



FDACS-P-00124

July-September 2021

Volume 60, Number 3

TRI-OLOGY

A PUBLICATION FROM THE DIVISION OF PLANT INDUSTRY, BUREAU OF ENTOMOLOGY, NEMATOTOLOGY, 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



NEMATOTOLOGY

Providing certification programs and
diagnoses of plant problems



PLANT PATHOLOGY

Offering plant disease diagnoses
and information





Bactrocera dorsalis (Hendel), adult male.
Photo by Gary Steck, FDACS-DPI

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

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

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

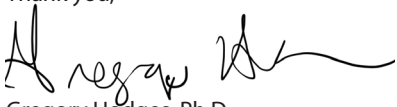
Copies of TRI-OLGY are kept on the FDACS website for two years. To obtain older copies, contact the FDACS-DPI Library at (352) 395-4722 or PlantIndustry@FDACS.gov.

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-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

TABLE OF CONTENTS

	HIGHLIGHTS	03
<hr/>		
Noteworthy examples from the diagnostic groups throughout the ENPP Bureau.		
	BOTANY	04
<hr/>		
Quarterly activity reports from Botany and selected plant identification samples.		
	ENTOMOLOGY	07
<hr/>		
Quarterly activity reports from Entomology and samples reported as new introductions or interceptions.		
	NEMATOLOGY	13
<hr/>		
Quarterly activity reports from Nematology and descriptions of nematodes of special interest.		
	PLANT PATHOLOGY	15
<hr/>		
Quarterly activity reports from Plant Pathology and selected identified plant pest and disease samples.		
	FROM THE EDITOR	17
<hr/>		
Articles of interest that vary in subject matter.		

Cover Photo

Catharanthus roseus, Madagascar periwinkle.
Photo from Shutterstock



HIGHLIGHTS



1 *Catharanthus roseus* (L.)G.Don (Madagascar periwinkle), a non-native plant, has been reported in seven southeastern coastal states from North Carolina to Texas as well as in one county of both California and Ohio. *Catharanthus roseus* has been documented scattered throughout Florida in 32 counties. This sample represents a new county record for Seminole County.



1 - *Catharanthus roseus*, Madagascar periwinkle, flowers and leaves.
Photo by Patti Anderson, FDACS-DPI

2 *Eupteryx decemnotata* Rey (Ligurian leafhopper), a new Florida State record. This leafhopper species was collected for the first time in a residential landscape on an established plant. It is native to Mediterranean Europe and has been established in the United States since 2008.



2 - *Eupteryx decemnotata* Rey, Ligurian leafhopper.
Photo by Alessandra Rung, California Department of Food and Agriculture.

3 *Longidorus longicaudatus* Siddiqi, 1961, (a needle nematode) was described from an unknown host in South Carolina. There is a lack of information on the hosts of this needle nematode. The species has been reported in Gainesville, Florida, from live oak and was later found in an unknown locality, on an unknown host. Two populations of *L. longicaudatus* were found in the rhizosphere of laurel oak and water oak; these oaks are new hosts for this nematode.

4 *Gymnosporangium clavipes* Cooke & Peck (cedar-quince rust) was found on *Crataegus uniflora* Münchhausen (dwarf hawthorn), a new host, collected at the edge of a clear-cut field in the Natural Area Teaching Laboratory at the University of Florida in Gainesville. Symptoms on fruits include conspicuous, whitish, tubular structures (called aecia) where large numbers of orange spores (known as aeciospores) are produced.



4 - *Gymnosporangium clavipes*, cedar-quince rust, aecia on *Crataegus uniflora* fruit.
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 15,000 dried plant specimens and 1,400 vials of seeds.

QUARTERLY ACTIVITY REPORT

	JULY- SEPTEMBER	2021 - YEAR TO DATE
Samples Submitted by Other DPI Sections	474	4,054
Samples Submitted for Botanical Identification Only	61	458
Total Samples Submitted	535	4,512
Specimens Added to the Herbarium	62	561

Some of the samples submitted recently are described below.

1 *Catharanthus roseus* (L.) G. Don (Madagascar periwinkle), from a genus of eight species in the plant family Apocynaceae, native to India, Sri Lanka and Madagascar. This non-native plant has been reported in seven southeastern coastal states from North Carolina to Texas as well as in one county of both California and Ohio. *Catharanthus roseus* has been documented scattered throughout Florida in 32 counties. This sample represents a new county record for Seminole County. This species is often considered an annual, but it can become perennial in frost-free or limited frost areas of Florida. Individual plants can grow to 70 cm tall, with a few scattered hairs on the stems. Leaves are opposite, narrowly oblong, with an entire margin (no teeth) and as large as 3 cm x 7 cm. The flowers may be single or two to three in a cluster, with salverform corollas (petals united to form a slender tube with lobes abruptly expanding, somewhat like a trumpet), usually deep pink to lavender or white and ranging from 2-3 cm long. The narrow, ridged fruit is 1.5-2.5 cm long and contains black, grooved seeds, covered with minute, spiky projections. Madagascar periwinkle has been introduced as an ornamental around the world, but it often escapes cultivation to reproduce without assistance in dry, disturbed sites. The alkaloids vincristine and vinblastine, used to treat leukemia and other cancers, were discovered in the leaves of this plant when it was known as *Vinca rosea*. *Vinca* is sometimes still used as a common name for the plant. (Seminole County; B2021-369; Nora V. Marquez and Jimmy Hernandez; 19 August 2021). (Howell, 2009; Mabberley, 2017; Wunderlin and Hansen, 2011; Wunderlin, Hansen and Frank, 2018; <https://plants.usda.gov/home/plantProfile?symbol=CARO14> [accessed 21 September



1 - *Catharanthus roseus*, Madagascar periwinkle, flowers and leaves.
Photo by Patti Anderson, FDACS-DPI



2021]; <https://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=a569> [accessed 21 September 2021]).

