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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

0.5 mm



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



Sabal minor (Jacq.) Pers., dwarf palmetto.
Photo by Patti Anderson, FDACS-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

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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.

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Cover Photo

Platyscelio pulchricornis Kieffer, a parasitoid wasp.
Photo by Jonathan Bremer, FDACS-DPI



HIGHLIGHTS



1 *Sabal minor* (Jacq.) Pers. (dwarf palmetto; bluestem palm) is found growing naturally in wet forested areas of Florida and has been documented in 48 Florida counties, from Escambia to Glades. This sample is a **new county record** for Bay County. The palm has a single, subterranean stem but can be seen growing upright to 2 m in height. Although the leaves are technically costapalmate, the blades are nearly flat, unlike the curved and folded leaves of the strongly costapalmate *S. palmetto*.



1 - *Sabal minor*, dwarf palmetto, growing near a forest stream.
Photo by Patti Anderson, FDACS-DPI

2 *Haldorus (Haldorellus) furcatus* Caldwell, a leafhopper, a **new Continental USA record**. This leafhopper was described from Puerto Rico in 1952 from light trap samples. This species was collected in Collier County by Monica Triana, University of Florida.



2 - *Haldorus (Haldorellus) furcatus* Caldwell, a leafhopper.
Photo by Ashley Sturgill, FDACS-DPI

3 *Meloidogyne javanica* (Trueb, 1885) Chitwood, 1949, was found infecting the roots of industrial hemp (*Cannabis sativa*), a **new Florida State record**.

4 *Tomato chlorotic spot orthotospovirus* (TCSV, Genus: *Orthotospovirus*), a **new Florida Host record**, was found on *Asclepias curassavica* (Apocynaceae), tropical milkweed, at a nursery in Bradenton, Florida.



3 - *Meloidogyne javanica* infected *Cannabis sativa* (hemp).
Photo by Janete Brito, FDACS-DPI



4 - *Tomato chlorotic spot orthotospovirus* on *Asclepias curassavica*, chlorotic spot symptoms on leaves.
Photo by Patricia Soria, 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 17,000 plants and 1,400 vials of seeds.

QUARTERLY ACTIVITY REPORT

	JANUARY - MARCH	2023 - YEAR TO DATE
Samples Submitted by Other DPI Sections	1,393	1,393
Samples Submitted for Botanical Identification Only	278	278
Total Samples Submitted	1,671	1,671
Specimens Added to the Herbarium	347	347

Some of the samples submitted recently are described below.

1 *Sabal minor* (Jacq.)Pers. (dwarf palmetto; bluestem palm), from a genus of 16 species in the plant family Palmae/Arecaceae, native from southern Oklahoma to Venezuela. This species is found growing naturally in wet forested areas of Florida and has been documented in 48 Florida counties, from Escambia to Glades. This sample is a new county record for Bay County. The palm has a single, subterranean stem but can be seen growing upright to 2 m in height. Although the leaves are technically costapalmate, the blades are nearly flat, unlike the curved and folded leaves of the strongly costapalmate *S. palmetto*. Usually, the grayish-green leaf blades have few to no marginal fibers and split along the central vein, dividing the blade almost completely in half. The petioles, like all species in this genus, are without spines. Inflorescences can grow taller than the leaves to 2 m or more in length. Fruits are spherical, brown or black drupes, 6-10 mm long. The upright form was thought to be a separate species by early botanical explorers in Louisiana, and it was given the name *Sabal louisiana* (Darby)Bomhard. Current taxonomy subsumes this name within *S. minor*, and we assume the above ground stem is an ecological variation. Ongoing research into the genetics and genomics of the species is addressing the issue once again. Perhaps we will soon find out if the former name denotes a true species or even a possible hybrid between *S. palmetto* and *S. minor*, restricted to floodplain forests of the Mississippi River delta. (Bay County; 03292023-03094; Austin Hawes; 31 March 2023.) (Griffen, *et al.*, 2021; Mabberley, 2017; Ramp and Thien, 1995; Wunderlin and Hansen, 2011; [Palm ID \(idtools.org\)](#) [accessed 3 April 2023]; [Sabal minor - FNA \(floranorthamerica.org\)](#) [accessed 17 April 2023]).



1a - *Sabal minor*, dwarf palmetto, inflorescence growing taller than leaves.
Photo by Patti Anderson, FDACS-DPI



1b - *Sabal minor*, dwarf palmetto, leaf base with small hastula.
Photo by Patti Anderson, FDACS-DPI



