# Florida 4-H Insectathon
# Insect Identification
# Study Materials

Topic: Insects of Agricultural Importance

Created by

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# **Aphids**: *Aphididae*

- **Order:** Hemiptera
- **Morphology:** hemimetabolous
- **Winged:** some generations
- **Mouth Parts:** piercing-sucking
- **Other descriptors:** Aphids are very small insects which feed by sucking the juices from plant leaves and stems. They can vector pathogens and commonly, the honeydew they produce as a byproduct of feeding, brings about black sooty mold.

# Aphids

There are many species of aphids in Florida. Here are a few:




**Top Left** Winged adult female *Shivaphis celti* Das, an Asian hackberry aphid, on hackberry. Photograph by P.M. Choate, University of Florida.

**Bottom Left** Nymphs (mixed ages) and dark form of wingless adult of melon aphids, *Aphis gossypii* Glover. Photograph by J.L. Castner, University of Florida.

**Right** Brown citrus aphid, *Toxoptera citricida* (Kirkaldy), infestation on citrus. Photograph by Division of Plant Industry, www.insectimages.org.

# Aphids: Damage Photos

Aphids prefer many hosts. Here are some general damage photos:

**Top Left** Sootymold, on palm fronds, growing on honeydew released by feeding from the palm aphid, *Cerataphis brasiliensis* (Hempel). Photograph by Douglas Caldwell, University of Florida.

**Top Middle** 'Apalachee' crape myrtle (*Lagerstroemia indica x Lagerstroemia faurie*) covered with black sooty mold as a result of aphid honeydew. Photograph by John Herbert, University of Florida


**Top Right** Damage to leaves caused by the green peach aphid, *Myzus persicae* (Sulzer). Photograph by Ken Gray, Oregon State University.

**Bottom** Damage to fennel by coriander aphids, *Hyadaphis coriandri* (Das). Photograph by Jeffrey Lotz, Division of Plant Industry.

# **Armyworms**: *Spodoptera spp.*

- **Order:** Lepidoptera
- **Morphology:** holometabolous
- **Winged:** adults only
- **Mouth Parts:** biting-chewing
- **Other descriptors:** There are several species of armyworms. The fall armyworm is identifiable by an inverted “Y” on its head; the southern armyworm develops a white line dorsally and latterly, as well as a series of dark triangles.

# Armyworms

Larva of fall armyworm, note inverted “Y” on head.

Larva of southern armyworm, note white lines and dark triangles.

Photos by John Capinera, University of Florida.

# **Armyworms:** Damage Photos


Armyworm injury to whorl-stage corn, eating all of corn except for leaf midrib and stalk.

# **Asian Citrus Psyllid**: *Diaphorina citri*

- **Order:** Hemiptera
- **Morphology:** holometabolous
- **Winged:** adults only
- **Mouth Parts:** piercing-sucking
- Other descriptors: Small and mottled brown in color. Its upright appearance when sitting still helps as an identifying characteristic (see image on next slide).

# Asian Citrus Psyllid

Adult psyllid. Photo by Jeffery Lotz,
FDACS-Division of Plant Industry.

# **Asian Citrus Psyllid:** Damage Photos


The psyllids vector Greening, a devastating disease plaguing the citrus industry. Healthy and sick leaves are shown above.


Asymmetrical yellow mottling of leaves and odd shape and greening of fruit, symptoms of Huanglongbing (citrus greening).

# **Cabbage Looper**: *Trichoplusia ni*

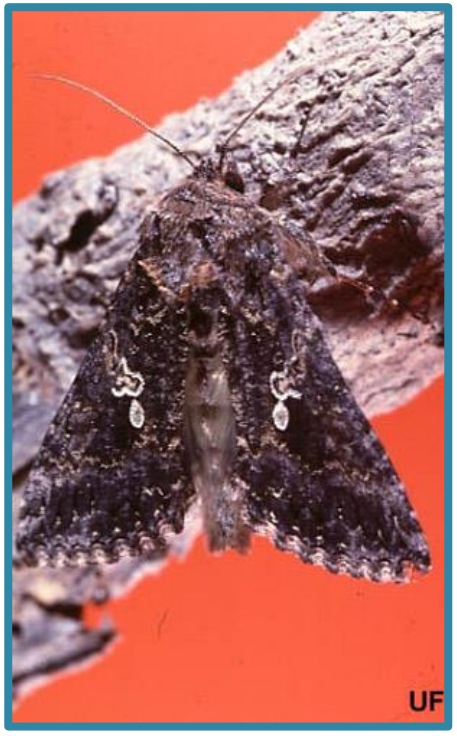
- **Order:** Lepidoptera
- **Morphology:** holometabolous
- **Winged:** adults only
- **Mouth Parts:** biting-chewing
- **Other descriptors:** Larvae start off dusky white and become green as they feed. They have three pairs of prolegs and usually a white stripe on each side of their body.

# Cabbage Looper


**Top left** Early cabbage looper instar.

**Bottom left** Mature cabbage looper larva.

**Below** Adult cabbage looper moth.




Photos by John Capinera, University of Florida.

# **Cabbage Looper:** Damage Photos

Damage to cabbage head. Only larval feeding causes damage; adult moths feed on nectar.

