TRI-OLOGY

A Publication of the Florida Department of Agriculture and Consumer Services, Division of Plant Industry
Charles H. Bronson, Commissioner — Richard D. Gaskalla, Division Director

DACS-P-00124 Volume 48, Number 4, July - August 2009 — **Printer-Friendly PDF Version**

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.

***Asperisporium moringae* (a leaf spot)** was collected on *Moringa oleifera* (horseradish tree). This leaf spot pathogen, a **Western Hemisphere** record, was formerly known only from India, the Philippines, Myanmar and Mauritius.

***Moringa oleifera* (horseradish tree)**
Photograph courtesy of TopTropicals

***Chalybion bengalense* (Dahlbom) (a mud-dauber wasp),** a **Western Hemisphere record,** was collected on a Multi-Lure fruit fly trap in the vicinity of the Opa-Locka Airport in Miami on June 18, 2008, by Juan Revuelta. Carlos Pelegrin collected additional specimens in June 2009 in the same vicinity. Specimens were sent to Dr. Wojciech Pulawski, California Academy of Sciences, who identified them as *Chalybion bengalense*. These wasps build nests, which they mass provision with spiders, in mud nests abandoned by other species and in cavities they find in wood and walls. *C. bengalense* was previously known only from the Afrotropical, Oriental and Australian zoogeographic regions. These collections are the first New World records for this non-pest species.

***Corimelaena minuta* Uhler (a negro bug)**
Photograph courtesy of Susan E. Halbert, DPI

***Corimelaena minuta* Uhler (a negro bug),** a **US Continental record,** was found on nettleleaf porterweed, *Stachytarpheta urticifolia*. Although this Caribbean species is a plant feeder, it is not known to cause any economic damage.

***Paracarsidara* sp. (a psyllid)**
Photograph courtesy of Susan E. Halbert, DPI

***Paracarsidara* sp. (a psyllid),** a **US Continental record,** was collected in a suction trap in Miami. The genus is Neotropical, and only a single specimen was found. We will need more specimens and host information to determine if this species is likely to become a pest in Florida.

Section Reports

Our Mission ... getting it done

As a regulatory agency of the Florida Department of Agriculture & Consumer Services, the Division of Plant Industry works to detect, intercept and control plant and honey bee pests that threaten Florida's native plant and agricultural resources.

Perhaps you'd like to know more about our duties and the legal authority of FDACS/Division of Plant Industry. Florida Statute 570.32 defines the powers and duties of the Division of Plant Industry. They include:

1. **Insects, mites, mollusks, plant diseases and nematodes**
   We identify them on request, determine their presence in agricultural and horticultural crops, and investigate methods of

***Trichrous pilipennis* Chevrolat (a longhorned beetle),** a **US Continental record,** was collected in a Lindgren multifunnel trap in a gumbo-limbo tree, *Bursera simaruba*, in Port Everglades. This is a Caribbean species known from Cuba and the Bahamas. Its biology is unknown, but it probably has no economic significance.

***Trichrous pilipennis* Chevrolat (a longhorned beetle)**
Photograph courtesy of Michael C. Thomas, DPI

***Xyleborinus andrewesi* (Blandford) (a beetle)**
Photograph courtesy of Michael C. Thomas, DPI

***Xyleborinus andrewesi* (Blandford) (a beetle),** a **US Continental record,** was reared from custard apple, *Annona squamosa*. This Asian ambrosia beetle is widely distributed in tropical areas of the world, but not previously reported from the United States. It attacks a large variety of hardwoods, but its pest potential is unknown at present. Related species are serious pests.

***Drosophila suzukii* (Matsumura) (the spotted wing Drosophila),** a **State record,** was collected in a Multi-Lure trap. This exotic pest first appeared in California in 2008 and caused damage in strawberry, blackberry and raspberry crops. In 2009, infestations in California cherry were severe. Adult specimens were detected at two separate sites in rural areas of Hillsborough County. Florida strawberry and blueberry producers are at particular risk from this new pest. See the DPI Pest Alert.

***Drosophila suzukii* (Matsumura) (the spotted wing Drosophila)**
Photograph courtesy of Gary J. Steck, DPI

***Raoiella indica* Hirst (red palm mite)**
Photograph courtesy of Cooperative Agricultural Pest Survey Program (CAPS)

***Raoiella indica* Hirst (red palm mite),** a **County record,** was collected on coconut palm, *Cocos nucifera*. This is a significant range extension (130+ miles) for the red palm mite, from the Atlantic Coast to the Gulf Coast of the Florida peninsula. The source of these mites is unclear as they were collected from "coconuts received through the mail from Thailand" according to the owner. Specimens have been sent for DNA analysis to determine the origin of this infestation. For more information about the red palm mite, see DPI Pest Alert.

***Archispirostreptus gigas* (Peters) (a giant African millipede),** and a restricted organism in Florida, was found on the grounds of the Naples Botanical Garden. The adult specimen, tentatively identified from photographs by Diplopoda specialist Dr. Rowland M. Shelley of the North Carolina State Museum of Natural

***Archispirostreptus gigas* (Peters) (a giant African millipede)**

controlling plant pests and diseases from these groups.