2 *Schoenoplectus tabernaemontani* (C. C. Gmel.) Palla (softstem bulrush), from a genus of about 50 species, cosmopolitan in distribution, in the plant family Cyperaceae. *Schoenoplectus*, from the Greek *schoinos* (a rush, reed) and *plectos* (plaited, twisted, woven), in reference to the use of the culms in making useful objects. This species can be found throughout much of the world, including North America, Mexico, West Indies, Central America, South America, Eurasia, Africa, Pacific Islands, Australia and New Zealand where it grows in wet habitats such as tidal marshes, freshwater marshes, streambeds, riverbeds, floodplain pools, calcareous fens and lake edges. In Florida, it is found in wet habitats across the state from the panhandle through the peninsula, but many counties lack documentation with herbarium specimens, probably because sedges are often overlooked and underreported. This species is sometimes cultivated, and two yellow-striped forms are sold as ornamentals. Plants are perennial herbs with underground, spreading rhizomes; erect, cylindric culms (stems) 0.5-3 m tall and 2-10 mm wide; and three or four basal leaves. The thick, smooth culms are spongy with internal air cavities, and in North America they have been used for making mats, baskets, chair seats, houses, boats and other objects. Inflorescences are two to four times branched and composed of 15-200 spikelets. Spikelets consist of numerous bisexual, spirally-arranged flowers, each one subtended by a dark to pale orange-brown scale. Flowers consist of six retrorsely spinulose perianth bristles, three stamens and one pistil with a superior ovary and a two-lobed (rarely three-lobed) style. The fruit is a dark grayish brown, plano-convex, obovoid achene, and the perianth bristles are roughly equal to the achene in length. This species and other native *Schoenoplectus* spp. are often ecologically dominant in wetlands, where they provide valuable food and habitat for waterfowl and other animals. The sample submitted for identification this reporting period is a new county record for Indian River County. (Indian River County; B2023-88; Alexander Tasi and Noemi Negron; 7 February 2023). (Smith, 2002; Weakley and Southeastern Flora Team, 2022; Wunderlin and Hansen, 2011).



2a - *Schoenoplectus tabernaemontani*, softstem bulrush, inflorescence.
Photo by Betty Wargo, [Atlas of Florida Plants](#)



2b - *Schoenoplectus tabernaemontani*, softstem bulrush, plants in habitat.
Photo by Paul Redfearn, [Atlas of Florida Plants](#)



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BOTANY IDENTIFICATION TABLE

The following table provides information about new county records submitted in the reported quarter. 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.

COLLECTOR NAME	COLLECTOR 2	LIST NUMBER	RECEIVED DATE	PLANT NAME	COUNTY
Alexa Barrios		529	1/26/2023	<i>Ligustrum sinense</i>	Levy
Alexa Barrios		730	1/31/2023	<i>Quercus nigra</i>	Suwannee
Alexander Tasi	Noemi Negron	1003	2/10/2023	<i>Commelina diffusa</i> var. <i>gigas</i>	Indian River
Alexander Tasi	Victoria Benjamin	1833	3/6/2023	<i>Emilia praetermissa</i>	Indian River
Alexander Tasi	Noemi Negron	1004	2/10/2023	<i>Schoenoplectus tabernaemontani</i>	Indian River
Alicia Velazquez	Abby Bartlett, Stephen Jenner, Nora Marquez, Timothy Stumpp, Jesse Cassarino	675	1/31/2023	<i>Eryngium aromaticum</i>	Sumter
Anna Held	Caroline Pride, Alexander Tasi, Noemi Negron	2843	3/27/2023	<i>Tradescantia ohimensis</i>	Indian River
Anthony Puppelo	Jennifer McKeever	11179	1/3/2023	<i>Citrus aurantium</i>	Orange
Austin Hawes		581	1/30/2023	<i>Euphorbia cyathophora</i>	Bay
Austin Hawes		3092	3/31/2023	<i>Nephrolepis exaltata</i>	Bay
Austin Hawes		3093	3/31/2023	<i>Parthenocissus quinquefolia</i>	Bay
Austin Hawes		3094	3/31/2023	<i>Sabal minor</i>	Bay
Chase Groninger	Victoria Benjamin	1908	3/7/2023	<i>Canna x generalis</i>	Brevard
Chase Groninger	Victoria Benjamin	1901	3/7/2023	<i>Citrus aurantium</i>	Brevard
Chase Groninger		1493	2/23/2023	<i>Koelerutaria elegans</i> ssp. <i>formosana</i>	Brevard
Chase Groninger		1914	3/7/2023	<i>Opuntia cochenillifera</i>	Brevard
Chase Groninger		1974	3/8/2023	<i>Pennisetum setaceum</i>	Brevard
Cynthia Blattenberger	Vaden Edmondson, Gary Webb, Carrie Karppe	2455	3/22/2023	<i>Jasminum mesnyi</i>	Pasco
Cynthia Blattenberger	Carrie Karppe, Vaden Edmondson, Gary Webb, Carrie Karppe, Gary Webb, Shanelle	1342	2/21/2023	<i>Orthosia scoparia</i>	Pasco
Cynthia Blattenberger	Mulrooney, Daniel Merced, Vaden Edmondson	2191	3/14/2023	<i>Richardia grandiflora</i>	Pasco
Cynthia Blattenberger		1137	2/14/2023	<i>Ruellia blechum</i>	Pasco
Cynthia Blattenberger	Carrie Karppe, Vaden Edmondson, Gary Webb	1348	2/21/2023	<i>Schefflera actinophylla</i>	Pasco
Cynthia Blattenberger		1138	2/14/2023	<i>Sida rhombifolia</i>	Pasco