# **Colorado Potato Beetle**: *Leptinotarsa decemlineata*

- **Order:** Coleoptera
- **Morphology:** holometabolous
- **Winged:** yes
- **Mouth Parts:** biting-chewing
- **Other descriptors:** Elytra are outlined in black, with each having five stripes. Potato is the preferred host, but will also feed on crops such as eggplant and tomato.

# Colorado Potato Beetle


Photo by David Cappaert Buss, Michigan State University www.insectimages.org.

# **Colorado Potato Beetle:** Damage Photos


Feeding Damage on Eggplant Fruit.

# **Corn Earworm**: *Helicoverpa zea*

- **Order:** Lepidoptera
- **Morphology:** holometabolous
- **Winged:** adults only
- **Mouth Parts:** biting-chewing
- **Other descriptors:** The larva is variable in color. Overall, the head tends to be orange or light brown with a white net-like pattern, the thoracic plates black, and the body brown, green, pink, or sometimes yellow or mostly black. The larva usually bears a broad dark band laterally above the spiracles, and a light yellow to white band below the spiracles. A pair of narrow dark stripes often occurs along the center of the back. Close examination reveals that the body bears numerous black thorn-like microspines. These spines give the body a rough feel when touched. The presence of spines and the light-colored head serve to distinguish corn earworm from fall armyworm, and European corn borer.

# Corn Earworm


Larva of corn earworm, *Helicoverpa zea* (Boddie), dark-colored or brown form. Photograph by John L. Capinera, University of Florida


Adult corn earworm, *Helicoverpa zea* (Boddie). Photograph by John L. Capinera, University of Florida.

# **Corn Earworm:** Damage Photos


**Below** Corn earworm, *Helicoverpa zea* (Boddie), on an immature cotton boll. Photograph by USDA.

**Above** Larva of corn earworm, *Helicoverpa zea* (Boddie), light-colored or greenish form. Photograph by John L. Capinera, University of Florida. Note damage from feeding.

# **Cottonwood Leaf Beetle**: *Chrysomela scripta*

- **Order:** Coleoptera
- **Morphology:** holometabolous
- **Winged:** adults only
- **Mouth Parts:** biting-chewing
- **Other descriptors:** The cottonwood leaf beetle, is one of the most economically-important pests of managed cottonwood, aspen and some poplar and willow species. Often it is a severe pest of urban ornamental trees. This leaf feeder may cause extensive leaf loss, and can consequently reduce stem volume up to 70% (Coyle et al. 2005).

# Cottonwood Leaf Beetle

**Above** Larva of the cottonwood leaf beetle, *Chrysomela scripta* Fabricius, with scent droplets. Photograph by Gerald J. Lenhard, Louiana State University; www.insectimages.org.

**Left** Life cycle of the cottonwood leaf beetle, *Chrysomela scripta* Fabricius. Photograph by James Solomon, USDA Forest Service; www.insectimages.org.


**Left** Adult cottonwood leaf beetle, *Chrysomela scripta* Fabricius, dorsal view; lateral view. Photograph by Natasha Wright, Florida Department of Agriculture and Consumer Services; www.insectimages.org.

# Cottonwood Leaf Beetle: Damage Photos

Defoliation caused by the cottonwood leaf beetle, *Chrysomela scripta* Fabricius. Photograph by James Solomon, USDA Forest Service ; www.insectimages.org.

Initial feeding damage from the cottonwood leaf beetle, *Chrysomela scripta* Fabricius. Photograph by Andrew J. Boone, South Carolina Forestry Commission; www.insectimages.org.

# **Cowpea Curculio**: *Chalcodermus aeneus*

- **Order:** Coleoptera
- **Morphology:** holometabolous
- **Winged:** yes (but rarely fly)
- **Mouth Parts:** biting-chewing
- **Other descriptors:** Black weevil that begins feeding in April or May, adults can live several months. Host plants it feeds on are primarily legumes.

# Cowpea Curculio

Adult cowpea curculio. Photo by Lyle Buss, University of Florida.

# **Cowpea Curculio:** Damage Photos

Damage to peas caused by cowpea curculio.

# **Cucumber Beetles**: *Diabrotica spp.*

- **Order:** Coleoptera
- **Morphology:** holometabolous
- **Winged:** yes
- **Mouth Parts:** biting-chewing
- **Other descriptors:** Cause problems in crops such as cantaloupe and cucumbers, and are found in other crops as well.

# Cucumber Beetles

Adult Spotted Cucumber Beetle.

Photo by Lyle Buss,
University of Florida.

Photo by James Castner,
University of Florida.

Adult Banded Cucumber Beetle
& Larva.

# **Cucumber Beetles:** Damage Photos


Cucumber beetle damage on cucumber.


Cucumber beetle feeding damage on squash.

# **Hormworms**: *Sphingidae*

- **Order:** Lepidoptera
- **Morphology:** holometabolous
- **Winged:** adults only
- **Mouth Parts:** biting-chewing
- **Other descriptors:** Tobacco and tomato hornworms are common, large caterpillars that defoliate tomato plants. Their large size allows them to strip a plant of foliage in a short period of time, so they frequently catch gardeners by surprise. They are quite similar in appearance and biology.

# Hornworms

**Top Left** Newly hatched tobacco hornworm, *Manduca sexta* (Linnaeus), larva and egg. Photograph by James Castner, University of Florida.