2. **Honeybees**
   We enforce the laws of the state and the rules of the department to control and eradicate honeybee pests and unwanted races of honeybees.
3. **Plant pests**
   We inspect plants or plant products grown or held in any area of the state, and enforce the laws of the state and the rules of the department pertaining to plants and plant products.
4. **Pest plants and noxious weeds**
   We carry out eradication and control programs and associated plant surveys.
5. **Citrus**
   We regulate and test newly introduced citrus trees for diseases and for desirable horticultural characteristics; maintain a source of budwood of the superior, tested varieties for distribution to the citrus industry; and verify propagations of citrus varieties and special rootstocks for growers when requested
6. **New ideas**
   We develop, investigate and implement improved techniques and methods to meet our objectives in the areas described above.

Next time … more about the kinds of people who help carry out our mission.

We welcome your comments and suggestions for improvement on the new format of TRI-OLOGY. Please feel free to contact me at

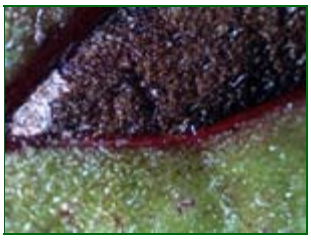
Photograph courtesy of Julieta Brambila, USDA

History, was destroyed. This is a common species in the pet trade, but because of environmental concerns, a permit is required to possess it. This individual is likely to have escaped or been released from captivity.

***Liriomyza langei* Frick (California pea leafminer),** was intercepted on lettuce, *Lactuca sativa*, in a regulatory incident. This is a pest species in California. Interceptions in Florida typically peak in the late summer and fall months, especially in lettuce imports. See DPI Pest Alert.

***Ascochyta* sp., *Pyrenochaeta* sp., *Cochliobolus* sp. and *Gaeumannomyces graminis* (fungal pathogens),** were found on *Pleioblastus fortunei*, dwarf whitestripe bamboo. All these leaf spot and crown pathogens constitute new host records for this unusual dwarf bamboo.

***Ascochyta* sp., *Aphelenchoides besseyi*, Christei, 1942, a foliar nematode,** was found infecting the leaves of an ornamental *Verbena* sp. (vervain). Foliar nematodes of the genus *Aphelenchoides* are common in Florida and parasitize ornamentals and horticultural crops such as strawberries. The most economically important species are *A. besseyi*, *A. fragariae* and *A. ritzemabosi*. Nematode infections are more likely in humid conditions that encourage nematode movement from the soil to the plant leaves, with subsequent penetration and invasion of the leaf tissues. Leaf damage and defoliation caused by nematodes on infected nursery stock can make the plants unmarketable. Cultural practices such as reduction of excess moisture on the foliage by avoiding overhead irrigation and rigorous sanitation practices may prevent infection by these damaging nematodes.



***Verbena* sp.(vervain) leaf infected by *Aphelenchoides besseyi* (a foliar nematode)** Note the brown necrotic leaf area induced by the nematode feeding and migration adjacent to healthy green tissue.
Photograph courtesy of Jason D. Stanley, DPI

***Cantua buxifolia*, Juss. ex Lam. (cantuta, magic flower, sacred flower of the Incas)**
Photography courtesy of Ghislain Cottat, Wikipedia

***Cantua buxifolia*, Juss. ex Lam. (cantuta, magic flower, sacred flower of the Incas)** was submitted for identification. This beautiful plant is native to middle elevations in the Andes of Ecuador, Peru, Bolivia and northern Chile. It forms a shrub to 2 m tall, with erect stems and arching branches. The striking flowers, with a general aspect like that of a *Fuchsia*, are borne in drooping clusters from the tips of the branches. The most common color is a bright pink, almost cerise, but the corolla can vary from red to yellow; sometimes the tube and limb are different colors.

Patti J. Anderson, Ph.D., managing editor
Wayne N. Dixon, Ph.D., editor

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

dixonw@doacs.state.fl.us or Dr. Patti Anderson at andersp1@doacs.state.fl.us and let us know.

Wayne N. Dixon, Ph.D., editor
Assistant Director, DPI

of web authoring tools to produce this report.

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Botany Section

Compiled by Richard E. Weaver, Jr., Ph.D., and 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.

