

Emerald Ash Borer (EAB)

Description

Adult EAB are a metallic green elongated beetle about ½ inch (~13mm) long. Eggs are up to 1/25 inch (1mm) oblong and creamy white to dark brown. Eggs are rarely observed by the naked eye. The larvae are a white grub with a dark brown head and grow up to 1¼ inch (32mm) long. The pupa is roughly the same size as the adult and reflects the color change from the larval stage (creamy white) to the adult stage (metallic green).

This problem pest is mostly transported in firewood and infested nursery stock. EAB only targets Ash trees (*Fraxinus spp.*). Currently the EAB is found in most states from the mid-west to the east coast, as well as South Dakota and Colorado. There is currently a quarantine at the federal level to control the spread of EAB.



Figure 1: EAB Adult and Larva (Credit: Arnprior, CA)

Life Cycle

Eggs hatch in the spring or summer, depending on weather patterns, and larvae will bore into the tree to begin feeding through the rest of the year. Pupation commences in the early spring, with adults emerging and laying eggs from mid-spring to mid-summer. Depending on the regional conditions, EAB can have a two-year life cycle. The two-year cycle starts with eggs hatching in the spring or summer and the larval stage extending into the next summer, with the prepupal and pupal stages lasting into the following spring.

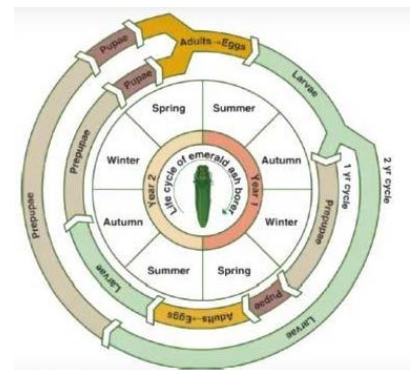


Figure 2: 1-yr and 2-yr Life Cycles of EAB

Symptoms

The damage caused by EAB is, simply put, the death of Ash trees (*Fraxinus spp.*) EAB damage comes almost entirely from the larval stage, when the grub is feeding on the tissues within the tree. EAB is generally accepted to be the single most destructive forest pest that has entered North America. Additionally, Ash trees are one of the most popular selections for city streets, parks, and boulevards. Indicators that an Ash tree may have EAB inside are above average woodpecker activity and ¼ inch (~6mm) D-shaped emergence holes.

Management

Several species of natural enemies have been evaluated and released as biocontrol options to reduce EAB populations. Select species of *Spathius*, *Tetrastichus*, and *Oobius* have been shown to parasitize EAB and reduce the population with minimal impact on native species. These options are currently in use in Michigan to limit the westward spread of EAB.

Chemical options are available as a systemic insecticide with azadirachtin, imidacloprid, emamectin benzoate, or dinotefuran as the active ingredient. Chemicals should only be used on trees near known populations of EAB to reduce impact on the environment. Consult your county Extension agent or MDA specialist for more information.

Spread and Impact Potential

EAB is currently found in nearly every state east of Montana, except North Dakota, Mississippi, and Florida. Several Canadian provinces have detected EAB as well, including Manitoba, Ontario, Quebec, New Brunswick, and Nova Scotia. Deciduous forests containing Ash trees and Cities favoring Ash trees stand to lose entire populations of Ash trees.

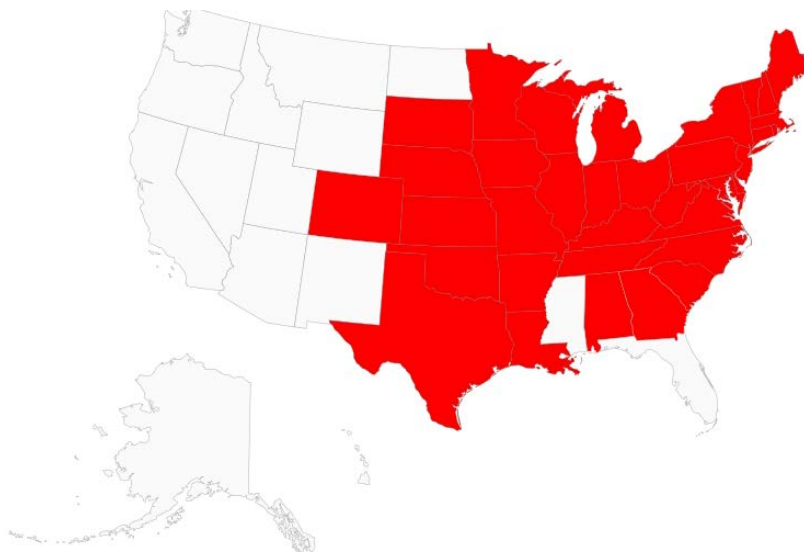


Figure 3: Map of States with Confirmed EAB Populations as of Feb. 1, 2019

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There are no known populations of EAB in Montana at this time. However, at this stage, the question is not if it will arrive, but when it will arrive. Recent extreme cold temperatures in the midwest have dramatically reduced the populations of EAB, thus slowing the westward advance of the pest. However, repopulation is noted to be relatively quick for EAB. If you believe you have found EAB, report it to the Quarantine specialist. If possible, collect a sample and preserve it in rubbing alcohol for verification.