**Top Right** Larva of tobacco hornworm, *Manduca sexta* (Linnaeus). Photograph by James Castner, University of Florida.

**Bottom** Last instar larva of the tomato hornworm, *Manduca quinquemaculata* (Haworth). Photograph by Paul M. Choate, University of Florida.

# Hornworms

Adult tomato hornworm, *Manduca quinquemaculata* (Haworth). Photograph by John Capinera, University of Florida.

Adult tobacco hornworm, *Manduca sexta* (Linnaeus). Photograph by John Capinera, University of Florida.

# **Hornworms:** Damage Photos

Defoliation of a tomato leaflet caused by tobacco hornworm, *Manduca sexta* (Linnaeus). Photograph by James Castner, University of Florida.

Damage to tomato fruit caused by tobacco hornworm, *Manduca sexta* (Linnaeus). Photograph by James Castner, University of Florida

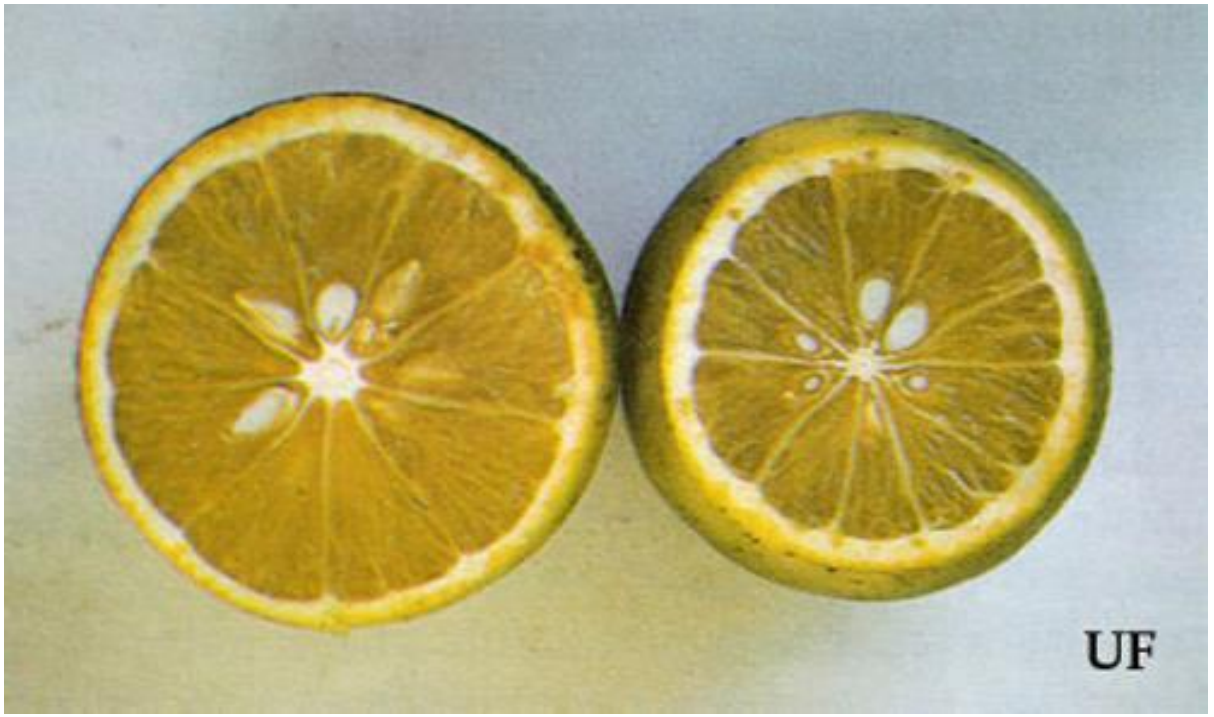
# **Leaffooted Bug**: *Leptoglossus phyllopus*

- **Order:** Hemiptera
- **Morphology:** holometabolous
- **Winged:** yes
- **Mouth Parts:** piercing-sucking
- Other descriptors: Similar appearance to most stink bugs but with a more elongated body. Easily identified from other Florida species of *Leptoglossus* by the crossbar on its elytra.

# Leaffooted Bug

Adult leaffooted bug. Photo by John Capinera, University of Florida.

# **Leaffooted Bug:** Damage Photos




Type of damage to citrus fruit that can be caused by the leaffooted bug, *Leptoglossus phyllopus* (Linnaeus). Photograph by University of Florida.

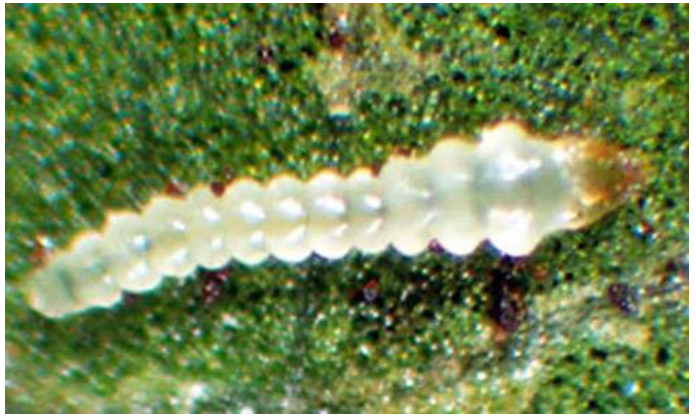
# Leafminers

- **Order:** Diptera
- **Morphology:** holometabolous
- **Winged:** adults only
- **Mouth Parts:** piercing-sucking
- **Other descriptors:** Tiny flies who's larval forms tunnel, or mine, inside the leaves of host plants leaving characteristic patterns in the leaves when viewed from above or below.

