



Clearwing borers: lilac/ash, banded ash

Several species
Order Lepidoptera, Family Sesiidae;
clearwing borer moths
Native pests

Host plants: Alder, ash, birch, dogwood, lilac, hawthorn, mountainash, maple, oak, pine, poplar, sycamore, viburnum, willow, and fruit trees such as apricot, cherry, peach, and plum

Description: Adult clearwing borers are wasplike, 12–19 mm long with long, narrow front wings and shorter, wider hind wings. The hind wings, and in some species the front wings, are mostly clear, with a wingspan between 26–40 mm. For some species, the two sexes have different coloring, often yellow, orange or red on black, or dark blue.

Life history: Clearwing borers develop through four life stages: egg, larva, pupa, and adult. Adults of various species emerge from spring through summer and deposit eggs on bark. The banded ash borer adults emerge in August. Adults do not directly damage plants and live only for a few days. Larvae mine the sapwood of trees during the summer, pupating the following spring. There is usually one generation a year.

Overwintering: Mature larvae in tunnels under the bark.

Damage symptoms: Larval feeding of clearwing borers can cause tree bark to become gnarled or rough, and damage tissue that conducts food and water. With some clearwing borer species, feeding is tolerated by trees and causes no serious harm. Feeding by other species can weaken or kill branches, and may even kill the entire tree.

Monitoring: Ash/lilac borer and lesser peachtree borer adults begin to emerge when common lilac and Vanhoutte spirea bloom in early to mid May. (Herms). Greater peachtree borer adults begin to emerge when Northern catalpa blooms in early to mid June. (Herms). Banded ash clearwing borer adults begin to emerge in late July (Columbus, Ohio) and in mid August (Wooster, Ohio) (Herms).

Monitoring and management for all clearwing borers is similar, since their life cycle is about the same. However, the banded ash clearwing is the exception to the rule; the adults emerge in August rather than May to lay eggs. Look for brown frass around bark cracks and bark wounds. Look under loose bark near wounds or cracks for signs of larval tunneling or empty pupal skins. Display pheromone, or sex attractant, traps in May to capture adult male moths. This trapping information can be used to time pesticide applications. Traps and pheromone lures can be obtained from numerous sources. One source is Great Lakes IPM, at www.greatlakesipm.com. Other suppliers include Gempler's at www.gemplers.com



Frass and sawdust caused by lilac/ash clearwing borer larvae. (42)
Photo: James Solomon, USDA Forest Service, The Bugwood Network, University of Georgia.



Trunk injury and emergence holes caused by lilac/ash clearwing borer. (47) Photo: John Davidson



Pupal skin of lilac/ash borer protruding from trunk of lilac. (49)
Photo: John Davidson



Clearwing borers: lilac/ash, banded ash, and dusky

Cultural control: Avoid mechanical damage to the bark of trees, and minimize tree stress. Do not band trees as it has been shown to increase borer attack.

Chemical control: Spray a long lasting, broad spectrum insecticide on the trunk and limbs of infested trees 10 days after the first male is found in a pheromone trap.

Biological control: Several species of parasitic wasps have been reared from larvae or pupae of the peachtree borer. They include *Bracon sanninoideae* and *Macrocentrus marginator* (Braconidae); *Cryptus rufovinctus*, *Phaeogenes ater*, and *Venturia nigricoxalis* (Ichneumonidae); *Syntomophyrum clisiocampae* (Eulophidae); and *Telenomus quaintacei* (Scelionidae). The entomopathogenic nematode, *Steinernema carpocapsae*, can control borer larvae if sprayed on frass-surrounded bark cracks in summer. The use of pheromones in a mating disruption program maybe an effective control for nurseries but not landscapes.

Plant mortality risk: High



Lilac/ash clearwing borer adult male. (48)
Photo: John Davidson



Lilac/ash clearwing borer adult. (20)
Photo: James Solomon, USDA Forest Service, The Bugwood Network, University of Georgia.

Biorational pesticides: Apply entomophagous nematodes (*Heterorhabditis bacteriophora*, *Steinernema carpocapsae*) with plenty of water, when temperatures are between 55° and 85° F, and when larvae or pupae are present. Many clearwing borers are caterpillars from late June through the winter into April.

Conventional pesticides: chlorpyrifos (nursery only), permethrin



Bark damage caused by banded ash clearwing borer. The borers entered a tree after an adult female laid an egg where a twig was recently pruned. (42)

Photo: Cliff Sadof



Banded ash clearwing borer adult. (42)
Photo: John Davidson



Dusky clearwing adult female on left; male on right. (23)
Photo: James Solomon, USDA Forest Service, The Bugwood Network, University of Georgia.



