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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

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

***Glycobius speciosus* (Say), a cerambycid beetle**
Photo by Jennifer Forman Orth

ABOUT TRI-OLOGY

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-OLOGY 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-OLOGY

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We welcome your suggestions for improvement of TRI-OLOGY. 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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Photo by Keith Bradley, Atlas of Florida Plants

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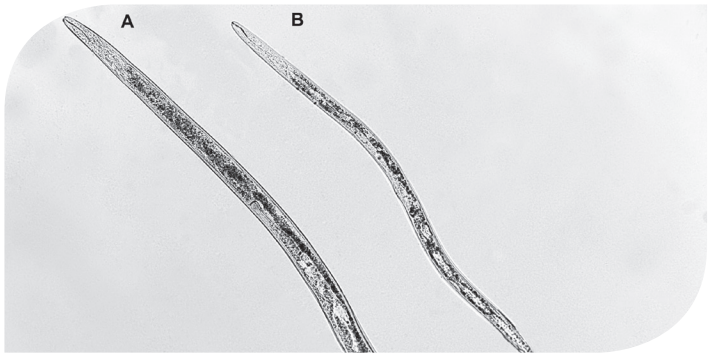
2 ***Teleonemia notata*** **Champion, a lace bug, a new Continental USA record, found on** ***Leucophyllum frutescens*** **(cenizo, Texas-sage).** This is a Neotropical lace bug recorded in Mexico, Guatemala, Cuba and Panama. It is known from several plants, but not previously from *Leucophyllum* (Scrophulariaceae), on which it was found in Florida.

3 ***Nanidorus minor*** (Allen, 1957) Siddiqi, 1980 and ***Trichodorus obtusus*** Cobb, 1913, two polyphagous root ectoparasite species, were detected in a Seminole County pasture where mixed grasses, including Bermuda grass (*Cynodon dactylon*), were growing.

4 **Jasmine mosaic associated virus (JMaV)** was found in *Jasminum nitidum* (angelwing jasmine) for the first time. This new state record was in a mixed infection with Jasmine virus H (JaVH), found in a temple complex at Alachua County.

1 – *Lawsonia inermis* (henna) Final product of henna leaves used for body art.
Photo from Wikipedia

2 – *Teleonemia notata* Champion, a lace bug.
Photo by Charles A. Boring, DPI



3 – Micrograph of stubby root nematodes. A. A female of *Trichodorus obtusus*. B. A female of *Nanidorus minor*. Note the larger body of *T. obtusus* compared to that of *N. minor*.
Photo by Silvia J. Vau and Jeffrey W. Lotz, DPI

4 – Line pattern and ringspot on leaves of *Jasminum nitidum*.
Photo by Maria C. Velez-Climent, DPI

BOTANY

Compiled by Patti J. Anderson, Ph.D.

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

QUARTERLY ACTIVITY REPORT

	APRIL - JUNE	2019 - YEAR TO DATE
Samples submitted by other DPI sections	1,969	3,351
Samples submitted for botanical identification only	351	639
Total samples submitted	1,670	3,990
Specimens added to the Herbarium	136	272

Some of the samples received for identification are discussed below:

1 ***Cordia* L.,** a genus of 250-300 mostly tropical species, in the forget-me-not plant family Boraginaceae. During the second quarter of 2019, the division received samples of plants from several species of this genus. This genus is characterized by woody plants, both evergreen or deciduous shrubs and trees and a few woody vines. Some species have separate male and female flowers growing on separate plants (dioecious). In most cases, the leaves are alternate, and the upper leaf surface is sandpapery-rough to the touch from stiff hairs with cystoliths at the base. The flowers are usually in clusters, but the form of the inflorescence differs among species. Individual flowers, typically with five sepals and five petals, have white to cream colored petals fused into funnel-shaped, bell-shaped or tubular corollas. Exceptions to the typical color include the flowers of *C. boissieri*, which are white with a yellow throat, and the bright orange flowers of *C. sebastena*. The style of *Cordia* species is divided in half and then each half splits again to form four stigmas as possible landing sites for pollen. The fruit is a one-seeded drupe or nut, usually enclosed to some extent in the persistent calyx.

Only two species are native to Florida: *C. bahamensis* and *C. globosa*, the latter of which is endangered. The species *C. sebastena*, known as Geiger tree, was once thought to be native to the Florida Keys, but is now considered an exotic introduction still beautifying south Florida landscapes. Because several species were submitted for identification, a review of the major species found in Florida is provided below. The taxonomy of this family, like many in the plant kingdom, is

1a – *Cordia myxa* (Assyrian plum) fruit
Photo by Marco Schmidt, wikispecies

1b – *Cordia boissieri* (Mexican olive) flower
Photo from Top Tropicals

1c – *Cordia collococca* (clammy cherry) fruit.
Photo by O. M. Montiel, Missouri Botanical Garden

subject to revision. Several species traditionally in *Cordia* are now recognized by some authorities as belonging in the genus, *Varronia,* as noted in the following table. (*C. myxa*: Osceola County; B2019-356; Terrence D. Williams, USDA; 3 April 2019; *C. boissieri*: Broward County; B2019-463; John Caruso, USDA; 29 April 2019; *C. collococca:* Palm Beach County; B2019-477; Matthew Miller; 30 April 2019; and *C. myxa*: Miami-Dade County; B2019-539; Jake M. Farnum, CAPS; 21 May 2019.) (Correll and Correll 1982; Huxley 1992; Wunderlin and Hansen 2011; Wunderlin, Hansen and Franck 2018; https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomyquery.aspx [accessed 17 July 2019]; http://www.theplantlist.org/tpl1.1/record/kew-2736585 [accessed 17 July 2019].)

SPECIES	COMMON NAME	GROWTH FORM	LEAF MARGIN	LEAF SHAPE	INFLORESCENCE	FRUIT
Cordia bahamensis (= Varronia bahamensis)	Bahama manjack	shrub, rarely small tree	entire to few-toothed	linear, ovate or obovate	several to many flowered heads, peduncle as long as or shorter than the leaves	ovoid drupe, red to black, 3-4 mm long
Cordia boissieri	Mexican olive, ancahuita	tree to 8 m	entire to crenate	elliptic-ovate	paniculate cyme	reddish brown, 1.3 cm long
Cordia collococca	clammy cherry, manjack	tree to 22 m	entire	ovate	corymb or panicle, separate male and female flowers	red to red orange, globose, 1 cm long
Cordia curassavica (= Varronia curassavica)	black sage	shrub to 5 m	serrate	lanceolate, ovate, or oblong-ovate	terminal scorpiod spike	red, ovoid to oblong, about 5 mm long, within persistent calyx
Cordia dichotoma	fragrant manjack	tree to 4 m	undulate dentate	ovate or elliptic	flat-topped cyme	subglobose, 1.5 cm long, yellow or red, base enclosed in calyx
Cordia globosa (= Varronia globosa)	Curaçao bush	shrub 1-3 m	crenate to dentate	rhomboid, lanceolate or ovate	globose head	red, ovoid to subglobose, 3-4 mm long, within persistent calyx
Cordia myxa	Assyrian plum, clammy cherry	tree or shrub to 12 m	undulate to dentate	ovate, suborbicular or cordate	loose terminal panicle	yellow or orangy pink
Cordia sebestena	Geiger tree	shrub or tree to 8 m	entire, undulate, or distally dentate	ovate or ovate-elliptic	few flowered corymb or cyme	ovoid, 2-4 cm, in white, fleshy calyx

2 *Lawsonia inermis* L. (henna, mignonette tree, Egyptian privet), from a genus of one or two species, originating in Africa and Asia, from Egypt to the Seychelles and India to Sri Lanka, in the plant family Lythraceae. This species is in the same plant family as the popular ornamental flowering tree, crepe myrtle *(Lagerstroemia indica*). This is the source of the dye, henna, used for body painting and hair coloring. Henna is a shrub or small tree with opposite, glabrous, sub-sessile leaves. The inflorescence is a pyramidal, terminal panicle (like a small crepe myrtle inflorescence). The flowers have four sepals, four white, wrinkled petals and eight stamens. The fruit ages to become a dry, brown capsule, 4-8 mm in diameter with numerous seeds. The dye is prepared by drying the leaves, grinding them into a powder, then mixing the powder with an acidic liquid. (Miami-Dade County; B2019-597; Olga Garcia, USDA; 10 June 2019.)(Huxley 1992; https://npgsweb.ars-grin.gov/gringlobal/taxonomydetail.aspx?id=21699 [accessed 17 July 2019])

2a – *Lawsonia inermis* (henna tree) flowers.
Photo by Dinesh Valke, Wikipedia

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2b - *Lawsonia inermis* (henna) Final product of crushed leaves used for body art.
Photo from Wikipedia