# **Leafminers:** larval forms

Many species in Florida. Here are a couple of examples:

Larva of the American serpentine leafminer, *Liriomyza trifolii* (Burgess), exposed from a mine in a squash (?) leaf. Photograph by Lyle J. Buss, University of Florida.



Mature larva of the azalea leafminer, *Caloptilia azaleella* (Brants). Photograph by Russell F. Mizell, University of Florida.

# Leafminers:
# adult forms

Many species in Florida. Here are a few:

**Above** Adult American serpentine leafminer, *Liriomyza trifolii* (Burgess). Photograph by Lyle J. Buss, University of Florida.

**Bottom Left** Erythrina leafminer (*Leucoptera erythrinella*) female. Photograph by Andrei Sourakov, University of Florida

**Bottom Right** Adult azalea leafminer, *Caloptilia azaleella* (Brants). Photograph by Lyle J. Buss, University of Florida.

# **Leafminers:** Damage Photos

Mine in tomato leaf caused by *Liriomyza* leafminer. Photograph by J. Castner, University of Florida.


Leaf mine of citrus leafminer, *Phyllocnistis citrella* Stainton, on citrus in Florida. Photograph by Jeffery W. Lotz, Florida Department of Agriculture and Consumer Services, Division of Plant Industry.


Damage to the coral bean plant (*Erythrina herbacea*) by erythrina leafminer (*Leucoptera erythrinella*). Photograph by Andrei Sourakov, University of Florida.

# **Lessor Cornstalk Borer**: *Elasmopalpus lignosellus*

- **Order:** Lepidoptera
- **Morphology:** holometabolous
- **Winged:** adults only
- **Mouth Parts:** biting-chewing
- **Other descriptors:** Caterpillars get white stripes as they develop, and wiggle violently when disturbed. Legumes and grass crops are the most often damaged by this insect.

# Lesser Cornstalk Borer


Adult male lesser cornstalk borer. Photo by Hardev Sandhu, University of Florida.


Adult female lesser cornstalk borer. Photo by Hardev Sandhu, University of Florida.

# **Lesser Cornstalk Borer:** Damage Photos


Lesser cornstalk borer, *Elasmopalpus lignosellus*, larva showing stem tunneling by larva. Photograph by James L. Castner, University of Florida.


Lesser cornstalk borer, *Elasmopalpus lignosellus*, damage to soybean. Note wilting due to stalk feeding by larvae. Photograph by James L. Castner, University of Florida.

# **Mole Crickets**: *Neoscapteriscus spp.*

- **Order:** Orthoptera
- **Morphology:** hemimetabolous
- **Winged:** yes
- **Mouth Parts:** biting-chewing
- **Other descriptors:** There are several species of mole crickets in the United States, each having enlarged forelegs used for digging. Despite having wings, some mole crickets are flightless.

# Mole Crickets

Shortwinged mole cricket  Tawny mole cricket  Southern mole cricket

Photo by Lyle Buss,
University of Florida

# **Mole Crickets:** Damage Photos

Dead patches caused by mole crickets feeding on turfgrass.
Credit: E. Buss, UF/IFAS

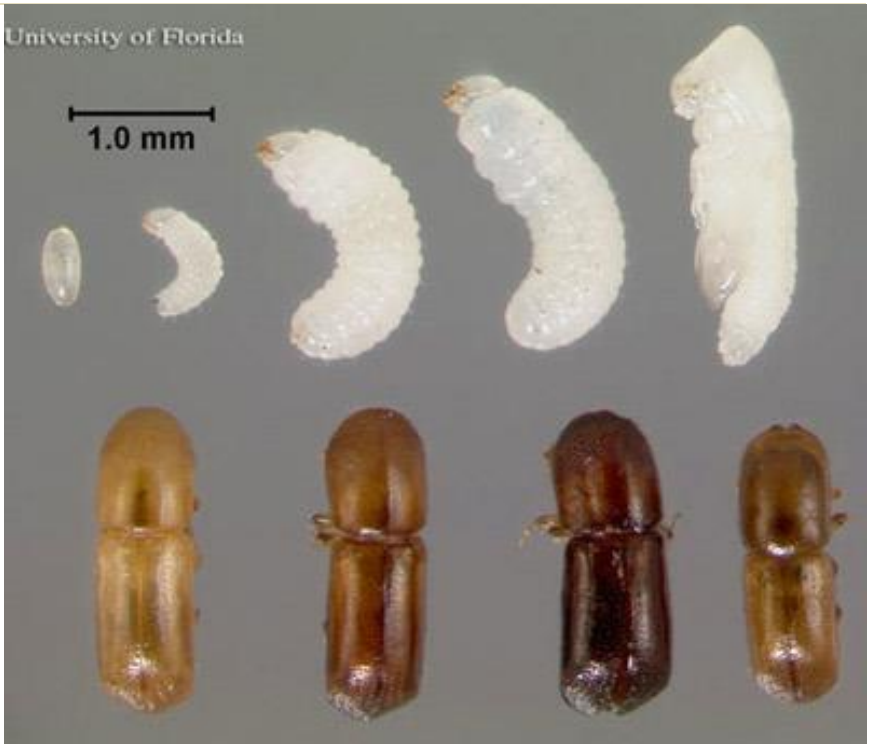
# **RedbayAmbrosia Beetle**: *Xyleborus glabratus*