***Cantua buxifolia* Walt. (Carolina milkweed) Juss. ex Lam. (cantuta, magic flower, sacred flower of the Incas)** (a genus of six species native to the Andes). Polemoniaceae. This beautiful plant is native to middle elevations in the Andes of Ecuador, Peru, Bolivia and northern Chile. It forms a shrub to 2 m tall, with erect stems and arching branches. The alternate, evergreen leaves are thick-textured, elliptic to ovate, entire or sometimes with lobes, and from 2.5-5 cm long. The striking flowers, with a general aspect like that of a *Fuchsia*, are borne in drooping clusters from the tips of the branches. They have a tubular corolla with a flaring limb and reach 7 or 8 cm in length. The most common color is a bright pink, almost cerise, but corollas can vary from red to yellow, and sometimes the tube and limb are of different colors. The plant has long been important in the folklore of the Andean people. In the legends of the Incas, it bloomed as a symbol of unity after a civil conflict, and bouquets of the cantuta were used to decorate homes on important feast days. Today, it is the national flower of Peru. Although it is exceptionally attractive in bloom, the plant is rarely cultivated in the United States, and most of the records are from the West Coast. It can survive some frost, but like many Andean plants, it probably cannot withstand Florida's heat and humidity. (Brought in by the general public; 21 August 2009.) (Huxley 1992; http://en.wikipedia.org.)

***Centrosema virginianum* (L.) Benth. (spurred butterfly pea)** (a genus of approximately 35 species, found in the warm regions of the Americas). Leguminosae. This species is easily confused with species in the genus *Clitoria* and was included in that genus until a revision was completed in the 1830s. To illustrate the similarities and differences, a description of *Clitoria mariana* is included below. The spurred butterfly pea is a fairly common, twining or trailing perennial vine, found growing in open woods, forest clearings, swamp margins, roadsides and old fields from New Jersey through the southeastern states and west to Texas. The alternate, ovate to lanceolate leaflets are tri-foliate with entire margins, persistent stipules and conspicuous reticulate venation. Flowers are in most ways typical papilionaceous flowers, i.e., bi-laterally symmetrical with five distinctive petals: the upper petal (called a standard or banner) outside the two lateral petals (called wings) and two fused petals (called the keel) enclosing the ten stamens and the pistil. The flowers of this genus (and those of *Clitoria*) are unusual in that their pedicel twists 180° essentially turning the flower upside down, with the standard lowermost rather than uppermost. The petals of this species are pale blue to lavender to whitish-gray with the standard, which has a small spur at the base, up to 3.5 cm long. The deeply five-lobed calyx has a cup-like (or campanulate) tube about 3-4 mm long,

Sample Submissions

	July/ Aug	Year to Date
Samples submitted by other DPI sections	1,732	6,301
Samples submitted for botanical identification only	149	481
Total Samples Submitted	1,881	6,782
Specimens added to the herbarium	111	329

***Cantua buxifolia*, Juss. ex Lam. (cantuta, magic flower, sacred flower of the Incas)**
Photography courtesy of Ghislain Cottat, Wikipedia

while the linear lobes are much longer than the calyx tube. The fruit is a flat, very slender legume 7-12 cm long and 3-5 mm wide, opening to release up to 20 seeds then twisting into a spiral as it dries. In Miami-Dade and Monroe counties, this species has narrowly lanceolate leaflets that are noticeably more slender than those found farther north and west in the state. (Lee County; Roberto Delcid; 22 July 2009; B2009-467.) (Correll and Correll 1982; Miller and Miller 2005; Wunderlin and Hansen 2003; www.regionalconservation.org; www.wildflower.org.)

***Clitoria mariana* L. (Atlantic pigeonwings)** (a genus of approximately 60 tropical species, especially in the American tropics). Leguminosae. This species is found in 30 states from New York westward as far as Minnesota and Nebraska and southward from Florida to Arizona. It is very similar to *Centrosema virginianum* (described above) but differs in some characters of the leaflets, calyx lobes and fruit. The corolla is light blue to pinkish-lavender with a splotch of white or yellow at the center of the standard. The leaflets are lanceolate to ovate, deep green above, bluish-green below and sparsely pubescent without the conspicuous reticulate venation seen in those of *Centrosema virginianum*. The calyx lobes are broadly triangular and shorter than the tube. The fruit is a flat legume 10-13 cm long and 1-1.5 cm wide. Because the species are so similar, both species are used in similar ways, including their medicinal uses, and in several languages, their common names are used interchangeably. Among the ailments for which these species have been used are anemia, intestinal maladies and weakness; they are also used as aphrodisiacs and forage, perhaps more reliably as the latter than as the former. (Austin 2004; Miller and Miller 2005; Wunderlin and Hansen 2003.)

***Echites umbellatus* Jacq. (devil's potato, rubbervine)** (a genus of six species native to the Caribbean region, including coastal South Florida). Apocynaceae. *Echites umbellata* is a perennial, twining vine, with leathery, opposite, 10-12 cm long, ovate to elliptic leaves with entire margins. The showy flowers are held in axillary cymes. Each flower's calyx has five lobes. The greenish-white salverform corolla is somewhat swollen near the midpoint and twisted distally. The fruit is a cylindrical follicle, 10-25 cm long, containing copious wind-dispersed seeds. This species is found on Caribbean Islands and along the east coast of Florida from Brevard County to Monroe County, including the Keys. Its long flowering period and vining habit make it a good choice for growing on trellises or fences. Although it is not especially salt tolerant, it is found in coastal uplands throughout its range and can be found in sandy scrubs. Species in the Apocynaceae often produce toxic latex, but the common name of this species, "devil's potato,"