BOTANY IDENTIFICATION TABLE

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

NEW RECORD	COLLECTOR NAME	COUNTY	SAMPLE NUMBER	COLLECTION DATE	GENUS	SPECIES
	Alexander Tasi	Indian River	B2019-301	3/27/2019	*Commelina*	*benghalensis*
	Carolyn P. Hall, Melanie Cain	Volusia	B2019-322	4/4/2019	*Tetrapanax*	*papyrifer*
	Kaitlyn Dietz, Kelly Ussia	St. Johns	B2019-391	4/15/2019	*Ruellia*	*simplex*
	Kelly Ussia, Kaitlyn Dietz	St. Johns	B2019-390	4/15/2019	*Sphagneticola*	*trilobata*
	Kelly Ussia, Kaitlyn Dietz	St. Johns	B2019-392	4/15/2019	*Xanthosoma*	*sagittifolium*
	Kenneth Ellis	St. Johns	B2019-336	4/10/2019	*Triadica*	*sebifera*
	Kenneth Ellis	St. Johns	B2019-337	4/10/2019	*Mimosa*	*quadrivalvis*
	Kenneth Ellis	St. Johns	B2019-338	4/10/2019	*Nephrolepis*	*cordifolia*
	Kenneth Ellis	Clay	B2019-339	4/10/2019	*Vicia*	*acutifolia*
	Kenneth Ellis	Clay	B2019-340	4/10/2019	*Cornus*	*foemina*
	Kenneth Ellis	Clay	B2019-341	4/10/2019	*Solanum*	*viarum*
	Kenneth Ellis	Clay	B2019-342	4/10/2019	*Cinnamomum*	*camphora*
	Kenneth Ellis	Clay	B2019-343	4/10/2019	*Pueraria*	*montana*
	Kenneth Ellis	Clay	B2019-344	4/10/2019	*Juniperus*	*virginiana*
	Lisa Tyler	Duval	B2019-416	4/15/2019	*Ipomoea*	*indica*
	Lisa Tyler	Duval	B2019-417	4/22/2019	*Cercis*	*canadensis*
	Melanie Cain	Flagler	B2019-330	4/5/2019	*Verbascum*	*virgatum*
	Melanie Cain	St. Johns	B2019-331	4/8/2019	*Colocasia*	*esculenta*
	Nora V. Marquez	Lake	B2019-302	4/1/2019	*Podranea*	*ricasoliana*
	Nora V. Marquez	Sumter	B2019-328	4/5/2019	*Broussonetia*	*papyrifera*
	Nora V. Marquez	Hernando	B2019-348	4/10/2019	*Ricinus*	*communis*
	Nora V. Marquez	Lake	B2019-468	5/2/2019	*Bauhinia*	*variegata*
	Nora V. Marquez	Lake	B2019-484	5/7/2019	*Cuscuta*	*gronovii*
	William Churchill, Riccardo Tordi, Jimmy Hernandez	Palm Beach	B2019-321	4/4/2019	*Gloriosa*	*superba*

ENTOMOLOGY

Compiled by Susan E. Halbert, Ph.D.

This section provides the division's plant protection specialists and other customers with accurate identifications of arthropods. The entomology section also builds and maintains the arthropod reference and research collection (the Florida State Collection of Arthropods (FSCA) with over 10 million specimens) and investigates the biology, biological control, and taxonomy of arthropods.

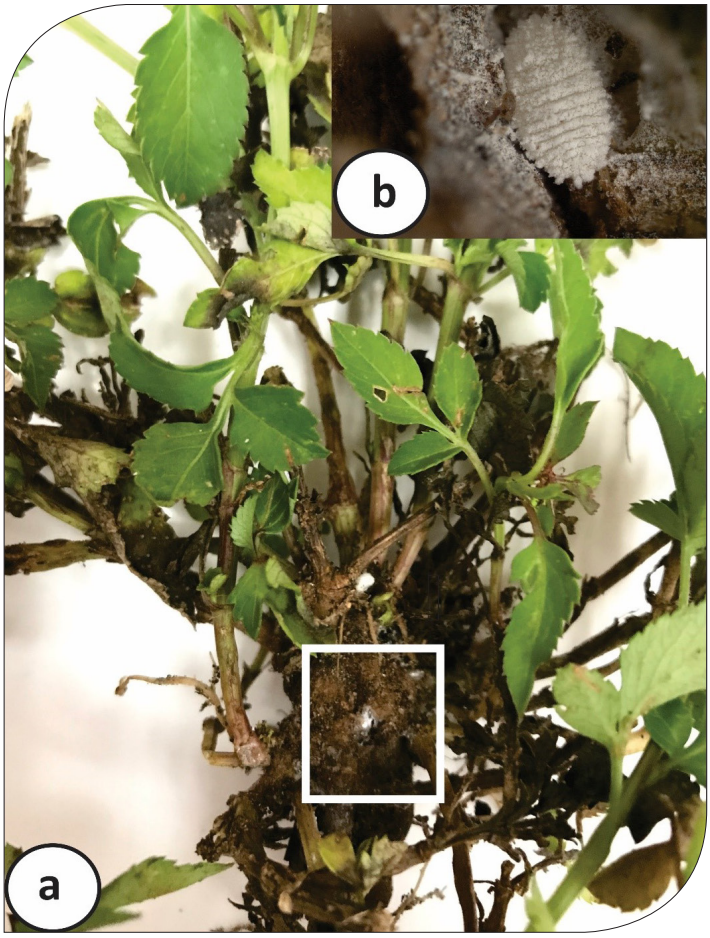
QUARTERLY ACTIVITY REPORT

	APRIL - JUNE	2019 - YEAR TO DATE
Samples submitted	2,210	3,689
Lots Identified	3,192	5,246
Specimens Identified	24,862	53,635

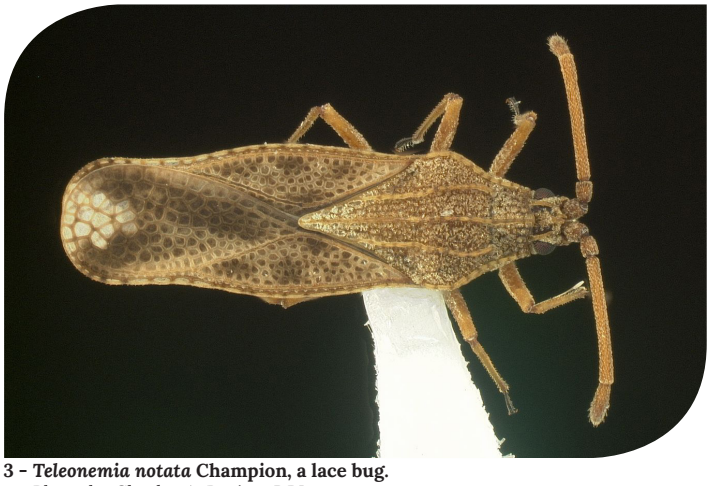
1 ***Aleurovitreus pueblensis* Quaintance & Baker, pepper whitefly, a new Continental USA record.** Pepper whitefly was described from Mexico in 2018. The first sample of pepper whitefly in Florida was associated with its high infestation on *Piper auritum*, root beer plant. This pest may cause economic damage to plant species of Piperaceae. (Alachua County; E2019- 1421; Lyle J. Buss, Department of Entomology and Nematology, University of Florida; 23 March 2019.) (Dr. Muhammad Z. 'Zee' Ahmed.)

2 ***Phenacoccus sisymbriifolium* Granara de Willink, a mealybug, new Continental USA record.** This mealybug is native to South America. Several new Florida host and county records of *P. sisymbriifolium* have been recorded in the last two months. There is no information about the pest status of this species in the literature; however, *P. sisymbriifolium* has been reported from Solanaceae, which includes commercial vegetable and ornamental plants such as tomato, potato, eggplant and petunia. All the records from Florida were reported from plants in the Asteraceae, but *P. sisymbriifolium* has the potential to become a pest of Solanaceae in Florida. (Lake County; E2019-93; Nora V. Marquez; 8 January 2019.) (Dr. Muhammad Z. 'Zee' Ahmed.)

3 ***Teleonemia notata* Champion, a lace bug, a new Continental USA record found on *Leucophyllum frutescens*, Texas sage.** This Neotropical lace bug recorded in Mexico, Guatemala, Cuba and Panama is known from several plants, but not previously from any *Leucophyllum* species (Scrophulariaceae). Other recorded hosts are hemi-parasitic plants in the family Orobanchaceae (once included in the Scrophulariaceae) and plants in the family Verbenaceae, making it a potential pest of *Lantana* species in Florida. (Miami-Dade County; E2019-3020; Olga Garcia, USDA; 29 May 2019.) (Dr. Laura T. Miller, West Virginia Department of Agriculture; Alexander H. Knudson, Ph. D. student, North Dakota State University; and Dr. Susan E. Halbert.)



