



# Insects in Trees The Good & Bad

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Gypsy Moth Defoliation  
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# Common Bad Bugs

- Eastern Tent Caterpillar
- Bagworm
- Japanese Beetles
- Aphids
- Scale Insects
- Borers

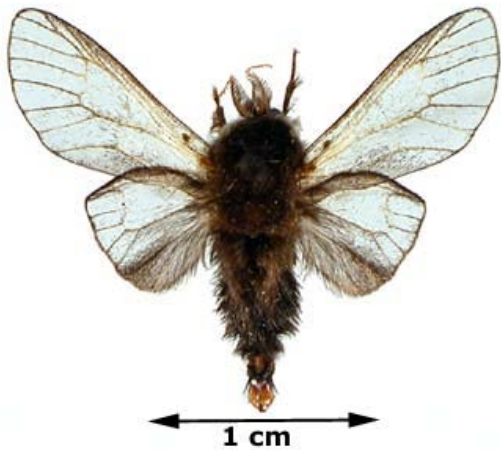


# Eastern Tent Caterpillar

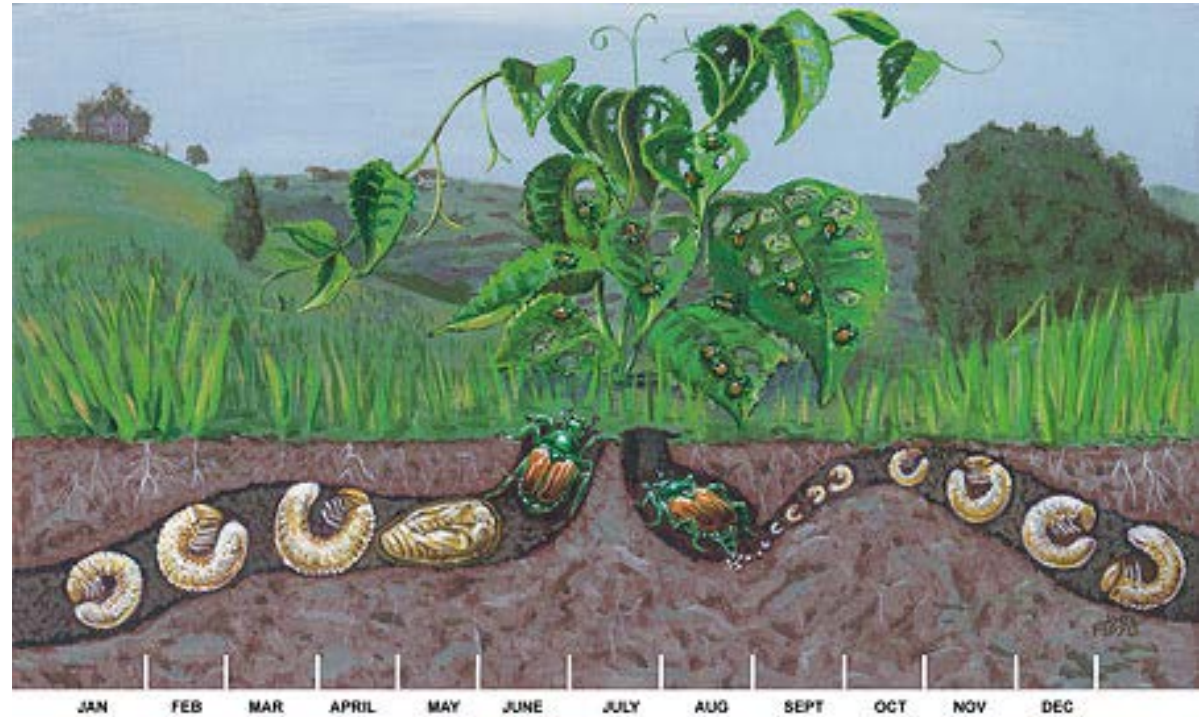




# Bagworm



# Japanese Beetles





# Aphids



# Scale Insects

Soft Scales



Armored Scales



# Borers

- Buprestid Borers – Metallic Bullet-shaped beetle
  - Emerald Ash Borer
- Cerambycid Borers – Longhorned Beetles
  - Asian Longhorned Beetle
- Sesiid Borers - Clearwing Moths
  - Dogwood Borer
- Other Borers
  - Ambrosia Beetle



