

# Emerald Ash Borer and Your Forest

## Why should you be concerned about the emerald ash borer?

**E**merald ash borer, *Agrilus planipennis* Fairmaire, has rapidly become the most important pest of ash trees (*Fraxinus* spp.) (Fig. 1) in North America. Emerald ash borer (EAB), a native of Asia, had never been found in North America or Europe until it was discovered in southeastern Michigan and Windsor, Ontario, Canada in June 2002. It was probably introduced at least 10 years prior to 2002 in wood crating, pallets or similar packing material that was shipped into Michigan from Asia.

Damage to ash trees is caused by the EAB larvae, which feed in S-shaped tunnels on the inner bark of branches and tree trunks (Fig. 2). A region of the inner bark, called phloem, transports nutrients and water within the tree. Galleries excavated by the flat, cream larvae cause branches and eventually the entire tree to die (Fig. 5). All true ashes — such as green ash (*F. pennsylvanica*), white ash (*F. americana*), and black ash (*F. nigra*) are susceptible to EAB. Scientists believe that virtually all ash species in North America are at risk if EAB continues to spread. The EAB does not attack mountain ash (*Sorbus* sp.) and has not attacked other



Fig. 1 - Emerald ash borer adult.

tree species in North America.

Currently, several counties in western Pennsylvania and Mifflin County in central Pennsylvania are included in an EAB quarantine (Fig. 3). Estimates suggest that EAB has already killed at least 40 million ash trees in urban, suburban, and forested areas in midwestern and eastern states.

In addition, several outlier populations of EAB continue to be found in other states. Most of these outliers are low-density, small infestations of the EAB, and many of the ash trees in these sites may have few or even no external symptoms of an infestation. The outliers may be a result of infested ash firewood, nursery trees, or logs that were transported out of southeastern Michigan before the EAB was identified. Detection and survey efforts are continuing and there is a good chance that additional outliers will be found in the next few years. Some outlier populations will likely be targets for eradication or suppression activities, depending on their location and the availability of funding for the EAB program.

## What does the EAB mean for forest land owners in Pennsylvania?

**S**hould you try to harvest your ash as quickly as possible? How should you manage your forest? Should you just let nature take its course?

There are no simple answers to such questions. Much will depend on the condition of your forest trees, your objectives for the property, and the current status of the EAB situation. You will need to explore your options with a professional forester and stay up to date on the EAB regulations that affect your area.



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Fig. 2. S-shaped galleries (top); gallery with larva (bottom).

Keep in mind, however, that EAB is not like a native forest insect — it is much more destructive and aggressive than its relatives such as bronze birch borer and twolined chestnut borer. North American ash trees have little resistance to this new pest, and even large, healthy ash trees will be killed within a few years of infestation. Prompt attention is needed to reduce the potentially negative economic and ecological impacts of the EAB on your property. The following considerations may help you think about how you will manage your forest.

### 1. Know the current EAB situation in your area — does your property fall within a quarantined area?

If your forest land is in a quarantined county or township, contact the Pennsylvania Department of Agriculture (PDA) and learn about your options. The

EAB situation is dynamic — regulations, quarantines and options can change rapidly as new information becomes available. The PDA is the regulatory agency in your state and will have the most up-to-date information available about quarantines, restrictions and options that apply to property in specific geographic areas. Generally, ash logs, wood or chips can move within the quarantined area but cannot be transported out of quarantined area without compliance agreements and special permits from the state and federal regulatory agencies.

### 2. Consider reducing ash abundance to minimize EAB impacts on your property.

Ideally, ash should make up no more than 10 to 25 percent of the basal area of your forest. If ash exceeds that level and you believe that you have marketable ash trees on your property, you may wish to get estimates and consider selling the ash trees. If you wait until the quarantine comes to you, your options may be limited. The level of urgency will depend on how (1) close your property is to sites known to be infested with the EAB, (2) your overall objectives for the property, and (3) the abundance of ash compared with other species on the site.

If you have marketable ash trees, work with a professional forester — decisions about timber sales and stumpage values can be complicated. Consulting foresters can help you identify the markets that are available in your area. They may also know of portable or custom sawmills that can be hired to saw ash trees into boards for your own use.

