

## New Jersey Fact Sheet: Emerald Ash Borer (January 2013)

### Introduction

The Emerald Ash Borer (EAB) is an exotic insect from Asia that has invaded North American forests and is becoming increasingly detrimental to ecosystem health. First detected in Michigan in 2002, EAB has infested various species of ash in Illinois, Indiana, Maryland, Ohio, Pennsylvania, Wisconsin, Missouri, Virginia, Minnesota, New York, Kentucky, Iowa, Kansas, Tennessee, Massachusetts, Connecticut, and West Virginia as well as Ontario and Quebec, Canada. While EAB has not been detected in New Jersey, natural resource professionals and forest owners are continuing to monitor for this damaging forest pest. Because EAB occupies many neighboring states, its presence in New Jersey's woodlands may be inevitable. Unfortunately, EAB may inhabit an area for several years before being detected. Careful monitoring and early management are recommended in order to protect and preserve New Jersey's forest habitats from an EAB infestation.

### Impacts of EAB in New Jersey

Feeding on white ash (*Fraxinus americana*), green ash (*Fraxinus pennsylvanica*), and black ash (*Fraxinus nigra*), EAB can have significant economic and ecological impacts. When EAB infests individual trees, vital tissues are destroyed, potentially killing the tree in less than two years.

According to the U.S. Forest Service's 2008 Forest Inventory for New Jersey, ash is present on 24 percent of the state's forested land. It generally makes up less than 25 percent of all live trees in a stand and is rarely the most abundant species. Several ash species make up almost 8 percent of all trees in the neighboring state of New York. Ash timber is valued for its use in several wood products, including baseball bats, furniture, lumber, and pallet manufacturing. New Jersey's naturally growing ash trees are commonly found throughout the state's northern and central regions; however, ash is a popular species planted in urban areas and has been used to replace native elms lost to Dutch Elm Disease. In Michigan and other locations where EAB is already present, the greatest economic impact



Adult Emerald Ash Borer (USDA, Forest Service, fs.usda.gov)

has fallen on communities faced with the removal of tens of thousands of dead ash on streets and in yards.

### Signs and Identification of EAB

Adult emerald ash borers are dark metallic green in color, and have a coppery red or purple abdomen. Individuals are  $\frac{3}{8}$  to  $\frac{5}{8}$  inch long and  $\frac{1}{16}$  inch wide. Adults may be active from late May to September, but are typically observed in June and July. Although adults can be seen with the naked eye, they are sometimes difficult to find, especially at low infestation levels. At the larval stage, individuals are small and creamy white in color. They typically burrow under the bark, making them even more difficult to spot. The first sign of an infestation may be a thinned crown, but the best way to detect an EAB infestation is by removing the bark and observing the larvae's expanding S-shaped galleries. As individual beetles mature and emerge, they leave a distinctive D-shaped exit hole in the outer bark of the tree. Because the signs and symptoms can be similar to other diseases, it is important to consult an approved forester or qualified natural resource professional to aid in identification.

### Monitoring and Prevention

New Jersey forest owners, including public and private landowners, can consider working with the United States



(From left to right) The first sign of an EAB infestation is yellowing of the crown (Steven Katovich, USDA Forest Service, bugwood.org) and eventual death of ash trees (Daniel Herms, Ohio State University, bugwood.org). Other signs include expanding S-shaped galleries made by the larvae (Steven Katovich, USDA Forest Service, bugwood.org) and D-shaped exit holes excavated by emerging adults (Debbie Miller, USDA Forest Service, bugwood.org)

Department of Agriculture (USDA) on surveying and monitoring efforts aimed at early detection of this insect. Foresters as well as volunteers can easily deploy baited traps and establish “trap trees” in an attempt to determine if EAB is present in a forest stand.

Since adult beetles are not particularly strong fliers, spread is typically caused by transportation of infested and untreated wood products. Restricting the movement of these wood products, including firewood, is recommended to help prevent the introduction and spread of EAB.

### Management Options

A landowner can reduce the risk of an EAB infestation by using certain management techniques. Selective felling, cutting, girdling, or herbicide application can reduce the abundance of ash while shifting species composition to other native trees. Typically, preventive management activities will work to enhance the health of

a forest stand while preserving ecological and economic integrity. These management techniques may be incorporated into a Forest Stewardship Plan, and may include:

- Selective felling and cutting of unhealthy or low-vigor ash trees
- Preserving individual trees that have strong, live crowns
- Reducing the overall cover of ash species in a forest stand
- Controlling native ash regeneration by selectively removing seedlings and allowing for other native trees to become established

Silviculture experts in Wisconsin have developed additional guidelines based on the percentages of ash within individual woodlots. The percentages are based on basal area, or the total area of the cross sections of all trees in a stand. These specific management techniques for different ash compositions, adapted from the Wisconsin Department of Natural Resources (*WI DNR, August 2008*), can help reduce the risk of an EAB infestation while promoting overall forest health. It is important to consult an approved forester or other natural resource professional for proper guidance before implementing management activities.