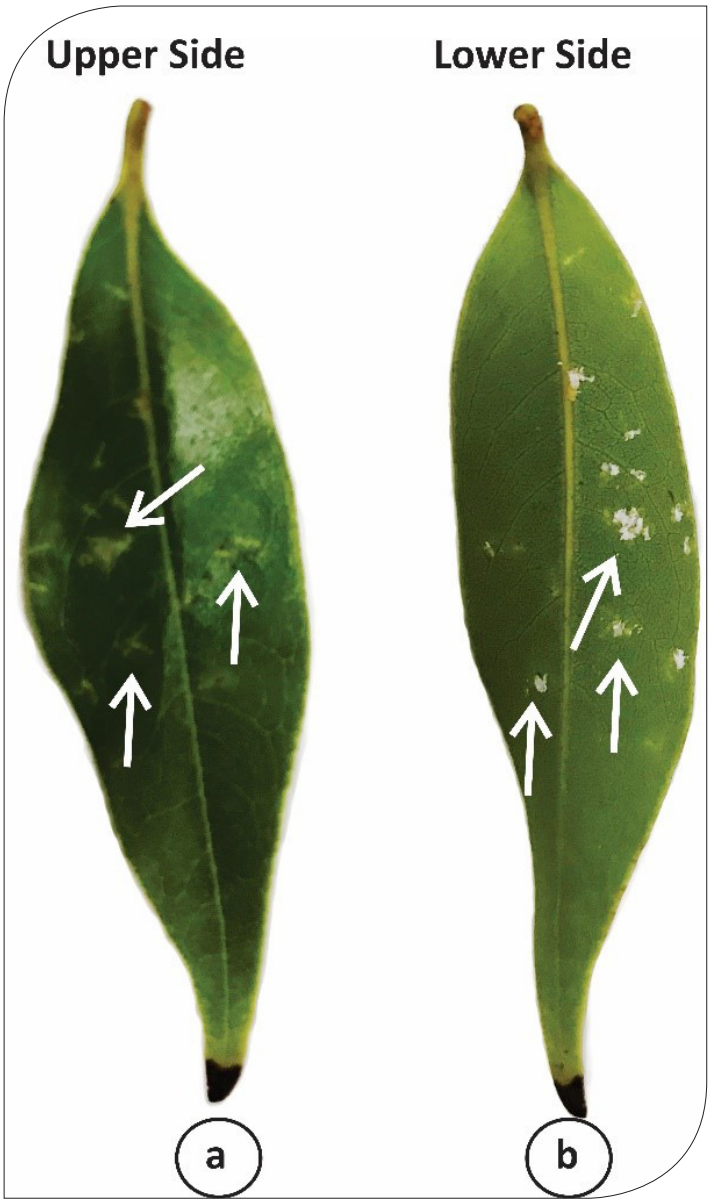
2 – (a) *Phenacoccus sisymbriifolium*, a mealybug, infestation on roots of *Bidens alba*. (b) mealybug, close-up of white wax on roots and adult female on roots.
Photo by Muhammad Z. 'Zee' Ahmed, DPI



3 – *Teleonemia notata* Champion, a lace bug.
Photo by Charles A. Boring, DPI

4 ***Thysanofiorinia leei*** **Williams, lychee leei scale, a new Continental USA record, found on *Litchi chinensis*.** The lychee leei scale, native to Asia, has recently been found in several counties in southern Florida. The overall economic impact of lychee leei scale is unknown. However, the movement of plant material and the increasing populations in the field may allow the lychee leei scale to become an economic pest in the future for lychee crops. *Thysanofiorinia leei* is reported from two hosts, *Litchi chinensis and Nephelium sp.* (Sapindaceae), but it has been detected only on lychee in Florida. (Broward County; E2019-1545; Shannan T. Webb; 16 April 2019.) (Dr. Muhammad Z. 'Zee' Ahmed.)

5 ***Glycobius speciosus*** **(Say), a cerambycid beetle, a new Florida State record.** This beautifully colored longhorned beetle, also known as the sugar maple borer, is an uncommon species occurring in the eastern United States. The larvae of this species tend to excavate under the bark of their host, *Acer saccharum* (sugar maple). This species feeds on living trees. This beetle has not been previously recorded from Florida and is not a pest. (Jackson County; E2019-2704; Morgan A. Byron and Robert M. Leahy, USDA; 14 May 2019.) (Krystal L. Ashman.)



4 – *Thysanofiorinia leei* Williams, lychee leei scale, infestation on lychee leaflet. (a) Upper side showing chlorosis marks; (b) White wax and light yellow to green immature stages of lychee leei scale.
Photo by Muhammad Z. 'Zee' Ahmed, DPI.

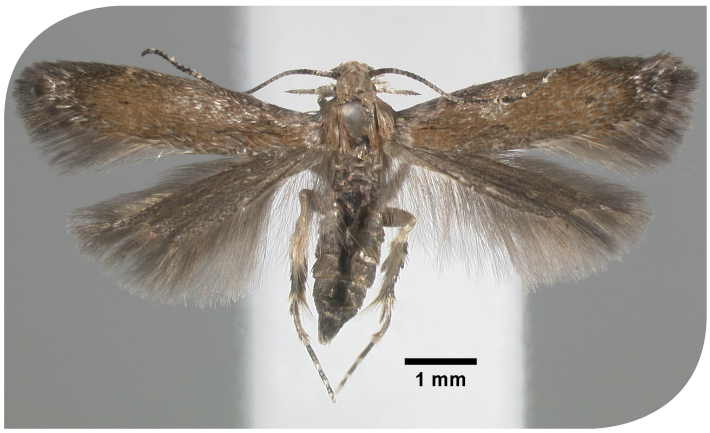
5 – *Glycobius speciosus* (Say), a cerambycid beetle.
Photo by Jennifer Forman Orth, bugguide.net

6 ***Hoplitimyia* cf. *mutabilis* (Fabricius), a soldier fly, a new Florida State record.** None of the 10 members of this mostly Neotropical genus have been reported previously from Florida. The three species recorded from the United States are mostly restricted to states west of the Mississippi River. This specimen has color markings most similar to *H. mutabilis*, but it is notably smaller than reference specimens in the Florida State Collection of Arthropods. Its biology is not known. (Manatee County; E2019-1520; Susan B. Youngblood; 22 March 2019.) (Dr. Gary J. Steck.)

7 ***Monochroa* sp. cf. *cytisella*, a bracken-galling moth, a species new to science, found on *Pteridium aquilinum* (bracken fern).** The caterpillars of this undescribed native moth make gall-like swellings in the rachis of bracken fern, stunting and bunching up the pinnae. It is related to the Old World *M. cytisella* (Curtis), which it was considered to be at one point; however, there are slight differences in the mouthparts, maculation and male genitalia, and the COI barcode sequences are >6% different. Updating the identification involved consulting several colleagues and rearing more specimens, which took a few years because the damage is infrequent, local, and visible for only a month in the spring. Specimens have been collected in Alachua, Citrus and Hamilton counties and in North Carolina. At least two other species of *Monochroa* Heinemann in North America make similar galls on bracken fern. (Alachua County; E2008-1829; Lyle J. Buss, University of Florida; 28 April 2007.) (Dr. James E. Hayden and Matthew R. Moore.)

6a – *Hoplitimyia* cf. *mutabilis* (Fabricius) female, dorsal view.
Photo by Gary J. Steck, DPI

6b – *Hoplitimyia* cf. *mutabilis* (Fabricius) female, lateral view.
Photo by Gary J. Steck, DPI



7a – *Monochroa* sp., a bracken-galling moth.
Photo by James E. Hayden, DPI

7b – *Pteridium aquilinum*, bracken fern, with bunched pinnae caused by *Monochroa*.
Photo by James E. Hayden, DPI.

ENTOMOLOGY SPECIMEN REPORT

Following are tables with entries for records of new hosts or new geographical areas for samples identified in the current volume's time period as well as samples of special interest. An abbreviated table, with all the new records, but less detail about them, is presented below. The full version with more complete data is downloadable as a PDF or Excel spreadsheet.