2 *Lilium philippinense* Baker, (Philippine lily), from a genus of about 110 species native to temperate regions of the Northern Hemisphere, in the plant family Liliaceae. This species is native to the Philippines and has been introduced to the southeastern United States where it has escaped cultivation and now grows along roadsides and in disturbed areas. In Florida, it is found in the panhandle and northern peninsula and often flowers from July through August. The sample submitted for identification this reporting period is a new county record for Santa Rosa County. Plants are robust, perennial herbs with stoloniferous bulbs and erect stems, from 1-3 m tall, with numerous long, linear leaves arranged alternately along the entire length of the stem. There are usually only one to two flowers per plant, but in odd cases there can be up to six. Each large, trumpet-shaped flower is borne horizontally from the stem, advertising its beautiful open flower to the many visiting pollinators. The flower consists of six free, white tepals, 18-25 cm long, often with a reddish flush externally, especially on the main veins; six stamens; and a single compound pistil consisting of three united carpels, one style and a three-lobed stigma at the apex. At the base of each tepal is a nectar-bearing furrow, attracting pollinators who unknowingly contact the pollen-loaded anthers located slightly above. Then, these pollen-covered visitors move on to another flower in search of more nectar, where they might touch the large three-lobed stigma and complete the process of pollination. Once pollinated, the fertilized ovary will give rise to a capsule fruit with three valves, opening to release numerous seeds. Lilies are popular ornamental plants with great commercial appeal due to their large, showy, fragrant flowers and have been important historically. *Lilium candidum* is the symbolically significant Madonna lily, and *Lilium longiflorum* is the Easter lily. It is no surprise to see desirable species moved around the planet, away from areas to which they are native, as is the case for this species. (Santa Rosa County; B2021-337; Ethan Kelly; 4 August 2021.) (Skinner, 2002; Weakley, 2020; Wunderlin and Hansen, 2011).

REFERENCES

Howell, C.H. (2009). *Flora Mirabilis: How Plants Have Shaped World Knowledge, Health, Wealth and Beauty*. National Geographic Society. Washington, District of Columbia.

Mabberley, D.J. (2017). *Mabberley's plant-book: a portable dictionary of plants, their classification and uses* (4th edition). Cambridge University Press. New York, New York.

Skinner, M.W. (2002). *Lilium*. In: Flora of North America Editorial Committee, eds. 1993+. *Flora of North America North of Mexico* [Online]. 22+ vols. New York and Oxford. Vol. 26. <http://floranorthamerica.org/Lilium> [accessed 5 October 2021].



2 - *Lilium philippinense*, Philippine lily, flower.
Photo by Roger Hammer, Florida Plant Atlas

Weakley, A.S. (2020). *Flora of the southeastern United States*. University of North Carolina Herbarium, North Carolina Botanical Garden. Chapel Hill, North Carolina.

Wunderlin, R.P. and Hansen, B.F. (2011). *Guide to the vascular plants of Florida* (3rd edition). University Press of Florida, Gainesville, Florida.

Wunderlin, R.P., Hansen, B.F. and Franck, A.R. (2018). *Flora of Florida, Volume V: Dicotyledons, Gisekiaceae through Boraginaceae*. University Press of Florida, Gainesville, Florida.



🔍 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
🔍	Alexander Tasi, Victoria Benjamin	Brevard	B2021-341	7/29/2021	<i>Albizia lebbbeck</i>
🔍	Anna Gourlay	Orange	B2021-446	9/15/2021	<i>Asparagus aethiopicus</i>
🔍	Connor Kuppe	St. Johns	B2021-435	9/10/2021	<i>Sophronanthe hispida</i>
🔍	Ethan Kelly	Santa Rosa	B2021-376	8/20/2021	<i>Cephalanthus occidentalis</i>
🔍	Ethan Kelly	Santa Rosa	B2021-289	7/7/2021	<i>Dioscorea bulbifera</i>
🔍	Ethan Kelly	Okaloosa	B2021-408	9/7/2021	<i>Dioscorea bulbifera</i>
🔍	Ethan Kelly	Santa Rosa	B2021-337	8/4/2021	<i>Lilium philippinense</i>
🔍	Jimmy Hernandez	Lake	B2021-335	8/5/2021	<i>Sesbania herbacea</i>
🔍	Jimmy Hernandez, Nora V. Marquez	Seminole	B2021-369	8/19/2021	<i>Catharanthus roseus</i>
🔍	Kaitlyn Dietz	St. Johns	B2021-428	9/14/2021	<i>Salicornia bigelovii</i>
🔍	Nora V. Marquez	Volusia	B2021-386	8/26/2021	<i>Clematis terniflora</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	2021 - YEAR TO DATE
Samples Submitted	1,492	4,752
Lots Identified	2,089	6,666
Specimens Identified	36,871	112,095