- **Order:** Coleoptera
- **Morphology:** holometabolous
- **Winged:** yes
- **Mouth Parts:** biting-chewing
- **Other descriptors:** The beetle transmits the causal pathogen of laurel wilt disease among plants in the Laurel family (Lauraceae), which is caused by one of its fungal symbionts, *Raffaelea lauricola* (Mayfield and Thomas 2006, Fraedrich et al. 2009). The *X. glabratus* and *R. lauricola* complex is considered a "very high risk" invasive disease pest complex.

# Redbay Ambrosia Beetle


Lateral view of adult female.

Dorsal view of adult female.




Full Life Cycle, bottom row shows color variation in adults.

Photos by Lyle Buss, University of Florida.

# **Redbay Ambrosia Beetle:** Damage Photos

Small strings of compacted sawdust, protruding from the bark at the point of attack, are an indication of an infestation by the redbay ambrosia beetle, *Xyleborus glabratus* Eichhoff. Photograph by Michael Flores, University of Florida

Stained sapwood is an indication of an infestation by the redbay ambrosia beetle, *Xyleborus glabratus* Eichhoff. Photograph by Michael Flores, University of Florida.

Wilted foliage, with a reddish or purplish discoloration, caused by an infestation of the redbay ambrosia beetle, *Xyleborus glabratus* Eichhoff. Photograph by Michael Flores, University of Florida.

# **Small Hive Beetle**: *Aethina tumida*

- **Order:** Coleoptera
- **Morphology:** holometabolous
- **Winged:** adults
- **Mouth Parts:** biting-chewing
- **Other descriptors:** These beetles are small brown beetles which pupate in the soil. Emerging adults infest nearby colonies of bees where they lay eggs and resulting larva feed until ready to pupate. There is fermentation of hive products (particularly honey) associated with feeding larvae. This likely occurs due to specific yeasts associated with the small hive beetle. Honey damaged by small hive beetles is rendered foul and unfit for human consumption.

# Small Hive Beetle


**Figure 1.** Dorsal view of an adult male small hive beetle, *Aethina tumida* Murray. Photograph by Lyle J. Buss, University of Florida.

# **Small Hive Beetle:** Damage Photos

Honey comb showing fermenting honey and other damage caused by larvae of the small hive beetle, *Aethina tumida* Murray. Photograph by Mark Dykes, University of Florida.

# **Southern Green Stink Bug**: *Nezara viridula*

- **Order:** Hemiptera
- **Morphology:** holometabolous
- **Winged:** yes
- **Mouth Parts:** piercing-sucking
- **Other descriptors:** Green shield-shaped stink bug, with small black dots along the sides of its abdomen. Wings cover the abdomen completely.

# Southern Green Stink Bug

Adult southern green stink bug. Photo by James Castner.

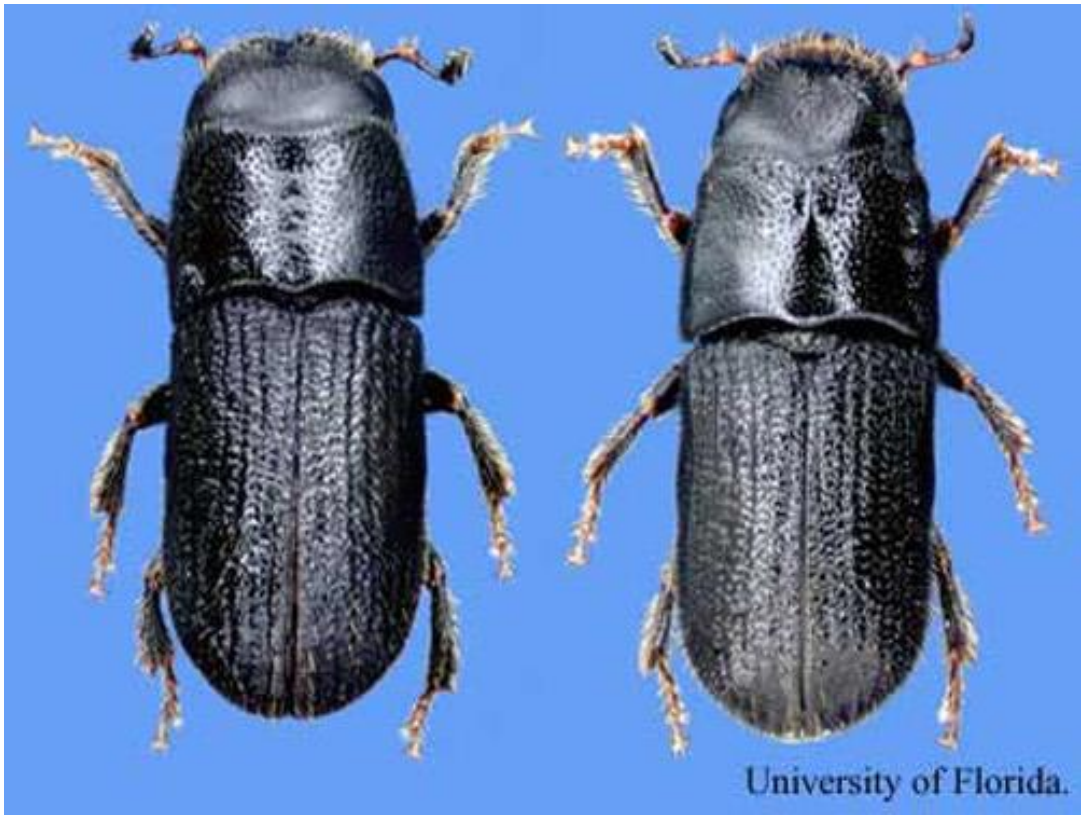
# **Southern Green Stink Bug:** Damage Photos


