

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.

authors: Skaku Nair, Kris Braman and Ellen Bauske

photographs: Bugwood.org



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



Scraped or chewed leaves or flowers. Frass and webbing.

Examples



M. Zubrik



S. Katovich



G. Csoka



Dow Gardens Archive

possible culprits

Beetles



Flea beetles (adults)

L.S. Dalen



Flea beetles (larvae)

Landesforstpräsidium Sachsen



Japanese beetles (adults)

D. Cappaert



Tortoise beetle

J. N. Dell



Viburnum leaf beetle (adult)

P. Weston



Viburnum leaf beetle (larvae)

M. Zubrik

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



American grasshopper



R. Ottens



Differential grasshopper



D. Riley



Bristly roseslug sawfly (larva)



B. Kunkel



Oak sawfly (larva)



L. Graney



Redheaded pine sawfly (larvae)



G.J. Lenhard



Roseslug sawfly (larva)



J. A. Weidhass

Dieback damage

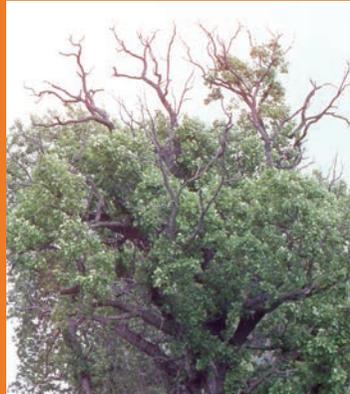
CLUES

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

Dieback damage

possible culprits

Scales

Armored Scales



Euonymus scale



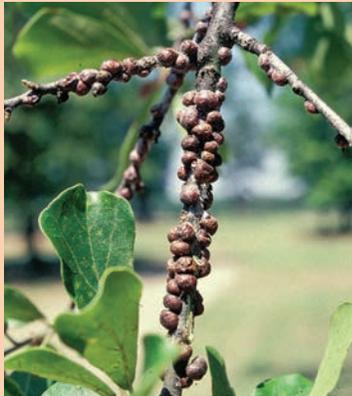
Tea scale



Clemson Univ.-USDA Coop.Ext.

Clemson Univ.-USDA Coop.Ext.

Soft Scales



Lecanium scale



A.J. Boone



Wax scale



J.A. Weidhass

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



Emerald ash borer (adult)



D. Cappaert



Emerald ash borer (larva)



D. Cappaert



Flat-headed apple tree borer (adult)



D. Cappaert



Flat-headed apple tree borer (larva)



B.W. Kauffman



Goldenrod locust borer



D. Cappaert



Granulate ambrosia beetle



J. Hulcr

Distortion damage

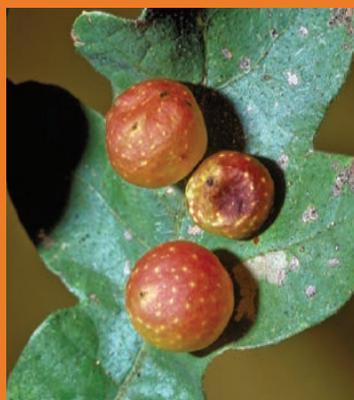
CLUES

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

Galls



S. Kinalski



R. F. Billings



S. Katovich



INRA-Bordeaux

Distortion damage

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



Azalea leaf damage

S.K. Braman



Boxwood leaf damage

J. Baker



Holly leaf damage

G. Csoka

Culprits



Azalea leaf miner (moth)

M. Dreiling



Boxwood leaf miner (fly)

J. Baker



Holly leaf miner (fly)

J. Baker

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

Stippling damage

Lace bugs



Azalea lace bug

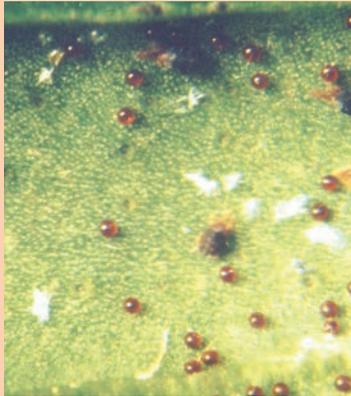
J. Baker



Hawthorn lace bug

J. Baker

Mites



Southern red mites and eggs

J.A. Weidhass



Two-spotted spider mite

F. Peairs

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 turfgrass.