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

PLANT SPECIES	PLANT COMMON NAME	ARTHROPOD GENUS AND SPECIES	ARTHROPOD COMMON NAME	COLLECTOR	RECORD
Ambrosia artemisiifolia	common ragweed	*Phenacoccus sisymbriifolium*	mealybug	Nora V. Marquez	NEW FLORIDA HOST RECORD
Ambrosia artemisiifolia	common ragweed	*Phenacoccus sisymbriifolium*	a mealybug	Abby L. Bartlett, Nora V. Marquez	NEW FLORIDA COUNTY RECORD
Amphitecna latifolia	black calabash	*Danothrips trifasciatus*	thrips	Jake M. Farnum, Lola J. Heasley	NEW FLORIDA COUNTY RECORD
Anethum graveolens	dill	*Autographa californica*	Alfalfa Looper	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Bidens alba	beggarticks, romerillo, Spanish needle	*Phenacoccus sisymbriifolium*	mealybug	Nora V. Marquez	NEW US CONTINENTAL RECORD; NEW FLORIDA HOST RECORD
Bidens alba	beggarticks, romerillo, Spanish needle	*Phenacoccus sisymbriifolium*	mealybug	Nora V. Marquez	NEW FLORIDA COUNTY RECORD
Bidens alba	beggarticks, romerillo, Spanish needle	*Phenacoccus sisymbriifolium*	a mealybug	Nora V. Marquez	NEW FLORIDA COUNTY RECORD
Bidens alba	beggarticks, romerillo, Spanish needle	*Pseudococcus sorghiellus*	trochanter mealybug	Lily A. Deeter	NEW FLORIDA COUNTY RECORD
Bourreria succulenta	pigeon-berry, bodywood, Bahama strongbark	*Pelitropis rotulata*	a tropiduchid planthopper	Olga Garcia	NEW FLORIDA HOST RECORD
Brassica oleracea	kale, decorative kale, flowering cabbage, collards, borecole	*Cavariella aegopodii*	carrot aphid	Catherine E. White, Dyrana N. Russell, Logan Cutts	REGULATORY SIGNIFICANT
Brassica oleracea	broccoli, cauliflower	*Pronotacantha annulata*	a stilt bug	Catherine E. White, Dyrana N. Russell, Logan Cutts	REGULATORY SIGNIFICANT
Cannabis sativa	hemp	*Aculops cannabicola*	hemp russet mite	Muhammad 'Zee' Z. Ahmed, Samuel J. Bolton, Susan E. Halbert	REGULATORY SIGNIFICANT
Cannabis sativa	hemp	*Aculops cannabicola*	hemp russet mite	Kyle E. Schnepp, Samuel J. Bolton	REGULATORY SIGNIFICANT
Cannabis sativa	hemp	*Aculops cannabicola*	hemp russet mite	Anna J. Gourlay, Lance S. Osborne	REGULATORY SIGNIFICANT
Cannabis sativa	hemp	*Aculops cannabicola*	hemp russet mite	Anthony Puppelo	REGULATORY SIGNIFICANT
Cannabis sativa	hemp	*Aculops cannabicola*	hemp russet mite	Anthony Puppelo	REGULATORY SIGNIFICANT
Cannabis sativa	hemp	*Phorodon cannabis*	hemp aphid	Anna J. Gourlay, Lance Osborne	REGULATORY SIGNIFICANT
Capsicum annuum	pepper	*Bactericera cockerelli*	potato psyllid	Jeanie P. Frechette	REGULATORY SIGNIFICANT
Capsicum annuum	pepper	*Bactericera cockerelli*	potato psyllid	Jeanie P. Frechette	REGULATORY SIGNIFICANT
Capsicum annuum	poblano pepper	*Bactericera cockerelli*	potato psyllid	Carlos Averhoff-Chirino, Jeanie P. Frechette	REGULATORY SIGNIFICANT
Capsicum annuum	poblano pepper	*Bactericera cockerelli*	potato psyllid	Carlos Averhoff-Chirino, Jeanie P. Frechette	REGULATORY SIGNIFICANT
Capsicum annuum	pepper	*Bryobia* sp.	spider mite	Catherine E. White, Dyrana N. Russell, Logan Cutts	REGULATORY SIGNIFICANT
Cichorium endivia	cultivated endive	*Acyrthosiphon malvae*	an aphid	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Cichorium endivia	cultivated endive	*Craspedolepta martini*	a psyllid	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Cichorium endivia	cultivated endive	*Lygus hesperus*	a western lygus bug	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Cinnamomum camphora	camphortree	*Dryadaula* sp. 2	dryadaulid moth	Diane McColl	NEW FLORIDA COUNTY RECORD
Citrus aurantium	sour orange	*Empoasca chelata*	a leafhopper	Diane McColl	NEW FLORIDA COUNTY RECORD
Citrus aurantium	sour orange	*Parlatoria ziziphi*	black parlatoria scale	Olga Garcia	QUARANTINABLE PEST
Citrus sinensis	sweet orange, navel orange	*Chrysomya megacephala*	a blow fly	Alesha M. Fuller	NEW FLORIDA COUNTY RECORD

PLANT SPECIES	PLANT COMMON NAME	ARTHROPOD GENUS AND SPECIES	ARTHROPOD COMMON NAME	COLLECTOR	RECORD
Citrus sinensis	sweet orange, navel orange	*Derobrachus thomasi*	Longhorned beetle	Jessica D. Mills	NEW FLORIDA COUNTY RECORD
Citrus sinensis	sweet orange, navel orange	*Nipaecoccus viridis*	a mealybug	Homeowner	NEW FLORIDA COUNTY RECORD
Citrus sinensis	sweet orange, navel orange	*Nipaecoccus viridis*	Lebbeck Mealybug	Jason A. Johnson	QUARANTINABLE PEST
Citrus sinensis	sweet orange, navel orange	*Nipaecoccus viridis*	Lebbeck Mealybug	Helen Lemay	QUARANTINABLE PEST
Citrus sinensis	sweet orange, navel orange	*Prepops rubrovittatus*	a plant bug	Jerri A. Shirey	NEW FLORIDA COUNTY RECORD
Coccoloba diversifolia	pigeon plum, tietongue	*Melanaspis coccolobae*	seagrape scale	Carlos A. Millan	NEW FLORIDA COUNTY RECORD
Coccoloba uvifera	seagrape	*Japananus hyalinus*	a leafhopper	Mary E. Graham	NEW FLORIDA COUNTY RECORD
Cocos nucifera	coconut palm	*Aneurus minuta*	a flat bug	Abby L. Bartlett	NEW FLORIDA COUNTY RECORD
Conyza canadensis	Canadian horseweed	*Ferrisia malvastra*	mealybug	Nora V. Marquez	NEW FLORIDA HOST RECORD
Coriandrum sativum	coriander, cilantro, Chinese parsley, ngo	*Autographa californica*	Alfalfa Looper	Catherine E. White, Dyrana N. Russell, Logan Cutts	REGULATORY SIGNIFICANT
Crotalaria sp.	rattlebox	*Xyonysius basalis*	a seed bug	Jimmy Hernandez, Ricardo G. Tordi, William 'Bill' C. Churchill	NEW FLORIDA COUNTY RECORD
Cyclospermum leptophyllum	marsh parsley	*Aphis middletonii*	erigeron root aphid	Nora V. Marquez	NEW FLORIDA HOST RECORD
Dimocarpus longan	longan	*Nipaecoccus viridis*	a mealybug	Cheryl A. Jones, Sam E. Hart	REGULATORY SIGNIFICANT
Dioscorea bulbifera	air potato; potato yam; air yam	*Marmara smilacisella*	leafmining moth	Bobbe A. Rose	NEW FLORIDA HOST RECORD
Erigeron quercifolius	oakleaf fleabane	*Aphis middletonii*	erigeron root aphid	Nora V. Marquez	NEW FLORIDA COUNTY RECORD
Eriobotrya japonica	loquat, Japanese plum	*Alebra aurea*	a leafhopper	Diane McColl	NEW FLORIDA COUNTY RECORD
Eriobotrya japonica	loquat, Japanese plum	*Empoasca perlonga*	a leafhopper	Diane McColl	NEW FLORIDA COUNTY RECORD
Eucalyptus sp.		*Ctenarytaina spatulata*	rose gum psyllid	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Foeniculum vulgare	fennel	*Cavariella aegopodii*	carrot aphid	Abby L. Bartlett, Catherine E. White, Dyrana N. Russell, Eric M. Dougherty, Logan Cutts, Patricia K. 'Karen' Coffey, Scott Curry	REGULATORY SIGNIFICANT
Foeniculum vulgare	fennel	*Dysaphis apiifolia*	aphid	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Foeniculum vulgare	fennel	*Lygus elisus*	pale legume bug	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Foeniculum vulgare	fennel	*Lygus hesperus*	a western lygus bug	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Foeniculum vulgare	fennel	*Lygus hesperus*	a western lygus bug	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Foeniculum vulgare	fennel	*Nothodelphax consimilis*	a delphacid planthopper	Abby L. Bartlett, Catherine E. White, Dyrana N. Russell, Eric M. Dougherty, Logan Cutts, Patricia K. 'Karen' Coffey, Scott Curry	REGULATORY SIGNIFICANT
Foeniculum vulgare	fennel	*Nothodelphax consimilis*	a delphacid planthopper	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Gamochaeta antillana	Caribbean purple everlasting; delicate everlasting	*Phenacoccus sisymbriifolium*	mealybug	Nora V. Marquez	NEW FLORIDA HOST RECORD
Gnaphalium sp.		*Phenacoccus sisymbriifolium*	mealybug	Lily A. Deeter	NEW FLORIDA COUNTY RECORD
Gossypium sp.	cotton	*Pectinophora gossypiella*	pink bollworm	Jake M. Farnum	QUARANTINABLE PEST
Hibiscus sp.		*Anthonomus testaceosquamosus*	hibiscus bud weevil	Alexander D. Tasi	NEW FLORIDA COUNTY RECORD
Hyophorbe lagenicaulis	bottle palm; pignut palm	*Fiorinia phantasma*	Phantasma scale	Lane M. Smith	NEW FLORIDA HOST RECORD
Hypericum sp.		*Serica sandiegensis*	beetle	Lilliam H. Otero Pujol	REGULATORY SIGNIFICANT
Juniperus sp.		*Eratoneura manus*	an oak leafhopper	Catherine E. White, Dyrana N. Russell, Logan Cutts	REGULATORY SIGNIFICANT