COLLECTOR NAME	COLLECTOR 2	LIST NUMBER	RECEIVED DATE	PLANT NAME	COUNTY
Cynthia Blattenberger	Carrie Karppe, Gary Webb, Shanelle Mulrooney, Daniel Merced, Vaden Edmondson	2189	3/14/2023	<i>Wisteria sinensis</i>	Pasco
Cynthia Blattenberger		613	1/30/2023	<i>Yucca aloifolia</i>	Pasco
David Brown		1981	3/9/2023	<i>Ilex vomitoria</i>	Putnam
David Brown		468	1/25/2023	<i>Stellaria media</i>	St. Johns
David Brown		394	1/20/2023	<i>Urtica chamaedryoides</i>	Putnam
Ethan Kelly		825	2/6/2023	<i>Elaeagnus pungens</i>	Okaloosa
Jennifer Hesse		917	2/7/2023	<i>Campyloneurum phyllitidis</i>	Seminole
Jennifer Hesse		920	2/7/2023	<i>Smilax smallii</i>	Seminole
Jennifer Hesse	Randi Shreve	1893	3/7/2023	<i>Syagrus romanzoffiana</i>	Flagler
Jennifer McKeever	Kelsey Helseth	300	1/18/2023	<i>Asparagus aethiopicus</i>	Osceola
Jennifer McKeever	Kelsey Helseth	298	1/18/2023	<i>Cupaniopsis anacardioides</i>	Osceola
Jennifer McKeever	Kelsey Helseth	2481	3/22/2023	<i>Enterolobium contortisiliquum</i>	Osceola
Jennifer McKeever	Kelsey Helseth	290	1/18/2023	<i>Eriobotrya japonica</i>	Osceola
Jennifer McKeever	Kelsey Helseth	2489	3/22/2023	<i>Persicaria lapathifolia</i>	Osceola
Jennifer McKeever	George Warden	1337	2/24/2023	<i>Prunus angustifolia</i>	Orange
Jimmy Hernandez	Alicia Velazquez, Mary Sellers, Stephen Jenner, Timothy Stumpp, Harry Morrison, Abby Bartlett, Nora Marquez	02182022-01376	3/22/2023	<i>Hymenocallis rotata</i>	Sumter
Kelsey Helseth		690	2/3/2023	<i>Quercus minima</i>	Orange
Mark Laurint		2656	3/23/2023	<i>Lobelia feayana</i>	Clay
Mark Laurint		1629	2/28/2023	<i>Oxalis debilis</i>	St. Johns
Mark Laurint		2993	3/29/2023	<i>Phlox drummondii</i>	St. Johns
Noemi Negron	Alexander Tasi, Caroline Pride, Anna Held	625	1/30/2023	<i>Solidago fistulosa</i>	Indian River
Randi Shreve		1664	3/1/2023	<i>Gaillardia pulchella</i>	Orange
Ray Jarrett		2672	3/27/2023	<i>Ficus aurea</i>	Orange
Vaden Edmondson	Cynthia Blattenberger, Gary Webb	103	1/10/2023	<i>Psidium cattleianum</i>	Pasco
Vaden Edmondson	Gary Webb, Cynthia Blattenberger	1139	2/15/2023	<i>Syagrus romanzoffiana</i>	Pasco
Victoria Benjamin	Hanoy Carmenate	1447	2/23/2023	<i>Emilia praetermissa</i>	Pasco



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 12.5 million specimens), and investigates the biology, biological control and taxonomy of arthropods.

	JANUARY - MARCH	2023 - YEAR TO DATE
Samples Submitted	1,518	1,518
Lots Identified	2,240	2,240

1 *Agonoscena succinctus* (Heeger), rue psyllid, a new Continental USA record. An infestation of psyllids was found at a nursery in East Hampton, New York. The insects proved to be rue psyllids, not formally recognized from the United States. This species is known only from *Ruta*, particularly *Ruta graveolens* L. Relatively recent reports from Brazil (1989), North Africa (2019), Switzerland (2020) and the Netherlands (2021) indicate rue psyllids are moving in world trade. (New York, Suffolk County; E0632-01-02202023-01363; Jared Dyer, Cornell University; 9 February 2023.) (Dr. Susan E. Halbert, Jared Dyer, Dr. Daniel O. Gilrein, both Cornell Cooperative Extension of Suffolk County, and Dr. Daniel Burckhardt, Natural History Museum, Basel, Switzerland.)



1 - *Agonoscena succincta*, rue psyllid.
Photo by Jared Dyer, Cornell Cooperative Extension of Suffolk County, New York

2 *Haldorus (Haldorellus) furcatus* Caldwell, a leafhopper, a new Continental USA record. This leafhopper was described from Puerto Rico in 1952 from light trap samples. It was found in similar trap samples in Brazil about 20 years later and is reported from weeds in a coffee plantation in Peru. There is another specimen in the United States National Museum (USNM) from Paraguay, collected in 1986, also without host information; otherwise, nothing is known about this species. The identification was confirmed by comparison with the Holotype in the USNM. (Collier County; Monica Triana, University of Florida, Southwest Florida Research and Education Center; E0805-03-03012023-01693; 6 February 2023.) (Dr. Susan E. Halbert and Dr. James N. Zahniser, USNM.)



