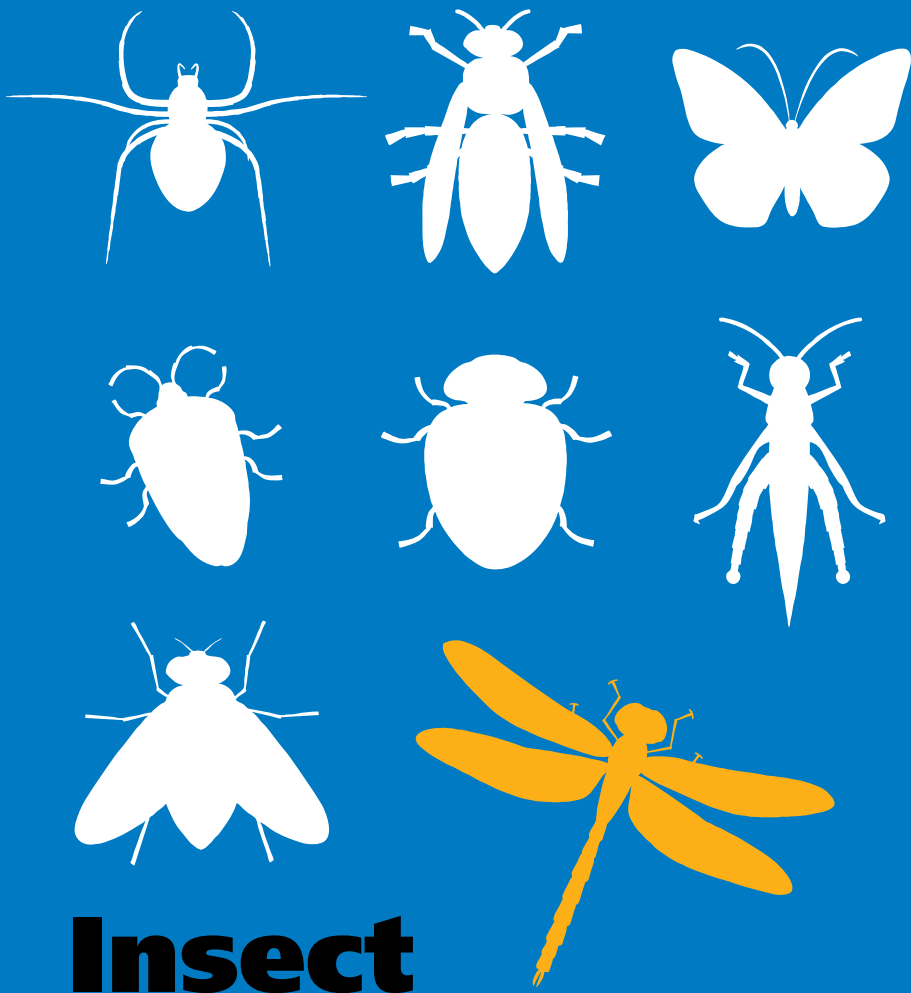

Insect Identification Guide

for Southeastern Landscapes

How to use this booklet

Go to the tab that best exemplifies the damage observed on ornamental plants or turfgrass. Some insects are not easily seen. Sometimes a magnifying glass or a microscope is needed. The type of damage caused can provide evidence of the culprit. Not all insects cause damage and many benefit your garden. You will find many of these insects in the beneficial insects section of this book.

Key

Size of the insect:


needs magnification to be observed


1/8" to 1/2" long


1/2" long or more

Practice Integrated Pest Management (IPM)

Before choosing a course of action about an insect in the garden, remember the four principles of IPM:

- Monitor the garden
- Identify the insect or problem
- Evaluate the situation and predict the impact of the damage, if any
- Make a decision about the best course of action and choose your control methods

Consult your county Extension agent and state pest control handbook regarding the choice of control methods. Always follow pesticide labels and use proper precautions before handling pesticides.