1 *Eupteryx decemnotata* Rey, Ligurian leafhopper, a new Florida State record. This leafhopper species was collected for the first time in a residential landscape on an established plant. It is native to Mediterranean Europe and has been established in the United States since 2008 (Rung, *et al.*, 2009). This species is a pest of plants in the mint family (Labiatae/Lamiaceae), such as the commercially important herbs rosemary and lavender. Infestations can cause severe stippling damage to plant leaves. Before 2021, this leafhopper had been known in Florida only from interceptions and importation inspections of herbs coming from California. Beginning in April 2021, heavy infestations of rosemary at large home improvement stores were found in several counties throughout Florida, including Duval. Most of these infestations were traced to importations from a nursery with operations in Alabama and Florida. This collection is the first for Ligurian leafhopper outside of a commercial setting, suggesting it is established in the Florida landscape. (Duval County; E2021-4077; Lisa Tyler; 18 August 2021.) (Catherine White.)



1a - *Eupteryx decemnotata* Rey, Ligurian leafhopper.
Photo by Alessandra Rung, California Department of Food and Agriculture.
Previously published in Rung, *et al.*, 2009. Used by permission.



1b - Stippling damage from *Eupteryx decemnotata* Rey infestation
Photo by Jade Allen, formerly FDACS-DPI



2 *Bactrocera dorsalis* (Hendel), Oriental fruit fly, a regulatory incident. A single, male specimen was collected from a Jackson trap, baited with methyl eugenol, hung in an avocado tree (*Persea americana*), in Casselberry, Florida. Increased trap densities in an 81-square-mile area around the detection site are being maintained and traps monitored closely for an estimated two life cycles. No additional flies have been found, and the delimitation program is expected to end on 20 October 2021. (Seminole County; E2021-4133; Luis Torres, USDA/APHIS/PPQ; 16 August 2021.) (Dr. Craig Welch.)



2 - *Bactrocera dorsalis* (Hendel), adult male.
Photo by Gary Steck, FDACS-DPI

3 *Taxodiomyia*, gall midges, significant finds. Numerous cecidomyiid (Diptera: Cecidomyiidae) gall types occur on branchlets or needles of bald cypress in the eastern United States, but only three species have been named: *Taxodiomyia cupressiananassa* (Osten Sacken), *T. cupressi* (Schweinitz) and *T. taxodii* (Felt) (Gagné 1989, pers. comm.). Two gall types shown here have not been reported previously and may represent undescribed species, as gall characteristics are very specific to the cecidomyiid species causing them. Type 1 galls are apparently common in Florida, as they have been collected numerous times, and specimens are present in the Florida State Collection of Arthropods. Type 2 has not been noted before. (Lake County; E2021-4121; Julieta Brambila, USDA, and Felipe Soto-Adames, DPI; 21 August 2021.) (Dr. Gary Steck.)



3a - *Taxodiomyia* sp., type 1 cecidomyiid gall.
Photo by Gary Steck, FDACS-DPI

REFERENCES

- Gagné, R.J. (1989).** *The Plant-Feeding Gall Midges of North America*. Cornell University Press. Ithaca, New York.
- Rung, A., Halbert, S.E., Ziesk, D.C. and Gill, R.J. (2009).** A leafhopper pest of plants in the mint family, *Eupteryx decemnotata* Rey (Hemiptera: Auchenorrhyncha: Cicadellidae), Ligurian leafhopper, new to North America. *Insecta Mundi* 0088: 1-4.



