

DPI's Bureau of Entomology, Nematology and Plant Pathology (the botany section is included in this bureau) produces TRI-OLOGY six times a year, covering two 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.

## Highlights

Following are a few of the notable entries from this volume of TRI-OLOGY. These entries are reports of interesting plants or unusual pests, some of which may be problematic. See Section Reports for complete information.

### *Cithaeron praedonius* O.P.–Cambridge (a ground spider), a Continental USA record.

Specimens of *Cithaeron praedonius* (Cithaeronidae), an Old World species, first showed up in Florida in August 2010, most likely as a result of hitchhiking on containers for other organisms imported via the pet trade.



*Cithaeron praedonius* (a ground spider) male.  
 Photograph courtesy of John Koerner, nature photographer



### *Cercospora rubi* (double blossom) was

found on *Rubus* sp. (blackberry). This disease is limited to the genus *Rubus* in which it causes reduced yield, poor quality fruit and (in severe cases) the death of canes.

### *Cercospora rubi* (double blossom) on *Rubus* sp. (blackberry).

Photograph courtesy of Steven Vann, Extension Urban Plant Pathologist, University of Arkansas

### *Hemicycliophora floridensis*. Nematodes in the genus *Hemicycliophora*, commonly called sheath nematodes, are ring nematodes that occur in Florida natural areas. One of these species, *H. floridensis*, was described in 1957, in a North

Florida pine forest close to the Georgia border. Using the location reported in the original description, DPI nematologists collected a large population of *H. floridensis* for morphological and molecular analysis in order to obtain DNA sequences to be deposited in [GenBank](http://www.ncbi.nlm.nih.gov/genbank/).



### *Lupinus villosus* (lady lupine). This robust, more or less erect herbaceous perennial is found in sandhill and scrub habitats and is an excellent choice for planting in hot, dry, open landscapes. Its pea-like flowers make a striking show in spring, with their pale pink to lavender petals framing a dark red to almost black splotch.

## Section Reports

### Botany

### Entomology

### Nematology

### Plant Pathology

### Our Mission...getting it done

The mission of the Division of Plant Industry is to protect Florida's native and commercially grown plants and the State's apiary industry from harmful pests and diseases. Florida is a gateway for foreign agricultural commodities and a common destination for international tourists, making it a highly susceptible to introductions of new pest species. Travelers often unknowingly transport pests and diseases into and around the state. In order to inform consumers about the danger of plant and apiary pests and diseases, we utilize outreach and education activities and programs. Perhaps you'd be interested in learning more about one of our outreach programs, the Save the Guac campaign ([www.savetheguac.com](http://www.savetheguac.com)).

***Lupinus villosus* (lady lupine)**

Photograph courtesy of Michael Jenkins, Atlas of Florida Vascular Plants

***Phoenicococcus marlatti* (red date scale)** was intercepted on *Phoenix dactylifera* (date palm).



***Phoenicococcus marlatti* (red date scale)**

Photograph courtesy of I.C. Stocks, [DPI](#)

**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 also thank Scott Weinberg for his skillful use of web authoring tools to produce this report.

This campaign is targeted to educate consumers about laurel wilt and the redbay ambrosia beetle, specifically in terms of their potential to harm Florida's avocado industry. The campaign informs consumers about the disease and beetle and their signs, symptoms and hosts. Unprocessed wood and firewood can harbor the pest and disease, so the campaign encourages consumers and travelers to purchase local firewood and burn it all on site to reduce the spread of laurel wilt. Also, the campaign urges consumers to purchase avocado and other host trees from state registered nurseries.

The Save the Guac campaign is an innovative communications outreach program focused on educating consumers about a serious disease and vector issue facing Florida agriculture in a creative, collaborative way.

We welcome your suggestions for improvement of TRI- OLOGY. Please feel free to contact [me](#) or [Dr. Patti Anderson](#) with your comments.