2 - *Haldorus (Haldorellus) furcatus* Caldwell, a leafhopper.
Photo by Ashley Sturgill, FDACS-DPI



3 *Platyscelio pulchricornis* Kieffer, a parasitoid wasp, a new Continental USA record. All parasitoids in this family, Scelionidae, are parasitoids of arthropod eggs. Although there are no host records for the species *Platyscelio pulchricornis*, specimens of the genus have been reported as parasitoids of *Conocephalus* eggs (Orthoptera: Tettigoniidae), sometimes associated with sugarcane and rice. *Platyscelio pulchricornis* is known from Papua New Guinea, the Philippines, India, Australia and Guam, and it was reported from the Dominican Republic in 2022. (Hillsborough County; Douglas Restom-Gaskill, USDA; E1573-01-03272023-02915; 8 March 2023.) (Dr. Elijah J. Talamas.)



3 - *Platyscelio pulchricornis* Kieffer, a parasitoid wasp.
Photo by Jonathan Bremer, FDACS-DPI

4 *Choreutis sexfasciella* (Sauber), a choreutid moth, a new Florida State record. This is an invasive pest of *Ficus* native to Southeast Asia. It has been established in California since 2020, where it mainly damages *Ficus microcarpa* L.f. The larvae skeletonize leaves, which wither and suffer necrosis. The moths in Florida were photographed first by a member of the public, who collected and submitted a specimen to FDACS-DPI for verification. The genitalia match those of *C. sexfasciella*, and the COI barcode data are 100% consistent with the population in California. Photographs online suggest this moth is spreading rapidly in southeastern Florida. (Palm Beach County; E5602-01-12072022-10725; Mr. Shawn Roller; 24 November 2022.) (Dr. James E. Hayden, Dr. John B. Heppner, Matthew R. Moore.)



5 - *Phenacoccus sisymbriifolium* Granara de Willink, a mealybug, adult female on *Physalis heterophylla*.
Photo by Erin Powell, FDACS-DPI

5 *Phenacoccus sisymbriifolium* Granara de Willink, a mealybug, a new Florida County record and new Florida Host record. Specimens were collected on native clammy ground cherry, *Physalis heterophylla* Nees, in Dixie County during a sod inspection. Described from Uruguay in 2007 on *Solanum sisymbriifolium* Lam., this species was first detected in Florida in 2019 (Ahmed and Miller, 2019). Since its detection, this mealybug has been widely collected throughout Florida and has an expanding host list. *Phenacoccus sisymbriifolium* is recorded in the following counties: Alachua, Brevard, Broward, Collier, Dixie, Hernando, Hillsborough, Indian River, Lake, Marion, Okaloosa, Orange, Palm Beach, Pasco, Polk, Putnam, St. Johns, Sumter and Volusia. The species has been collected on 17 Florida hosts, spanning nine plant families. (Dixie County; E1361-03202023-02586; Alexa Barrios; 20 March 2023.) (Dr. Erin C. Powell.)

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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 reporting 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 with no plant information included are organized by arthropod name.

PLANT SPECIES	PLANT COMMON NAME	ARTHROPOD GENUS AND SPECIES	ARTHROPOD COMMON NAME	COLLECTOR	RECORD
<i>Abelia</i> sp.	abelia	<i>Phenacoccus madeirensis</i>	Madeira mealybug	Paola Ramos Perez, Alexa Barrios, Shaelyn McGiveron, Alberto Rentas Muller, Noemi Negron, John Zito, Mark Zenoble, Chantelle Viloria, Norberto Hernandez Sosa, Caleb Poock	New Florida host record
<i>Asimina</i> sp.	pawpaw	<i>Willowsia pyrrhopygia</i>	springtail	Alexander Tasi	First in county
Compositae/Asteraceae	aster family	<i>Phenacoccus sisymbriifolium</i>	mealybug	Mark Zenoble	First in county
<i>Bischofia javanica</i>	Javanese bishopwood	<i>Lepidosaphes beekii</i>	purple scale	Liliana Jerez	New Florida host record
<i>Cannabis sativa</i>	hemp	<i>Trachyderes mandibularis</i>	long-jawed longhorn beetle	Noemi Negron, Alexander Tasi	New Florida host record
<i>Capsicum annuum</i>	pepper	<i>Thrips parvispinus</i>	short spine thrips	Keith Zugar	First in county; Quarantinable pest
<i>Chionanthus pygmaeus</i>	pygmy fringetree	<i>Taedia</i> sp.	plant bug	Vaden Edmondson, Carrie Karppe, Cynthia Blattenberger	First in county
<i>Citrus</i> sp.	citrus	<i>Nipaecoccus viridis</i>	Lebbeck mealybug	Kevin Burnette, Rebecca Krueger, Lily Deeter	First in county
<i>Citrus</i> sp.	citrus	<i>Plectia nearctica</i>	lovebug	Waldemar Feliciano-Robles	First in county
<i>Citrus</i> sp.	citrus	<i>Scirtothrips citri</i>	California citrus thrips	Younes Belmoud	First in county
<i>Coccoloba uvifera</i>	seagrape	<i>Desmia ufeus</i>	crambid moth	Cristina Urbina	First in county
<i>Conocarpus erectus</i>	buttonwood	<i>Telenomus sanctivicensis</i>	parasitic wasp	Hector Urbina	First in county
<i>Eriobotrya japonica</i>	Japanese plum, loquat	<i>Hyalomyzus eriobotryae</i>	aphid	Alexa Barrios	First in county
<i>Eriobotrya japonica</i>	Japanese plum, loquat	<i>Platycotis vittata</i>	oak treehopper	Eduardo Solis	First in county
<i>Euphorbia tirucalli</i>	pencil cactus, Indian tree spurge	<i>Parlatoria proteus</i>	proteus scale	Paola Ramos Perez, Alexa Barrios, Shaelyn McGiveron, Caleb Poock, Alberto Renras Muller, Noemi Negron, John Zito, Chantelle Viloria, Norberto Hernandez Sosa, Mark Zenoble	New Florida host record
<i>Ficus microcarpa</i>	Cuban laurel	<i>Amnestus trimaculatus</i>	burrower bug	Noemi Negron, Alexander Tasi	First in county
<i>Ficus microcarpa</i>	Cuban laurel	<i>Ozophora heydoni</i>	seed bug	Noemi Negron, Alexander Tasi	First in county
<i>Gardenia jasminoides</i>	gardenia, cape jasmine	<i>Lepidocyrtus fomicolus</i>	springtail	Scott Krueger	First in county
<i>Gardenia jasminoides</i>	gardenia, cape jasmine	<i>Thrips parvispinus</i>	short spine thrips	Emily Safran	First in county; Quarantinable pest
Gramineae, most likely <i>Andropogon virginicus</i>	grass	<i>Heterococcus rui</i>	Rau mealybug	Elise Pounders	First in county
<i>Hibiscus rosa-sinensis</i>	hibiscus, rosemallow	<i>Contarinia maculipennis</i>	hibiscus bud midge	Kate Fairbanks, Felipe Soto-Adames	First in county
<i>Jasminum dichotomum</i>	gold coast jasmine	<i>Petrusa epilepsis</i>	seagrape flatid planthopper	Liliana Jerez	New Florida host record
<i>Lagerstroemia indica</i>	crape myrtle	<i>Acanthococcus lagerstroemiae</i>	crape myrtle bark scale	Michael Bentley	First in county