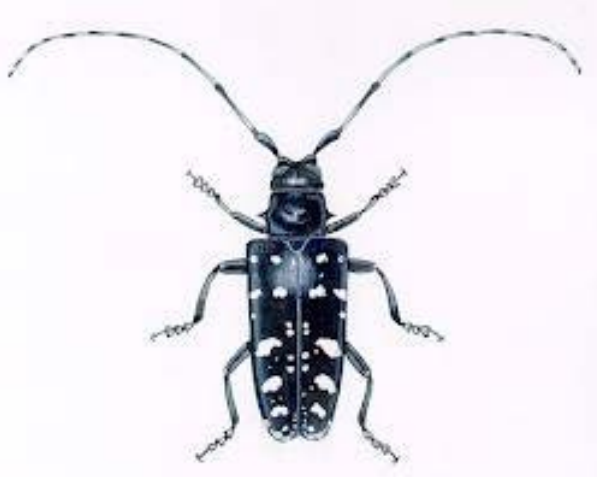
# Emerald Ash Borer



- Has killed millions of ash trees in the United States since 2002
- Found in Fairfax County
- Removal of the affected trees is usually the only way to control its spread



# Asian Longhorned Beetle



- Exotic, invasive – 1<sup>st</sup> discovered in NY in 1996
- Serious pest of hardwood trees
- One generation a year
  - Overwinters as larva

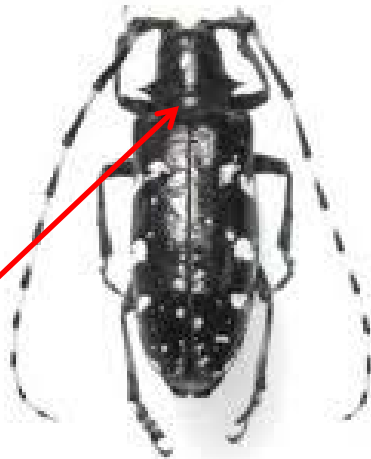




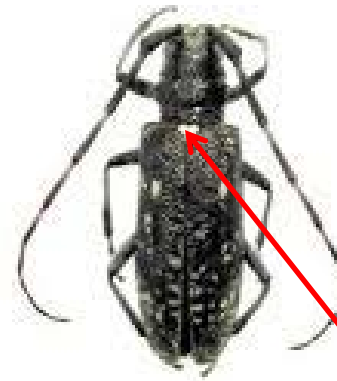
# ALB look-alike

## Similar Appearance

$\frac{3}{4}$  –  $1\frac{1}{2}$  inch long  
Shiny black, bright  
white spots  
Long antennae,  
banded  
black and white  
Black scutellum



Asian Longhorned  
Beetle



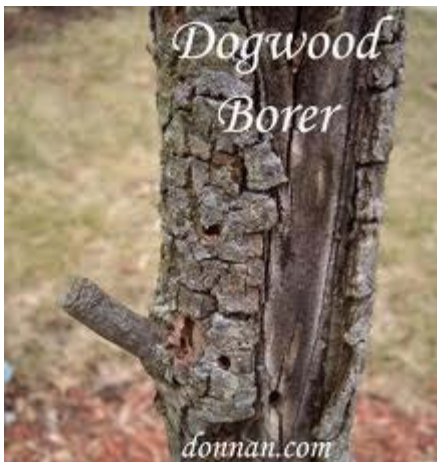
Whitespotted  
Sawyer

$\frac{3}{4}$  – 1 inch long  
Dull or bronzy-  
black, may be  
mottled with  
whitish patches  
Long faintly  
banded antennae  
White scutellum

# Dogwood Borers



- Hosts- **Dogwood**, pecan, elm, hickory, willow
- Overwinter as larvae under bark
- Pupate in spring and emerge as adults





# Good Bugs

- Green Lacewings
- Reduviid Bugs - Reduviidae
  - Assassin Bugs
  - Ambush Bugs
  - Wheel Bugs
- Minute Pirate Bugs
- Big-Eyed Bugs
- Damsel Bugs
- Predatory Stink Bugs
- Parasitoid Wasps

# Important natural enemies



Predatory stink bugs *Podisus* & *Perillus*



Minute pirate bug



Big-eyed bug *Geocoris*



Damsel bug



Assassin bug



Syrphid fly larva & adult



Lacewing larva



Multicolored Asian ladybeetle



Seven-spotted ladybeetle & larva



Pink lady beetle



Ichneumon wasp *Diadegma*



*Trichogramma*



Scelionid wasp



Braconid wasp *Cotesia*



Aphidiid wasp



# Green Lacewing



- Important predators of many types of soft bodied insects and insect eggs
- Larvae called aphid lions
- Eggs perched on the tip of a hairlike stalk that is about 1/2 inch long

**Hemiptera**

The Predators



# Reduviids

Assassin Bug Adult



Ambush Bug Adult



Assassin Bug Nymph



Wheel Bug



# Reduviidae

- Most members of this family are predators
- Inject toxin to paralyze prey and enzymes to liquefy inner organs to suck fluids from body
  - Assassin bugs hunt for prey
  - Ambush bugs wait motionless for prey to come to them
- Can “bite” humans and draw blood