[Dr. Wayne N. Dixon](#), editor  
Assistant Director, DPI

## Botany Section

Compiled by [Patti J. Anderson, Ph.D.](#)

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 10,000 plants and nearly 1,400 vials of seeds. Some of the samples received for identification are discussed below:

***Corydalis micrantha* (Engelm. ex Gray) Gray (smallflower fumewort)**, from a genus of ca. 400 species widely distributed in temperate areas of the northern hemisphere, concentrated in the Sino-Himalayan region. Fumariaceae (or Papaveraceae). Native to most of the eastern half of the United States, this is a plant of sandy or gravelly soils, usually in open and/or disturbed sites. In Florida, it is a weed, although an attractive one. It is a winter annual with the seeds germinating in the fall. The plants pass the early winter as a rosette of finely-divided fernlike leaves. Plants may produce a single stem or several and usually grow no more than 40 cm tall, although individuals 60 cm tall have been reported. In late winter, the stems elongate and terminate in racemes of slender, pale to medium yellow, vaguely slipper-shaped flowers. The racemes that extend above the leaves often include cleistogamous (closed, self-pollinating) flowers. The fruits are glabrous capsules. The plants are poisonous, but this is primarily a problem for livestock. Since they are bitter to the taste, humans would not likely ingest a toxic dose. An introduced weed, *Fumaria officinalis*, similar in form and growing in similar places, is closely related, but the flowers are lavender with purple tips. (Jefferson County; B2011-100; Clay Olson, extension agent; 9 March 2011.) (Mabberley 2008; Muenscher 1964; <http://www.efloras.org> accessed May 26, 2011.)

***Lupinus villosus* Willd. (lady lupine)**, from a genus of about 220 species, mostly in the mountains of western North America, continuing into the Andes, and in the Mediterranean region, extending into the mountains of East Africa). Leguminosae/Fabaceae. Found from Louisiana to North Carolina in the United States, this robust, herbaceous legume has been documented in the Panhandle and northern peninsula of Florida and is considered native to the state. This perennial is found in sandhill and scrub habitats and is an excellent choice for planting in hot, dry, open landscapes. The stems commonly reach 20 – 60 cm in height. The unifoliate (appearing to be simple) leaves may be as large as 15 cm long and 3 cm wide and are covered with dense, silvery white hairs. The pea-like flowers make a striking show in spring, with their pale pink to lavender petals framing a dark red to almost black splotch. The inflorescence rises above the leaves with flowers along most of its length. (Levy County; B2011-143; W. Wayne Bailey; 31 March 2011 and B2011-169; Levy County; Cheryl A. Jones; 13 April 2011.) (Isely 1998; [http://www.southeasternflora.com/view\\_flora.asp?plantid=627](http://www.southeasternflora.com/view_flora.asp?plantid=627) accessed May 25, 2011; <http://edis.ifas.ufl.edu/ep061> accessed May 26, 2011.)

### Sample Submissions

	Mar/ Apr	Year to Date
Samples submitted by other DPI sections	1,233	2,215
Samples submitted for botanical identification only	114	204
Total Samples Submitted	1,347	2,419
Specimens added to the herbarium	0	0



***Corydalis micrantha* (smallflower fumewort)**  
Photograph courtesy of Shirley Denton, [Atlas of Florida Vascular Plants](#)



***Lupinus villosus* (lady lupine)**  
Photograph courtesy of Michael Jenkins, [Atlas](#)



***Melothria pendula* L. (creeping cucumber)**, from a genus of 10 New World species. Cucurbitaceae. This vine in the cucumber family is found around the Caribbean, in Central and South America, and in the United States from Pennsylvania south through the Mid-Atlantic States and throughout the Southeast to Texas and Kansas. It has been documented in almost every Florida county where it can be perennial, at least at the root. This slender vine has alternate leaves with variably shaped leaves that may be lobed or almost entire, with a cordate or saggitate base. The tendrils are quite slender and tightly coiled. The small yellow flowers have either male or female structures, but both forms are produced on a single individual. The fruit is 1-2 cm long, usually egg-shaped but sometimes nearly spherical, turning from green to black when ripe. This species is reported to be edible and medicinal as well as toxic. It has been used as a purgative and treatment for snake bite. (St. Lucie County; B2011-80; Dagne A. Vasquez; 2 March 2011 and Miami-Dade County; B2011-175; Jake M. Farnum; 13 April 2011.) (Austin 2004; Correl and Correl 1982.)