### *Management in Established Stands Where Ash Is Less Than 20% of the Basal Area*

Remove low-vigor ash trees to increase and promote diversity of other species, while preserving healthy ash trees. An approved forester can assist with selective removal of low-vigor trees by following standard silvicultural guidelines. Some silvicultural practices will lead to increased ash regeneration, which may require additional control treatments in order to keep the stand's



Adult beetles are small, making them hard to detect, especially at low infestation levels (Howard Russell, Michigan State University, bugwood.org)

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Mixed hardwood forests containing ash species (left) (John Parke, NJA) can be managed to prevent an EAB infestation with a Forest Stewardship Plan. Green ash (middle) (Tom DeGomez, University of Arizona, bugwood.org), white ash, and black ash are all susceptible to an EAB infestation. In New Jersey, monitoring efforts set traps (right) (Kenneth R. Law, USDA, APHIS, PPQ, bugwood.org) in order to detect the insect early.

susceptibility to an EAB infestation low. Herbicide applications can help maintain ash seedlings at an appropriate level.

***Management in Established Stands Where Ash Is 20 to 40% of the Basal Area***

If possible, reduce the percentage of ash to less than 20% while maintaining a fully stocked stand dominated by other tree species exhibiting good health and vigor. Stands may require multiple treatments to reduce the ash to an appropriate level while maintaining adequate stand stocking. Follow-up treatments to control excessive ash regeneration may be needed.

***Management in Established Stands Where Ash Is Greater Than 40% of the Basal Area***

Stands with a large percentage of ash (such as a bottomland, swamp, or plantation) may be heavily impacted by EAB unless ash species are drastically reduced. When planning harvest activities, consider the following:

1. Shorten the rotation age for harvestable ash trees
2. Consider silvicultural methods that allow for complete stand conversion to other species tolerant of the site conditions

If practical, reduce the ash abundance during regularly scheduled management activities while preserving high diversity and forest health. Other species that are competing with healthy trees may also be removed during EAB management activities. Stands may require multiple entries to reduce the ash to an appropriate level. Active treatment of ash regeneration, as noted earlier, may be necessary, and it is important to consider planting or seeding other tree species that can tolerate the site conditions.

When working in a wetland, it is important to follow New Jersey’s *Forestry and Wetlands Best Management Practices Manual*.