Feeding damage to cotton boll by the southern green stink bug, *Nezara viridula* (Linnaeus). Photograph by Ronald Smith, Auburn University; www.insectimages.org.

# **Southern Pine Beetle**: *Dendroctonus frontalis*

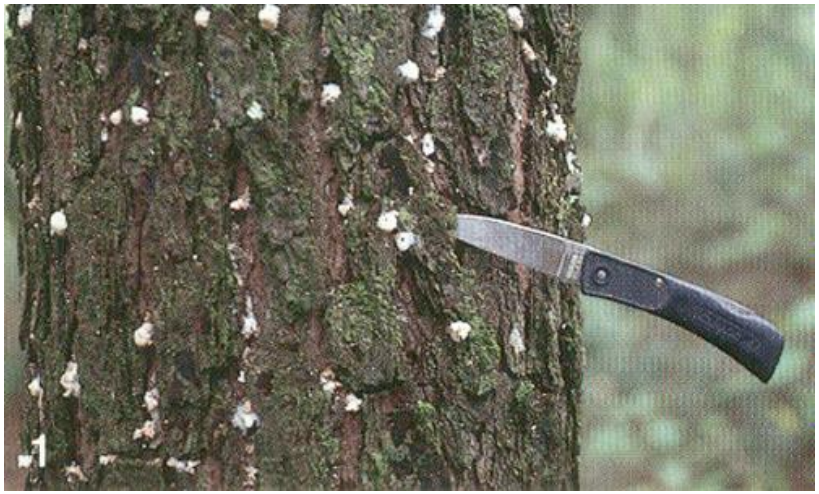
- **Order:** Coleoptera
- **Morphology:** holometabolous
- **Winged:** yes
- **Mouth Parts:** biting-chewing
- **Other descriptors:** Indicators of beetle presence: boring dust at tree base, white pitch pellets on tree, and crowns of dying trees turn green to yellow to red.

# Southern Pine Beetle




Dorsal view of adult southern pine beetles, male on left and female on right. Photo by David T. Almquist, University of Florida.

# **Southern Pine Beetle:** Damage Photos



Beetle damage on a pine tree. Photo by James R. Meeker, FDACS, Division of Forestry.

Southern Pine Beetle exit hole.

# **Stem Maggot**: *Atherigona reversura*

- **Order:** Diptera
- **Morphology:** holometabolous
- **Winged:** adults only
- **Other descriptors:** Symptoms of the bermudagrass stem maggot include the death of top leaves to the node or growing point. These leaves can easily be pulled out of the leaf whorl, and often feeding by the stem maggot can be seen by the naked eye.