***Centrosema virginiana* (spurred butterfly pea)**
Photograph courtesy of Shirley Denton, Atlas of Florida Vascular Plants

***Clitoria mariana* (Atlantic pigeonwings)**
Photograph courtesy of Stefan Bloodworth, Sarah P. Duke Gardens and Lady Bird Johnson Wildflower Center
http://www.wildflower.org

***Centrosema virginiana* (spurred butterfly pea) leaflet with a conspicuous network of minor veins**
Photograph courtesy of Patti J. Anderson, DPI

is a reference to the belief that the tuberous root is poisonous. (Miami-Dade County; B2009-371; Olga Garcia; 6 July 2009.) (Correll and Correll 1982; Hammer 2002; www.enature.com/fieldguides.)

***Franklinia alatamaha* Bartr. ex Marsh. (Franklin tree)** (a monotypic genus formerly native to the coastal plain of Georgia). Theaceae. This is one of the most famous trees of the southeastern United States. It was discovered by the Philadelphia botanists, John and William Bartram, near Fort Barrington along the Altamaha River in the coastal plain of Georgia in October 1765. William Bartram returned to the site several times and collected fertile seed which he took back to Philadelphia. Realizing that this was a new genus and species, he named the plant after his father's friend, Benjamin Franklin. *Franklinia* was last verified in the wild by the English collector John Lyon in 1803. The reason for its early extinction is not known, but at least it has become well established in cultivation. Besides its interesting history, *Franklinia* is a beautiful plant. It forms a multi-stemmed shrub or small tree 5-7 m tall, with deciduous, alternate, oblanceolate, obscurely serrate leaves to 20 cm long. The fragrant flowers are similar to those of its relatives, *Gordonia lasianthus* and *Camellia* spp., about 7 cm across with five white petals and a central mass of bright yellow stamens. The hard, ball-like fruit is slow to mature, but when ripe it splits from both the top and the bottom in a most unusual manner. It blooms in midsummer here in northern Florida, but further north the flowers continue into the fall, often as the leaves are assuming their autumnal reds and oranges. *Franklinia* is often considered difficult to grow, but once established it can be long-lived. It is cold-hardy as far north as Boston, Massachusetts. It was long considered a close relative of *Gordonia*, but more recent research allies it with the Asian genus *Schima*. (Alachua County; Herbarium accession 10,577; David S. Conser, DOF; 24 August 2009.) (http://en.wikipedia.org/wiki/Franklinia.)

***Gloriosa superba* L. (flame lily, climbing lily)** (a genus of a single variable species, sometimes split into as many as nine species, native to Africa.) Liliaceae or Colchicaceae. This highly distinctive plant is native to semi-shaded, scrubby vegetation types in southern Africa and is the national flower of Zimbabwe. It is also wild in southern and southeastern Asia, but it is thought to be adventive there. It is widely cultivated as a greenhouse or garden plant in many parts of the world. Generally a vine to 2 m tall, but occasionally bushlike, it grows from a branching, elongate, cylindrical, starchy tuber. The plant climbs in a most unusual manner—the alternate, opposite or whorled leaves have a long, slender tip that acts like a tendril, wrapping around any available support. The flowers are even more unusual. When the buds open, the tips of the six tepals (sepals and petals) face downward, but gradually they reflex until they are facing the opposite direction; below them the six stamens radiate stiffly, like spokes of a wheel. The tepals are slender, to 8 cm long but less than 2 cm wide, with conspicuously wavy margins. The color varies from the usual combination of red and yellow, to solid primrose yellow, to gold. In 'Rothschildiana,' the most commonly cultivated form, they are bright yellow below and ruby-red

***Clitoria mariana* (Atlantic pigeonwings) leaflet with inconspicuous minor veins**
Photograph courtesy of Patti J. Anderson, DPI

***Centrosema virginiana* (spurred butterfly pea) with long narrow calyx lobes**
Photograph courtesy of Patti J. Anderson, DPI

***Clitoria mariana* (Atlantic pigeonwings) with short wide calyx lobes**
Photograph courtesy of Patti J. Anderson, DPI

***Centrosema virginiana* (spurred butterfly pea) legume**
Photograph courtesy of Ted Bodner, Southern Weed Science Society, Bugwood.org

above. The plant is easy to cultivate in full sun or light shade and sandy soil that drains well, especially in the winter. It grows well on a chain-link fence, or clambering over low shrubs, and is perfectly hardy here in northern Florida. All parts of the plant, but especially the tubers, are seriously poisonous if ingested. They contain the alkaloid colchicine, which interferes with cell division, and is used by physicians to treat gout and by horticulturists to induce polyploidy in other plants. (Miami-Dade County; B2009-372; Olga Garcia; 8 July 2009.) (Mabberley 1997.)

