

EMERALD ASH BORER

The Emerald Ash Borer (EAB) is an exotic beetle from Asia. It was first discovered in the United States in 2002 in southeast Michigan. Since that time, this destructive beetle has also been found in several states including Illinois, Indiana, Ohio, and Wisconsin. Larvae of EAB beetles bore into native American ash trees and feed in the phloem and outer sapwood. This feeding produces galleries that eventually girdle and kill branches and entire trees. Evidence suggests that EAB had been established in Michigan for at least 6 to 10 years prior to being identified in 2002. Millions of ash trees are dead or dying from this pest, and millions have been removed in hopes of containing EAB infestations.



What Trees Does EAB Attack?

All native North American ash trees are susceptible to EAB attack. In Downers Grove, common susceptible ash species include green ash, white ash, and blue ash. This also includes horticultural cultivars of these species such as 'Autumn Purple' white ash and 'Patmore' green ash. Healthy ash trees as well as declining ash trees are vulnerable. The EAB beetle does not attack mountain-ash, prickly-ash, or wafer-ash because, despite their name, they are not in the Ash Genus (*Fraxinus*).

How Do I know if My Tree is an Ash Tree?



Ash trees have several leaflets per stem leaf, generally 7. The leaflets are located directly across from each other with one leaflet on the end. Ash trees are very common in Downers Grove and in the Chicagoland area. The following internet link offers quick identification tips for ash trees and how to tell them apart from other trees that have several leaflets on each leaf.

<http://www.emeraldashborer.info/files/E2942.pdf>

What Does EAB Look Like and What is its Lifecycle?



The EAB adult is a dark green metallic beetle only about ½" in length. EAB adult beetles emerge from infested trees beginning in mid-May, peaking in late June, and continue emerging until late July. Emerging adults make distinctive small D-shaped exit holes on the branches and trunk. EAB beetles feed on ash foliage causing irregularly shaped patches along leaf margins and minor feeding damage. Female EAB beetles lay approximately 75 eggs on the bark of branches and trunks from late May through July with hatching occurring in about one week. Larvae tunnel into the cambium area between the inner bark and outer ring of wood, feed on phloem and outer sapwood, and produce serpentine galleries (tunnels). It is this larval stage that does the major damage by disrupting the flow of water and nutrients to the tree. Feeding is complete in autumn and larvae overwinter in shallow chambers. The following April, larvae begin pupation and then new adults start to emerge in May, starting the lifecycle over again.

What are the Symptoms?

Early infestations of EAB can be difficult to detect. Initially starting at the top of the tree, a new infestation causes the leaves in the upper third of the tree to thin, and then branches begin to die back. As EAB infestations progress through the entire tree, large numbers of shoots or branches may develop below the dead portions of the crown and trunk. As EAB numbers increase, tiny “D-shaped” exit holes where adults emerge from branches and trunks become more apparent. When the bark is peeled back on an EAB infested tree, serpentine shaped EAB larval feeding tunnels are apparent. Increased numbers of EAB larvae may also attract woodpeckers that then peck out the outer tree bark and create large holes while extracting the EAB larvae. Once infested with EAB, ash trees often die within 3-4 years.

How Does EAB Spread?

Experts believe that the beetle arrived in the US from Asia as far back as 15 years ago. It is thought that the larvae hitched a ride traveling in wood used to stabilize shipping cargo. The adults are good flyers, so they can move great distances on their own. Also, pockets of EAB outbreaks have been linked to the movement of ash firewood and nursery stock out of infested areas.

Who is Working to Eradicate the EAB Beetle and What EAB Quarantines are in Place?

A coalition of local, state and federal agencies are working together to stop the national spread of EAB. In Illinois, a variety of organizations and agencies prepared sample action plans for EAB preparedness (<http://www.illinoiseab.com/>).

The U. S. Department of Agriculture’s Animal and Plant Health Inspection Service (USDA APHIS) has established a federal EAB quarantine to include the entire states of Illinois, Indiana and Ohio, and the entire lower peninsula of Michigan. This federal order restricts the interstate movement of regulated articles that originate within the quarantine area. Within the state, the Illinois Department of Agriculture (IDA) is the lead agency in Illinois’ EAB Program, and IDA established an interior quarantine area to include most of northeastern Illinois. The federal quarantine augments state quarantines, and both federal and state quarantines regulate the movement of regulated articles. Regulated articles include ash nursery stock and green lumber; and any other ash material including logs, stumps, roots, branches, as well as composted and uncomposted wood chips. Due to the difficulty in distinguishing between species of hardwood firewood, all hardwood firewood, including ash, oak, maple and hickory are regulated articles. While the federal quarantine restricts trade between States or interstate movement, the interior state quarantines restrict movement of regulated articles out of those specific quarantine areas in each state. Maps of the federal and state quarantines can be found at <http://www.illinoiseab.com>.

Who will enforce the Quarantines?

The USDA APHIS will enforce the federal quarantine while IDA will enforce the interior Illinois quarantines. Civil penalties to individuals and business that violate the restrictions for the movement of regulated articles may result in monetary fines up to \$250,000 and /or imprisonment.

How is Downers Grove Surveying for EAB?