Clearwing borers: cottonwood borers



Bark cracks and frass caused by cottonwood borer. (30)
Photo: James Solomon, USDA Forest Service, The Bugwood Network, University of Georgia.



Trunk and root collar damage caused by cottonwood borer. Larva shown in damaged stem. (066)
Photo: James Solomon, USDA Forest Service, The Bugwood Network, University of Georgia.



Cottonwood borer adult female. (30)
Photo: James Solomon, USDA Forest Service, The Bugwood Network, University of Georgia.



Clearwing borers: dogwood borers



Trunk damage caused by dogwood borer larva. (66)
Photo: Charles Cornell



Dogwood borer adult female. (43)
Photo: David Laughlin



Trunk injury caused by dogwood borer. Wrapping dogwood tightly in plastic barriers keeps wood moist and makes trees more susceptible to injury from dogwood borer. (42)
Photo: Cliff Sadof



Dogwood borer adult female. (09)
Photo: James Solomon, USDA Forest Service, The Bugwood Network, University of Georgia.



Dogwood borer adult male. (306)
Photo: David Laughlin



Clearwing borers: dogwood borers, rhododendron borers



Dogwood borer adult male. (10)
Photo: James Solomon, USDA Forest Service, The Bugwood Network, University of Georgia.



Pupal skin of dogwood borer protruding from trunk. (46)
Photo: Cliff Sadof



Dogwood borer larvae. (306)
Photo: David Laughlin



Rhododendron borer adult male. Note the three gold bands on the abdomen. (63)
Photo: John Davidson



Dogwood borer larva and pupa compared to a standard pencil eraser. (45)
Photo: John Davidson



Trunk damage caused by rhododendron borer. (62)
Photo: John Davidson



Clearwing borers: maple callus borers, oak borers



Maple callus borer adult male; note the spotted front wing. Males are attracted to pheromone traps. (50)
Photo: John Davidson



Oak clearwing borer adult. (52)
Photo: David Laughlin



Squash vine borer adult male. (167)
Photo: John Davidson



Oak clearwing borer adult male. Males are attracted to pheromone traps. (51)
Photo: Cliff Sadof



Maple callus borer adult male. (167)
Photo: John Davidson

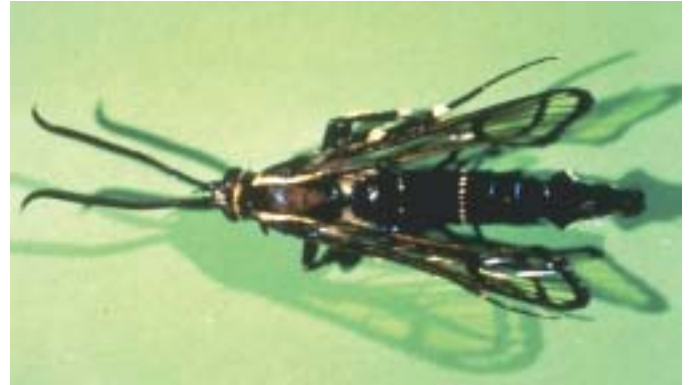


Clearwing borers: peachtree borers



Dieback caused by peachtree borer infestation at base of the tree. (53)

Photo: John Davidson



Peachtree borer adult male. (55)

Photo: John Davidson



Trunk and root collar damage caused by peachtree borer in a sand cherry in a nursery. (42)

Photo: Cliff Sadof



Peachtree borer adult female. (54)

Photo: David Laughlin



Peachtree borer larvae. Soil removed to show frass and exudate. (39)

Photo: James Solomon, USDA Forest Service, The Bugwood Network, University of Georgia.



Peachtree borer larva. (56)

Photo: John Davidson



Clearwing borers: peachtree borers



Parasitic nematode, *Steinernema carpocapsae*, entering peach-tree larva through the spiracle (breathing pore). (58)
Photo: John Davidson



Dead peachtree borer larva decomposing and releasing parasitic nematode, *Steinernema carpocapsae*. (60)
Photo: John Davidson



Close-up of parasitic nematode, *Steinernema carpocapsae*, entering peachtree larva through the spiracle (breathing pore). (58)
Photo: John Davidson



Spraying parasitic nematodes on cracks in tree bark to control clearwing borer larvae. (57)
Photo: John Davidson



Peachtree borer larva killed by parasitic nematodes, *Steinernema carpocapsae*. (59)
Photo: John Davidson



Close-up of nematodes, *Steinernema carpocapsae*, leaving lysed body of dead pupa. (61)
Photo: Vera Krischik



