



Emerald ash borer

Agrilus planipennis

Order Coleoptera, Family Buprestidae;
metallic woodboring beetles, flatheaded borers
Introduced pest

Host plants: All ash species

Description: Adults are about 13 mm elongated, slim and metallic green. Larvae have distinctive triangular segments and when mature are 26-32 mm, creamy-white, and about 26 mm.

Life history: In 2004, restricted to Ohio, Michigan, and Windsor, Canada. This is a quarantine pest, so infested trees are destroyed. Other nearby trees can be treated to prevent infestation. Adults may be found from May to August. Eggs hatch from June to July, but can occur later. Larvae tunnel beneath the bark. There is a one year life cycle.

Overwintering: Larvae and pupa in the cambium.

Damage symptoms: Larval mining causes thinning and/or yellowing of the foliage over the entire canopy and certain branches. Callus tissue produced by the tree in response to larval feeding may cause vertical splits 5–10 cm length above the larval galleries. Distinctive frass-filled larval tunnels are found in the outer sapwood and phloem of trunk and branches. An elliptical area of discolored sapwood, sometimes surrounds feeding galleries. Look for tunneling by peeling bark down to the cambial regions. On some trees, tunneling will be extensive without any evidence of D-shaped exit holes. A proliferation of yellow suckers develop from the trunk. Due to tunneling and the disruption in water and nutrient flow between the top and bottom of the tree, death occurs in 1–3 years.

Monitoring: Initial damage causes thinning and/or yellowing of the foliage. A proliferation of shoots may develop from the trunk. Trees show D-shaped emergence holes on the trunk and branches. Tree decline occurs quickly, within a year.

Cultural control: Keep trees watered during drought. Remove and chip infested trees to prevent further spread.

Chemical control: Initially it was believed that trees with 40–50% canopy thinning would respond to insecticide treatments, but research demonstrated that trees with no more than 10–20% dieback may or may not recover after insecticide use. Imidacloprid and bidrin are used to target the larval stage. Timing of a drench or soil injection is May or June, to permit the insecticide to be absorbed and translocated to the feeding sites. Timing for trunk injections with imidacloprid or bidrin is July or August, since it is absorbed faster than a soil drench.

Biological control: None

Plant mortality risk: High. Quarantine pest, please contact your Department of Agriculture.

Biorational pesticides: None

Conventional pesticides: Foliar sprays: bifenthrin, chlorpyrifos (nursery only), cyfluthrin, permethrin; bark



Emerald ash borer galleries.

Photo: USDA-FS, State and Private Forests



Emerald ash borer larvae.

Photo: USDA-FS, State and Private Forests



Emerald ash borer adult.

Photo: USDA-FS, State and Private Forests

sprays; chlorpyrifos (nursery only), permethrin; soil injection or drench: imidacloprid; trunk injection: bidrin, imidacloprid