3b - *Taxodiomyia* sp., type 2 cecidomyiid gall.
Photo by Gary Steck, 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>Agave</i> sp.	agave	<i>Dysmicoccus neobrevipes</i>	mealybug	Eduardo Solis	NEW FLORIDA COUNTY RECORD
<i>Bambusa</i> sp.	bamboo	<i>Froggattiella gigantochloae</i>	armored scale	Alexander Tasi	NEW FLORIDA COUNTY RECORD
<i>Bambusa</i> sp.	bamboo	<i>Odonaspis greenii</i>	armored scale	Alexander Tasi	NEW FLORIDA COUNTY RECORD
<i>Bambusa</i> sp.	bamboo	<i>Poliaspoides formosana</i>	armored scale	Alexander Tasi	NEW FLORIDA COUNTY RECORD; QUARANTINABLE PEST
<i>Brassica oleracea</i>	broccoli, cauliflower	<i>Frankliniella bruneri</i>	thrips	Ryan Brown	REGULATORY SIGNIFICANT
<i>Bulbine frutescens</i>	asphodel, bulbine, stalked bulbine	<i>Ferrisia dasyliirii</i>	mealybug	Christine Zamora	NEW FLORIDA HOST RECORD
<i>Capsicum annuum</i>	pepper	<i>Bactericera cockerelli</i>	potato psyllid	Ramon Prieto Reschop	REGULATORY SIGNIFICANT
<i>Capsicum annuum</i>	pepper	<i>Bactericera cockerelli</i>	potato psyllid	Ramon Prieto Reschop	REGULATORY SIGNIFICANT
<i>Cichorium endivia</i>	endive, escarole, frisee	<i>Nasonovia ribisnigri</i>	currant-lettuce aphid	Ryan Brown	REGULATORY SIGNIFICANT
<i>Cinnamomum</i> sp.		<i>Aspidiotus destructor</i>	coconut scale	Hanoy Carmenate	NEW FLORIDA HOST RECORD
<i>Citrus sinensis</i>	sweet orange, navel orange	<i>Bactrocera dorsalis</i> complex	Oriental fruit fly complex	Luis Torres	REGULATORY INCIDENT
<i>Citrus sinensis</i>	sweet orange, navel orange	<i>Poecilominettia picticornis</i>	lauxaniid fly	Andrea Harless	NEW FLORIDA COUNTY RECORD
<i>Citrus sinensis</i>	sweet orange, navel orange	<i>Samea druchachalis</i>	crambid moth	Adriana Diaz	NEW FLORIDA COUNTY RECORD
<i>Citrus</i> sp.		<i>Fiorinia theae</i>	tea scale	Ethan Andrews	NEW FLORIDA COUNTY RECORD
<i>Distylium</i> sp.	winter-hazel	<i>Pseudaonidia duplex</i>	camphor scale	Tavia Gordon	NEW FLORIDA HOST RECORD
<i>Eriobotrya japonica</i>	loquat, Japanese plum	<i>Omolicna joi</i>	Florida palm derbid	Connor Kuppe	NEW FLORIDA COUNTY RECORD
<i>Euphorbia hirta</i>	pillpod sandmat	<i>Phenacoccus solenopsis</i>	solenopsis mealybug	Mary Sellers	NEW FLORIDA HOST RECORD
<i>Fragaria x ananassa</i>	garden strawberry	<i>Frankliniella bruneri</i>	thrips	Ryan Brown	REGULATORY SIGNIFICANT
<i>Fragaria x ananassa</i>	garden strawberry	<i>Lygus</i> sp.	lygus bug	Logan Cutts, Jakira Davis, Ryan Brown, Dyrana Russell	REGULATORY SIGNIFICANT
<i>Fragaria x ananassa</i>	garden strawberry	<i>Lygus</i> sp.	Western lygus bug	Ryan Brown	REGULATORY SIGNIFICANT
<i>Fraxinus americana</i>	white ash	<i>Xylosandrus compactus</i>	ambrosia beetle	Jeffrey Eickwort	NEW FLORIDA HOST RECORD
<i>Gardenia jasminoides</i>	gardenia	<i>Milviscutulus mangiferae</i>	mango shield scale	Tavia Gordon, Kelly Douglas	NEW FLORIDA COUNTY RECORD
<i>Hibiscus mutabilis</i>	confederate-rose; dixie rosemallow	<i>Trialeurodes abutiloneus</i>	bandedwinged whitefly	Austin Hawes	NEW FLORIDA COUNTY RECORD
<i>Ipomoea hederifolia</i>	scarlet creeper	<i>Murgantia histrionica</i>	harlequin bug	Julieta Brambila	NEW FLORIDA HOST RECORD