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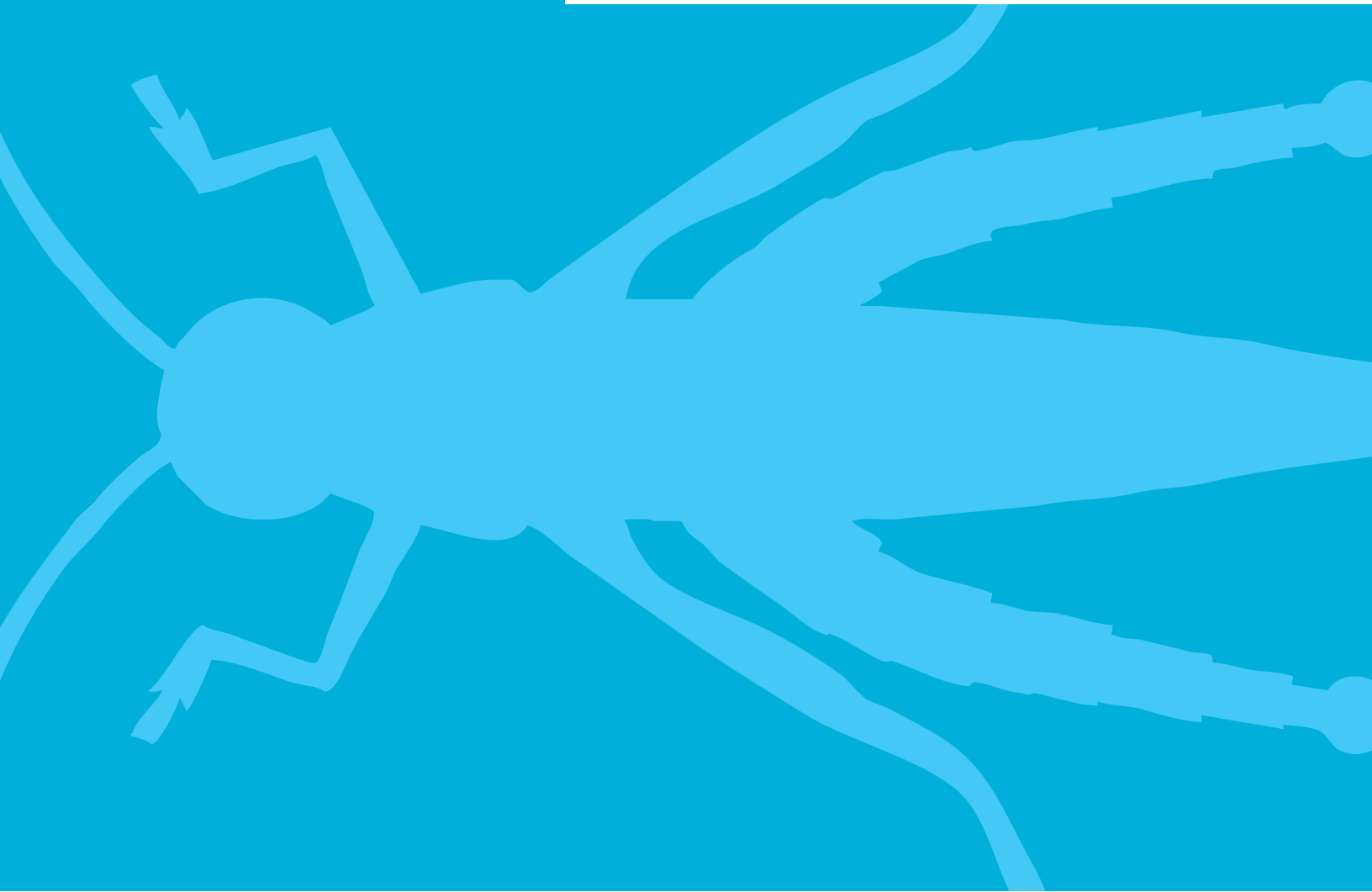
authors: Shaku Nair, Kris Braman and Ellen Bauske
photographs: Bugwood.org

Pest insects of ornamental plants



Pretty or pest?