***Hydrangea arborescens* L. (wild hydrangea, mountain hydrangea)** (a genus 23 species native to temperate Asia, with two species in the eastern United States). Saxifragaceae or Hydrangeaceae. With their showy and colorful blooms, hydrangeas are common ornamental shrubs in most temperate climates, including mountainous areas of the tropics. Their distinctive inflorescences are made up of two kinds of flowers: relatively inconspicuous fertile ones, with the four normal flower parts, and much larger and showier sterile ones, consisting only of enlarged sepals and the occasional stamen. The most commonly grown hydrangeas are those mutated forms in which the entire inflorescence is made up of sterile flowers. These are known as “snowballs” or “hortensias.” It should be noted that some viburnums have inflorescences made up of enlarged sterile flowers and are also known as “snowballs.” They can easily be distinguished, because hydrangeas have sterile flowers made up of four separate sepals, while those of viburnums are formed by five fused petals. The species discussed here is common in rich forests throughout most of the eastern United States south of the Great Lakes, but it is very rare in Florida, found only in Liberty and Walton counties of the Panhandle. It is included on the state’s list of endangered species. It is a sparsely branched shrub, typically growing 1-2 m tall, with opposite, elliptic to ovate leaves that have a serrate margin, an acuminate tip and an obtuse to rounded base. The pubescence is extremely variable, and plants of the Southern Appalachians, sometimes segregated as subsp. *radiata*, have leaves that are densely tomentose beneath and appear pure white. The number of sterile flowers per inflorescence is also variable. In some plants, particularly in the northern states, they are completely absent. The snowball types are the ones most commonly encountered in cultivation, particularly ‘Annabelle,’ a mainstay of semi-shaded gardens and landscapes for decades. The “heads” of this cultivar reach 20 cm across, with florets that start out green, mature

***Clitoria mariana* (Atlantic pigeonwings) legume**
Photograph courtesy of Ted Bodner, Southern Weed Science Society, Bugwood.org

***Echites umbellatus* (devil's potato)**
Photograph courtesy of Roger Hammer, Atlas of Florida Vascular Plants

to white, and age again to green. More recent cultivars include ‘Incrediball’ with still larger heads and sturdier stems, and the beautiful ‘Spirit’ with pink florets. (Brought in by the general public; 12 August 2009.) (McClintock 1957.)

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Echites umbellatus **(devil's potato)**
Photograph and copyright courtesy of Patricia Howell, Atlas of Florida Vascular Plants

Franklinia alatamaha **(Franklin tree)**
Photograph copyright Ellen Hornig of Seneca Hill Perennials

Gloriosa superba **(flame lily, climbing lily)**
Photograph courtesy of Allen Boatman, Atlas of Florida Vascular Plants

Hydrangea arborescens **(wild hydrangea, mountain hydrangea)**
Photograph courtesy of Virginia Ducey, Atlas of Florida Vascular Plants

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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.

***Chalybion bengalense* (Dahlbom) (a mud-dauber wasp),** a **Western Hemisphere record,** was collected in 2008 on a Multi-Lure fruit fly trap hung from a mango, *Mangifera indica*, in the vicinity of the Opa-Locka Airport in Miami by Juan Revuelta. Carlos Pelegrin collected additional specimens in 2009 in the same vicinity. Specimens were sent to Dr. Wojciech Pulawski of the California Academy of Sciences who identified them as *Chalybion bengalense* (Dahlbom). These wasps build nests, which they mass provision with spiders, in mud nests abandoned by other species and in old cavities in wood and walls. *C. bengalense* was previously known only from the Afrotropical, Oriental and Australian zoogeographic regions. These collections are the first New World records for this non pest species. (Miami-Dade County; E2008-4018; Juan Revuelta; 18 June 2008; and Miami-Dade County; E2009-3963; Carlos Pelegrin; 3 June 2009.) (James R. 'Jim' Wiley.)

***Corimelaena minuta* Uhler (a negro bug),** a **US Continental record,** was found on nettleleaf porterweed, *Stachytarpheta urticifolia*. Although this Caribbean species is a plant feeder, it is not known to cause any economic damage. (Miami-Dade County; E2009-6048; Olga Garcia; 14 August 2009.) (Dr. Susan E. Halbert.)

***Paracarsidara* sp. (a psyllid),** a **US Continental record,** was collected in a suction trap in Miami. The genus is Neotropical, and only a single specimen was found. We will need more specimens and host information to determine if this species will be a pest in Florida. (Miami-Dade County; E2009-5853; Haydee I. Escobar; 7 August 2009.) (Dr. Susan E. Halbert.)

***Trichrous pilipennis* Chevrolat (a longhorned beetle),** a **US Continental record,** was collected in a Lindgren multifunnel trap in a gumbo-limbo tree, *Bursera simaruba,* in Port Everglades. This is a Caribbean species known from Cuba and the Bahamas. Its biology unknown, but it probably has no economic significance. (Broward County; E2009-4946; Karolynne M. Griffiths, USDA and Andrew I. Derksen, DPI/CAPS; 28 June 2009.) (Dr. Michael C. Thomas.)

