORIDA COUNTY RECORD, QUARANTINABLE PEST
<i>Physalis philadelphica</i>	tomatillo, mexican groundcherry	<i>Bactericera cockerelli</i>	potato psyllid	Logan Cutts	REGULATORY SIGNIFICANT
<i>Physalis philadelphica</i>	tomatillo, mexican groundcherry	<i>Bactericera cockerelli</i>	potato psyllid	Alexander Tasi	REGULATORY SIGNIFICANT



PLANT SPECIES	PLANT COMMON NAME	ARTHROPOD GENUS AND SPECIES	ARTHROPOD COMMON NAME	COLLECTOR	RECORD
<i>Piper auritum</i>	Veracruz pepper, root beer plant	<i>Jobertus chryselectrus</i>	mirid bug	Lyle Buss	NEW FLORIDA COUNTY RECORD, NEW FLORIDA HOST RECORD
<i>Rubus</i> sp.		<i>Cornu aspersum</i>	brown garden snail	Gregory Alan Brown	REGULATORY SIGNIFICANT
<i>Tillandsia</i> sp.		<i>Seira steinmetzi</i>	springtail	Abby Bartlett	NEW FLORIDA COUNTY RECORD
<i>Ulmus parvifolia</i>	Chinese elm	<i>Vanduzee segmentata</i>	treehopper	Sam Hart	NEW FLORIDA HOST RECORD
		<i>Brachyrhynchus membranaceus</i>	flat bark bug	Monica Triana	NEW FLORIDA COUNTY RECORD
		<i>Clastoptera querci</i>	oak spittlebug	Logan Cutts	NEW FLORIDA COUNTY RECORD
		<i>Cryphula trimaculata</i>	dirt colored seed bug	Felipe Soto-Adames, Julieta Brambila	NEW FLORIDA COUNTY RECORD
		<i>Fulvius slateri</i>	plant bug	Felipe Soto-Adames, Julieta Brambila	NEW FLORIDA COUNTY RECORD
		<i>Gordialycus tuzetae</i>	dragon mite	Samuel Bolton	NEW FLORIDA STATE RECORD
		<i>Graminella albovenosa</i>	leafhopper	Monica Triana	NEW FLORIDA COUNTY RECORD
		<i>Lissachatina fulica</i>	giant African land snail	Paul Skelley, Elijah Talamas	REGULATORY INCIDENT
		<i>Megalurothrips distalis</i>	thrips	Felipe Soto-Adames	NEW FLORIDA COUNTY RECORD
		<i>Minthea squamigera</i>	powder post beetle	Patricia Joy Abrams	REGULATORY INCIDENT
		<i>Nylanderia fulva</i>	tawny crazy ant	homeowner	NEW FLORIDA COUNTY RECORD
		<i>Opiconsiva tangira</i>	delphacid planthopper	James Bouie, Robinson Lawrence, Kenneth Branch	NEW FLORIDA COUNTY RECORD
		<i>Ozophora picturata</i>	seed bug	MonaLisa Payne	NEW FLORIDA COUNTY RECORD
		<i>Phenacoccus sisymbriifolium</i>	mealybug	Gabi Ouwinga, Jade Allen, Lily Deeter, Muhammad "Zee" Ahmed	NEW FLORIDA COUNTY RECORD
		<i>Physopleurella mundula</i>	minute pirate bug	James Bouie, Robinson Lawrence	NEW FLORIDA COUNTY RECORD
		<i>Systemloderes biceps</i>	unique-headed bug	Felipe Soto-Adames, Julieta Brambila	NEW FLORIDA COUNTY RECORD
		<i>Thionia bullata</i>	issid planthopper	Dyrana Russell, Logan Cutts	NEW FLORIDA COUNTY RECORD
		<i>Thrips parvispinus</i>	thrips	H. Paul Bellinger	NEW US CONTINENTAL RECORD, QUARANTINABLE PEST





NEMATOLOGY

Compiled by Renato N. Inserra, Ph.D., Clemen Oliveira, M.S., Sergei A. Subbotin, Ph.D., Robert Leahy, M.S., Silvia Vau, Ph.D., and Janete A. Brito, Ph.D.

