

Emerald Ash Borer (EAB) **EAB or Ash Yellows?**

The Emerald Ash Borer attacks **ASH** trees (*Fraxinus* species). But there is a disease that is common on ash trees which also causes tree decline, called ash yellows. It is important to know the actual cause of decline in ash so that an owner can make appropriate treatment decisions.

The ash yellows pathogen (*Candidatus phytoplasma fraxini*) is transmitted by insects such as leafhoppers and spittlebugs that feed on sap, spreading the disease from tree to tree. The disease is particularly severe in white ash, while disease progression is slower and less severe in green ash. Highly susceptible trees can die in 1-3 years, while tolerant trees can remain alive for many years. This disease also causes lilac witches' brooming, which can affect several species of lilac, including Japanese tree lilac, an attractive street and landscape tree.

Like EAB, this disease is typically fatal for many ash trees and there are no effective treatments, so removal is the only option. Cultural practices to reduce tree stress, such as caused drought or root disturbance etc., may help to slow the progression of symptoms.



National Forest Service

Similarities between Emerald Ash Borer and Ash Yellows

- progressive dieback of branches
- vertical cracks or cankers can occur near, or at, the base of the tree
- clumped (epicormic) sprouts or suckers may develop (not all trees may show this symptom)
 - ash yellows: often at the base of the tree but occasionally can be found several feet above ground
 - often at the base of the tree, but can occur throughout the tree



Eric R. Day, Virginia Polytechnic Institute and State University, Bugwood.org

Differentiating between EAB (left) or ash yellows (right) is not possible, based solely on dieback. Dieback is a sign of stress that can be caused by a variety of factors. Dieback is a symptom showing that there is a problem.



William Jacobi, Colorado State University, Bugwood.org



Cracks in the bark caused by EAB larval feeding activity can occur anywhere in the tree, from the base to smaller branches, as shown here.

Cracks associated with ash yellows tend to occur at the base of the tree.

Michigan Department of Agriculture, Bugwood.org



While suckers or sprouts from ash yellows may occur mainly at the base, they can be found further up the trunk, as shown here.

The same can be said about EAB, although it is also possible for these epicormic shoots to occur much higher in the tree and crown.

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Differences between Emerald Ash Borer and Ash Yellows

Ash Yellows

- Leaves are likely smaller than normal, and may have upturned leaf margins, slightly cupped.
- Leaves can be lighter green in color, and may develop early fall coloration.



William Jacobi,
Colorado State
University,
Bugwood.org

- Gradual slowed or stunted twig growth, so foliage looks tufted with all the leaves located on shorter lengths of twig.



USDA Forest Service - Forest
Health Protection - St. Paul,
Bugwood.org



- Because pests are attracted to stressed trees, it is possible to see exit holes from other pests taking advantage of ash yellows stress. The shapes and the sizes will not be the same as EAB exit holes.

James Solomon, USDA Forest
Service, Bugwood.org

EAB

- The D-shaped exit holes are quite small (3-4 mm) but may not be immediately noticeable, especially if they are in the upper part of the crown.
 - But multiple holes of different shapes and sizes likely indicates multiple pests, and not EAB



David R. McKay
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- Active EAB infestations can be indicated by woodpecker damage, where they sometimes remove bark before drilling for larvae.



Kenneth R. Law, USDA - APHIS,
Bugwood.org



- S-shaped galleries (tunneling) under the bark are an obvious indicator, but only if the bark is removed. The more larvae feeding the faster the decline of the tree.

Daniel Herms, The Ohio State
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Good examples of EAB symptoms and examples of the progression of dieback from EAB can be found here:

<http://cfs.nrcan.gc.ca/pubwarehouse/pdfs/26856.pdf>

For more information, see these websites:

Official EAB website: www.emeraldashborer.info

Other ash borers: www.emeraldashborer.info/documents/E-2939.pdf and
<https://ohioline.osu.edu/factsheet/ent-77>

MA Ash Yellows: <https://ag.umass.edu/landscape/fact-sheets/ash-yellows>

VT Ash Yellows: www.vtinvasives.org/invasive/ash-yellows

US Forest Service EAB: www.nrs.fs.fed.us/disturbance/invasive_species/eab

EAB Pest Alert: www.na.fs.fed.us/spfo/pubs/pest_al/eab/eab.pdf