PLANT SPECIES	PLANT COMMON NAME	ARTHROPOD GENUS AND SPECIES	ARTHROPOD COMMON NAME	COLLECTOR	RECORD
Juniperus virginiana	eastern red cedar	*Scaphoideus titanus*	a leafhopper	Melanie Cain	NEW FLORIDA COUNTY RECORD
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Acyrthosiphon lactucae*	lettuce aphid	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Acyrthosiphon lactucae*	lettuce aphid	Catherine E. White, Dyrana N. Russell, Logan Cutts	REGULATORY SIGNIFICANT
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Acyrthosiphon lactucae*	lettuce aphid	Eric M. Dougherty	REGULATORY SIGNIFICANT
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Acyrthosiphon lactucae*	lettuce aphid	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Acyrthosiphon lactucae*	lettuce aphid	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Acyrthosiphon malvae*	an aphid	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Acyrthosiphon malvae*	an aphid	Catherine E. White, Dyrana N. Russell, Logan Cutts	REGULATORY SIGNIFICANT
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Autographa californica*	Alfalfa Looper	Eric M. Dougherty	REGULATORY SIGNIFICANT
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Autographa californica*	Alfalfa Looper	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Autographa californica*	Alfalfa Looper	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Autographa californica*	Alfalfa Looper	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Ceratagallia californica*	a leafhopper	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Craspedolepta* sp.	a psyllid	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Deltocephalus fuscinervosus*	a leafhopper	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Liriomyza langei*	California pea leafminer	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Lygus elisus*	pale legume bug	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Lygus elisus*	pale legume bug	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Lygus hesperus*	a western lygus bug	James E. 'Eddie' Anderson	REGULATORY SIGNIFICANT
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Metopolophium dirhodum*	rose grass aphid	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Metopolophium dirhodum*	rose grass aphid	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Nasonovia ribisnigri*	currant-lettuce aphid	Eric M. Dougherty, Scott Curry	REGULATORY SIGNIFICANT
Lactuca sativa	lettuce, romaine lettuce, leaf lettuce	*Trioza* sp.	a jumping plant louse	Catherine E. White, Dyrana N. Russell, Logan Cutts	REGULATORY SIGNIFICANT
Lantana involucrata	buttonsage	*Omolicna joi*	Florida palm derbid	Olga Garcia	NEW FLORIDA COUNTY RECORD
Lantana involucrata	buttonsage	*Pelitropis rotulata*	a tropiduchid planthopper	Olga Garcia	NEW FLORIDA HOST RECORD
Lantana involucrata	buttonsage	*Teleonemia notata*	a lace bug	Olga Garcia	NEW FLORIDA HOST RECORD
Leucophyllum frutescens	cenizo, Texas-sage	*Teleonemia notata*	a lace bug	Olga Garcia	NEW US CONTINENTAL RECORD; NEW FLORIDA HOST RECORD
Litchi chinensis	litchi, leechee	*Aceria litchii*	Lychee erinose mite	Doug L. Caldwell	NEW FLORIDA COUNTY RECORD
Litchi chinensis	litchi, leechee	*Thysanofiorinia leei*	Lychee leei scale	Shannan T. Webb	NEW US CONTINENTAL RECORD
Litchi chinensis	litchi, leechee	*Thysanofiorinia leei*	Lychee leei scale	Leonora J. Coleman	NEW FLORIDA COUNTY RECORD
Litchi chinensis	litchi, leechee	*Thysanofiorinia leei*	Lychee leei scale	Terri L. Jones	NEW FLORIDA COUNTY RECORD
Litchi chinensis	litchi, leechee	*Thysanofiorinia leei*	Lychee leei scale	Matt W. Brodie, Richard L. Blaney	NEW FLORIDA COUNTY RECORD
Litchi chinensis	litchi, leechee	*Thysanofiorinia leei*	Lychee leei scale	Lane M. Smith, Sallie H. Simmons	NEW FLORIDA COUNTY RECORD

PLANT SPECIES	PLANT COMMON NAME	ARTHROPOD GENUS AND SPECIES	ARTHROPOD COMMON NAME	COLLECTOR	RECORD
Magnolia ashei		*Thrips hawaiiensis*	thrips	Lisa M. Hassell	NEW FLORIDA HOST RECORD
Magnolia grandiflora	southern magnolia	*Vanduzea segmentata*	a treehopper	Kelly K. Douglas, Mary Jane Echols	NEW FLORIDA COUNTY RECORD; NEW FLORIDA HOST RECORD
Magnolia sp.		Anthocoridae		Carolyn P. Hall	NEW FLORIDA COUNTY RECORD
Mangifera indica	mango	*Cardiacephala modesta*	a stilt-legged fly	Miguel L. Justiz	NEW FLORIDA COUNTY RECORD
Mangifera indica	mango	*Graminella nigripennis*	a leafhopper	Cecilia Carrero-Turnbull	NEW FLORIDA COUNTY RECORD
Mosiera longipes	mangrove berry	*Abgrallaspis cyanophylli*	cyanophyllum scale	Jake M. Farnum	NEW FLORIDA HOST RECORD
Mosiera longipes	mangrove berry	*Aleuroplatus validus*	whitefly	Jake M. Farnum, Jimi L. Sadle, Ryan F. Baer	NEW FLORIDA COUNTY RECORD
Mosiera longipes	mangrove berry	*Aleurotrachelus* n.sp.	a whitefly	Jake M. Farnum	NEW TO SCIENCE RECORD
Mosiera longipes	mangrove berry	*Aleurotrachelus* n.sp.	a whitefly	Jake M. Farnum	NEW TO SCIENCE RECORD
Mosiera longipes	mangrove berry	*Pseudoparlatoria parlatorioides*	false parlatoria scale	Jake M. Farnum, Jimi L. Sadle, Ryan F. Baer	NEW FLORIDA COUNTY RECORD; NEW FLORIDA HOST RECORD
Nicotiana tabacum	cultivated tobacco	*Arorathrips mexicanus*	a grass thrips	Abby L. Bartlett	NEW FLORIDA COUNTY RECORD
Ocimum basilicum	basil	*Neortholomus jamaicensis*	a seed bug	Olga Garcia	NEW FLORIDA HOST RECORD
Persea palustris	swamp bay	*Inglisia vitrea*	glassy scale	Jake M. Farnum	NEW FLORIDA COUNTY RECORD; NEW FLORIDA HOST RECORD
Petroselinum crispum	parsley	*Cavariella aegopodii*	carrot aphid	Abby L. Bartlett, Catherine E. White, Dyrana N. Russell, Eric M. Dougherty, Logan Cutts, Patricia K. 'Karen' Coffey, Scott Curry	REGULATORY SIGNIFICANT
Petroselinum crispum	parsley	*Ctenarytaina spatulata*	rose gum psyllid	Abby L. Bartlett, Catherine E. White, Dyrana N. Russell, Eric M. Dougherty, Logan Cutts, Patricia K. 'Karen' Coffey, Scott Curry	REGULATORY SIGNIFICANT
Petroselinum crispum	parsley	*Hyadaphis foeniculi*	honeysuckle aphid	Abby L. Bartlett, Catherine E. White, Dyrana N. Russell, Eric M. Dougherty, Logan Cutts, Patricia K. 'Karen' Coffey, Scott Curry	REGULATORY SIGNIFICANT
Piper auritum	Veracruz pepper, root beer plant, hoja santa, Mexican pepperleaf	*Aleurovitreus pueblensis*	a pepper whitefly	Lyle J. Buss	NEW US CONTINENTAL RECORD
Platycladus sp.		*Cinara louisianensis*	an aphid	Kathy A. Gonzalez	NEW FLORIDA COUNTY RECORD
Polygonella polygama	October flower	*Pulvinaria urbicola*	urbicola soft scale	Kyle E. Schnepp	NEW FLORIDA COUNTY RECORD; NEW FLORIDA HOST RECORD
Polygonella polygama	October flower	*Toumeyella liriodendri*	tuliptree scale	Kyle E. Schnepp	NEW FLORIDA HOST RECORD
Pseudophoenix sargentii	buccaneer palm, Sargent's cherry palm, hog palm, datelet, dummy date	*Aleurodicus dispersus*	a whitefly	Jake M. Farnum, Phellicia P. Perez	NEW FLORIDA HOST RECORD
Pteridium aquilinum	brackenfern	*Monochroa sp. cf. cytisella*	bracken-galling moth	Lyle J. Buss	NEW TO SCIENCE RECORD
Quercus shumardii	Shumard oak	*Thelaxes suberi*	southern oak thelaxid	Tavia L. Gordon	QUARANTINABLE PEST
Quercus sp.	oak	*Agalliopsis cervina*	a leafhopper	Diane McColl	NEW FLORIDA COUNTY RECORD
Quercus sp.	oak	*Alebra aurea*	a leafhopper	Diane McColl	NEW FLORIDA COUNTY RECORD
Quercus sp.	oak	*Salina celebensis*	Sulawesi grass springtail	Angela C. Ortiz	NEW FLORIDA COUNTY RECORD
Quercus sp.	oak	*Seira brasiliana*	springtail	Angela C. Ortiz	NEW FLORIDA COUNTY RECORD
Quercus sp.	oak	*Tropidosteptes quercicola*	a mirid plant bug	Angela C. Ortiz	NEW FLORIDA COUNTY RECORD
Quercus virginiana	live oak	*Cyrtolobus togatus*	a treehopper	Denise L. Zywica	NEW FLORIDA COUNTY RECORD