PLANT SPECIES	PLANT COMMON NAME	ARTHROPOD GENUS AND SPECIES	ARTHROPOD COMMON NAME	COLLECTOR	RECORD
<i>Ipomoea indica</i>	oceanblue morning glory	<i>Empoasca fabalis</i>	sweet potato leafhopper	Prem Kumar	NEW FLORIDA HOST RECORD
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Cixius cultus</i>	cixiid planthopper	Eric Dougherty, Jakira Davis	REGULATORY SIGNIFICANT
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Deltocephalus fuscinervosus</i>	leafhopper	Eric Dougherty, Jakira Davis	REGULATORY SIGNIFICANT
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Frankliniella bruneri</i>	thrips	Logan Cutts, Jakira Davis, Ryan Brown, Dyrana Russell	REGULATORY SIGNIFICANT
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Frankliniella bruneri</i>	thrips	Ryan Brown	REGULATORY SIGNIFICANT
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Kakimia</i> sp.	aphid	Eric Dougherty, Jakira Davis	REGULATORY SIGNIFICANT
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Liriomyza langei</i>	California pea leafminer	Logan Cutts, Jakira Davis, Ryan Brown, Dyrana Russell	REGULATORY SIGNIFICANT
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Lygus hesperus</i>	western lygus bug	Logan Cutts, Dyrana Russell	REGULATORY SIGNIFICANT
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Nasonovia ribisnigri</i>	currant-lettuce aphid	Eric Dougherty, Jakira Davis	REGULATORY SIGNIFICANT
<i>Lactuca sativa</i>	lettuce, romaine lettuce, leaf lettuce	<i>Nasonovia ribisnigri</i>	currant-lettuce aphid	Logan Cutts, Jakira Davis, Ryan Brown, Dyrana Russell	REGULATORY SIGNIFICANT
<i>Lagerstroemia indica</i>	crape myrtle	<i>Acanthococcus lagerstroemiae</i>	crapemyrtle bark scale	Ethan Kelly	REGULATORY SIGNIFICANT
<i>Lagerstroemia indica</i>	crape myrtle	<i>Acanthococcus lagerstroemiae</i>	crapemyrtle bark scale	Michael Bentley	REGULATORY SIGNIFICANT
<i>Lagerstroemia indica</i>	crape myrtle	<i>Acanthococcus lagerstroemiae</i>	crapemyrtle bark scale	Michael Bentley	REGULATORY SIGNIFICANT
<i>Microsorium pteropus</i>	Java fern	<i>Coccus hesperidum</i>	brown soft scale	Sam Hart	NEW FLORIDA HOST RECORD
<i>Muhlenbergia capillaris</i>	hairawn muhly; pink muhly; gulf muhly; pink hair grass	<i>Acrolophus heppneri</i>	Heppner's acrolophus	Lily Deeter, Erin Powell	NEW FLORIDA HOST RECORD
<i>Muhlenbergia capillaris</i>	hairawn muhly; pink muhly; gulf muhly; pink hair grass	<i>Aleurocybotus</i> n.sp.	whitefly	Julieta Brambila	NEW FLORIDA COUNTY RECORD
<i>Nicotiana</i> sp.		<i>Pseudatomoscelis seriatus</i>	cotton fleahopper	Robert Leahy	NEW FLORIDA COUNTY RECORD
<i>Persea americana</i>	avocado; alligator pear; aguacate	<i>Abgrallaspis aguacatae</i>	armored scale	Rosie Dulzaides, Leicet Diaz Varona, Liliana Jerez	REGULATORY SIGNIFICANT
<i>Persea americana</i>	avocado; alligator pear; aguacate	<i>Abgrallaspis aguacatae</i>	armored scale	Ramon Prieto Reschop	REGULATORY SIGNIFICANT
<i>Persea americana</i>	avocado; alligator pear; aguacate	<i>Clavaspis persea</i>	armored scale	Rosie Dulzaides, Leicet Diaz Varona, Liliana Jerez	REGULATORY SIGNIFICANT
<i>Persea americana</i>	avocado; alligator pear; aguacate	<i>Clavaspis perseae</i>	armored scale	Logan Cutts, Dyrana Russell	REGULATORY SIGNIFICANT
<i>Persea americana</i>	avocado; alligator pear; aguacate	<i>Davidsonaspis aguacatae</i>	armored scale	Ryan Brown, Logan Cutts	REGULATORY SIGNIFICANT
<i>Physalis philadelphica</i>	mexican groundcherry; husk tomato; tomatillo	<i>Bactericera cockerelli</i>	potato psyllid	Alexander Tasi	REGULATORY SIGNIFICANT
<i>Plumeria</i> sp.	frangipani	<i>Fiorinia phantasma</i>	phantasma scale	Leicet Diaz Varona, Liliana Jerez	NEW FLORIDA HOST RECORD
<i>Quercus virginiana</i>	live oak	<i>Pseudomyrmex elongatus</i>	pseudomyrmecine ant	Joan Paravissini	NEW FLORIDA COUNTY RECORD
<i>Rhizophora mangle</i>	red mangrove, American mangrove	<i>Nymphocixia unipunctata</i>	cixiid planthopper	Alexander Tasi	NEW FLORIDA COUNTY RECORD
<i>Rosmarinus officinalis</i>	rosemary	<i>Eupteryx decemnotata</i>	Ligurian leafhopper	Lisa Tyler	NEW FLORIDA STATE RECORD
<i>Rubus</i> sp.		<i>Lygus</i> sp.	western lygus bug	Eric Dougherty, Jakira Davis	REGULATORY SIGNIFICANT