***Xyleborinus andrewesi* (Blandford) (a beetle),** a **US Continental record,** was reared from custard apple, *Annona squamosa*. This Asian ambrosia beetle is widely distributed in tropical areas of the world, but not previously known from the United States. It attacks a large variety of hardwoods, but its pest potential is unknown at present. Related species are

Sample/Specimen Submissions

July

Samples Submitted	839
Specimens Identified	22,750

August

Samples Submitted	914
Specimens Identified	28,740

Year to Date

Samples Submitted	6,456
Specimens Identified	238,591

***Corimelaena minuta* Uhler (a negro bug)**
Photograph courtesy of Susan E. Halbert, DPI

***Paracarsidara* sp. (a psyllid)**
Photograph courtesy of Susan E. Halbert, DPI

serious pests. (Lee County; E2009-4946; Richard L. Blaney; 28 June 2009.) (Dr. Michael C. Thomas.)

***Drosophila suzukii* (Matsumura) (the spotted wing Drosophila),** a **State record,** was collected in a Multi-Lure trap. This exotic pest first appeared in California in 2008 and caused damage in strawberry, blackberry and raspberry. In 2009, infestations in California cherry were severe. Adult specimens were detected at two separate sites in rural areas of Hillsborough County. Florida strawberry and blueberry producers are at particular risk from this new pest. (Hillsborough County; E2009-5702; Kathleen A. Miller, USDA; 4 August 2009.) (Dr. Gary J. Steck.) See the DPI Pest Alert.

***Raoiella indica* Hirst (red palm mite),** a **County record,** was collected on coconut palm, *Cocos nucifera*. This is a significant range extension (130+ miles) for the red palm mite: from the Atlantic Coast to the Gulf Coast of the Florida peninsula. The source of these mites is unclear as they were collected from “coconuts received through the mail from Thailand” according to the owner. Specimens have been sent for DNA analysis to determine the origin of this infestation. (Lee County; E2009-6338; Richard L. Blaney and Matthew W. Brodie; 26 August 2009.) (Dr. W.C. 'Cal' Welbourn.) For more information about the red palm mite, see DPI Pest Alert.

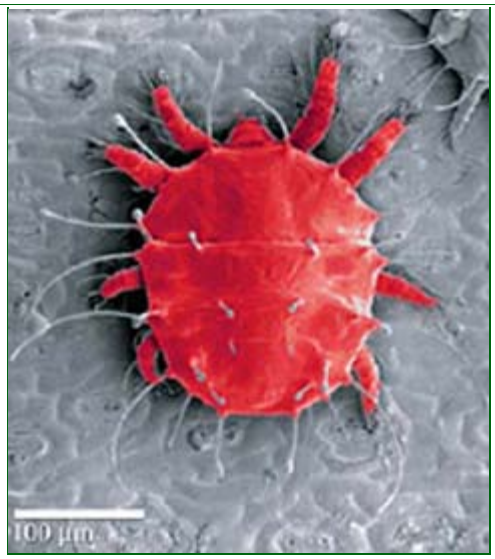
***Archispirostreptus gigas* (Peters) (a giant African millipede),** a restricted organism in Florida, was found on the grounds of the Naples Botanical Garden. An adult specimen, tentatively identified from photographs by Diplopoda specialist Dr. Rowland M. Shelley of the North Carolina State Museum of Natural History, was destroyed. This is a common species in the pet trade, but because of environmental concerns, a permit is required to possess it. This individual is likely to have escaped or been released from captivity. (Collier County; E2009-5759; Wendell Vaught, Naples Botanical Garden; 27 July 2009.) (Dr. G.B. Edwards.)

***Liriomyza langei* Frick (California pea leafminer)** was intercepted on lettuce, *Lactuca sativa*, in a regulatory incident. This is a pest species in California. Interceptions in Florida typically peak in the late summer and fall months, especially in lettuce imports. (Miami-Dade County; E2009-6050; Olga Garcia and Ciro Milan; 13 August 2009.) (Dr. Gary J. Steck.) See DPI Pest Alert.

***Trichrous pilipennis* Chevrolat (a longhorned beetle)**
Photograph courtesy of Michael C. Thomas, DPI

***Xyleborinus andrewesi* (Blandford) (a beetle)**
Photograph courtesy of Michael C. Thomas, DPI

***Drosophila suzukii* (Matsumura) (the spotted wing Drosophila)**
Photograph courtesy of Gary J. Steck, DPI



***Raoiella indica* Hirst (red palm mite)**
Photograph courtesy of Cooperative Agricultural Pest Survey Program (CAPS)

***Archispirostreptus gigas* (Peters) (a giant African millipede)**
Photograph courtesy of Julieta Brambila, USDA

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 name if the specimen was collected on a plant. Some arthropod specimens are not collected on plants and are not necessarily plant pests. In the table below, those entries have no plant information and are organized by arthropod name.