PLANT SPECIES	PLANT COMMON NAME	ARTHROPOD GENUS AND SPECIES	ARTHROPOD COMMON NAME	COLLECTOR	RECORD
Rhaphiolepis sp.		*Telonaca alta*	a treehopper	Diane McColl	NEW FLORIDA COUNTY RECORD
Sabal palmetto	cabbage palm, palmetto	*Gonoporomiris mirificus*	a plant bug	Olga Garcia	NEW FLORIDA HOST RECORD
Stachytarpheta mutabilis	changeable velvetberry	*Pulvinaria urbicola*	urbicola soft scale	Lily A. Deeter	NEW FLORIDA COUNTY RECORD
Triadica sebifera	Chinese tallow tree; popcorn tree	*Ancylosis bonhoti*	a phycitine moth	Diane McColl	NEW FLORIDA COUNTY RECORD
Undetermined	sedge	*Dysmicoccus brevipes*	pineapple mealybug	Lily A. Deeter	NEW FLORIDA COUNTY RECORD
Vitis vinifera	wine grape; table grape; European grape	*Aufeius impressicollis*	a scentless plant bug	Catherine E. White, Christina Urbina, Dyrana N. Russell, Eric M. Dougherty, Logan Cutts, Scott Curry, Tavia L. Gordon	REGULATORY SIGNIFICANT
Zea mays	corn; maize; Indian corn; elote	*Frankliniella williamsi*	thrips	Catherine E. White, Dyrana N. Russell, Logan Cutts	REGULATORY SIGNIFICANT
		Acutaspis umbonifera	an armored scale	Mary P. Sellers	NEW FLORIDA COUNTY RECORD
		Agrotis apicalis	a noctuid moth	Alexander D. Tasi	NEW FLORIDA COUNTY RECORD
		Cyrtolobus fenestratus	tree hopper	Catherine D. Turner	NEW FLORIDA COUNTY RECORD
		Dendroctonus frontalis	southern pine beetle	James Tootle	NEW FLORIDA COUNTY RECORD
		Dendroctonus terebrans	bark beetle	James Tootle	NEW FLORIDA COUNTY RECORD
		Dryadaula sp. 2	dryadaulid moth	Kyle E. Schnepp	NEW FLORIDA COUNTY RECORD
		Epipagis forsythae	a crambid moth	George T. Notary	NEW FLORIDA COUNTY RECORD
		Eulepte gastralis	crambid moth	Haydee I. Escobar	SIGNIFICANT FIND
		Glycobius speciosus	sugar maple borer	Morgan A. Byron, Robert M. Leahy	NEW FLORIDA STATE RECORD
		Gnorimella maculosa	scarab beetle	Morgan A. Byron, Robert M. Leahy	NEW FLORIDA COUNTY RECORD
		Hoplitimyia sp.	a soldier fly	Susan B. Youngblood	NEW FLORIDA STATE RECORD
		Hylesinus aculeatus	bark beetle	Morgan A. Byron, Robert M. Leahy	NEW FLORIDA COUNTY RECORD
		Ischnodemus variegatus	West Indian marsh grass bug	Stephen Friedt	NEW FLORIDA COUNTY RECORD
		Nysius sp.	a false chinch bug	Catherine E. White, Dyrana N. Russell, Logan Cutts	REGULATORY SIGNIFICANT
		Plectrodera scalator	Longhorned beetle	Dawn Cermak, Laura Ureta	NEW FLORIDA COUNTY RECORD
		Poecilanthrax lucifer	a bee fly	Stephen Friedt	NEW FLORIDA COUNTY RECORD
		Salbia melanobathrum	a crambid moth	James E. Hayden	NEW FLORIDA COUNTY RECORD
		Salbia melanobathrum	a crambid moth	James T. Vargo	SIGNIFICANT FIND
		Scaphoideus titanus	a leafhopper	Diane McColl	NEW FLORIDA COUNTY RECORD
		Scolytus multistriatus	bark beetle	Morgan A. Byron, Robert M. Leahy	NEW FLORIDA COUNTY RECORD
		Sobarocephala dreisbachi	a clusiid fly	Mary E. Graham	NEW FLORIDA COUNTY RECORD
		Solenopsis xyloni	southern fire ant	Catherine E. White, Dyrana N. Russell, Logan Cutts	REGULATORY SIGNIFICANT

NEMATOLOGY

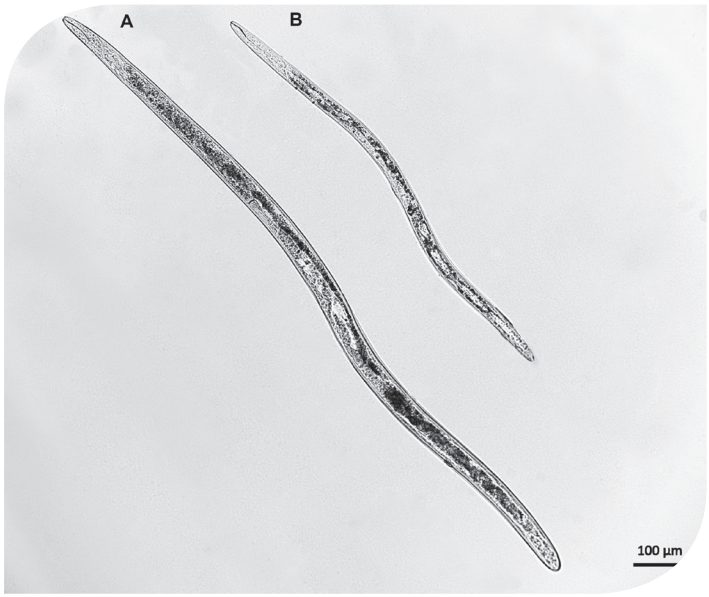
Compiled by Renato N. Inserra, Ph.D., Janete A. Brito, Ph.D., Sai Qiu, M.S.,
Larry L. Violett, B.S. and Silvia J. Vau, Ph.D.

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

	APRIL - JUNE	2019 - YEAR TO DATE
Morphological identifications	3,776	**7,919**
Molecular identifications *	415	**820**
Total identifications	4,191	**8,739**

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



1 – Micrograph of stubby root nematodes: (a) Female of *Trichodorus obtusus*. (b) Female of *Nanidorus minor*. Note the larger body of *T. obtusus* compared to *N. minor*.
Photo by Silvia J. Vau and Jeffrey W. Lotz, DPI

Nematodes of Special Interest

1 ***Nanidorus minor*** (Allen, 1957) Siddiqi, 1980 and ***Trichodorus obtusus*** Cobb, 1913 were detected in a pasture land where mixed grasses, including Bermuda grass (*Cynodon dactylon*), were growing. (Seminole County; N19-00309, Larry Violett, 11 March 2019.)