***Melothria pendula* (creeping cucumber)**  
Photograph courtesy of Roger Hammer, [Atlas of Florida Vascular Plants](#)

***Pongamia pinnata* (L.) Pierre (Indian beech, poonga-oil tree, pongamia)** from a genus of nine species, native to Southeast Asia, but sometimes included in the genus *Millettia*, a genus of about 150 Old World tropical species. Leguminosae/Fabaceae. This fast-growing tropical tree is found along streets in South Florida as a planted ornamental with a few reports of escaped individuals in natural areas of Broward, Palm Beach and Sarasota counties. Pongamias can grow to 25 m tall, and their dense canopy provides shade, but care should be taken to avoid planting them near natural areas. The leaves of the tree are odd-pinnate, usually with five or seven leaflets. The new leaves are briefly deciduous, with a reddish color in spring, changing to a glossy green in summer. This tree has fragrant, white to pinkish flowers in drooping clusters. The fruit is a flat, leathery, one-seeded legume with a short beak. The seeds have been used as a source of biodiesel. (Miami-Dade County; B2011-160; Juan Garcia Lopez; 4 April 2011 and Lee County; B2011-192; Richard L. Blaney; 22 April 2011.) (Isely 1998; <http://www.florida.plantatlas.usf.edu/> accessed 6/30/2011; [http://www.hort.purdue.edu/newcrop/duke\\_energy/Pongamia\\_pinnata.html#Description](http://www.hort.purdue.edu/newcrop/duke_energy/Pongamia_pinnata.html#Description) accessed 6/30/2011.)



***Pongamia pinnata* (Indian beech) leaves.**  
Photograph courtesy of Pat Howell, [Atlas of Florida Vascular Plants](#)



***Pongamia pinnata* (Indian beech) fruit.**  
Photograph courtesy of Pat Howell, [Atlas of Florida Vascular Plants](#)

## References

- Austin, D. F. 2004.** Florida Ethnobotany. CRC Press, Boca Raton, Florida. 909 p.
- Correll, D.S. and H.B. Correll. 1982.** Flora of the Bahama Archipelago. J. Cramer. Hirschberg, Germany. 1,692 p.
- Isely, D. 1998.** Native and naturalized Leguminosae (Fabaceae) of the United States (exclusive of Alaska and Hawaii). Brigham Young University, Provo, Utah. 1,007 p.
- Mabberley, D.J. 2008.** Mabberley's plant-book: a portable dictionary of plants, their classification and uses, 3rd edition. Cambridge University Press, New York, New York. 1,021 p.
- Muenscher, W.C. 1964.** Poisonous plants of the United States. Macmillan Company, New York, New York. 277 p.



## Entomology Section

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

***Athous equestris* (a click beetle), a State record.** This is a widespread but rare eastern United States species not previously recorded from Florida. It was collected on a sticky board trap in Ochlockonee River State Park and is of no economic importance. (Wakulla County; E-2011-1769; Leroy A. Whilby, CAPS; 11 May 2009.) (Dr. Michael C. Thomas.)

***Ceratitis capitata* (Weidemann) (Mediterranean fruit fly).** To date, 11 wild adult Mediterranean fruit flies have been trapped on a total of five residential properties in Pompano Beach, Florida. The first detection was made on 31 January 2011, and the last detection was made on 6 April. The delimitation area with high density trapping comprises approximately 63 square miles which will be monitored until about 18 June. The time between when the last fly was detected on 6 April and a date of 18 June would be sufficient to allow the development of about three full life cycles. If no additional fly is detected before then, it will be presumed that the population has been eradicated due to the various control activities undertaken (chemical treatment, fruit stripping and release of sterile male Mediterranean fruit flies). The present quarantine area of approximately 72 square miles will then be lifted. (Broward County; E2011-1786; Gary Moore, USDA; 6 April 2011.) (Dr. Gary J. Steck.)

