Celebrate Trees, Prepare for EAB

Arbor Day is a great time to celebrate trees, but it is also an opportunity to evaluate their health and think about their future. One of the most serious threats to Marshall's trees is a small invasive beetle called the emerald ash borer (EAB).

What is EAB?

EAB (*Agrilus planipennis*) beetles are tiny, metallic green, and bullet-shaped. In the 1990s, this invasive insect traveled from east Asia to southeastern Michigan unintentionally concealed within solid wood packing materials routinely used for international cargo shipments. It was first discovered in the Detroit area in 2002. Since then it has spread rapidly and is now found in Michigan, Ohio, Illinois, Indiana, Pennsylvania, West Virginia, Missouri, Wisconsin, Virginia, Ontario, and Quebec. This summer is likely to bring new EAB discoveries.

In the EAB's natural habitat, populations are kept in check by predators and pathogens and by the fact that Asian ash trees have developed some resistance to EAB attacks. In North America, on the other hand, the EAB has few predators and ash trees have no natural resistance. While North American woodpeckers and other insectivores have been observed eating EAB larvae, this predation has not had a significant impact on EAB populations. Left to its own devices, the emerald ash borer can expand its range up to several miles per year during the adult beetles' June to August flight period. **Human activities, however, have led to the spread of the EAB over much greater distances.** Movements of nursery stock and firewood have been inadvertently responsible for the majority of new EAB introductions.

The effects of the EAB in North America have been devastating. In the Detroit area alone, over 15 million ash trees have succumbed to EAB infestation. The costs to communities impacted by the EAB have been considerable. In residential areas, tree removal and replacement is often necessary. The DNR and DATCP estimate that it costs approximately $340 to remove an average sized (12" DBH) street ash tree. The cost of replacing a removed tree averages around $375.

In the summer months, adult EAB beetles nibble the leaves of ash trees, but do little damage. It is the larvae that are responsible for trees' decline and eventual death. EAB larvae feed on *phloem* and *xylem*—a trees life-sustaining vascular tissue. Within one to three years, a tree can no longer circulate the nutrients it needs. It appears that EAB infestation is always fatal. EAB infestation kills all varieties of North American ash trees (White, Green, Black, and Blue). Mountain ash is not a "true" ash and is not susceptible to infestation.

For decades, ash has been common in urban landscaping. You may have a ash tree in your yard or a street tree that is ash. Getting outside and identifying your trees is a fun family activity you can do as soon as trees get their leaves. Ash have compound leaves, diamond-shaped ridges on their bark, and show an opposite pattern of branching. A simple on-line Tree Identification Key is available at http://www.uwsp.edu/cnr/leaf/Treekey/tkframe.htm

What are the Symptoms of EAB Infestation?

Be on the lookout for any ash showing general signs of decline. Look for:

- Epicormic sprouting (unusual branches produced from the tree's base)
- Dead or dying branches in the upper crown
- Yellow or off-color foliage during the growing season

Some more specific symptoms of EAB infestation include:

- *D-shaped Exit Holes*: When EAB adults emerge from beneath the bark, they create distinctive D-shaped exit holes.
- *Vertical Bark-splits*. The feeding of EAB larvae often causes a characteristic 2 to 5 inch split in a tree's bark. In some cases, larval galleries can be seen beneath these splits.

- *Increased Woodpecker Activity*: Woodpeckers feed on EAB larvae. Woodpecker activity that has removed patches of bark may be a sign of EAB infestation.
- *Presence of Metallic Green Beetles*: Adult EAB beetles are metallic green in color and are 3/8 - 1/2 inch in length and 1/16 inch in width—small enough to fit on a penny. If you find a beetle that fits this description, collect and preserve it in alcohol for identification. Contact Wisconsin's EAB hotline at **1-800-462-2803.**

Where further investigation is required, a professional may remove a portion of the bark and look for:

- *Winding S-shaped Galleries*: As EAB larvae feed, they tend to wind tightly back and forth, creating S-shaped galleries that can be found both on the inner bark surface and the outer wood surface.
- *Cream-colored Larvae*: EAB larvae are cream-colored and have distinct bell-shaped body segments and pincher-like appendages at the end of their abdomen. Mature larvae reach 11/2 inches in length and are always found feeding beneath the bark.

What Can Residents Do?

- **Know the signs and symptoms of EAB!** Be on the lookout where you live, work, and play.
- **Know your trees!** Have a certified arborist assess your trees' heath. If you have ash trees, now is the time to start thinking about whether or not you will use insecticide treatments to try and save them. Although this is a long-term investment and the cost of treatment can add up over the years, insecticides may be a good option for highly valued trees.
- **Plant trees (but not ash)!** Most nurseries in our area have stopped stocking ash, since this is no longer a smart planting choice. For a list of ash alternatives, see http://www.entomology.wisc.edu/emeraldashborer/Alternatives to Ash for Homeowners.pdf
- **Don't move firewood!** EAB has spread quickly throughout north central US and into Canada not because it is highly mobile on its own, but because people have helped it. If you use firewood at home or when you travel, purchase it on site.
- **Learn more!** Go to www.emeraldashborer.info or www.emeraldashborer.wi.gov