The stubby root nematodes are polyphagous root ectoparasite species belonging to the genera *Allotrichodorus* Rodriguez-M, Sher & Siddiqi, 1978, *Ecuadorus* Siddiqi, 2002, *Monotrichodorus* Andrássy, 1980, *Nanidorus* Siddiqi, 1974, *Paratrichodorus* Siddiqi, 1974 and *Trichodorus* Cobb, 1913. Their damage to many plants is accentuated by their ability to transmit viruses of the group *Tobravirus* (Sol *et al*. 1960). Thirty-nine species have been reported in Florida (Lehman 2002). The identity of these Florida trichodorids, however, should be confirmed because these species were listed from records of nematological analyses of regulatory samples submitted to the Florida Department of Agriculture and Consumer Services without data on the morphological characters of the identified populations. In Florida, the prevalent species in cultivated lands are *N. minor*, a vector of *Tobacco Rattle Virus* (TRV), causing corky ringspot disease of potato tuber, and *T. obtusus,* a parasite of turf grasses, causing direct damage to the root system and suppression of grass vigor (Crow, 2017a, b). The identification of these two species in Seminole County was validated by molecular analyses (Subbotin *et al.* 2019) and confirms their wide distribution in the state. Other stubby root nematodes identified by molecular analyses in Florida include *N. renifer* (Siddiqi, 1974) Siddiqi, 1980 and *P. allius* (Jensen, 1963) Siddiqi, 1974. These two species were found in peach orchards in St. Lucie and Charlotte counties, respectively, by Brito *et al.* (2016). The detection of *N. renifer* and *P. allius* in central to southern counties of Florida confirms the occurrence of these two species in Florida as reported by Lehman (2002). The presence of *N. renifer* and *P. allius* in Florida should be of concern to blueberry and potato growers in the state, because the former species damages blueberry in blueberry growing regions of North America (Forge *et al.* 2012) and the latter is an efficient vector of TRV of potato in the Pacific Northwest (Riga *et al.* 2009). Florida populations of *P. allius* should be tested for presence of TRV. The possibility these stubby root nematode species arrived in Florida with peach tree propagative material imported from outside the state for breeding purposes cannot be ruled out.

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Crow, W. T. (2017). Stubby-root nematode, *Nanidorus minor* (Colbran) Siddiqi (syn. *Paratrichodorus minor, Paratrichodorus christiei, Trichodorus minor, Trichodorus christiei*) (Nematoda: Adenophorea: Triplonchida: Diphtherophorina: Trichodoridea: Trichodoridae) University of Florida, IFAS Extension, Gainesville, Florida. Publication # EENY339. 4 pp. (http://edis.ifas.ufl.edu).

Crow, W. T. (2017). Stubby-root nematode, *Trichodorus obtusus* Cobb (syn. *T. proximus*) (Nematoda: Adenophorea: Triplonchida: Diphtherophorina: Trichodoridea: Trichodoridae). University of Florida, IFAS Extension, Gainesville, Florida. Publication # EENY340. 5 pp. (http://edis.ifas.ufl.edu).

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Riga, E., Larsen, R., Eastwell, K., Guerra, N., and Crosslin, J.M. (2009). Rapid detection of Tobacco Rattle Tobravirus in viruliferous *Paratrichodorus allius* from greenhouse and field specimens. *Journal of Nematology* 41: 60-63.

Sol, H. H., van Heuven, J. C., and Seinhorst, J. W. (1960). Transmission of rattle virus and Atropa belladonna virus by nematodes. *Tijdschrift Plantenziekten* 66: 228-231.

Subbotin, S. A., Cid Del Prado Vera, I., Inserra, R. N., Chizhov, V. N., and Decraemer, W. (2019). Molecular characterization of some stubby root nematodes (Nematoda: Trichodoridae) from the USA and other countries. *Nematology* 21 (In press).

COLLECTORS

Collectors submitting five or more samples that were processed for nematological analysis during April - June 2019.

COLLECTOR NAME	SAMPLES PROCESSED
Alford, Brian M.	**16**
Bentley, Michael A.	**142**
Blaney, Richard L.	**6**
Boyar, Jillian	**360**
Burgos, Frank A.	**634**
Clanton, Keith B.	**209**
Curry, Scott	**6**
Dougherty, Eric	**18**
Echols, M. Janie	**34**
Frechette, Jeanie P.	**12**
Gonzalez, Kathy A.	**12**
Hart, Samuel E.	**9**
Landress, Craig J.	**8**
McMahan, Michael C.	**8**
Nolen, Ashley M.	**8**
Ochoa, Ana L.	**287**
Rojas, Eric P.	**462**
Russell, Dyrana N.	**40**
Spriggs, Charles L.	**242**
St. John, David	**83**
Taylor, Donald G.	**18**
Wolfe, C. David	**166**
Yates, Johnny J.	**6**

SAMPLES FOR MORPHOLOGICAL ANALYSIS

	APRIL - JUNE	2019 - YEAR TO DATE
Multistate certification for national and international export	2,001	4,203
California certification	491	849
Pre-movement (citrus nusery certification)	46	138
Site or pit approval (citrus nusery and other certifications)	96	112

OTHER PURPOSES

	APRIL - JUNE	2019 - YEAR TO DATE
Identifications (other organisms)	1	1
Nematology Investigation	0	0
Plant Problems	39	57
Intrastate Survey, Random	187	339
Total	2,861	**5,699**

SAMPLES FOR MOLECULAR ANALYSIS

	APRIL - JUNE	2019 - YEAR TO DATE
Regulatory Purposes	128	**411**
Other Purposes	0	**0**
Identifications	287	**409**
Surveys	0	**0**
Total	415	**820**

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 ***Synchytrium* cfr. *stachydis* M.T. Cook (Java fern gall)** was identified on seedlings of aquatic ferns *Microsorum pteropus* Copel and *Microsorum punctatum* Copel collected from retail centers in Manatee and Orange counties, respectively. Both fern species were originally imported from Texas. This fungus causes gall lesions on the surface of the fern visible only after removal of the surrounding tissue. The lesions contain a single yellow to bright-green resting spore (a structure allowing long term survival of the fungus). *Synchytrium stachydis* was first described as a pathogen of *Stachys crenata* (= *S. agraria*) Raf. in Baton Rouge, Louisiana, and was later reported in Texas on the same host. *Synchytrium stachydis* belongs to the family Synchytriaceae (Chytridiales, Chytridiomycota), a group of microscopic fungal pathogens characterized by growing inside host tissue without the production of conspicuous fruiting bodies forming microscopical motile spores (also called zoospores) and inhabiting soil and aquatic environments. The preliminary molecular identification of this chytrid fungus is not conclusive due to the lack of molecular and biological studies in this group; therefore, the identification presented here is still debatable (as indicated by cfr. in the species name above). A notable and most studied species in this fungal group is *Synchytrium endobioticum* (Schilb.) Percival, the causal agent of potato wart or potato canker, a disease considered to be eradicated in the United States. This is the first report of *S.* cfr. *stachydis* on *Microsorum* seedlings in Florida, most likely infected with unsanitized freshwater or soil. (Manatee County; P2018-98182; James E. Anderson, 18 October 2018 and Orange County; P2018-97038; Kathy A. Gonzalez, 21 June 2018.) (Karling 1955, 1964; Molet *et al.* 2014; Smith *et al.* 2014; https://nt.ars-grin.gov/fungaldatabases/ [accessed 7 July 2019].)

1a - *Synchytrium* cfr. *stachydis* gall structures on surface of *Microsorum pteropus*.
Photo by Debra Jones, DPI

1b - *Synchytrium* cfr. *stachydis* resting spore located in the center of gall structure on *Microsorum pteropus*.
Photo by Debra Jones, DPI

2 Jasmine mosaic associated virus (JMaV) in *Jasminum nitidum* (angelwing jasmine), new Florida state record, in a mixed infection with Jasmine virus H (JaVH), found in an Alachua County temple complex. Angelwing jasmine is an evergreen shrub with sweetly fragrant, snow-white, pinwheel-shaped flowers, grown as a hedge, foundation plant or shrubby ground cover in the southern United States. Previous mixed infections of both viruses were reported in 2018, from Florida and Washington, D.C., for *Jasminum multiflorum* (Burm.f.) Andrews (star jasmine) and angelwing jasmine, respectively. Although mixed infection usually results in an array of virus-

like symptoms in star jasmine, in angelwing jasmine the foliar symptoms are typically line patterns and ring spots. *Jasmine virus H* (JaVH) *a*nd *Jasmine mosaic associated virus* (JMaV) are members of the genus *Pelarspovirus* (family *Tombusviridae*). The identification was based on symptom and molecular analysis using total RNA extracted from symptomatic leaves followed by PCR and DNA sequencing. Since angelwing jasmine is propagated vegetatively, it is possible that dissemination of infected cuttings is responsible for the widespread symptoms. Unlike JMaV, which has only been reported from Washington, D.C., JaVH is more widespread and has been reported from California, Hawaii, Maryland, Washington, D.C. and now in Florida. (Alachua County; P2018-100229; Kishore Dey; 18 September 2018.)