# Minute Pirate Bugs

Minute Pirate Bug



Plant Bug



- Generalist predators
- Most common predaceous insects to appear in the spring
- Can be confused with plant bugs in the family Miridae
- Adults and nymphs feed on insect eggs and small insects such as psyllids, thrips, mites, aphids, whiteflies, and small caterpillars

# Big-eyed Bugs

Big-eyed bug



Chinch bug



- Small insects, approximately 1/6" long
- Often confused with chinch bugs
- Voracious predators - nymphs can eat as many as 1600 spider mites before reaching adulthood, while adults have been reported consuming as many as 80 mites per day



# Damsel Bugs

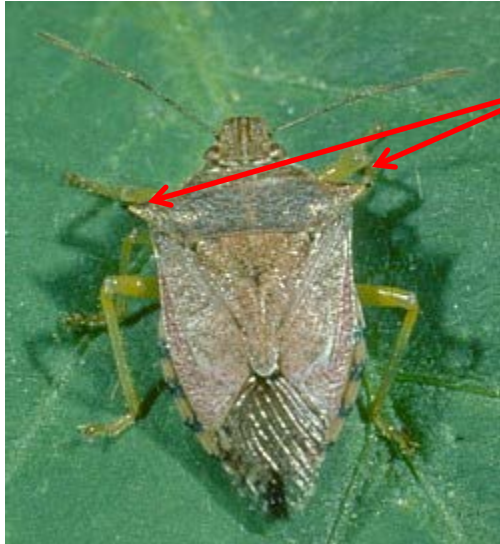


- 3/8 to 1/2-inch long, tan to reddish brown and slender, with the body tapering toward the head
- Like a preying mantis, damsel bugs have spiny "raptorial" front legs used to grab prey
- They capture and eat aphids, caterpillars, and other insects
- So-called because they hold their front legs up, almost as though they were lifting a skirt hem for a spin around the dance floor



# Predatory Stink Bugs

Spined Soldier Bug



Spines on  
shoulders

- Feed on caterpillars and other slow-moving arthropods
- Can be confused with the brown stink bug, a pest

Brown Stink Bug





# **Parasitoid Wasps**

# Hymenopteran Parasitoids

- Parasitoids vs parasites
  - Parasitoids kill their host (usually by eating the live host from the inside out) while parasites do not
- Common Parasitoid wasps – lay eggs in or on host and larvae develop inside host
  - Braconid wasps
  - Chalcid wasps
  - Ichneumon wasps
- Adult wasps feed on nectar and pollen

# *Braconid Wasps*

- Tiny, ranging in length from 1/16 to 5/16 inch, with stout bodies.
- Host pests include various species of aphids, garden webworm, tomato hornworm, armyworms, strawberry leaf roller, and tent caterpillar, among others.
- Most are dark with some colored markings, but they are so tiny it's hard to see these colors without magnification



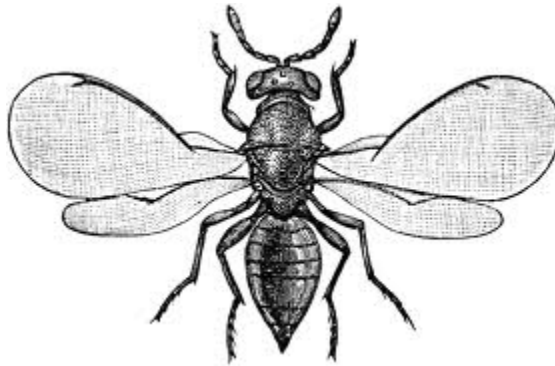
# Braconid Wasps



# Chalcid Wasps

- Attacks the egg or larval stage of their host
- Found almost everywhere, particularly on flowers, foliage, and in leaf litter, but are often overlooked due to their very small size, which includes the smallest of all known insects
- Recognized by the characteristic reduced wing venation

# *Chalcid Wasps*





# *Ichneumonid* Wasps

- Slender, larger wasps with long legs, long antennae and long ovipositor
- Use their long ovipositor to bore through plants or wood and sting the larva
- Their sting paralyzes their prey temporarily, and allows the female to deposit an egg(s) in or on the host

# *Ichneumonid* Wasps



# Giant Ichneumonid Wasp

- A parasitic wasp specific to the pigeon horntail
  - Pigeon horntail – wood borer of hardwood trees
- Developing horntail larvae can be detected under the bark by the female and she subsequently drills into the wood to the tunnel of the horntail larva (up to 4”).
- During egg laying (oviposition) the host larva is paralyzed with a sting after which the egg is laid.
- The parasitic wasp larva feeds on the paralyzed horntail larva, consuming it completely within a couple of weeks.
- It then pupates and remains dormant under the bark until the following summer, when the adults emerge



# Giant Ichneumonid Wasp & Pigeon Horntail

Pigeon Horntail



Horntail exit holes



Horntail laying eggs



Ichneumonid beginning to drill



Ichneumonid laying eggs