***Cithaeron praedonius* O. Pickard-Cambridge (a ground spider), a Continental USA record.** Specimens of *Cithaeron praedonius* (Cithaeronidae), an Old World species, first appeared in Florida in August 2010, most likely as a result of hitchhiking on containers for other organisms imported via the pet trade. At that time, several individuals were found in a room where the homeowner kept tarantulas. He eventually requested an identification for the smaller spiders, as they were being observed repeatedly. The species apparently is synanthropic (lives around people), and evidence gathered from freshly collected individuals indicated that they prefer to eat other spiders. Other biological observations taken of these specimens were the first ever made on a species of this family. Since most "house spiders" in Florida are introduced exotic species that exist in relatively high population densities, house spiders seem to be a good food source for *C. praedonius*, and perhaps explains how *C. praedonius* became a house spider itself. (Pasco County; E2011-909; Joseph T. Stiles, St. Leo University student; 17 August 2010.) (Dr. G.B. Edwards.)

***Phoenicococcus marlatti* (red date scale), an interdiction interception.** The sample, collected on *Phoenix dactylifera* (date palm)

### Sample/Specimen Submissions

#### March

Samples Submitted	748
Specimens Identified	7,442

#### April

Samples Submitted	785
Specimens Identified	8,276

#### Year to Date

Samples Submitted	2,437
Specimens Identified	33,782

from Arizona, had a heavy infestation of live females. This species is found wherever Phoenix palms are cultivated and has occasionally been a major pest. It is a quarantine pest. (Suwanee County; E-2011-1621; Dyrana N. Russell-Hughes, Cooperative Agricultural Pest Survey (DPI), and Charles L. Spriggs; 29 March 2011.) (Dr. Ian C. Stocks.)



*Athous equestris* (a click beetle)  
Photograph courtesy of M. C. Thomas, [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.

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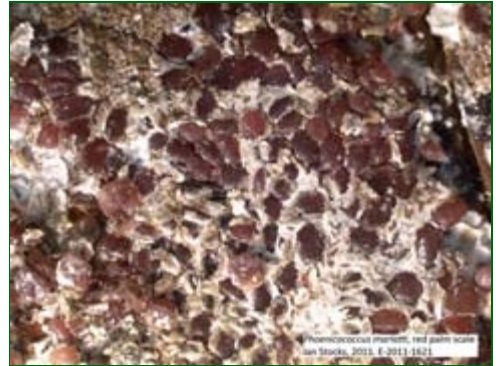
*Cithaeron praedonius* (a ground spider) female feeding on a female of an introduced cobweb spider, *Nesticodes rufipes*.

Photograph courtesy of Joseph T. Stiles, St. Leo University student



***Cithaeron praedonius* (a ground spider) male.**

Photograph courtesy of John Koerner, nature photographer, <http://johnkoerner.org/>



***Phoenicococcus marlatti* (red date scale)**

Photograph courtesy of I.C. Stocks, [DPI](http://www.dpi.com)

Plant Species Name	Plant Common Name	Arthropod Species Name	Arthropod Common Name	County	New Records
<i>Acer rubrum</i>	red maple	<i>Pulvinaria acericola</i>	cottony maple leaf scale	Gilchrist	COUNTY
<i>Ajuga reptans</i>	common bugle, creeping bugleweed	<i>Phenacoccus solani</i>	Solanum mealybug	Alachua	HOST
<i>Annona cherimola</i>	cherimoya	<i>Planococcus citri</i>	citrus mealybug	Suwanee	INTERDICTION INTERCEPTION
<i>Cestrum aurantiacum</i>	orange flowering jasmine	<i>Aleurodicus dugesii</i>	giant whitefly	Marion	HOST
<i>Chrysophyllum oliviforme</i>	satin leaf	<i>Pulvinaria urbicola</i>	urbicola soft scale	Miami-Dade	HOST
<i>Citrus sinensis</i>	orange	<i>Corticoris signatus</i>	a plant bug	Hendry	COUNTY
<i>Citrus sinensis</i>	orange	<i>Drosophila suzukii</i>	spotted wing Drosophila	Santa Rosa	COUNTY
<i>Coccoloba uvifera</i>	seagrape	<i>Ocyptamus parvicornis</i>	a flower fly	Palm Beach	COUNTY
<i>Cocos nucifera</i>	coconut palm	<i>Coccus longulus</i>	long brown scale	Broward	HOST
<i>Cryptomeria</i> sp.	Japanese cedar	<i>Lepidosaphes</i> sp.	an armored scale	Suwanee	INTERDICTION INTERCEPTION
<i>Dracaena fragrans</i>	corn plant	<i>Metamasius</i> sp.	a weevil	Miami-Dade	REGULATORY INCIDENT
<i>Elaeocarpus hygrophilus</i>	water hogplum	<i>Milviscutulus mangiferae</i>	mango shield scale	Broward	HOST
<i>Eriobotrya japonica</i>	loquat, Japanese plum	<i>Philornis porteri</i>	a muscid fly	Broward	COUNTY