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



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

Examples of damage



S.K. Braman

Below ground

possible culprits

Possible culprits



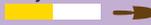
W. Cranshaw

Billbug (larva)



D. Cappaert

May-June beetle (grubs)



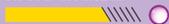
T.S. Price

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

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



Long-legged fly

D. Cappaert



Robber fly

E.L. Maitgault



Syrphid fly (adult)

S. Ellis



Syrphid fly (larva) with aphid prey

A.N. Sparks Jr.

Lacewings



Brown lacewing

J. Berger



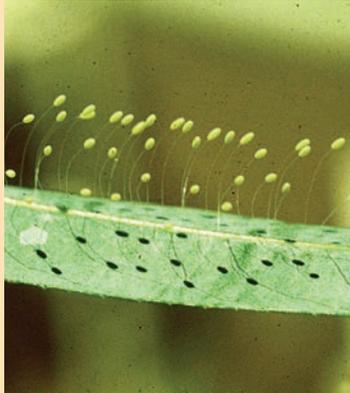
Dusty wing

C. Moorehead



Green lacewing

F. Peairs



Lacewing eggs

W. Cranshaw



Lacewing larva

W. Cranshaw

Mantids



W.Cranshaw

Praying mantid adult



W.Cranshaw

Praying mantid egg case



Wasps



C.M.Abraham

Paper wasp



S.Ellis

Sphecid wasp



Spiders & Mites



Flower spider
▬ ▬ ▬ ▬ ▬

D. Cappaert



Green lynx spider
▬ ▬ ▬ ▬ ▬

R. Ottens



Spiny orb weaver
▬ ▬ ▬ ▬ ▬

D. Cappaert



Zipper spider
▬ ▬ ▬ ▬ ▬

D. Cappaert



Predatory mite
▬ ●

C. Ray



Predatory mite
▬ ●

C. Ray

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

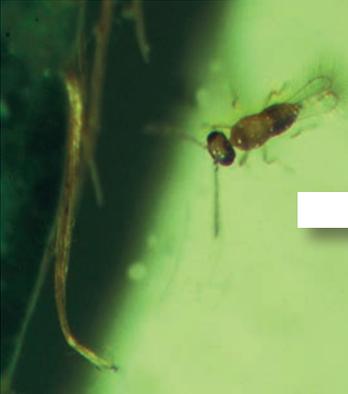
Wheel bug

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.

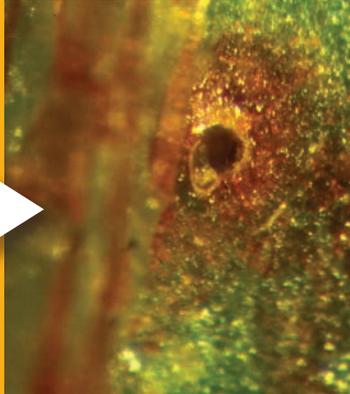
Parasitoids at work

Parasitoids



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



Parasitized caterpillar



P.J. Pugliese



Parasitized caterpillar with eggs



K. Chamberlain



Parasitized stink bug with egg



F. Starr & K. Starr

parasitoids



Flies & Wasps



Tachinid fly

R. Ottens



Tachinid fly

S. McKeever



Braconid wasp

S. Bauer



Eulophid wasp

R. Ryan



Ichneumonid wasp

R. Ryan



Pteromalid wasp

USDA ARS Photo Unit

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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This material is based upon work supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, under Award No. 2009-41530-05560.

Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.



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