PLANT SPECIES	PLANT COMMON NAME	ARTHROPOD GENUS AND SPECIES	ARTHROPOD COMMON NAME	COLLECTOR	RECORD
<i>Sabal palmetto</i>	cabbage palm	<i>Comstockiella sabalis</i>	palmetto scale	Juan Amador	NEW FLORIDA COUNTY RECORD
<i>Saccharum officinarum</i>	sugarcane	<i>Neortholomus jamaicensis</i>	seed bug	Donna Larsen, Julien Beuzelin	NEW FLORIDA COUNTY RECORD
<i>Salvia</i> sp.		<i>Eupteryx decemnotata</i>	Ligurian leafhopper	Lisa Tyler	REGULATORY SIGNIFICANT
<i>Solanum lycopersicum</i>	garden tomato, tomato, jitomate	<i>Diabrotica virgifera</i>	western corn rootworm	Milton Lara	REGULATORY SIGNIFICANT
<i>Solanum melongena</i>	eggplant	<i>Arvelius albopunctatus</i>	tomato stink bug	Julieta Brambila	NEW FLORIDA COUNTY RECORD
<i>Stachytarpheta jamaicensis</i>	blue porter weed, joe	<i>Pseudococcus sorghiellus</i>	trochanter mealybug	Teresa Ortelli	NEW FLORIDA HOST RECORD
<i>Tamarindus indica</i>	tamarind	<i>Nipaecoccus viridis</i>	lebbeck mealybug	Sara Restrepo	NEW FLORIDA COUNTY RECORD
<i>Taxodium distichum</i>	bald cypress	<i>Taxodiomyia</i> sp.	gall midge	Julieta Brambila, Felipe Soto-Adames	SIGNIFICANT FIND
<i>Taxodium distichum</i>	bald cypress	<i>Taxodiomyia taxodii</i>	gall midge	Sam Hart, Mark Rothschild, Susan Halbert	SIGNIFICANT FIND
<i>Zea mays</i>	corn; maize; Indian corn; elote	<i>Nilaparvata serrata</i>	delphacid planthopper	Lilliam Otero Pujol	NEW FLORIDA COUNTY RECORD
		<i>Acrolophus walsinghami</i>	tribble moth	James Hayden	NEW FLORIDA COUNTY RECORD
		<i>Atherigona reversura</i>	bermudagrass stem maggot	Julie Nieuwenhuis	NEW FLORIDA COUNTY RECORD
		<i>Bactra philoherda</i>	tortricid moth	James Hayden	NEW FLORIDA COUNTY RECORD
		<i>Blepharomastix achroalis</i>	crambid moth	James Hayden	NEW FLORIDA COUNTY RECORD
		<i>Cornu aspersum</i>	brown garden snail	Lane Smith	REGULATORY INCIDENT
		<i>Corythucha cydoniae</i>	hawthorn lace bug	Krystal Ashman	NEW FLORIDA COUNTY RECORD
		<i>Deroceras reticulatum</i>	gray garden slug	Emily Safran	REGULATORY SIGNIFICANT
		<i>Dysmicoccus diodum</i>	mealybug	Kyle Schnepf	NEW FLORIDA COUNTY RECORD
		<i>Flatoidinus punctatus</i>	flatid planthopper	Julie Nieuwenhuis	NEW FLORIDA COUNTY RECORD
		<i>Heterobostrychus hamatipennis</i>	bostrichid beetle	Max Carfagno, Scott Weihman	NEW FLORIDA COUNTY RECORD
		<i>Heterobostrychus hamatipennis</i>	bostrichid beetle	Douglas Restom-Gaskill	NEW FLORIDA COUNTY RECORD
		<i>Hyadaphis coriandri</i>	coriander aphid	Scott Weihman	NEW FLORIDA COUNTY RECORD
		<i>Lepidocyrtus pallidus</i>	springtail	Dale Habeck, Kim Haag	NEW FLORIDA COUNTY RECORD
		<i>Macrotomella carinata</i>	delphacid planthopper	Douglas Restom-Gaskill	NEW FLORIDA COUNTY RECORD
		<i>Myzus fataunae</i>	pilea aphid	Monica Triana	NEW FLORIDA COUNTY RECORD
		<i>Penestola bufalis</i>	muck moth	James Hayden	NEW FLORIDA COUNTY RECORD
		<i>Phthorimaea operculella</i>	potato tuberworm moth	Sara Furgeson	NEW FLORIDA COUNTY RECORD
		<i>Prepops fraternus</i>	plant bug	Lilliam Otero Pujol	NEW FLORIDA COUNTY RECORD
		<i>Proba distanti</i>	plant bug	Scott Weihman	NEW FLORIDA COUNTY RECORD
		<i>Pseudatomoscelis seriatus</i>	cotton fleahopper	Scott Weihman, Max Carfagno	NEW FLORIDA COUNTY RECORD

PLANT SPECIES	PLANT COMMON NAME	ARTHROPOD GENUS AND SPECIES	ARTHROPOD COMMON NAME	COLLECTOR	RECORD
		<i>Salina bidentata</i>	springtail	Krystal Ashman	NEW FLORIDA COUNTY RECORD
		<i>Seira brasiliiana</i>	springtail	Dale Habeck, Kim Haag	NEW FLORIDA COUNTY RECORD
		<i>Seira brasiliiana</i>	springtail	Robert Leahy	NEW FLORIDA COUNTY RECORD
		<i>Xenorhipis brendeli</i>	buprestid beetle	Douglas Restom-Gaskill	NEW FLORIDA COUNTY RECORD



NEMATODOLOGY

Compiled by Renato Inserra, Ph.D.; Silvia Vau, Ph.D.; Brian Alford, B.S. 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

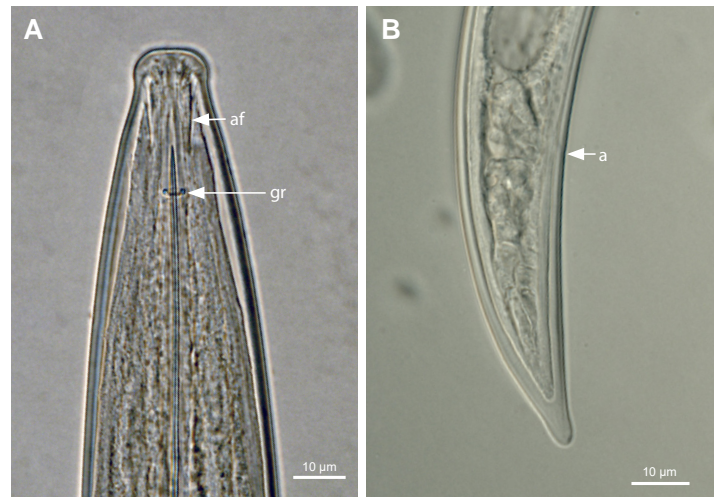
	JULY- SEPTEMBER	2021 - YEAR TO DATE
Morphological Identifications	3,888	10,592
Molecular Identifications *	195	749
Total Identifications	4,083	11,341

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

Nematode of Special Interest

1 The needle nematode, *Longidorus longicaudatus* Siddiqi, 1961, was found associated with water oak (*Q. nigra* L.) and laurel oak (*Quercus hemispherica* Willd.) trees, **new host records**, in Gainesville, Florida. (Alachua County; N19-00494; Brian Alford; 6 May 2019 and Alachua County; N19-00905; Renato Inserra; 13 August 2019, respectively.)