PLANT SPECIES	PLANT COMMON NAME	ARTHROPOD GENUS AND SPECIES	ARTHROPOD COMMON NAME	COLLECTOR	RECORD
<i>Magnolia grandiflora</i>	southern magnolia, bull bay	<i>Thalassa montezumae</i>	Montezuma lady beetle	Abby Bartlett	First in county
<i>Mandevilla</i> sp.	mandevilla	<i>Thrips parvispinus</i>	short spine thrips	Mary Graham	First in county; Quarantinable pest
<i>Mandevilla</i> sp.	mandevilla	<i>Thrips parvispinus</i>	short spine thrips	Emily Safran	First in county; Quarantinable pest
<i>Mandevilla</i> sp.	mandevilla	<i>Thrips parvispinus</i>	short spine thrips	Leann West	First in county; Quarantinable pest
<i>Melaleuca quinquenervia</i>	melaleuca	<i>Lindingaspis floridana</i>	floridana scale	Liliana Jerez	New Florida host record
mixed grasses and sedges		<i>Eutettix slossonae</i>	leafhopper	Chase Groninger, Anna Held, Victoria Benjamin, Alexander Tasi	First in county
<i>Moringa oleifera</i>	horseradish tree, drumstick tree, ben oil tree	<i>Nesothrips lativentris</i>	thrips	Caleb Poock	First in County
<i>Origanum vulgare</i>	oregano	<i>Ovatus mentharius</i>	European mint aphid	Anna Held, Alexander Tasi	Regulatory significant
<i>Orthosia scoparia</i>	leafless swallowwort	<i>Sephina gundlachi</i>	coreid bug	Vaden Edmondson, Gary Webb, Carrie Karppe, Cynthia Blattenberger	First in county
<i>Persea americana</i>	avocado	<i>Davidsonaspis aguacatae</i>	armored scale	Chase Groninger	Regulatory significant
<i>Persea americana</i>	avocado	<i>Davidsonaspis aguacatae</i>	armored scale	Chase Groninger	Regulatory significant
<i>Phaseolus vulgaris</i>	snap beans	<i>Thrips parvispinus</i>	short spine thrips	Anna Meszaros	New Florida host record; Quarantinable Pest
<i>Physalis heterophylla</i>	clammy groundcherry	<i>Phenacoccus sisymbriifolium</i>	mealybug	Alexa Barrios	New Florida host record; First in county
<i>Psychotria nervosa</i>	wild coffee	<i>Opuntiaspis carinata</i>	armored scale	Mark Zenoble	New Florida host record
<i>Psychotria tenuifolia</i>	shortleaf wild coffee	<i>Ceroplastes rusci</i>	fig wax scale	Martha Bennett	New Florida host record
<i>Ruellia simplex</i>	Mexican petunia	<i>Thrips parvispinus</i>	short spine thrips	Muhammad Ahmed	First in county; Quarantinable pest
<i>Rumex hastatulus</i>	heartwing sorrel, hastateleaf dock	<i>Phenacoccus solani</i>	solanum mealybug	Elise Pounders	New Florida host record
<i>Ruta graveolens</i>	common rue	<i>Agonoscena succincta</i>	rue psyllid	Jared Dyer	New US Continental record
<i>Saccharum officinarum</i>	sugarcane	<i>Dysmicoccus boninsis</i>	grey sugarcane mealybug	Alexander Tasi	First in county
<i>Schinus terebinthifolia</i>	Brazilian pepper	<i>Prococcus acutissimus</i>	banana shaped scale	Stephanie Paz	New Florida host record
<i>Schinus terebinthifolia</i>	Brazilian pepper	<i>Sobarocephala atrifacies</i>	fly	Eduardo Solis	First in county
<i>Sideroxylon foetidissimum</i>	false mastic	<i>Augocoris illustris</i>	mimusops bug	George Louissaint	New Florida host record
<i>Sporobolus virginicus</i>	seashore dropseed	<i>Antonina graminis</i>	rhodes grass mealybug	Kyle Schnepf, Lily Deeter	New Florida host record
<i>Stylosanthes hamata</i>	cheesytoes, Caribbean stylo	<i>Corythaica carinata</i>	lace bug	Mark Zenoble	New Florida host record
<i>Tillandsia recurvata</i>	ballmoss	<i>Epidiaspis tillandsiae</i>	spanish moss scale	Mark Zenoble	First in county
<i>Triadica sebifera</i>	Chinese tallow tree	<i>Aonidiella orientalis</i>	Oriental scale	Maya Frere	New Florida host record
<i>Triadica sebifera</i>	Chinese tallow tree	<i>Coccus hesperidum</i>	brown soft scale	Alyssa Lucas	New Florida host record
<i>Triphasia trifolia</i>	trifoliate lime-berry	<i>Aleurocanthus woglumi</i>	citrus blackfly	Juan Aleman Martinez, Leicet Diaz Varona	New Florida host record
		<i>Allograpta obliqua</i>	flower fly	Angi Hutcherson	First in county
		<i>Chionomus quadrispinosus</i>	delphacid planthopper	Douglas Restom-Gaskill	First in county
		<i>Colliuris caymanensis</i>	long-necked ground beetle	Monica Triana	First in county
		<i>Cyrtolobus togatus</i>	treehopper	Antonio Quiñones	First in county
		<i>Dagbertus semipictus</i>	mirid plant bug	Scott Weihman	First in county
		<i>Empicoris rubromaculatus</i>	assassin bug	Scott Weihman	First in county
		<i>Eucropsylla russoi</i>	Inga psyllid	Anna Held, Alexander Tasi	First in county
		<i>Haldorus furcatus</i>	leafhopper	Monica Triana	New US Continental record