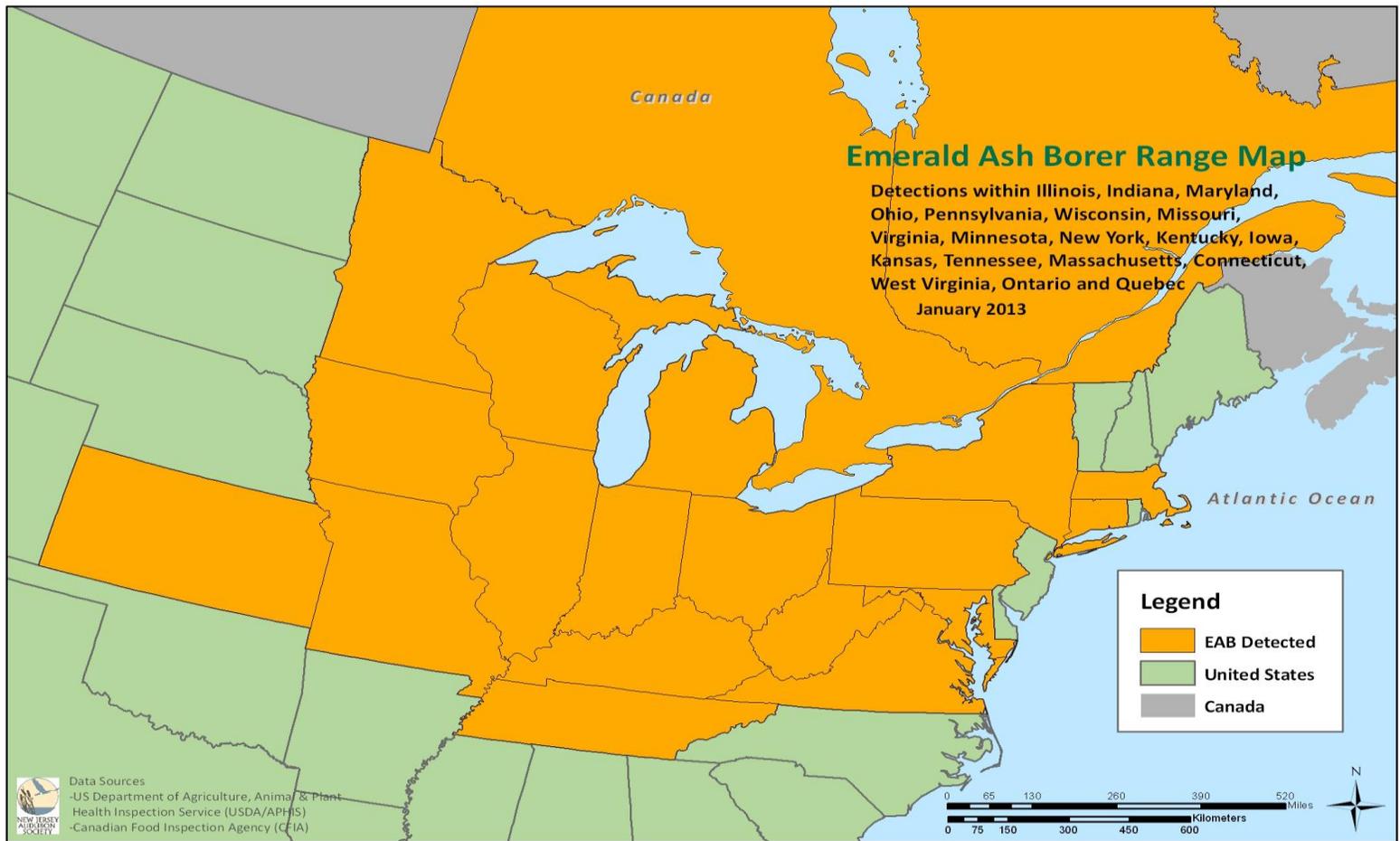
**Technical and Financial Assistance**

A Forest Stewardship Plan will usually present the best options for management based on the landowner’s goals and the current site conditions. The landowner is generally responsible for the cost of development and implementation of a Forest Stewardship Plan. However, qualifying landowners in New Jersey have several options for obtaining technical and financial assistance. The Natural Resources Conservation Service (NRCS) offers technical and financial assistance to forest landowners through the Environmental Quality Incentives Program (EQIP). Eligible landowners with 10 acres of land may receive cost-share assistance for the development and implementation of a Forest Stewardship Plan.

**NRCS office locations and more detailed information about NRCS assistance and the EQIP program can be found at: [www.nj.nrcs.usda.gov/](http://www.nj.nrcs.usda.gov/)**



An important method to prevent the spread of EAB is by restricting the movement of wood products, including firewood (Don Donnelly, NJA)



**For More Information:**

**General Information on NRCS Forestry Programs**  
[www.nj.nrcs.usda.gov/technical/forestry/index.html](http://www.nj.nrcs.usda.gov/technical/forestry/index.html)

**Information on NRCS EQIP Program**  
[www.nj.nrcs.usda.gov/programs/eqip/forestry.html](http://www.nj.nrcs.usda.gov/programs/eqip/forestry.html)

**Locating an NRCS TSP**  
<http://techreg.usda.gov/CustLocateTSP.aspx>

**General Information on Emerald Ash Borer**  
<http://www.emeraldashborer.info/index.cfm>

**US Forest Service – EAB**  
<http://na.fs.fed.us/fhp/eab/>

**US Department of Agriculture, New Jersey's Forests**  
[http://www.nrs.fs.fed.us/pubs/rb/rb\\_nrs59.pdf](http://www.nrs.fs.fed.us/pubs/rb/rb_nrs59.pdf)

**NJDEP, Division of Parks and Forestry – EAB Info**  
[http://www.nj.gov/dep/parksandforests/forest/community/Emerald\\_Ash\\_Borer.htm](http://www.nj.gov/dep/parksandforests/forest/community/Emerald_Ash_Borer.htm)

**NJ Statewide Forest Resource Assessment and Strategies**  
<http://www.stateforesters.org/files/NJ-Assess-Strategy-20100810.pdf>

**NJ Forestry and Wetlands Best Management Practices Manual**  
[www.state.nj.us/dep/parksandforests/forest/nj\\_bmp\\_manual1995.pdf](http://www.state.nj.us/dep/parksandforests/forest/nj_bmp_manual1995.pdf)

**List of NJDEP-Approved Consulting Foresters**  
[www.state.nj.us/dep/parksandforests/forest/ACF.pdf](http://www.state.nj.us/dep/parksandforests/forest/ACF.pdf)

**Wisconsin Department of Natural Resources – EAB Info and Management Guidelines**  
[http://datcpservices.wisconsin.gov/eab/articleassets/Management\\_Guidelines\\_for\\_Wisconsin\\_Forests.pdf](http://datcpservices.wisconsin.gov/eab/articleassets/Management_Guidelines_for_Wisconsin_Forests.pdf)

**New York Department of Environmental Conservation – EAB Info**  
<http://www.dec.ny.gov/animals/7253.html>

**Pennsylvania Department of Conservation and Natural Resources – EAB Info**  
[http://www.dcnr.state.pa.us/forestry/fpm\\_invasives\\_EAB.aspx](http://www.dcnr.state.pa.us/forestry/fpm_invasives_EAB.aspx)

**Maryland Department of Agriculture – EAB Info**  
<http://www.mda.state.md.us/plants-pests/eab/>

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