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Plant Species Name	Plant Common Name	Arthropod Species Name	Arthropod Common Name	County	New Records
Annona squamosa	sugar apple; custard apple; sweetsop	*Xyleborinus andrewesi*	a beetle	Lee	US Continental
Bursera simaruba	gumbo-limbo; West Indian birch	*Trichrous pilipennis*	a longhorned beetle	Broward	US Continental
Caesalpinia pulcherrima	pride-of-Barbados	*Fundella argentina*	Argentine pod borer	Collier	Host
Cajanus cajan	pigeonpea; gandul; Congo bean	*Hyalochloria unicolor*	a mirid bug	Miami-Dade	Host
Calophyllum sp.	beauty leaf	*Aleurodicus rugioperculatus*	a whitefly	Miami-Dade	Host
Citrus aurantium	sour orange	*Leucophenga varia*	a fly	Hillsborough	County
Citrus sinensis	sweet orange, navel orange	*Sobarocephala atrifacies*	a fly	Hillsborough	County
Citrus sp.		*Argyrotaenia amatana*	pondapple leafroller	Collier	Host
Citrus sp.		*Limotettix striolus*	a leafhopper	Brevard	County
Citrus sp.		*Pseudoplusia includens*	soybean looper	Lake	Host
Cnidoscolus chayamansa	spinach tree; chaya	*Tetraleurodes fici*	a whitefly	Citrus	County
Cocos nucifera	coconut palm	*Raoiella indica*	red palm mite	Lee	County
Codiaeum variegatum	croton	New Genus new species	croton scale	Charlotte	County

Dimocarpus longan	longan	*Ectomyelois ceratoniae*	carob moth	Miami-Dade	Host

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Nematology Section

Compiled by Janete A. Brito, Ph.D., Jason D. Stanley, M.S., and Renato N. Inserra, 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

Foliar nematodes of the genus *Aphelenchoides* are common in Florida and parasitize both ornamental plants and horticultural crops such as strawberries. These nematodes are also able to feed on fungi and can be reared in dishes containing fungal mycelia in appropriate media. The most economically important species of these nematodes are *A. besseyi*, *A. fragariae* and *A. ritzemabosi*. Ornamentals infected by these nematodes are unmarketable due to defoliation and leaf damage. Symptoms include necrosis, chlorosis, discoloration and distortion of leaf tissues. In addition to causing leaf damage, these species can also infect flowers to induce flower abortion. Nematode infections are favored by persistently humid conditions and drops of water on plants. These conditions support nematode movement from the soil to the plant leaves and subsequent penetration and invasion of the leaf tissues. Cultural practices to reduce excess moisture on the foliage, such as encouraging good ventilation, avoiding overhead irrigation, use of clean stock and rigorous sanitation practices, can help prevent infection by these damaging nematodes.

***Aphelenchoides besseyi* Christei, 1942 (a foliar nematode),** was found infecting the leaves of a *Verbena* sp. (vervain), an ornamental plant (Hardee County, N09-01105, Michael A. Alexander, 26 August 2009).

***Aphelenchoides fragariae* (Rirzema-Bos, 1890) Christie, 1932 (a foliar nematode),** was found infecting the leaves of *Buddleia davidii* (butterfly bush) a flowering ornamental (Volusia County, N09-01052, Karen G. Coffey, 12 August 2009).

Collectors submitting five or more samples that were processed for nematological analysis in July - August 2009

Anderson, James L.	119
Bailey, Wayne W.	31
Bentley, Michael A.	8
Burgos, Frank A.	117
Edenfield, Carrie S.	179

Sample Submissions

	July/ Aug	Year to Date
Morphological Identifications	2,746	10,820
Molecular Identifications	97	751
Total Samples Submitted	2,843	11,571

Certification and Regulatory Samples

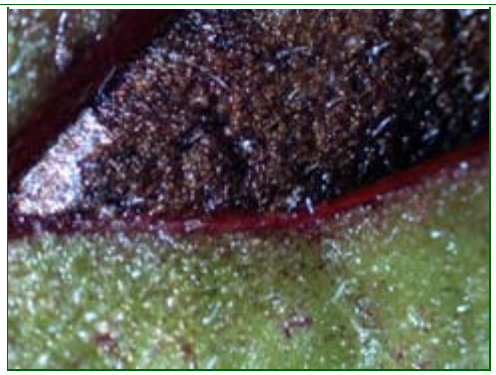
Multistate Certification for National and International Export	2,154	8,137
California Certification	302	1,866
Pre-movement (Citrus Nursery Certification)	67	157
Site or Pit Approval (Citrus Nursery and Other Certifications)	93	169

Other Samples

Identifications (invertebrate)	0	17
Plant Problems	26	128
Intrastate Survey, Random	104	346
Molecular Identifications*	97	751

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

LeBoutillier, Karen W.	282
Ochoa, Ana L.	143
Pate, Jo Ann	17
Podris, Flewellyn W.	20
Qiao, Ping	182
Robinson, William L.	12
Spriggs, Charles L.	242



***Aphelenchoides besseyi* (a foliar nematode)** infecting a *Verbena* sp. (vervain) leaf. Note the brown necrotic leaf area induced by the nematode feeding and migration adjacent to healthy green tissue. Photograph courtesy of Jason D. Stanley, DPI

***Aphelenchoides fragariae* (a foliar nematode)** emerging from leaf tissue of *Buddlea davidii* (butterfly bush). Photograph courtesy of Jason D. Stanley, DPI

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Plant Pathology Section

Compiled by Robert M. Leahy

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.