PLANT SPECIES	PLANT COMMON NAME	ARTHROPOD GENUS AND SPECIES	ARTHROPOD COMMON NAME	COLLECTOR	RECORD
		<i>Hamatophylus guttulosus</i>	mirid plant bug	Scott Weihman	First in county
		<i>Iccius cylindricus</i>	tenebrionid beetle	Sharon Hayes	First in county
		<i>Isodelphax basivitta</i>	delphacid planthopper	Douglas Restom-Gaskill	First in county
		<i>Lagocheirus aranaeformis stroheckeri</i>	longhorn beetle	Caroline Pride	First in county
		<i>Leucania senescens</i>	Senescent wainscot moth	Scott Weihman, Alexander Tasi	First in county
		<i>Lissachatina fulica</i>	giant African land snail	Karianne Rivera & K-9	Regulatory significant
		<i>Mitrapysylla cubana</i>	psyllid	Ray Jarrett	First in county
		<i>Neoclytus jouteli simplarius</i>	longhorn beetle	Robert Leahy	First in county
		<i>Neortholomus jamaicensis</i>	seed bug	Robert Leahy	First in county
		<i>Olbiogaster sackeni</i>	wood gnat	James Pernsteiner	First in county
		<i>Ornidia obesa</i>	flower or hover fly	Alesha Fuller	First in county
		<i>Pareuidella triloba</i>	delphacid planthopper	Scott Weihman	First in county
		<i>Phytocoris nigricollis</i>	plant bug	Robert Leahy	First in county
		<i>Platyscelio pulchricornis</i>	parasitoid wasp	Douglas Restom-Gaskill	New US Continental record
		<i>Prokelisia dolus</i>	saltmarsh delphacid planthopper	Maximilian Carfagno	First in county
		<i>Schizoptera bispina</i>	jumping ground bug	Ray Jarrett	First in county
		<i>Schizoptera bispina</i>	jumping ground bug	Scott Weihman	First in county
		<i>Sericophanes heidemanni</i>	plant bug	Scott Weihman, Alexander Tasi	First in county
		<i>Sirthena stria carinata</i>	assassin bug	Twylah Morelli	First in county
		<i>Thelaxes suberi</i>	southern oak thelaxid	Monica Triana	First in county
		<i>Tropidosteptes quercicola</i>	mirid plant bug	Jakira Davis	First in county
		<i>Tropidosteptes quercicola</i>	mirid plant bug	Rafael Hernandez	First in county





NEMATOLOGY

Compiled by Janete Brito, Ph.D.; Matthew R. Moore, M.S.; Cheryl G. Roberts, B.S.; Lynn A. Combee, B.S.; Ruimin Xue, M.S.; R. Leahy, M.S.; Silvia Vau, Ph.D. and Jason Stanley, 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

	JANUARY - MARCH	2023 - YEAR TO DATE
Morphological Identifications	3,447	3,477
Molecular Identifications *	333	333

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

Nematode of Special Interest

1 *Meloidogyne javanica* (Trueb, 1885) Chitwood, 1949, was found infecting the roots of industrial hemp (*Cannabis sativa*), **a new Florida State record** (Marion County; 08222022-07643; Robert Leahy; 22 August 2022.)