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

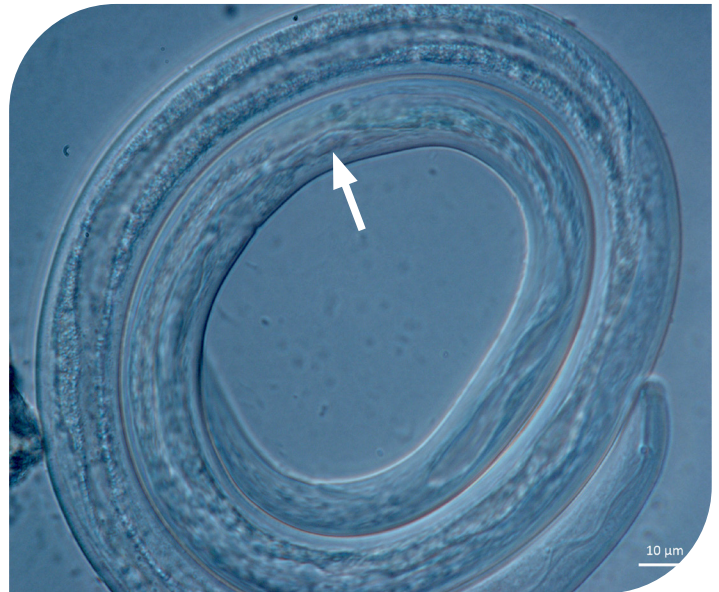
	JULY - SEPTEMBER	2020 - YEAR TO DATE
Morphological Identifications	3,529	9,771
Molecular Identifications *	305	882
Total Identifications	3,834	10,653

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

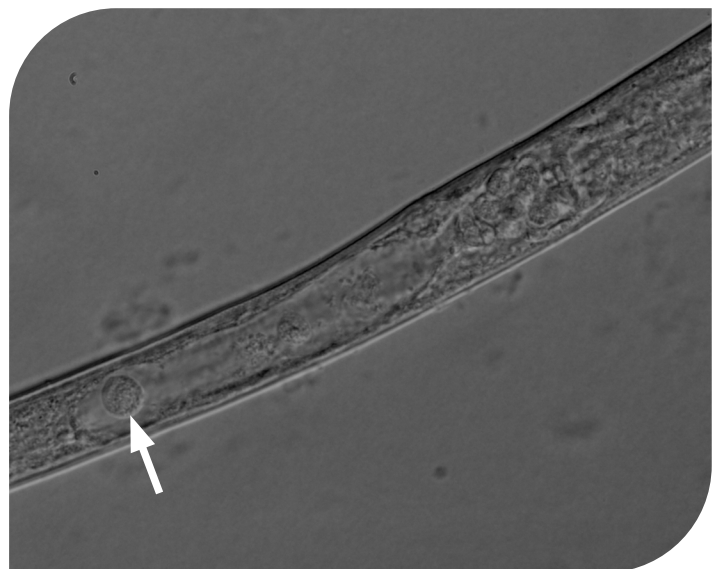
Nematode of Special Interest

1 *Aphelenchoides pseudobesseyi* Subbotin, Oliveira, Álvarez-Ortega, Desaegeer, Crow, Overstreet, Leahy, Vau & Inserra, 2020, a new foliar nematode species, was described using a population found infecting and reproducing in leaves of the leopard plant *Farfugium japonicum* (L.) Kitam. in St. Augustine, Florida. This is a new to science record (St. Johns County; N18-00688; Robert Leahy; 2 July 2018).

Foliar nematodes identified as *Aphelenchoides besseyi* Christie, 1942, have been reported as parasites of *Farfugium japonicum* (leopard plant) since 2015. The symptoms induced by the nematode on the infested plants include leaf discoloration and necrosis of leaf areas between the veins and along the margins (Stanley, et al., 2015). The results of taxonomical and molecular analyses of this and other nematode populations from Florida strawberry (*Fragaria x ananassa* Duchesne) and Louisiana rice (*Oryza sativa* L.), conducted from 2015-2020, indicated that *A. besseyi* is a species complex consisting of cryptic species not well separated morphologically. The use of an integrated approach allowed the delimitation of three species in this species complex: *A. besseyi sensu stricto* as described by Christie (1942) and represented by the population from Florida strawberry, *A. oryzae* as described by Yokoo (1948) and represented by the Louisiana rice population and a new species named *Aphelenchoides pseudobesseyi* n. sp.



1a - *Aphelenchoides oryzae* coiled female showing the narrow post uterine sac (arrowed).
Photo from the journal [Nematology](#).



