

Emerald Ash Borer



**Michigan State University Extension
Department of Entomology**

What is the Emerald Ash Borer?

- *Agrilus planipennis*
- An exotic wood-boring beetle, native to east Asia
Known to feed only on Ash trees (*Fraxinus spp.*)
in North America
 - White, Green, Black, Blue
 - Mountain Ash are not true ash they belong to the genus *Sorbus spp.*



EAB Adult

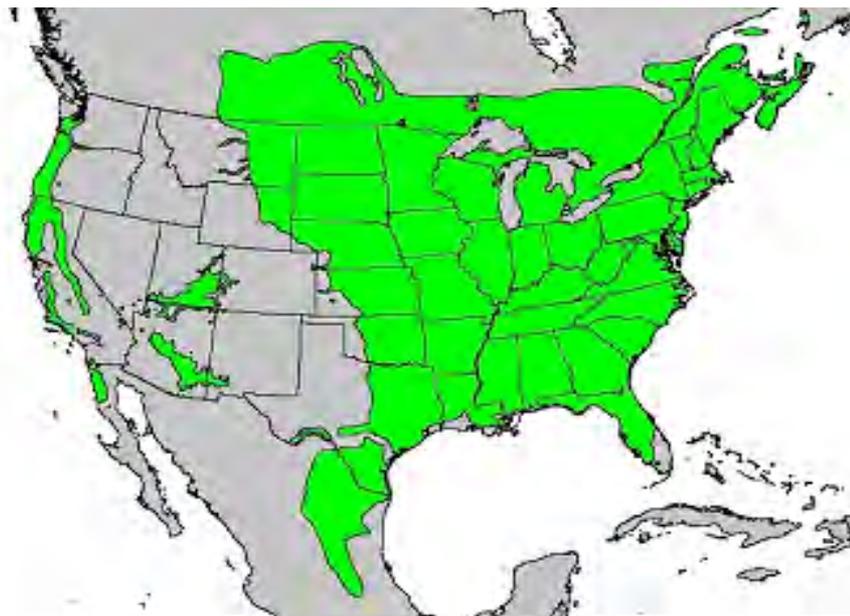


Photo: David Cappaert

EAB larval stages

Emerald Ash Borer

What's at Stake?



Though ash makes up about 7% of trees in Wisconsin's rural forests, it comprises about 20% of trees in our urban forests.

Of Wisconsin's estimated 770 million ash trees, over 5 million exist on public and private property in cities and villages.

Removal of ash from the ecosystem = Up to 2% loss of the country's total leaf area = \$50-60 billion in ash-related economic losses nationwide

Walworth County Confirmed EAB:

Fontana Village 6/25/12

Lake Geneva City 6/11/12

Linn Town 8/8/12

Lyons Town 4/10/13

Walworth Town 6/7/12

Walworth Village 4/18/12

Williams Bay Village 4/19/13



Ash Tree Identification



EAB-Potential for Spread

- Natural Spread:
 - Adult flight to susceptible ash trees
- Artificial Spread:
 - Movement of EAB infested **firewood**
 - Movement of EAB infested **logs**
 - Movement of EAB infested **nursery stock**
 - Other: articles of transport etc.



*All native ash trees are susceptible:
White Ash, Green Ash, Black Ash,
Blue Ash*

*Most trees die within 1 to 4 years of
becoming infested, unless treated*



Life cycle of emerald ash borer in Wisconsin

Adults are active from late May to mid-August. Each adult lives 3-4 weeks. Beetles feed on ash foliage.



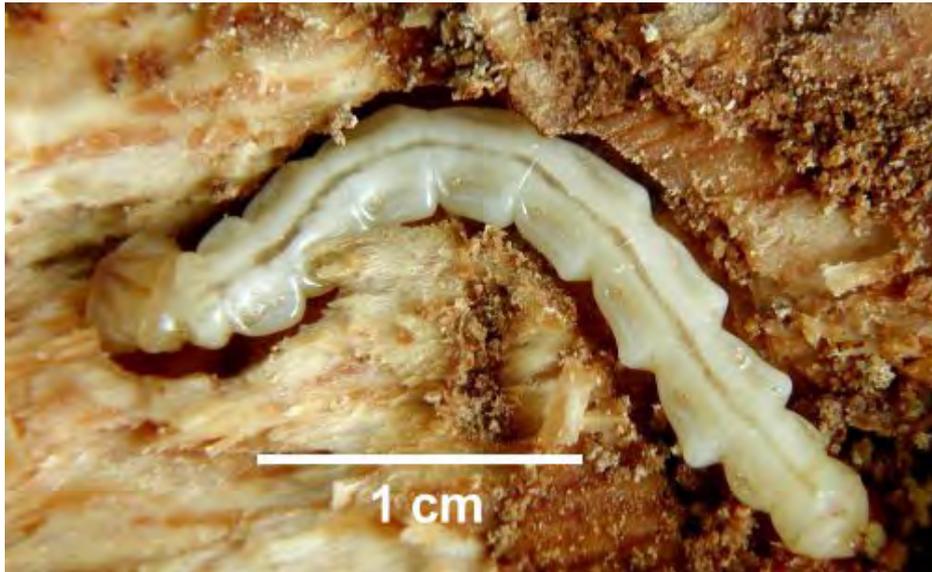


Adults mate; female lays single eggs on or just under bark. Usually 60-90 eggs per female but can range from 2 to 258 eggs.



Larvae bore through bark in July & feed aggressively in serpentine galleries in the cambium until fall.

Pupate in early late winter/early spring.





Larvae spend the winter under the bark and pupate in the spring

Adults emerge from trunks from late
May to early August



How do I know if a tree has EAB?

- **Early detection is extremely difficult!**
- **Canopy dieback**
- **Vertical splitting in bark**
- **Sprouting/ Suckering**
- **Woodpecker holes**
- **D-shaped exit holes**
- **When bark is removed, many larval tunnels can be seen**



Metalline Road, Canton, Michigan,
June 22, 2002



Extensive galleries under bark disrupt translocation of water & nutrients in the tree



Woodpecker Damage



Vertical Bark Crack / S-shaped Larval Galleries



"D" Shaped Exit Holes



Control Methods

Professional Applications of insecticides

or

Insecticides can be applied by homeowners

Eastern Ash Bark Beetle



Native Ash Borer



What is being done to stop EAB?

- Research: Biology and Behavior, genetics, pesticides, trapping, natural enemies, geographic distribution, geographic information systems (GIS)
- Communication with other states → preparation

Additional Resources

Emerald Ash Borer Cost Calculator

<http://extension.entm.purdue.edu/treecomputer/>

Emerald Ash Borer Toolbox for Wisconsin Communities

<http://dnr.wi.gov/topic/UrbanForests/EABToolBox.html>

EAB Quarantine Regulations

It is illegal to move or transport ash material, the emerald ash borer, and hardwood firewood from EAB quarantined areas to a non-quarantined area without a compliance agreement issued by WI Department of Agriculture, Trade and Consumer Protection.

What can I do?

- DON'T MOVE FIREWOOD!!!
- Help to restore and diversify the urban forest: replace ash with many types of native trees and recommended cultivars in order to avoid or hinder future pest outbreaks.

Acknowledgments and Credits

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USDA (United States Department of Agriculture)

DATCP (Department of Agriculture, Trade, and Consumer Protection)

WDNR (Wisconsin Department of Natural Resources)

Questions/Comments?