In 2018, the United States Government (2018 Farm Bill, PL 115-334) removed hemp (*Cannabis sativa*) and cannabis derived products with very low concentrations of the psychoactive compound delta-9-tetrahydrocannabinol ($\leq 0.3\%$ THC dry weight) from the definition of marijuana in the Controlled Substances Act. These cannabis products are currently treated as any other agricultural commodity and must meet applicable Food and Drug Administration requirements and standards (Anonymous, 2018). Additionally, other regulations might be imposed on hemp by individual states. In Florida, industrial hemp is an emerging crop and can be used for plant fiber, essential oils and seed production. A root sample collected from two plants showing root galling in an industrial hemp field was submitted to the Nematode Diagnostic Laboratory at the Florida Department of Agriculture and Consumer Services, Division of Plant Industry in Gainesville. Infected plants showed yellowing leaves, stunted growth and incipient wilting. Secondary and tertiary roots were clearly galled, a typical symptom induced by root-knot nematodes. The bases of the taproots were swollen, and many females were observed upon dissection. Nematode species identification was performed using biochemical (esterase and malate dehydrogenase) (Brito *et al.*, 2008; 2021), morphological (Chitwood, 1949; Jepson, 1987) and DNA-based methods (*NADH5* and *COX2*) (Janssen, *et al.*, 2016). Results obtained with these analyses identified



1 – *Meloidogyne javanica* infected *Cannabis sativa* (hemp) and a close view of root galls induced by this nematode species.
Photo by Janete Brito, FDACS-DPI



the nematode as *Meloidogyne javanica*. Since this nematode species is commonly found infecting many crop and weed plants in Florida, breeders, extension specialists and growers of industrial hemp should take note of this finding in their decisions.

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SAMPLES FOR MORPHOLOGICAL ANALYSIS

Certifications and Regulatory Purposes

	JANUARY - MARCH	2023 - YEAR TO DATE
Multistate Certification involving California	834	834
Multistate Certification excluding California Certification	1,678	1,678
Citrus Certification (Citrus Nursery Certification, Site or Pit Approval)	62	62
Total	2,574	2,574

Other Purposes

	JANUARY - MARCH	2023 - YEAR TO DATE
Identification (other organisms)	2	2
Interdiction Station (AIS)	48	48
Plant Problems	16	16
Survey	64	64
Total	130	130

SAMPLES FOR MOLECULAR ANALYSIS

	JANUARY - MARCH	2023 - YEAR TO DATE
Regulatory Purposes	194	194
Other Purposes	0	0
Identifications	139	139
Surveys	0	0
Total	333	333





PLANT PATHOLOGY

Compiled by Jodi Hansen, M.S.; Hector Urbina, Ph.D.; Kishore Dey, Ph.D.;
Patricia Soria, M.S. and Melanie Fryman, B.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 *Plantago asiatica mosaic virus* (PIAMV, Genus: *Potexvirus*), a new Florida State record, was found with *Cucumber mosaic virus* (CMV, Genus: *Potyvirus*) co-infecting *Nandina domestica* (heavenly bamboo) in a residential area of Alachua County. The plants showed reddish discoloration on the leaves and veins, leaf curling, ringspots and red oak leaf line patterns. PIAMV was first described from the weedy species *Plantago asiatica* in Russia (Kostin and Volkov, 1976) and from lilies (*Lilium* spp.) and primrose (*Primula seiboldii*) in Japan (Komatsu, *et al.*, 2008). More recently, PIAMV was reported in Taiwan and the Netherlands. In the United States, PIAMV was reported from lilies thought to have originated from infected bulbs imported from the Netherlands. Interestingly, PIAMV was first found in *Nandina domestica* (heavenly bamboo) in California (Moreno *et al.*, 1976), under the name *Nandina mosaic virus*, later recognized as a strain of PIAMV (PIAMV-NMV) (Hughes *et al.*, 2005). PIAMV transmission by biological vectors has not been reported, but the virus can be transmitted efficiently by mechanical contact (Alachua County; 04142022-03157; Maria Velez-Climent; 14 April 2022).