1b - *Aphelenchoides pseudobesseyi* n. sp. Posterior body of a female showing the large post uterine sac with a spherical sperm (arrowed).
Photo from the journal [Nematology](#).



represented by the population from the leopard plant. The morphological characters of the population found on Florida strawberries fit those of *A. besseyi* described by Christie, but some of the characters with diagnostic significance showed great variability, *i.e.*, the value of the ratio between the length of the postuterine sac (PUS) was greater than one-third of the vulva-anus distance (VA) in 58 percent of the examined specimens rather than being consistently shorter as reported in the description of *A. besseyi*. This variability complicates the morphological separation of *A. besseyi sensu strictu* from *A. oryzae* and *A. pseudobesseyi* n. sp. The morphological characters of the Louisiana rice population fit those of *A. oryzae*. The length of PUS in females was consistently less than one-third of VA with values of PUS/VA less than 30 in all the examined specimens. *Aphelenchoides oryzae* was previously considered a junior synonym of *A. besseyi sensu stricto*. This species was re-established using morphological and molecular data. *Aphelenchoides pseudobesseyi* n. sp. is characterized by females having a large PUS containing sperm and longer than one-third of VA in about 50 percent of the examined specimens. The overlapping of morphological characters makes the separation of these three species difficult in absence of numerous specimens and without the validation of the results of molecular analyses. In a growth chamber experiment with *Glycine max* (L.) Merr. (soybean) seedlings, a Florida population of *A. pseudobesseyi* sp. n., collected from the leopard plant, induced leaf distortion but did not reproduce.



1c - *Aphelenchoides pseudobesseyi* on parasitized *Glycine max* (soybean) seedlings. Note distorted, parasitized leaves (arrowed) compared with leaves not infested by the nematode at the top of the plants. Photo from the journal [Nematology](#)

REFERENCES

- Stanley, J. S., Whilby, L. P., Leahy, R. M., Inserra, R. N. and Brito J. A. (2015).** Nematodes of special interest. In: P. A. Anderson and W. N. Dixon (eds.) *Tri-ology* 54 (4): 15,16.
- Subbotin, S. A., Oliveira, C. J., Álvarez-Ortega, S., Desaegeer, J. A., Crow, W., Overstreet, C., Leahy, R., Vau, S. and Inserra R. N. (2020).** The taxonomic status of *Aphelenchoides besseyi* Christie, 1942 (Nematoda: Aphelenchoididae) populations from the southeastern USA, and description of *Aphelenchoides pseudobesseyi* sp. n. *Nematology* 22, In press. DOI: <https://doi.org/10.1163/15685411-bja10048>.

COLLECTORS

Collectors submitting five or more samples processed for nematological analysis during July-September 2020.

COLLECTOR NAME	SAMPLES PROCESSED
Alford, Brian	33
Anderson, Eddie	20
Areingdale, Ricardo	8
Bentley, Michael	23
Blanco, Rogelio	317
Blaney, Richard	80
Boyar, Jillian	167
Buice, Tina	14
Burgos, Frank	90
Cermak, Dawn	58
Clanton, Keith	59
Cutts, Logan	10
Dean, Randall	6
Douglas, Kelly	10
Frechette, Jeanie	6
Golden, Walter	7
Llanos, Jose	12
Nolen, Ashley	5
Rojas, Eric	212
Serviss, Jennifer	6
Spriggs, Charles	178
Taylor, Donald	10
Ureta-Cooper, Laura	6
Wolfe, David	19
Yu, Wangze	8

SAMPLES FOR MORPHOLOGICAL ANALYSIS

	JULY - SEPTEMBER	2020 - YEAR TO DATE
Multistate Certification for National and International Export	1,878	5,333
California Certification	536	1,463
Pre-movement (Citrus Nursery Certification)	36	152
Site or Pit Approval (Citrus Nursery and Other Certifications)	31	119

OTHER PURPOSES

	JULY - SEPTEMBER	2020 - YEAR TO DATE
Identifications (Other Organisms)	0	0
Nematology Investigation	0	0
Plant Problems	36	130
Intrastate Survey, Random	190	552
Total	2,707	7,749

SAMPLES FOR MOLECULAR ANALYSIS

	JULY - SEPTEMBER	2020 - YEAR TO DATE
Regulatory Purposes	172	882
Other Purposes	0	0
Identifications	0	0
Surveys	0	0
Total	477	1,592