Some insects, especially those that cause chewing damage to plants, are beautiful additions to the garden at later stages in their life. Take a look at the caterpillars and see what they become before you decide to take action.

D. Cappaert

Cabbage butterfly larva

D. Cappaert

Cabbage butterfly

P. Wirtz

Monarch butterfly larva

C.T. Bryson

Monarch butterfly

S. McKeever

Tiger swallowtail larva

S. Katovich

Tiger swallowtail butterfly

Chewing damage

CLUES Scraped or chewed leaves or flowers. Frass and webbing.

Examples


M. Zubrik


S. Katovich


G. Csoka


Dow Gardens Archive

possible culprits

Beetles

L.S. Dalen

Flea beetles (adults)

Landesforstpräsidium Sachsen

Flea beetles (larvae)

D. Cappaert

Japanese beetles (adults)

J. N. Dell

Tortoise beetle

D. Cappaert

Imported Willow Leaf Beetle (adult)

P. Weston

Imported Willow Leaf Beetle (larvae)

Caterpillars

C. Evans

Azalea caterpillar

E.R. Day

Bagworm

M. Zubrik

Fall webworm

R. F. Billings

Oak leaf caterpillar

D. Cappaert

Tent caterpillar

G. Lenhard

Yellownecked caterpillar

Grasshoppers & Sawflies

R. Ottens

American grasshopper

D. Riley

Differential grasshopper

B. Kunkel

Bristly roseslug sawfly (larva)

L. Graney

Oak sawfly (larva)

G.J. Lenhard

Redheaded pine sawfly (larvae)

J. A. Weidhass

Roseslug sawfly (larva)

Dieback damage

CLUES Unusual wilting, drying or death of a branch or twig on an otherwise healthy plant.

Examples

L.L. Hyche

J. O'Brien

PA Dept.Conserv. Nat. Res. Forest

J. Solomon

possible culprits

Scales

Armored Scales

Clemson Univ.-USDA Coop.Ext.

Euonymus scale

Clemson Univ.-USDA Coop.Ext.

Tea scale

Soft Scales

A.J. Boone

Lecanium scale

J.A. Weidhass

Wax scale

Dieback damage

MORE CLUES In addition to unusual wilting or drying, look for frass in branch crotches or frass 'toothpicks.'

Examples

Pa. Dept. of Conservation & Natural Resources – Forestry Archive

J. R. Baker / S. B. Bambara

possible culprits

Borers

D. Cappaert

Emerald ash borer (adult)

D. Cappaert

Emerald ash borer (larva)

D. Cappaert

Flat-headed apple tree borer (adult)

B.W. Kaufman

Flat-headed apple tree borer (larva)

D. Cappaert

Goldenrod locust borer

J. Hulcr

Granulate ambrosia beetle

Distortion damage

CLUES Abnormally shaped or colored deformation of plant parts. Some of these can also be symptoms of plant diseases.

Galls

S. Kinelski

R. F. Billings

S. Katovich

INRA-Bordeaux

possible culprits

Insects & mites that make galls

W. Cranshaw

Adelgid

S.P. van Vuuren

Psyllid

S. McKeever

Cynipid wasp

T. Wootten

Eriophyid mite (adult)

Leaf curling

W. Cranshaw

C.E. Younce

Culprits

J.A. Weidhass

Aphid

W. Cranshaw

Thrips

Leaf mines

S.K. Braman

Azalea leaf damage

J. Baker

Boxwood leaf damage

G. Csoka

Holly leaf damage

Culprits

M. Dreiling

Azalea leaf miner (moth)

J. Baker

Boxwood leaf miner (fly)

J. Baker

Holly leaf miner (fly)

Stippling damage

CLUES Chlorotic spots. Also look for frass, cast skins and webbing.