Longidorus longicaudatus Siddiqi, 1961, was described by Siddiqi (1961) from an unknown host in South Carolina. There is a lack of information on the hosts of this needle nematode. Esser (1990) reported it in Gainesville from live oak (*Q. virginiana* Mill.) (DPI record N90-1417, July 28, 1990). Subsequently, Ye & Robbins (2003) provided morphological data of a population of this species listed as "Long. 16" from an unknown locality and host. Two populations of *L. longicaudatus* were found in the rhizosphere of *Quercus hemispherica* Willd. and *Quercus nigra* L. oaks; these oaks are new hosts for this nematode. The populations were collected in a suburban site and in the natural area surrounding the Doyle Conner Building in Gainesville. Although the morphology and morphometrics of these two populations fit the original description of *L. longicaudatus*, Florida specimens have greater diameters of lip region, mid and anal body than those of the five type specimens used for the description of this species. *Longidorus longicaudatus* is morphologically similar to *L. paralongicaudatus*, a species described from hard wood forests in Arkansas by Ye & Robbins (2003). Recent morphological and phylogenetic studies conducted by Inserra et al. (2021) indicate *L. longicaudatus* and *L. paralongicaudatus* are distinct species, clustering in different clades in the phylogenetic tree using



1 - *Longidorus longicaudatus*, needle nematode, photomicrographs. Female anterior (A) and posterior (B) body. (a = anus; af = amphidial fovea; gr = guiding ring). Photo by Silvia Vau and Scott Burton, FDACS-DPI

ITS1 rRNA gene sequences. The molecular data obtained in this study for Florida *L. longicaudatus* facilitate the identification of heterogenous needle nematode populations of hardwood forests in southeastern states of the United States.

REFERENCES

- Esser, R.P. (1990).** Nematode detection of special interest. *Triology*, Technical report 29 (9): 1-3. Gainesville, Florida, USA, Bureau of Nematology, Florida Department of Agriculture and Consumer Services.
- Inserra, R.N., Troccoli, A., Vau, S. and Subbotin, S.A. (2021).** Morphological and molecular characterization of populations of *Longidorus longicaudatus* Siddiqi, 1962, and *L. americanus* Handoo, Carta, Skantar, Ye, Robbins, Subbotin, Fraedrich and Cram, 2005, from Florida, USA. *Nematology* 23: 601-617.
- Siddiqi, M.R. (1962).** Studies on the genus *Longidorus* Micoletzky, 1922, (Nematoda: Dorylaimoidea) with description of three new species. *Proceedings of the Helminthological Society of Washington* 29: 177-188.



COLLECTORS

Collectors submitting five or more samples processed for nematological analysis during July-September 2021.

COLLECTOR NAME	SAMPLES PROCESSED
Alford, Brian	29
Anderson, James	15
Areingdale, Ricardo	7
Bentley, Michael	28
Blanco, Rogelio	399
Bloom, Richard	103
Burgos, Frank	198
Clanton, Keith	35
Colton, Elder	11
Desmarais, Sarah	118
Dougherty, Eric	5
Echols, Janie	6
Hart, Sam	10
Hernandez, Jimmy	12
Jenner, Stephen	11
Kelly, Ethan	6
Landress, Craig	5
Marquez, Nora	180
McColl, Diane	15
Rojas, Eric	189
Taylor Donald	6
Ureta, Laura	7
Youngblood, Susan	9
Wolfe, David	69
Yu, Wangze	14

SAMPLES FOR MORPHOLOGICAL ANALYSIS

	JULY-SEPTEMBER	2021 - YEAR TO DATE
Multistate Certification for National and International Export	2,222	6,204
California Certification	655	1,357
Pre-movement (Citrus Nursery Certification)	32	150
Site or Pit Approval (Citrus Nursery and Other Certifications)	31	122

OTHER PURPOSES

	JULY-SEPTEMBER	2021 - YEAR TO DATE
Identifications (Other Organisms)	0	0
Nematology Investigation	0	0
Plant Problems	32	95
Intrastate Survey, Random	120	587
Total	3,092	8,515

SAMPLES FOR MOLECULAR ANALYSIS

	JULY-SEPTEMBER	2021 - YEAR TO DATE
Regulatory Purposes	195	749
Other Purposes	0	0
Identifications	0	0
Surveys	0	0
Total	195	749