***Asperisporium moringae* (a leaf spot fungus),** a **Western Hemisphere record,** was collected on *Moringa oleifera* (horseradish tree) at a residence in Collier County on 11 August 2009 by Scott D. Krueger. This leaf spot pathogen was formerly known only from India, Philippines, Myanmar and Mauritius.

***Ascochyta* sp., *Pyrenochaeta* sp., *Cochliobolus* sp. and *Gaeumannomyces graminis* (pathogenic fungi)** were found on *Pleioblastus fortunei*, dwarf whitestripe bamboo, at a plant nursery in Alachua County on 1 July 2009. All these leaf spot and crown pathogens constitute **new Host records** for this unusual dwarf bamboo.

Sample Submissions

	July/ Aug	Year to Date
Pathology	439	1,484
Bee	0	14
Citrus Canker	504	1,215
Citrus Greening	1,771	4,367
Miscellaneous	11	16
Total Samples Submitted	2,740	7,124

***Moringa oleifera* (horseradish tree)**
Photograph courtesy of TopTropicals

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 tables are organized alphabetically by plant host.

Plant Species	Plant Common Name	Causal Agent	Disease Name	Location Type	County	Sample Number	Collector	Date	New Records
Cocos nucifera	coconut palm	*Mycosphaerella* sp.	leaf spot	Residence	Lee	28201	Richard L. Blaney	26-Aug-09	
Cucurbita sp.	Japanese pumpkin	*Choanephora cucurbitarum*	leaf/flower blight	Research greenhouse	Alachua	27305	José D. Diaz	7-Aug-09	
Dypsis lutescens	areca palm, yellow butterfly palm	*Stigmina palmivora*	leaf spot	Baker's Nursery	Hillsborough	28313	James R. Martin	28-Aug-09	
Liquidambar styraciflua	sweetgum	*Tubakia dryina*	leaf spot	Lake George Forest	Volusia	27278	Ray C. Jarrett	3-Aug-09	

Moringa oleifera	horseradish tree	*Asperisporium moringae*	leaf spot	Residence	Collier	27522	Scott D. Krueger	11-Aug-09	Western Hemisphere
Ocimum basilicum	sweet basil	*Peronospora* sp.	downy mildew	The Herb Garden	Putnam	28425	Sol F. Looker	31-Aug-09	
Panicum sp.	panic grass	*Myriogenospora atramentosa*	tar spot	Roadside	Alachua	27858	Julieta Brambila (USDA), Hugo Arredondo	25-Jul-09	
Persea borbonia	red bay	*Raffaelea lauricola*	laurel wilt	Fort Clinch State Park	Nassau	26497 26498 26499 26501 26502	Albert E. Mayfield, DOF	10-Jul-09	
Phalaenopsis sp.	moth orchid	*Acidovorax konjaci*	bacterial leaf spot	Nam's Nursery	Orange	26359	Karen S. Koby	2-Jul-09	
Pleioblastus fortunei	dwarf whitestripe bamboo	*Ascochyta* sp., *Pyrenochaeta* sp., *Cochliobolus* sp., *Gaeumannomyces graminis*	leaf spot	Grandiflora Nursery	Alachua	26140	nursery employee	1-Jul-09	Host
Podocarpus macrophyllus	podocarpus, Japanese yew	*Phytophthora* sp.	root rot	Williams Plant Nursery	Duval	26909	nursery employee	28-Jul-09	
Podocarpus sp.	podocarpus	*Phytophthora* sp.	root rot	Residence	Hillsborough	27503	Richard W. White	10-Aug-09	
Rhododendron sp.	azalea	*Mycosphaerella* sp.	leaf spot	Oak Lane Farms	Gilchrist	27700	Wayne W. Bailey	13-Aug-09	
Sabal palmetto	cabbage palm	*Graphiola phoenicis*	false smut	Roadside	Hardee	26562	Carrie S. Edenfield	10-Jul-09	
Phalaenopsis sp.	queen palm	*Cephaleuros virescens*	algal leaf spot	Royal Palm Nursery	Miami-Dade	26550	Stephen P. Beidler	14-Jul-09	
Syzygium samarangense	wax apple	*Cephaleuros virescens, Mycoleptodiscus indicus, Mycosphaerella* sp.	leaf spot	Echo, Inc.	Lee	26948	Reuben E. Sibert and Ronald G. Lee (USDA)	24-Jul-09	
Tripsacum dactyloides	Fakahatchee grass, eastern gamagrass	*Colletotrichum graminicola*	leaf blight	Wekiwa Springs State Park	Orange	28202	Harry L. Morrison	16-Aug-09	