Clearwing borers: Table on clearwing borer species and host plant

*Species of clearwing borer moths, food plant, and flight period in the Midwest

scientific name	common name	scientific name	common name	flight period
<i>Pennisetia marginata</i>	raspberry crown borer	<i>Rubus</i>	raspberry	Aug-Sept
<i>Paranthrene asilipennis</i>	oak borer	<i>Quercus</i>	oak	May-June
<i>Paranthrene dollii</i>	poplar borer	<i>Populus, Salix</i>	poplar, willow	May-June
<i>Paranthrene pellucida</i>	summer oak borer	<i>Quercus</i>	oak	July
<i>Paranthrene simulans</i>	oak borer	<i>Quercus</i>	oak	May-June
<i>Paranthrene tabanifonnis</i>	dusky clearwing	<i>Salix</i>	willow	June-July
<i>Vitacea polistiformis</i>	grape root borer	<i>Vitis</i>	grape	July-early Aug
<i>Albuna fraxini</i>	Virginia creeper clearwing	<i>Parthenocissus quiquefolia</i>	Virginia creeper	late July-Aug
<i>Albuna pyramidalis</i>	fireweed clearwing	<i>Epilobium</i>	fireweed	late June-July
<i>Melittia cucurbitae</i>	squash vine borer	<i>Cucurbita</i>	squash	late June-July
<i>Sesia tibialis</i>	Amer. hornet moth	<i>Populus</i>	cottonwood	July-early Aug
<i>Sesia spartani</i>				June-July
<i>Synanthedon acerni</i>	maple callus borer	<i>Acer</i>	maple	late May-june
<i>Synanthedon acerrubri</i>	red maple borer	<i>Acer</i>	maple	June-July
<i>Synanthedon bolteri</i>		<i>Salix</i>	willow	June-July
<i>Synanthedon decipiens</i>		<i>Quercus galls</i>	oak	July
<i>Synanthedon exitiosa</i>	peachtree borer	<i>Prunus</i>	flowering fruits peach, cherry, plum	late June-Aug
<i>Synanthedon fatifera</i>		<i>Viburnum</i>	Viburnum	July
<i>Synanthedon fulvipes</i>		<i>Betula</i>	birch	late May-June
<i>Synanthedon pictipes</i>	lesser peachtree borer	<i>Prunus</i>	flowering fruits	mid-July
<i>Synanthedon pini</i>	pitch mass borer	<i>Pinus</i>	pine	mid-July
<i>Synanthedon proxima</i>	willow borer	<i>Salix</i>	willow	July
<i>Synanthedon pyri</i>	apple bark borer	<i>Malus, Pyrus, Crataegus</i>	crabapple, pear, hawthorne	July
<i>Synanthedon refulgens</i>				June-July
<i>Synanthedon rileyana</i>	Riley's clearwing	<i>Solanum carolinense</i>	horsenettle	late Aug-Sept
<i>Synanthedon rubrofascia</i>	black gum borer	<i>Nyssa</i>	black gum	late July
<i>Synanthedon scitula</i>	dogwood borer	<i>Cornus, Prunus</i>	dogwood, flowering fruits apple, pear	July-Sept
<i>Synanthedon sigmaidea</i>		<i>Salix</i>	willow	late Aug-Sept
<i>Synanthedon tipuliformis</i>	currant borer	<i>Ribes</i>	currant	May-June
<i>Synanthedon vibumi</i>	viburnum borer	<i>Viburnum</i>	viburnum	July
<i>Podosesia syringae</i>	lilac/ash borer	<i>Fraxinus, Syringa</i>	ash, lilac	May-early Aug
<i>Podosesia aureocincta</i>	banded ash clearwing	<i>Fraxinus</i>	ash	Aug-Sept
<i>Carmenta anthriwipennis</i>		<i>Liatris</i>	blazing star	late July-Aug
<i>Carmenta bassifortnis</i>				
<i>Carmenta corni</i>		<i>Veronica</i>	ironweed	July-Aug
<i>Carmenta ithacae</i>		<i>Aster umbellatus</i>	aster	late June-July
<i>Carmenta pyralidifonnis</i>		<i>Eupatorium</i>	boneset	late July-Aug
<i>Alcathoe caudata</i>	clematis borer	<i>Clematis</i>	clematis	late July-aug

* These flight periods may be earlier in the southern part of the North Central region.

**Tafts, Willain H., Dave Smitley, and J. Wendell Snow. 1991. A guide to the clearwing borers (Sesiidae) of the North Central United States, NC Regional Publication No. 394, Michigan State University, MI 48824-1039, phone 517 355-0240