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## Nematology Section

Compiled by [Jason D. Stanley, M.S.](#), [R. N. Inserra, Ph.D.](#), and [Janete A. Brito, Ph.D.](#)

This section analyzes soil and plant samples for nematodes, conducts pest detection surveys and provides diagnosis 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 principal part of the regulatory activity 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.

### Nematodes of Special Interest

***Hemicycliophora floridensis* Chitwood & Birchfield, 1957 (a sheath nematode)**, was found infecting the roots of *Pinus elliottii* (slash pine). (Columbia County; N11-00456; Jason D. Stanley; 29 March 2011.)

Nematodes in the genus *Hemicycliophora*, commonly called sheath nematodes, are ring nematodes having a double cuticle consisting of two separated layers of the same thickness and physiological importance. Their body length averages 1 mm and their feeding apparatus (stylet) is robust and in many species > 100 microns long. The economic importance of these nematodes is well documented only for a few species such as *H. arenaria* which damages citrus in California. Many *Hemicycliophora* species occur in Florida natural areas. One of these species, *H. floridensis*, was described in 1957 by the eminent nematologists, Benjamin Chitwood and Wray Birchfield, from *Pinus elliottii* in a North Florida pine forest near the Georgia border. By following the original description, DPI nematologists were able to trace the type locale on Highway 441 at about 26 miles north of Lake City. A large population of *H. floridensis* was collected and used for morphological and molecular analysis in order to obtain DNA sequences to be deposited in the GenBank. Host tests are also planned to confirm slash pine as the host of this nematode.

Collectors submitting five or more samples that were processed for nematological analysis in March - April 2011

Anderson, James L.	177
Bentley, Michael A.	66
Burgos, Frank A.	228
Edenfield, Carrie S.	62
LeBoutillier, Karen W.	201
Ochoa, Ana L.	136
Pate, Jo Ann	38

### Sample Submissions

	Mar/ Apr	Year to Date
Morphological Identifications	2,441	4,475
Molecular Identifications	0	58
Total Samples Submitted	2,441	4,533

### Certification and Regulatory Samples

Multistate Certification for National and International Export	1,883	3,341
California Certification	414	746
Pre-movement (Citrus Nursery Certification)	42	116
Site or Pit Approval (Citrus Nursery and Other Certifications)	12	62

### Other Samples

Identifications (invertebrate)	1	5
Plant Problems	32	51
Intrastate Survey, Random	57	154
Molecular Identifications*	0	58

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

Qiao, Ping	132
Spriggs, Charles L.	133
Toral, Angelina M.	10
Vasquez, Dagne A.	7

## References

**Chitwood, B. G. and W. Birchfield. 1957.** A new genus, *Hemicriconemoides* (Criconematidae: Tylenchina). Proceedings of the Helminthological Society of Washington 24: 80-86.



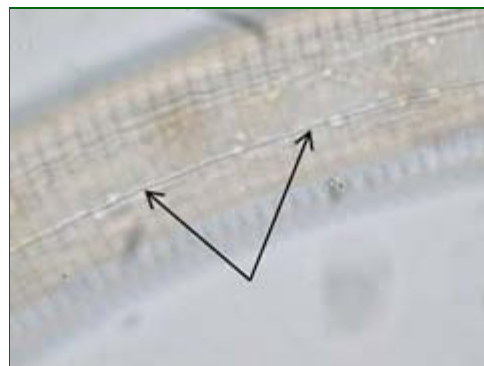
*Pinus elliottii* (slash pine), a typical stand in Florida.