Examples

S. Nair

W. Cranshaw

W. Cranshaw

Clemson Univ.-USDA Coop.Ext.

possible culprits

Lace bugs

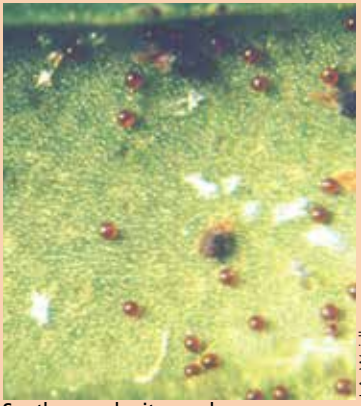
J. Baker

Azalea lace bug

J. Baker

Hawthorn lace bug

Mites



J.A. Weidhass

Southern red mites and eggs

F. Pears

Two-spotted spider mite

Pest insects of turf

Pest insects of turfgrass

While visual evidence of insect damage to turfgrass is often seen above ground, damage can be caused by insects that live either above ground or below ground. **Proceed to the tabbed section that best exemplifies observable damage.**

Sampling

Several techniques are used to confirm the presence of insects in turgrass.

Sampling method key

Flotation sampling

Soap flush sampling

Soil sampling

Above ground pests

CLUES Chewed or shredded leaves, leaves with shot-holes, cut stems, abnormal yellowing or drying of leaves. Also look for frass, webbing or spittle-like substance on leaves.

Examples of damage

S.K. Braman

S.K. Braman

S.K. Braman

possible culprits

Chewing pests

North Carolina Forest Service

Armyworm (larva)

N. Wright

Armyworm adult (moth)

S.K.Braman

Fall armyworm (larva)

B.R.Wiseman

Fall armyworm adult (moth)

J. Berger

Billbug adult

J. Lawrence

Sod webworm adult (moth)

Chewing pests

A. Sisson

Black cutworm (larva)

A. Sisson

Black cutworm adult (moth)

W. Cranshaw

Bronzed cutworm (larva)

A. Sisson

Bronzed cutworm adult (moth)

R.J. Reynolds Tobacco Company

Variegated cutworm (larva)

I. Kimber

Variegated cutworm adult (moth)

Sucking pests

S.K. Braman

Chinch bug (adults)

S.K. Braman

Chinch bug (nymphs)

J.N. Dell

Spittle bug (adult)

S.K. Braman

Spittle bug (nymph)

Below ground pests

CLUES Abnormal yellow, brown, wilted or dried up patches of turfgrass.

Examples of damage

S.K. Braman

possible culprits

Possible culprits

W. Cranshaw

Billbug (larva)

D. Cappaert

May-June beetle (grubs)

T.S. Price

May-June beetle (adults)