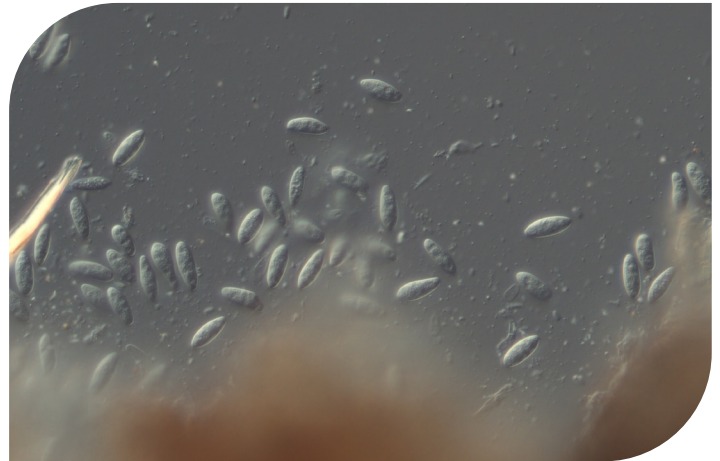


PLANT PATHOLOGY

Compiled by Hector Urbina, Ph. D.; Jodi L. Hansen, M.S.; Taylor E. Smith, B.S.;
Kishore Dey, Ph.D.; Callie M. Jones, and Maria C. Velez Climent, M.S.

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 *Neofusicoccum parvum* (stem canker), a new host record, was submitted on *Cannabis sativa* L. (a hemp cultivar) from a nursery. *Neofusicoccum* species compose one of the most destructive genera of Botryosphaeriaceae. Members of Botryosphaeriaceae have a broad host range and wide geographic distribution. *Neofusicoccum parvum* has been reported in Florida as a pathogen on *Leucadendron*, *Punica*, *Rhizophora* and *Syzygium*. This summer, extended wet weather, heat and high humidity encouraged this fungal disease on hemp. Symptoms include leaf discoloration and curling, branch dieback and stem lesions concentrated on the main stem. Black fungal structures called pycnidia may be visible on the stem lesions. Infection likely occurs when conidia are splashed by rain from infested crop residues or soil on to plants during their early, vegetative growth stages. Minimizing plant stress through proper irrigation and fertilization, following good sanitation practices and keeping stems safe from injury are standard practices for keeping plants healthy. These measures are essential for preventing fungal diseases. (Alachua County; 105187; Sam E. Hart; 24 August 2020).



1a - *Neofusicoccum parvum* conidia from pycnidia found on *Cannabis sativa* (hemp).
Photo by Hector Urbina, FDACS-DPI



1b - *Neofusicoccum parvum* stem canker with pycnidia found on *Cannabis sativa* (hemp).
Photo by Hector Urbina, FDACS-DPI



2 *Athelia rolfsii* (Curzi) C.C. Tu & Kimbr. (southern blight), a new host record, was submitted on *Nelumbo nucifera* Gaertn (lotus) from a homeowner. *Athelia* (=Sclerotium) *rolfsii* (Incertae sedis, Pezizomycotina) is a common pathogen in Florida and is reported as a major cause of disease on at least 260 plant genera including economically important crops such as broccoli, citrus, cucumber, lettuce, pepper, pumpkin and strawberry. *A. rolfsii* usually causes lower stem, crown and root rots; consequently, leaf spots are a noteworthy presentation of symptoms for this fungus. Disease symptoms of *A. rolfsii* on *Nelumbo* include large leaf spots with superficial mycelia and compact mycelia (sclerotia). Sclerotia are reproductive structures that remain dormant until favorable conditions induce germination. The identification of this pathogen is relatively easy, place sclerotia on agar and incubate until new brown sclerotia are produced (Marion County; 105211; Tavia L. Gordon; 25 August 2020).



2a - *Athelia rolfsii* leaf spots on *Nelumbo nucifera*. Notice whitish sclerotia on leaf surface.
Photo by Hector Urbina, FDACS-DPI

QUARTERLY ACTIVITY REPORT

	JULY - SEPTEMBER	2020 - YEAR TO DATE
Budwood	0	0
Citrus black spot	1	348
Citrus canker	105	265
Citrus greening / HLB	148	4,960
Honeybees	0	3
Interdictions	62	80
Laurel wilt	2	3
Miscellaneous	0	5
Pathology, general	810	2,325
Soil	20	82
Sudden oak death	0	1
Sweet orange scab-like disease	0	0
Texas phoenix palm decline	2	40
Water	0	0
Totals	1,150	8,112



2b - Details of *Athelia rolfsii* leaf spots on *Nelumbo nucifera*. Leaf spots characterized by whitish sclerotia in the center and mycelia at the edge.
Photo by Hector Urbina, FDACS-DPI



2c - *Athelia rolfsii* sclerotia produced in culture showing distinctive dark coloration.
Photo by Hector Urbina, FDACS-DPI