PLANT PATHOLOGY

Compiled by Hector Urbina, Ph.D.; Jodi Hansen, M.S.; Taylor Smith, B.S.;
Kishore Dey, Ph.D.; Callie Jones, and Maria 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 *Gymnosporangium clavipes* Cooke & Peck (cedar-quince rust) (Gymnosporangiaceae, Pucciniaceae, Pucciniomycotina) was found on *Crataegus uniflora* Münchh (Rosaceae) (dwarf hawthorn), a **new host** record, collected at the edge of a clear-cut field in the Natural Area Teaching Laboratory at the University of Florida in Gainesville. Symptoms include conspicuous, whitish, tubular structures (called aecia) on fruit, where large numbers of orange spores (known as aeciospores) are produced. Under the microscope, aeciospores have thick (about 31 μm in diameter), hyaline, verrucose, yellowish walls. Branch or twig symptoms include swelling, cracking, canker and sometimes death of infected tissues. This disease requires another host, either a cedar or a juniper, to complete its life cycle. Cedar-quince rust has been reported previously as a pathogen in at least 19 species of *Crataegus* and was recently reported on *Crataegus marshallii* Eggleston, a new host record also found in Gainesville (Alachua County; 2021-107788; Alexander de la Paz; 21 May 2021).



1a - *Gymnosporangium clavipes*, cedar-quince rust, aecia on *Crataegus uniflora* fruit.

Photo by Hector Urbina, FDACS-DPI



1b - Details of aeciospores of cedar-quince rust under stereoscope.

Photo by Hector Urbina, FDACS-DPI



QUARTERLY ACTIVITY REPORT

	JULY- SEPTEMBER	2021 - YEAR TO DATE
Budwood	0	0
Citrus Black Spot	31	106
Citrus Canker	196	228
Citrus Greening / HLB	95	662
HLB Certification for Out of State Shipping	4,783	4,783
Interdictions	81	99
Laurel Wilt	1	3
Pathology, General	994	1,317
Soil	24	38
Sudden Oak Death	4	4
Sweet Orange Scab-Like Disease	1	1
Texas Phoenix Palm Decline	9	15
Water	1	1
Miscellaneous	1	2
Totals	6,221	7,259



1c - *Gymnosporangium clavipes* aeciospores under compound microscope.
Photo by Hector Urbina, FDACS-DPI

🔍 PLANT PATHOLOGY IDENTIFICATION TABLE

The following table provides information about samples identified between July-September 2021. 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>Canna</i> sp.	canna lily	<i>Cucumovirus cucumber mosaic virus</i>	cucumber mosaic virus	agricultural site	108624	St. Johns	Robert Leahy, USDA; Krystal Ashman, CAPS	7/27/2021	first record of CMV on Canna in Florida. But found on host other places
<i>Crataegus uniflora</i>	dwarf hawthorn	<i>Gymnosporangium clavipes</i>	rust fungus	natural area	107788	Alachua	Alex De La Paz	5/21/2021	host





NOTES FROM A GUEST

By Alex de la Paz

Inquiring minds want to know... what is that striking, tall, orange-flowered plant?

***Macranthera flammea*, commonly called flameflower, hummingbird flower or Halloween flower**, is a state endangered species in the plant family Orobanchaceae. From the Greek 'macro' (long) and 'antheros' (anther), alluding to the long-exserted stamens. Lifestyle is one of the reasons this plant is so interesting, apart from its striking height and morphology (described below). This plant is partially parasitic (called hemiparasitic by botanists), but not completely dependent on its host. Plants can produce some of their own energy via photosynthesis, but they also parasitize the roots of woody vegetation to extract sugars, minerals and water for themselves. Like all members of the Orobanchaceae, this species turns black as it dries, especially the corolla, which can give the plant a striking orange and black Halloween-themed appearance, typically flowering from August through October.

Macranthera is a monotypic genus; its single species, *M. flammea*, is endemic to the southeastern coastal plain of the United States where it grows in fire-maintained seepage slope bogs, bayheads and the margins of wet thickets and cypress-gum depressions. In Florida, this species has been documented in the western panhandle from Escambia County to Leon County. The plants can be either biennials or monocarpic perennials, meaning a plant will either spend the first year of its life in a basal rosette stage, then flower, fruit and die in the second year (biennial), or remain in the rosette stage for more than one year, then flower, fruit and die after it bolts upward to become an adult (monocarpic perennial). Reproductive plants are usually 80-350 cm tall (ca. 11 ft!) with four-angled stems. Stem leaves are opposite, petiolate, lanceolate to narrowly ovate, with the margins pinnately divided halfway or more to the midvein (pinnatifid) on proximal leaves and more simply toothed on distal leaves. The inflorescence is a terminal spike with the flower stalks strongly upcurved, allowing the flower to be held upward and facing forward, ready to be pollinated, especially by migrating ruby-throated hummingbirds. The calyx is fused, with five short lobes that are equal and linear. The corolla is bright orange, tubular and two-lipped (bilabiate) with one two-lobed lip that is erect and a three-lobed lip that is spreading. There are four stamens that are long-exserted from the corolla tube, with pubescent filaments and granular white pollen. Fruits are ovoid, brown, pubescent capsules containing many small, winged, irregularly triangular seeds. ([http://floranorthamerica.org/Macranthera flammea](http://floranorthamerica.org/Macranthera_flammea) [accessed 19 October 2021]).



***Macranthera flammea*, flameflower, flowers.**
Photo by Alex de la Paz, FDACS-DPI





TRI-OLGY

[FDACS.gov/TRI-OLGY](https://fdacs.gov/TRI-OLGY)

1-888-397-1517

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