3 ***Cabbage leaf curl virus*** **was found in a legume,** ***Rhynchosia minima*** **(least snoutbean), a new Florida state record.** *Cabbage leaf curl virus* (CaLCuV) is a Begomovirus that infects a wide range of plants in the plant family Brassicaceae (Cruciferae). Over the last few years, this virus has also been isolated from leguminous crops of agricultural and horticultural value in North and South America and in the Caribbean. In the United States, it was first reported in cucurbits and has since been detected in cabbage, collard greens and green beans. It has been isolated from *Rhynchosia minima* (least snoutbean) in Mexico, Jamaica and Ecuador. Least snoutbean is a native, climbing or twining herbaceous vine, with yellow flowers, which can be found growing throughout the state. In Florida, it can grow in a variety of ecosystems, including marginal areas with poor soil types. The leaves exhibited bright yellow and green mosaic symptoms. The identification was based on symptom and molecular analysis using DNA extracted from symptomatic leaves followed by PCR and sequencing. There is some confusion about nomenclature of this virus. In scientific literature, Rhynchosia golden mosaic Yucatan virus (RhGMYuV) has been treated both as a species as well as an isolate of CabLCV. Considering CaLCuV is more specific to plants belonging to Brassicaceae, and RhGMYuV was found infecting plants in the Fabaceae (Leguminosae), virus taxonomists may soon separate them, but RhGMYuV has not yet been listed as a distinct species by the International Committee for Taxonomy of Viruses (ICTV). The virus is transmitted through whiteflies (*Bemisia* sp.). Management of the virus in agricultural crops includes starting with pest free transplants, spraying insecticides at specific points in the growing season to control the population but prevent harm to bees, using UV-reflecting mulch and avoiding planting near crops that can be infested by white-flies, such as beans, cucurbits, cabbage, collard greens, tomato, cotton, soybeans and weed hosts that may serve as reservoirs. The infected sample was collected during a roadside survey (Miami-Dade County; 2019-100318; Olga Garcia, USDA; 6 June 2019).

2 - Line pattern and ringspot on leaves of *Jasminum nitidum*
Photo by Maria C. Velez-Climent, DPI

3 - Cabbage leaf curl virus mosaic pattern on leaves of *Rhynchosia minima*.
Photo by Maria C. Velez-Climent, DPI

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QUARTERLY ACTIVITY REPORT

	APRIL - JUNE	2019 - YEAR TO DATE
Budwood Samples	0	0
Citrus black spot	53	244
Citrus canker	162	191
Citrus greening / HLB	1,247	1,331
Honeybees	0	1
Interdictions	41	64
Laurel wilt	2	4
Pathology, general	639	1139
Soil	75	121
Sudden oak death	1	2
Sweet orange scab-like disease	2	6
Texas phoenix palm decline	30	110
Water	1	1
Miscellaneous	3	5
Totals	**2,256**	**3,117**

PLANT PATHOLOGY IDENTIFICATION TABLE

The following table provides information about samples identified between April-June 2019. 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
Afraegle paniculata	Nigerian powder flask	*Aschersonia* sp.	fungus	county park	98980	Miami-Dade	Jake M. Farnum	12/17/2018	host
Ageratina jucunda	hammock snakeroot	*Ragnhildiana perfoliati*	fungus	nature preserve	99514	Duval	Robert M. Leahy, Brad A. Danner, Morgan A. Byron	12/4/2018	host
Callistemon sp.	bottle brush	*Desarmillaria tabescens*	fungus	residence	99958	Alachua	Jeffrey M. Eickwort, FL Forest Service	4/3/2019	host
Cannabis sp.	hemp; cannabis	*Stemphylium* sp.	fungus	dispenasary	99431	Orange	Leslie Wilber	2/20/2019	host
Citrus sp.	citrus	*Candidatus Liberibacter asiaticus*	bacterium	residence	99747	Suwannee	Owner	4/4/2019	county
Clinopodium brownei	browne's savory	*Rhizoctonia* sp.	fungus	roadside	99679	Duval	Robert M. Leahy, Morgan A. Byron	3/22/2019	host
Cordyline sp.	cordyline	*Velarivirus Cordyline virus-4*	virus	nursery	99952	Lake	Mary C. Sellers	4/29/2019	host
Dioscorea bulbifera	air potato, potato yam, air yam	*Stemonitis* sp.	slime mold	DPI greenhouse	100471	Alachua	Ryan M. Poffenberger	6/19/2019	host
Jasminum nitidum	star jasmine, angel wing jasmine	*Pelarspovirus Jasmine mosiac association virus*	virus	private landscape	100229	Alachua	Kishore Dey	9/18/2018	state
Lyonia lucida	Fetterbush; glossy Lyonia	*Botryosphaeria dothidea*	fungus	state park	98082	Flagler	Melanie Cain	10/11/2018	host
Microsorium pteropus	Java fern	*Synchytrium* cf. *stachydis*	fungus	retail center	97038	Orange	Kathy A. Gonzalez	6/21/2018	state
Microsorium punctatum	Java fern	*Synchytrium* cf. *stachydis*	fungus	retail center	98182	Manatee	James E. Anderson	10/18/2018	host
Microsorum sp.	wart fern	*Synchytrium* cf. *stachydis*	water fungus	business	97861	Sarasota	Jennifer K. Serviss	9/14/2018	host
Perilla frutescens	beefsteakplant	*Periconia* sp.	fungus	agriculture center	100477	St. Johns	Robert M. Leahy, Morgan A. Byron	6/19/2019	host
Perilla frutescens	beefsteakplant	*Corynespora cassiicola*	fungus	agriculture center	100477	St. Johns	Robert M. Leahy, Morgan A. Byron	6/19/2019	host
Rhynchosia minima	least snoutbean	Cabbage leaf curl virus	virus	roadside	100318	Miami-Dade	Olga Garcia	6/6/2019	state
Syzygium australe	brush cherry; scrub cherry; creek lilly-pilly	*Puccinia psidii*	fungus	nursery	100331	Broward	Justin K. Anto	6/11/2019	host

FROM THE EDITOR

By Patti J. Anderson, Ph.D.

Inquiring minds want to know…which plants will kill me?

Among the most frequently asked questions for a botanist are "Is this plant poisonous?" and "Can I eat this?" usually asked about the same plant.

While it is tempting to take advantage of free food from the forest, not all plants are your friends. In fact, many could actually kill you. The likely victims of plant poisoning are children, who fearlessly put bright, shiny berries or low hanging leaves in their mouths, and adults who eat unknown plants with reckless abandon. For adults, the technique for avoiding poisons on your hike is to learn to identify plants and get a clue before you chew. For children, adult supervision is recommended.

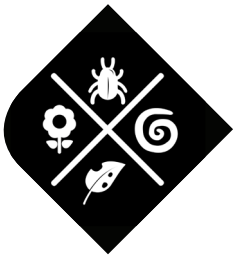
1 - *Cicuta maculata*, water hemlock.
Photo by Roger Hammer, Atlas of Florida Plants

Why do plants have these poisons? You might be interested to know that plants have chemical compounds to discourage plant-eaters (herbivores). In some species, these toxins are released only when the plant part is chewed or otherwise damaged. In addition, concentrations of toxins (and other plant chemicals) can change over the growing season or life stage of a plant. A plant that doesn't kill you one day might at least make you ill on another occasion. Our theory is a bad reaction to eating one plant will be remembered and discourage future herbivory.

To encourage awareness of potentially toxic plants and avoid the loss of Tri-ology readers, we have a list of some familiar plants known to have caused death in humans. If you don't take the warning to learn to recognize these plants, remember you can reach your local Poison Control Center at 1-800-222-1222.

SEVEN DEADLY SPECIES

SCIENTIFIC NAME	COMMON NAME	TOXICITY
Abrus precatorius	rosary pea	All parts of this species contain the deadly toxin, abrin.
Blighia sapida	ackee	Unripe fruits contain the deadly toxins, hypoglycin A and B.
Cicuta maculata	water hemlock	All parts (especially roots) contain the deadly toxin, cicutoxin.
Datura species	jimson weed, devil's trumpet	All parts of species in this genus contain deadly alkaloids.
Digitalis purpurea	common foxglove	This plant is medicinal or toxic, depending on dosage. All parts, toxic.
Nerium oleander	oleander	All parts of this species contain the deadly cardiac glycoside, oleandrin.
Ricinus communis	castor bean	All parts (especially seeds) of this species contain the deadly toxin, ricin.



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