The Public Works Forestry and Grounds Division staff is on the lookout for EAB.



Throughout the Village, declining ash trees are being dissected and inspected for the presence of EAB larvae, feeding galleries and D-shaped exit holes.

Staff is also following up on all calls from the public regarding ash trees on both public and private property. Though there are other insects and environmental factors which may cause ash trees to have holes or decline and deadwood, staff is examining all ash trees reported.



Has EAB been found yet in Downers Grove?

Regretfully, Forestry staff and the Illinois Department of Agriculture confirmed EAB in the Village as of June 2011. Since its initial discovery in 2002 when only a few counties were then quarantined in Michigan, EAB has now been found in multiple states as well as Ontario, Canada (click on the Map link at <http://www.illinoiseab.com>). The closest infestations to the Village include all adjacent communities such as Naperville, Lisle, Woodridge, Westmont and Burr Ridge. Notably, all of Illinois' infestations have been found since the summer of 2006 (click on the Illinois Map link at <http://www.illinoiseab.com> to see all confirmed Illinois locations).

What is the Plan for Downers Grove Parkway Ash Tree Population?

Forestry staff has a computerized tree inventory of all the public parkway trees. The ash tree inventory can be graphically displayed on the map titled Downers Grove Parkway Ash Trees on the Village website at <http://www.downers.us>. Each green dot represents an ash tree on the map, and some streets are colored almost a solid green due to the large numbers of ash trees. The majority of these ash trees were planted in the 1970's and have an average trunk diameter of 13.2". In the Chicagoland area, Downers Grove is not alone in having so many ash trees. Previous to EAB, both green and white ash have been durable, low cost trees which have performed well in all types of soil and landscape conditions. White ash in particular has a pleasing form and beautiful fall color as shown to the right.



An important strategy in containing the spread of EAB is the removal of potentially infested, poor health or suspect trees. Removal of suspect ash trees and ash trees in poor health limits the number of trees that are more likely to attract and become infested with EAB beetles. By sorting the ash tree inventory by condition, Forestry staff is aggressively reviewing and then removing those that are dying, have continual branch breakage, have severe structural defects such as decay or cracks, are misshapen or have poor form, are under or near power-lines, or are otherwise unhealthy. Forestry staff is carefully scrutinizing all the ash trees and is looking for any of eight identifiable signs and symptoms that an ash tree may be infested with EAB:

1. dieback,
2. sprouting,
3. bark splits,
4. D-shaped holes,
5. S-shaped larvae galleries,
6. presence of larvae,
7. woodpecker damage,
8. and presence of adult EAB beetles

If two or more signs and symptoms are present or the ash tree is at least 50% dead, trees will be removed.

If suitable space is available, replacement plantings are scheduled with a diverse variety of tree species. For the future, the goal is still to not have more than 10% any one species on the parkway.

Is Ash Tree Removal the Only Option?

In that ash trees typically die within 3-4 years of an infestation, removal of infested trees is essential. Removal not only limits breeding areas for EAB, but is also important because ash trees become brittle and fall apart once they are dead. Research work is continuing with insecticides. Keeping in mind that EAB was only just discovered and identified in the last decade, research results so far on insecticide effectiveness and professional opinions about their use have been strongly mixed. In general, current research work results indicate insecticides work best on smaller ash trees, need to be applied annually, and may only delay tree death by a few years in areas with heavy EAB infestations.

Research work with parasitic wasps also continues, though these wasps may prove to offer more EAB suppression than elimination.

Weighing all pros and cons, several different insecticide treatment options are being utilized on select parkway ash trees. This includes soil drenches, trunk injections, and a combination of soil and trunk applications. To date, the most successful treatments with the best ash tree survival rates have been those that have been treated more than 3 years.

What Can Downers Grove Residents Do to Prevent EAB Infestations?

Forestry staff believes that public education about EAB offers the best hope for both preventing the spread of EAB to Downers Grove, as well as detecting it early if it does arrive here. We are asking property owners to:

- Help monitor and report – Learn about EAB, check your ash trees for the beetle and call us at 630-434-5475 if you believe you have found either the insect or an infested ash tree. We'll try to respond promptly to all such calls.
- Refuse to move firewood – Use only local firewood (even when traveling), and burn the wood on site or leave it when you move on. Experts have determined that many of the EAB infestations came from infested firewood. Please do not move firewood across state lines, or from any areas that might become quarantined in Illinois.
- Care for ash trees – Call Public Works if a public ash trees seems sick or needs maintenance. Care for private ash trees routinely, using International Society of Arboriculture certified arborists when hiring tree care companies.
- Plant a diversity of trees – Limit or exclude ash trees from your planting list, and consider using alternative tree species instead.
- Stay informed – Check for periodic updates on the Village website and in the Village Corner printed in the Friday edition of the Downers Grove Reporter

More Information

For any questions about emerald ash borer, ash trees, or possible sightings of the EAB beetle, please contact the Forestry office at 630-434-5475. More information on emerald ash borer can be found at:

<http://www.illinoiseab.com>
<http://www.emeraldashborer.info/>
<http://na.fs.fed.us/fhp/eab/index.shtm>