# Stem Maggot

Bermudagrass stem maggot.
Credit: Tim Wilson, UF/IFAS

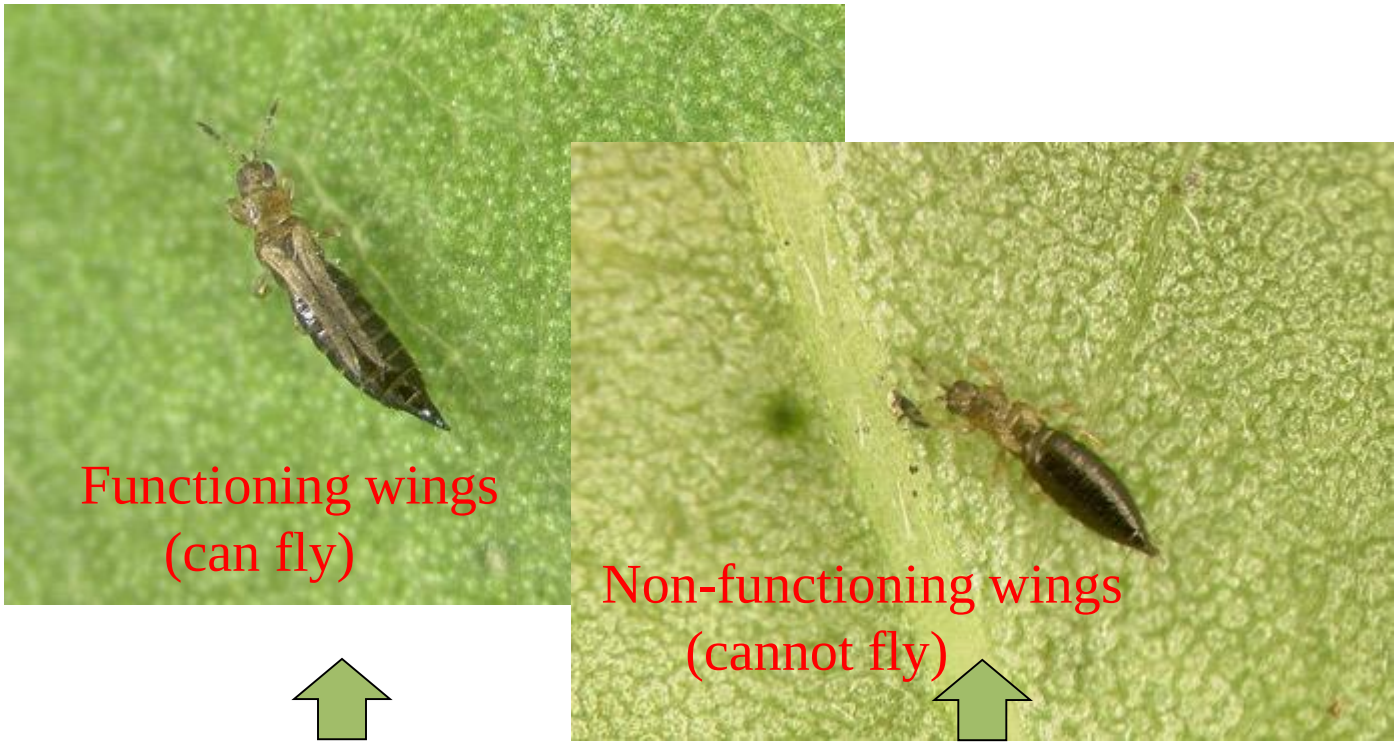
# **Stem Maggot:** Damage Photos

Field symptoms where top leaves of bermudagrass are affected by maggot feeding.
Credit: Tim Wilson, UF/IFAS

# **Thrips**: Thripidae

- **Order:** Thysanoptera
- **Morphology:** holometabolous
- **Winged:** yes
- **Mouth Parts:** piercing-sucking
- **Other descriptors:** Very small, thin insects that can range from yellow, brown, orange or black. They rasp new leaves and flowers when feeding, which can cause streaks on the plant.

# Thrips




Shown above are adult tobacco thrips.

Photos by Lyle Buss, University of Florida.

# **Thrips:** Damage Photos

Photo of Damage to Blueberries.

# **Twig Girdler**: *Oncideres cingulata*

- **Order:** Coleoptera
- **Morphology:** holometabolous
- **Winged:** adults only
- **Mouth Parts:** biting-chewing
- **Other descriptors:** The female beetles chew a deep notch around pencil-sized branches and typically lay three to six eggs under the bark of the dying tip. The boring encircles the branch tip, hence the "girdler" name. The female beetles must girdle the twigs because the larvae cannot fully develop in green twigs with high moisture content.

# Twig Girdler

# **Velvetbean Caterpillar**: *Anticarsia gemmatalis*

- **Order:** Lepidoptera
- **Morphology:** holometabolous
- **Winged:** adults only
- **Mouth Parts:** biting-chewing
- **Other descriptors:** Caterpillar has four pairs of abdominal prolegs, and can have a dark (almost black) or light form (green). It prefers to feed on legumes but has a broad host range.

# Velvetbean Caterpillar

Dark form of velvetbean caterpillar.

Green form of velvetbean caterpillar.

Adult velvetbean caterpillar.

Photos by Lyle Buss, University of Florida.

# **Velevetbean Caterpillar:** Damage Photos

Velvetbean caterpillar feeding on peanut foliage. Credit: Josh Thompson

# **Whiteflies**: Aleyrodidae

- **Order:** Hemiptera
- **Morphology:** hemimetabolous
- **Winged:** yes
- **Mouth Parts:** piercing-sucking
- **Other descriptors:** Very small, winged insect typically found on the underside of host plant.

# Whiteflies

Adult cloudywinged whiteflies, *Singhiella citrifolii* (Morgan). Photograph by R. Nguyen, Division of Plant Industry.

*Aleurotrachelus trachoides* Back feeding on *Capsicum annuum* L. (pepper) leaf. Photograph by Vivek Kumar, University of Florida.

Adult *Bemisia argentifolii* Bellows & Perring or *Bemisia tabaci* (Gennadius), B strain. Photograph by Scott Bauer, USDA.

# **Whiteflies:** Damage Photos

Tomato foliage showing characteristic yellowing and leaf curling associated with infection by *Bemisia*-vectored tomato yellow leaf curl virus. (*Bemisia* = sweetpotato whitefly B biotype, *Bemisia tabaci* (Gennadius), or silverleaf whitefly, *Bemisia argentifolii* Bellows & Perring). Photograph by Gary Simone, University of Florida.

# **Whiteflies:** Damage Photos


Poinsettia showing chlorosis of new foliage that developed during heavy feeding by immature *Bemisia*. (*Bemisia* = sweetpotato whitefly B biotype, *Bemisia tabaci* (Gennadius), or silverleaf whitefly, *Bemisia argentifolii* Bellows & Perring). Photograph by James Castner, University of Florida.

# **Whiteflies:** Damage Photos

Citrus leaves with sooty mold growing on honeydew excreted by the citrus whitefly, *Dialeurodes citri* (Ashmead). Photograph by University of Florida.