You may want to work with neighboring forest land owners. They are probably facing a situation similar to yours. Often the per-acre costs of setting up a timber sale decrease when larger areas are involved. Cooperating with neighbors may lead to lower costs and better timber prices for everyone.

Other tree species may be part of a harvest that removes ash. Many forests can benefit from a well-planned harvest in which ash reduction is only one of several landowner objectives. A mixed-species sale



may be of interest to more buyers or result in higher profits for you. Again, it is important to work with a professional forester to ensure that the productivity and the health of your forest are maintained or even enhanced by a timber harvest.

Many of the ash trees on your property may be too small for harvesting, or you may not want to get involved with harvesting and selling timber. You may still, however, want to consider cutting these trees to reduce the overall abundance of ash in the forest and to reduce the density of the EAB populations in your area. Ash makes excellent firewood, **but remember, do NOT transport ash firewood off your property!**

Ash trees can simply be cut and left on the ground.



Fig. 3. Contact the Pennsylvania Dept. of Agriculture office for current regulations and information. For updates, see [www.emeraldashborer.info/files/MultiState\\_EABpos.pdf](http://www.emeraldashborer.info/files/MultiState_EABpos.pdf).

After cutting, the phloem and wood dry out and, after 6 to 12 months, even large pieces of ash will no longer be suitable for EAB egg laying or larval development. The decaying trees will provide habitat for many wildlife species. Ash trees can also be girdled with a chainsaw or drawknife and left standing. Ash snags are preferred habitat for a variety of wildlife, including cavity-nesting birds, mammals, and amphibians. Removing ash ahead of the EAB infestation will help slow the spread of this destructive pest and will reduce the impact of the pest in your region.

If you have only a few ash trees or if your forest is

not in or near a quarantined area or outlier, selling or cutting ash trees may be less urgent. Nevertheless, you may want to consider advancing a thinning schedule to remove ash sooner. Begin thinking now about how your woodlot will be affected if the EAB infestation spreads.

### 3. Think about how the EAB will affect your long-term objectives.

Think about what you want your woodlot to look like in the future. Determine what other tree species are present on your property. Can you encourage those species by selectively removing ash, using herbicides or planting?

Planting hardwood or conifer species, in combination with natural regeneration, can replace the ash component of your forest, increase diversity, and improve habitat for wildlife. Commercial nurseries and conservation districts sell tree seedlings. When choosing species to plant, consider the soil and weather, plus the risk of browse damage from deer, rodents, and rabbits. A professional forester can advise you about the species that are most appropriate for planting on your property.

Be aware of other forest health issues that may be present such as gypsy moth, hemlock woolly adelgid, beech bark disease, and others. If other damaging



Fig. 4. D-shaped exit holes (1/8" diameter).



pests present significant threats, be sure to consider them as you develop your forest management plan.

Also, remember that other insect and disease pests can affect ash trees. Characteristics of an EAB infestation include S-shaped tunnels under the bark (Fig. 2) and D-shaped exit holes on trunks or branches (Fig. 4). Adult beetles are metallic green and are most active from mid-June through early August. Unfortunately, it's possible to have an EAB infestation for several years before many people notice symptoms (Fig. 5).

Always work with a professional forester to help you through the decision-making process for your property. Ash trees grow across a wide variety of habitats and site conditions. There are no standard prescriptions. Developing a management plan for your forest is a good idea for many reasons (records, taxes, memory, scheduling, etc.). Be wary of unsolicited offers to buy your trees. Take the time to consider all your options and make the decisions that best reflect your wishes.

Contact your Penn State Cooperative Extension county office for more information about ash trees and the EAB. You can obtain a free life cycle poster (EAB-3004-PSU) or the "Distinguishing Ash from Other Common Trees" publication (EAB-2892-PSU) through your county's Penn State Cooperative Extension office. More photos and EAB information can be found in extension bulletins EAB-2938-PSU, EAB-2939-PSU, and EAB-2942-PSU.



Fig. 5. Infested ash tree and (inset) green ash leaf.

Learn more about how to recognize the EAB and infested ash trees by visiting the Internet at:

[www.paemeraldashborer.psu.edu](http://www.paemeraldashborer.psu.edu)  
[www.agriculture.state.pa.us/emeraldashborer](http://www.agriculture.state.pa.us/emeraldashborer)  
[www.na.fs.fed.us/fhp/eab](http://www.na.fs.fed.us/fhp/eab)

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