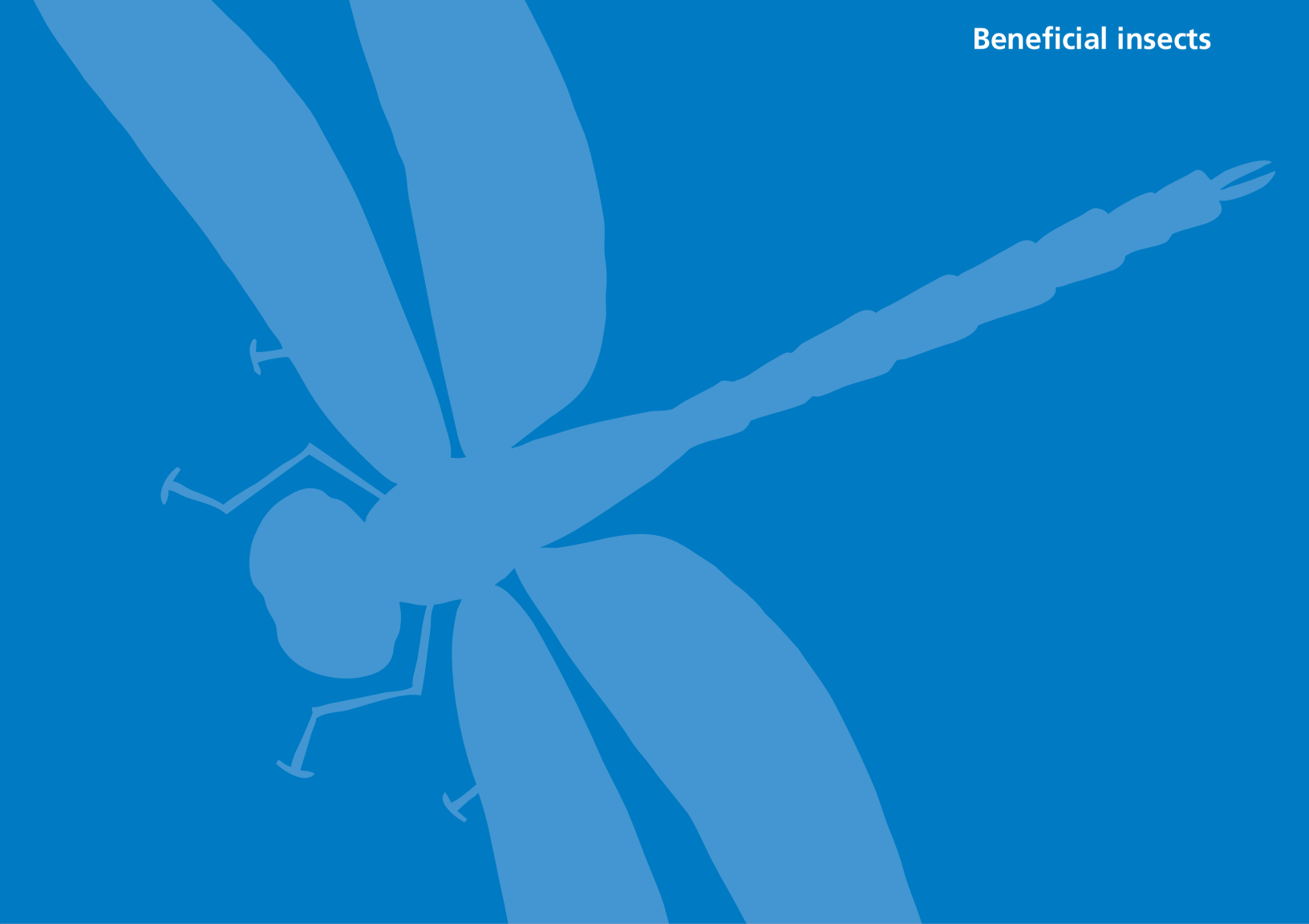
UGA Archive

Mole crickets

Clemson Univ. – USDA Coop. Ext.

Mole crickets

Beneficial insects



Beneficial insects in the landscape

Beneficial insects include predators and parasitoids. They prey on pest insects or use them as hosts for the parasitoids' young. Such insects are beneficial because they remove pests from the environment.

Predators

Predators prey on pest insects. Predators are generally larger, faster and stronger than their prey and often capture and eat many individuals during their life cycle.

Example

C.M. Abraham

predators

Beetles

J. Berger

Ground beetle

Clemson Univ.-USDA Coop.Ext.

Lady beetle larvae, eggs and adult

J. Yuschock

Rove beetle

S. McKeever

Tiger beetle

Dragonflies

D. Cappaert

Dragonfly

G. Braman

Dragonfly

Damselflies

J.N. Dell

Damselfly

G. Braman

Damselfly

Flies

D. Cappaert

Long-legged fly

E.L. Manigault

Robber fly

S. Ellis

Syrphid fly (adult)

A.N. Sparks Jr.