# Source Links

**Aphids:**

http://entnemdept.ufl.edu/creatures/trees/asian_hackberry.htm

http://entnemdept.ufl.edu/creatures/citrus/bc_aphid.htm

http://entnemdept.ufl.edu/creatures/veg/aphid/melon_aphid.htm

http://entnemdept.ufl.edu/creatures/orn/palms/palm_aphid.htm

http://entnemdept.ufl.edu/creatures/orn/trees/crapemyrtle_aphid.htm

http://entnemdept.ufl.edu/creatures/veg/aphid/coriander_aphid.htm

http://entnemdept.ufl.edu/creatures/veg/aphid/green_peach_aphid.htm

**Armyworms:**

http://entnemdept.ufl.edu/creatures/field/fall_armyworm.htm

http://entnemdept.ufl.edu/creatures/veg/leaf/southern_armyworm.htm

http://www.ent.iastate.edu/imagegal/plantpath/corn/armyworm/3936.121armywinj.html

**Asian Citrus Psyllid:**

http://entnemdept.ufl.edu/creatures/citrus/acpsyllid.htm

http://ipm.ucanr.edu/PMG/PESTNOTES/pn74155.html

**Cabbage Looper:**

http://entnemdept.ufl.edu/creatures/veg/leaf/cabbage_looper.htm

https://projects.ncsu.edu/cals/course/ent010/veg_fruit_pests/looper_dam.html

# Source Links Continued

**Colorado Potato Beetle:**

http://entnemdept.ufl.edu/creatures/veg/leaf/potato_beetles.htm

https://extension.umd.edu/growit/insects/colorado-potato-beetle

Corn Earworm:

http://entnemdept.ufl.edu/creatures/veg/corn_earworm.htm

**Cottonwood Leaf Beetle:**

http://entnemdept.ufl.edu/creatures/trees/beetles/cottonwood_leaf_beetle.htm

**Cowpea Cucurlio:**

http://entnemdept.ufl.edu/creatures/veg/bean/cowpea_curculio.htm

http://extension.uga.edu/publications/detail.cfm?number=C1038

**Cucumber Beetle:**

http://entnemdept.ufl.edu/creatures/veg/bean/spotted_cucumber_beetle.htm

https://extension.umd.edu/growit/insects/cucumber-beetles-spotted-or-striped

**Hornworms:**

http://entnemdept.ufl.edu/creatures/field/hornworm.htm

**Leaffooted bug:**

http://entnemdept.ufl.edu/creatures/orn/leaffooted_bug.htm

http://www.entnemdept.ufl.edu/creatures/orn/leaffooted_bug.htm

# Source Links Continued

**Leafminers:**

http://entnemdept.ufl.edu/creatures/veg/leaf/a_serpentine_leafminer.htm

http://entnemdept.ufl.edu/creatures/orn/shrubs/azalea_leafminer.htm

http://entnemdept.ufl.edu/creatures/citrus/citrus_leafminer.htm

http://entnemdept.ufl.edu/creatures/ORN/SHRUBS/Leucoptera_erythrinella.htm

**Lesser cornstalk borer:**

http://entnemdept.ufl.edu/creatures/field/lesser_cornstalk_borer.htm

http://entomology.ifas.ufl.edu/creatures/field/lesser_cornstalk_borer.htm

**Mole Crickets:**

http://entnemdept.ifas.ufl.edu/creatures/orn/turf/pest_mole_crickets.htm

https://edis.ifas.ufl.edu/in1021

**Redbay Ambrosia Beetle:**

http://entnemdept.ufl.edu/creatures/trees/beetles/redbay_ambrosia_beetle.htm

http://www.sfrc.ufl.edu/extension/4h/foresthealth/insects/ambrbeet.html

**Small Hive Beetles:**

http://entnemdept.ufl.edu/creatures/misc/bees/small_hive_beetle.htm

**Southern Green Stink Bug:**

http://entnemdept.ufl.edu/creatures/veg/bean/southern_green_stink_bug.htm

http://entnemdept.ufl.edu/creatures/veg/bean/southern_green_stink_bug.htm

# Source Links Continued

**Southern Pine Beetle:**

http://entnemdept.ufl.edu/creatures/trees/southern_pine_beetle.htm

https://entomology.ca.uky.edu/ef443

**Stem Maggot:**

http://edis.ifas.ufl.edu/ag384

**Thrips:**

http://entnemdept.ufl.edu/creatures/VEG/THRIPS/Frankliniella_fusca.htm

http://mrec.ifas.ufl.edu/lso/thripslinks.htm

**Twig Girdlers:**

http://gardeningsolutions.ifas.ufl.edu/care/pests-and-diseases/pests/twig-girdler.html

**Velvetbean caterpillar:**

http://entnemdept.ufl.edu/creatures/field/velvetbean.htm

http://franklin.ifas.ufl.edu/newsletters/tag/caterpillars/

**Whiteflies:**

http://entnemdept.ufl.edu/creatures/citrus/cloudywinged_whitefly.htm

http://entnemdept.ufl.edu/creatures/veg/Aleurotrachelus_trachoides.htm

http://entnemdept.ufl.edu/creatures/veg/leaf/silverleaf_whitefly.htm