2 *Turnip yellows polerovirus* (TuYV, Genus: *Polerovirus*), a new Florida State record, was found in co-infection with *Turnip mosaic virus* (TuMV, Genus: *Potyvirus*) in a *Brassica* species in Suwannee County at an agricultural research center and as a single infection in *Brassica oleracea* in Alachua County at an organic community garden. The two samples showed an array of symptoms, including chlorosis, mottling, leaf puckering and rugosity. Both also had feeding damage, most likely from aphids found on the specimens at the time of submission. *Turnip yellows virus*, formerly known as *Beet western yellows virus* (BWYV) (Genus: *Polerovirus*) was first reported in 1979; however, it was not found in the United States until 2021 in *Brassica oleracea* var. *capitata* (cabbage) in Tifton, Georgia (Kavalappara, *et al.*, 2022). TuYV persists in aphids, allowing long-term transmission of the virus to plant hosts without new infections of the vector insect. TuMV is transmitted by at least 89 aphid species in a non-persistent manner. TuMV was reported in Florida in 1968 (Purcifull, 1968) and more recently in *Brassica carinata* (Ethiopian mustard, an oilseed crop) in Gadsden County. TuYV and TuMV have a broad host range, including important vegetable crops and many weeds in addition to oilseed plants. Weed species serve as virus reservoirs and promote the spread of the pathogens to new plants and fields. Neither TuYV nor TuMV is currently regulated



1 - *Plantago asiatica mosaic virus* symptoms on *Nandina domestica*. Rugose, mottled leaves with reddened tips and leaf edges.
Photo by Maria Velez-Climent, FDACS-DPI



2a - *Turnip yellows polerovirus* and *Turnip mosaic potyvirus* on *Brassica* sp. Heavily distorted leaf tissue with some mottling and yellowing of tissue.
Photo by Patricia Soria, FDACS-DPI



as a pathogen by the Florida Department of Agriculture and Consumer Services, Division of Plant Industry. (Suwannee County; 02242023-01600; Robert Leahy, USDA; 24 February 2023; and Alachua County; 02282023-01655; Robert Leahy, USDA; 28 February 2023).

3 Tomato chlorotic spot orthotospovirus (TCSV, Genus: *Orthotospovirus*), a new Florida Host record, was found on *Asclepias curassavica* (Apocynaceae), tropical milkweed, at a nursery in Bradenton, Florida, in January 2023. *Asclepias curassavica* is widespread throughout southeastern North America, Central America and South America. The sample submitted had moderately abundant chlorotic spots clustered on each leaf. This virus is transmitted by thrips (Thysanoptera: Thripidae) and can replicate in both the vector and the host plant. TCSV spreads uniformly throughout the host and is not localized to the area of inoculation. In Florida, TCSV was first reported in 2012 on tomatoes (*Solanum lycopersicum*) and Madagascar jasmine (*Marsdenia floribunda*). Since then, this virus has rapidly expanded its host range and geographical area. Milkweed is an unfortunate host for this virus because it is quite popular among landscapers and homeowners as a host plant for monarch butterflies. TCSV has been identified in many ornamental plants and food crops and could have major impacts on Florida nurseries. The rapid expansion of TCSV in Florida is an ongoing challenge, but this pathogen is not currently regulated by the Florida Department of Agriculture and Consumer Services, Division of Plant Industry. (Manatee County; 01092023-00123; Caleb Pooch; 6 January 2023). (Dey, *et al.*, 2017).

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2b - Turnip yellows polerovirus on *Brassica oleracea*. Leaf yellowing, vein clearing and distortion.

Photo by Melanie Fryman, FDACS-DPI



3 - Tomato chlorotic spot orthotospovirus on *Asclepias curassavica*, chlorotic spot symptoms on leaves.

Photo by Patricia Soria, FDACS-DPI

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🔍 PLANT PATHOLOGY IDENTIFICATION TABLE

The following table provides information about samples identified between January - March 2023. 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>Asclepias curassavica</i>	tropical milkweed, silky red asclepias	<i>Orthotospovirus Tomato chlorotic spot</i>	none	Nursery	P0035-09-01092023-00123	Manatee	Caleb Poock	1/6/23	host
<i>Brassica</i> sp.	mustard greens	<i>Polerovirus Turnip yellows virus</i>	none	Research center	P0530-02-02242023-01600	Suwannee	Robert Leahy, Krystal Ashman	2/24/23	state
<i>Brassica oleracea</i>	mustard greens	<i>Polerovirus Turnip yellows virus</i>	none	Community garden	P0539-08-02282023-01655	Alachua	Robert Leahy	2/28/23	county
<i>Clusia guttifera</i>	small leaf clusia	<i>Calonectria amazonica</i>	leaf spots/ blight	Nursery	P0191-01-01272023-00605	Indian River	Victoria Benjamin, Alexander Tasi	1/26/23	host
<i>Nandina domestica</i>	heavenly bamboo	<i>Potexvirus Plantago asiatica mosaic virus</i>	none	Residential	P0761-03-04142022-03157	Alachua	Maria Velez-Climent, Kishore Dey	4/12/22	state
<i>Prunus umbellata</i>	hog plum, flatwoods plum	<i>Cystidiodontia</i> sp.	relampago blight	Conservation area	P0804-01-03272023-02880	Alachua	Jeffrey Eickwort	3/27/23	host
<i>Symplocos tinctoria</i>	common sweetleaf, horse-sugar	<i>Cystidiodontia</i> sp.	relampago blight	State park	P0521-01-02232023-01558	Alachua	Jeffrey Eickwort	2/23/23	host

QUARTERLY ACTIVITY REPORT

	JANUARY - MARCH	2023 - YEAR TO DATE
Citrus black spot	103	103
Citrus canker	53	53
Citrus greening / HLB	10	10
HLB Certification for out-of-state shipping	810	810
Import inspections	0	0
Interdictions	63	63
Palm phytoplasma	2	2
Pathology, General	870	870
Soil	43	43
Totals	1,954	1,954





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