Syrphid fly (larva) with aphid prey

Lacewings

J. Berger

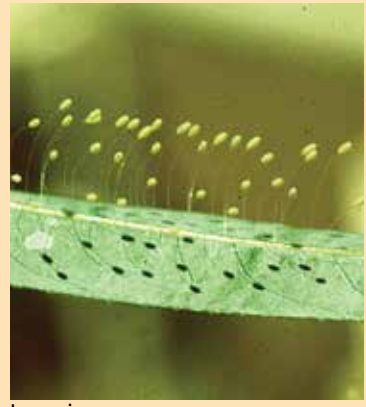
Brown lacewing

C. Moorehead

Dusty wing

F. Pearis

Green lacewing



W. Cranshaw

Lacewing eggs

W. Cranshaw

Lacewing larva

Mantids

W.Cranshaw

Praying mantid adult

W.Cranshaw

Praying mantid egg case

Wasps

C.M.Abraham

Paper wasp

S.Ellis

Sphecid wasp

Spiders & Mites

D. Cappaert

Flower spider

R. Ottens

Green lynx spider

D. Cappaert

Spiny orb weaver

D. Cappaert

Zipper spider

C. Ray

Predatory mite

C. Ray

Predatory mite

True bugs

W.Cranshaw

Assassin bug

B.Higbee

Big-eyed bug

W.Beck

Damsel bug

J. Ruberson

Minute pirate bug

F.E.French

Predatory stink bug

H.A.Pase III

Wheel bug

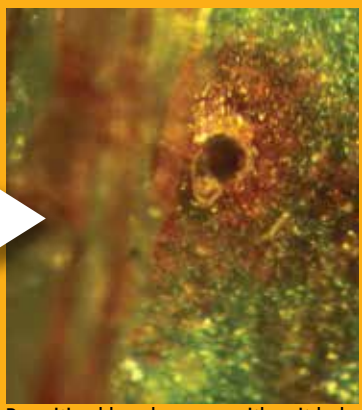
Parasitoids

Parasitoids are insects that live and develop as parasites on other insects (hosts) and eventually kill them. Parasitoids usually complete their development on a single individual host.

Parasitoids at work

S.K. Braman

Azalea lace bug egg parasitoid



S.K. Braman

Parasitized lace bug egg with exit hole

D. Cappaert

Mummified (top) and healthy aphids

W. Cranshaw

Parasitoid larva inside mummified aphid

Parasitoids at work

P.J.Pugliese

Parasitized caterpillar

K.Chamberlain

Parasitized caterpillar with eggs

F.Starr & K.Starr

Parasitized stink bug with egg

parasitoids

Flies & Wasps

R. Ottens

Tachinid fly

S. McKeever

Tachinid fly

S. Bauer

Braconid wasp

R. Ryan

Eulophid wasp

R. Ryan

Ichneumonid wasp

USDA ARS Photo Unit

Pteromalid wasp

Useful terms

Bugs
"True bugs" are insects belonging to the suborder *Heteroptera*, under order *Hemiptera*. Sometimes "bugs" is misused as a generic term for insects.

Cast skins
Dried skins left by immature insects after they molt.

Chlorotic spots
Pale yellow, green or white spots on leaves caused when sucking pests draw out plant sap.

Frass
Insect fecal matter.

Larva(e)
Immature insects that do not resemble the adult(s).

Nymph(s)
Immature insects that resemble the adult.

Predator
Insects or other organisms that prey on other insects. Predators are generally larger, faster and stronger than their prey and often capture and eat many individuals during their life cycle.

Parasitoids
Insects that live and develop as parasites on other insects (hosts) and eventually kill them. Parasitoids usually complete their development on a single individual host.

Flotation sampling
Method to sample turf insects (e.g., chinch bugs), done by inserting one end of a hollow, cylindrical container into the turfgrass and filling it with water. Insects, if present, will float to the top and can be counted.

Soap flush sampling
Method to sample turf insects (e.g., sod webworms and other caterpillars), done by drenching a unit area of turfgrass (e.g., 2' x 2') with soapy water (2 fl. oz. liquid dish detergent in 1 gal. water). Caterpillars, if present, get irritated by the soap and crawl to the surface, and can be counted and identified.

Soil sampling
Method to sample soil-dwelling insects (e.g., white grubs and bill bug grubs), done by digging about 6 inches deep into a unit area of soil (e.g., 1' x 1'), at several points over the turfgrass. Grubs, if present, will be exposed and can be counted.

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