Photograph courtesy of Jason D. Stanley, [DPI](#)



*Hemicycliophora floridensis* (sheath nematode), mature female. Note the double cuticle along the nematode body.

Photograph courtesy of Jason D. Stanley, [DPI](#)



*Hemicycliophora floridensis* (sheath nematode), mature female. Lateral field with one incisure (arrows), which is an important taxonomic character of this species.

Photograph courtesy of Jason D. Stanley, [DPI](#)

## Plant Pathology Section

Compiled by [David A. Davison](#)

This section provides plant disease diagnostic services and conducts a citrus germplasm introduction program. The agency-wide goal of protecting Florida agriculture very often begins with accurate diagnosis of plant problems. Disease management recommendations are offered where appropriate and available. Our plant pathologists are dedicated to keeping informed about plant diseases outside Florida in order to be prepared for potential introductions of new pathogens.

***Cercospora rubi* (double blossom)** was found on *Rubus* sp. (blackberry). This disease is limited to the genus *Rubus* in which it causes reduced yield, poor quality fruit, and the death of canes in severe cases. (Alachua County; P2011-47980; Elke Weibelzahl, University of Florida; 26 April 2011.)

***Clavibacter michiganensis* subsp. *michiganensis* (bacterial canker of tomato)** is a seed borne disease that causes a wide array of symptoms that may result in unmarketable fruit. This plant pest can cause serious problems, but it is not often reported in Florida. (Collier County; P2011-46145; Scott D. Krueger; 16 May 2011.)

### Sample Submissions

	Mar/ Apr	Year to Date
Pathology	1,248	1,655
Bee	3	15
Soil	8	16
Citrus canker	235	642
Citrus greening	793	1,814
Sweet orange scab-like disease	26	197
Miscellaneous	20	38
Total Samples Submitted	2,333	4,377

### Plant Pathology Sample Report

Following is a table 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. The table is organized alphabetically by plant host.



***Cercospora rubi* (double blossom) on *Rubus* sp. (blackberry).**  
Photograph courtesy of Steven Vann, Extension Urban Plant Pathologist, University of Arkansas

Plant Species	Plant Common Name	Causal Agent	Disease Name	Location Type	County	Sample Number	Collector	Date	New Records
<i>Lycopersicon esculentum</i>	garden tomato	<i>Clavibacter michiganensis</i> subsp. <i>michiganensis</i>	sweet orange scab-like disease	Nursery	Collier	46145	Scott D. Krueger	16-Mar-11	
<i>Magnolia grandiflora</i>	southern magnolia	<i>Cylindrocarpon heteronema</i>	stem canker	Nursery	Marion	47996	Shelly M. Wayte	15-Apr-11	
<i>Mangifera indica</i>	mango	<i>Fusarium moniliforme</i>	mango malformation	Dooryard	Lee	47983	Stephen Brown, Lee County	21-Apr-11	



							Extension Agent		
<i>Passiflora caerulea</i>	bluecrown passion flower	<i>Potyvirus Passionfruit woodiness</i>	virus	Nursery	Miami-Dade	45385	Nursery owner	2-Mar-11	
<i>Passiflora caerulea</i>	bluecrown passion flower	<i>Potyvirus Passionfruit mottle</i>	virus	Nursery	Miami-Dade	45385	Nursery owner	2-Mar-11	
<i>Rubus</i> sp.	blackberry	<i>Cercospora rubi</i>	double blossom	Entomology and Nematology Department, University of Florida	Alachua	47980	Elke Weibelzahl, University of Florida	26-Apr-11	
<i>Trichosanthes kirilowii</i>	Chinese cucumber	<i>Pseudoperonospora cubensis</i>	downy mildew	Nursery	Lake	47562	Mary C. Sellers	29-Mar-11	Host

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