🔍 PLANT PATHOLOGY IDENTIFICATION TABLE

The following table provides information about samples identified between July-September 2020. 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>Apidistra elatior</i>	cast-iron plant	<i>Dichorhavirus orchid fleck virus</i>	virus	museum	105128	Leon	general public	8/18/2020	host
<i>Cannabis sativa</i>	industrial hemp	<i>Curvularia</i> sp.	fungus	nursery	105312	Lake	Harry Morrison	9/9/2020	host
<i>Cannabis sativa</i>	industrial hemp	<i>Neofusicoccum parvum</i>	fungus	nursery	105187	Alachua	Sam Hart	8/24/2020	host
<i>Cannabis sativa</i>	industrial hemp	<i>Bipolaris</i> sp.	fungus	owner	105451	Lake	Mary Sellers	9/25/2020	
<i>Diospyros virginiana</i>	persimmon	<i>Closterovirus Persimmon virus B</i>	virus	nursery	104522	Alachua	Sam Hart	7/1/2020	state
<i>Diospyros kaki</i>	Japanese persimmon	<i>Deltapartitivirus Persimmon crptic virus</i>	virus	nursery	104523	Alachua	Sam Hart	7/1/2020	state
<i>Diospyros</i> sp.	persimmon	<i>Apscaviroid Apple fruit crinkle viroid</i>	virus	nursery	105201	Jefferson	Michael Bentley	8/19/2020	county
<i>Diospyros</i> sp.	persimmon	<i>Apscaviroid Persimmon viroid-2</i>	virus	nursery	105201	Jefferson	Michael Bentley	8/19/2020	county
<i>Diospyros</i> sp.	persimmon	<i>Apscaviroid Persimmon viroid</i>	virus	nursery	105201	Jefferson	Michael Bentley	8/19/2020	county
<i>Diospyros virginiana</i>	common persimmon	<i>Apscaviroid Apple fruit crinkle viroid</i>	virus	nursery	104535	Alachua	Sam Hart	7/1/2020	state
<i>Diospyros virginiana</i>	common persimmon	<i>Cytorhabdovirus Persimmon virus A</i>	virus	nursery	104535	Alachua	Sam Hart	7/1/2020	state
<i>Diospyros virginiana</i>	common persimmon	<i>Apscaviroid Apple fruit crinkle viroid</i>	virus	nursery	104538	Alachua	Sam Hart	7/1/2020	host
<i>Hibiscus</i> sp.	hibiscus	<i>Carmovirus Hibiscus chlorotic ringspot</i>	virus	garden center	105238	Collier	Scott Krueger	8/21/2020	county
<i>Hibiscus rosa-sinensis</i>	hibiscus	<i>Cilevirus CiLV-C2H</i>	virus	residence	104615	Manatee	Prem Kumar	7/9/2020	county
<i>Hoya</i> sp.	hoya	<i>Tospovirus Tomato chlorotic spot</i>	virus	residence	105315	Sumter	Stephen Jenner	7/9/2020	county
<i>Imperata cylindrica</i>	cogon grass	<i>Colletotrichum duyunensis</i>	fungus	residence	105297	Volusia	Stephen Edgar	8/25/2020	continental
<i>Liriope muscari</i>	lily turf	<i>Dichorhavirus orchid fleck virus</i>	virus	museum	104833	Leon	general public	7/28/2020	host
<i>Mangifera indica</i>	mango	<i>Pestalotiopsis</i> sp.	fungus	residence	104442	Osceola	Elizabeth Hoganson	6/15/2020	state
<i>Nelumbo nucifera</i>	sacred lotus	<i>Athelia rolfsii</i>	fungus	residence	105211	Marion	Tavia Gordon	8/25/2020	host
<i>Plumeria</i> sp.	plumeria	<i>Tobamovirus frangipani mosaic virus</i>	virus	residence	104688	Alachua	Kishore Dey	7/2/2020	county
<i>Quercus virginiana</i>	live oak	<i>Fusarium lateritium</i>	fungus	parking lot	104710	Collier	Scott Krueger	7/20/2020	host
<i>Richardia brasiliensis</i>	tropical Mexican clover	<i>Begomovirus Sida golden mottle virus</i>	virus	farm	105054	Pinellas	Doug Restom Gaskill	8/17/2020	host
<i>Sida</i> sp.	sida	<i>Begomovirus Sida golden mottle virus</i>	virus	farm	105051	Pinellas	Doug Restom Gaskill	8/17/2020	county
<i>Solanum lycopersicum</i>	tomato, cherry tomato	<i>Tobamovirus Tomato mottle mosaic virus</i>	virus	agriculture research center	104541	Suwannee	Sara Furgeson	7/1/2020	county





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