EMERALD ASH BORER: Preparing for the Green Menace

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What is Emerald Ash Borer (EAB)

- An invasive wood-boring beetle (*Agrilus planipennis*)
- Native to Asia: China, Japan, Korea, Russia
First Emerald Ash Borer Detection

- Considered to be the most destructive and fastest spreading pest in North America
- **Tens of millions** of ash trees have been killed in southeastern Michigan alone
- Has cost billions in damages

Ash trees killed by EAB
How did it get to the United States?

- Thought to have been introduced in the 1990s in solid wood packing material such as pallets and crates.
Where is EAB today?

- Has now been detected in 31 States and two Canadian Provinces

- EAB spreads naturally through flight
  - Infestation front moves a few miles per year

- It also spreads through human-assisted movement
  - Movement of firewood and other wood products!
The Spread of EAB

Map: www.emeraldashborer.info
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Counties Detected in 2018
EAB in Massachusetts

- EAB was first detected in MA in August 2012
  - Berkshire County (Dalton)

- Later detected in:
  - 2013 in Essex County (N. Andover)
  - 2014 in Suffolk County (Boston)
  - 2015 in Worcester County (Worcester)
  - 2016 in Hampshire and Middlesex County (Wilbraham, Newton and Boxford)
  - 2017 in Norfolk County (Brookline and Dedham)
Current Distribution of EAB in Massachusetts

Massachusetts Emerald Ash Borer Detections
Dept. of Conservation and Recreation
Forest Health Program

Groton
EAB in Shirley
Life Cycle of EAB

Emerald Ash Borer life cycle:

Eggs: Adult EABs lay eggs from May-September on the bark of Ash trees.

Larvae: Eggs hatch into larvae that burrow under the bark of the tree to feed. Feeding occurs August - November.

Pupae: Larvae turn into pupae and overwinter from November - April.

Adults: Pupae change into adult EABs and emerge from the tree from May - June.
Adult EAB

- To confirm that an insect is emerald ash borer, check for these signs:
  - Wing covers, abdomen and head are iridescent, jeweled green
  - Coppery purple/red body under the wings

½ inch body length
Larvae feed on inner bark of the tree, disrupting the transport of nutrients and water.

Smaller trees can die in as little as 1-2 years.
How to identify an Ash Tree

- **Host trees:**
  - Ash (*Fraxinus* spp.) incl.
    - white ash (*Fraxinus americana*)
    - black ash (*F. nigra*)
    - green ash (*F. pennsylvanica*)
    - other horticultural varieties
  - Fringe Tree (*Chionanthus virginicus*)
EAB Tree Damage

- Distinct, S-shaped tunnels beneath bark
- Larval galleries filled with frass
EAB Tree Damage

- D-shaped exit holes in bark
EAB Tree Damage

- Increased woodpecker damage
- “Blonding”
EAB Tree Damage

- Canopy dieback & Bark splitting
- Shoots emerging from roots or trunk
EAB Similar damage

Banded Ash Borer (*Neoclytus caprea*)
EAB Similar damage

Ash Lilac Borer (Podosesia syringae)
What is at risk?

- Our ash trees... and much more!
What is at risk: Ash Trees Loss

- **Ecosystem services**
  - Habitat & biodiversity
  - Shade
  - Improved air quality
  - Erosion control
- **Cultural significance**
- **Economic benefits**
  - Lumber
  - Ornamental plantings
  - Wood products
    (Paper, Baseball bats, Tool handles, Furniture and more)
What is at risk: Safety

- When EAB invades an ash tree:
  - Wood dries out rapidly, becoming brittle
  - Trees lose flexibility and strength

- Can cause massive, unpredictable structural failure and/or catastrophic stem failures
What is at risk: Safety

- Increased chance of downed limbs and wood debris during storm events
What is at risk: Safety

- Dead ash trees will have an impact on:
  - Residential, commercial & public properties
  - Utility & public infrastructure (roads, guardrails, utility lines, bridges)
  - Recreation (trail maintenance requirements, hiking, fishing)
EAB: What’s Being Done

- Regulation of infested areas
  - The entire state is under the federal EAB quarantine
  - Restrict movement of ash, including firewood, lumber and logs
Worcester County Regulations

- Ash is also a host tree for Asian Longhorned Beetle
- Ash cannot be moved out of the ALB regulated area
EAB: What’s Being Done

- DCR detection & monitoring
  - Visual Surveys
  - Green Funnel Traps & Purple Panel Traps
  - Girdled Trees
  - Biosurveillance
Biosurveillance

- The Wasp Watchers program targets native non-stinging wasps that hunt EAB (*Cerceris fumipennis*)
- The beetle carcasses (exoskeletons) are found around these nests and collected to monitor for EAB

EAB: What Can Be Done

- **Management**
  - Insecticide use for prevention and treatment of low-level infestations
  - Girdled trees (removing population sinks)
  - Biocontrol insects
  - Research
  - Education and outreach

[www.emeraldashborer.info](http://www.emeraldashborer.info)
EAB Preparedness: Education & Outreach

- Spread the word, not the beetle!
- MDAR can provide:
  - Materials for educational displays and tabling at events
  - Resources for tree tagging events
  - Presenters for groups interested in learning more about EAB
Outreach Materials

- Decision guides
- Table-top ID card holders
- EAB Identification Kits
EAB Preparedness: Monitor and Report

- Periodically check ash trees for signs of EAB infestation

- D-shaped Exit Holes
- S-shaped Galleries
- Woodpecker Damage
- Epicormic Shoots
- Canopy Dieback
Emerald Ash Borer Reporting Form

Contact Information

First Name *
Your answer

Last Name *
Your answer

Phone Number
Your answer

Email *
Your answer

Location of Sighting

Street Address *
(If there is no street address, describe as best you can the location [a park, a business name, etc.]. Please use any landmarks you observed at the site to help indicate the exact location. Note street intersection if appropriate.)
Your answer

City/Town *
Your answer

Zip Code
Sighting Details

Describe the insect seen, if one was observed
(Color, size, shape, etc.)

Your answer

Describe any ash tree damage seen, if any [NOTE: Emerald ash borer only attacks ash trees, genus Fraxinus.]
(Holes in tree [indicate size and shape], S-shaped tunnels in bark, dieback of upper canopy of tree, etc.)

Your answer

Additional Questions

How did you hear about the emerald ash borer? *

- News coverage on tv, radio, or in a newspaper
- An internet news source
- Word of mouth
- A presentation or training class
- A billboard or poster
- A public meeting (town meeting, etc.)
- A mailing or a flyer left at a residence
- Utility bill
- A display at an event, public library, etc.
- Other:

Anything Else?
(If you have any other questions or issues not addressed in this form, let us know here)

Your answer
Report Signs of Emerald Ash Borer

Use this form to report an sightings of emerald ash borers or signs of emerald ash borer damage to ash trees. The Town’s Conservation and Forestry Departments will review the information and then contact you about next steps.

Photographs and GPS coordinates are also helpful.

Name *

Email

Phone *

Location of sighting *

Specific address and/or description of location (GPS coordinates if available)

Upload a photo

Choose File  No file chosen

Files must be less than 2 MB.
Allowed file types: gif jpg jpeg png.

Describe the insect seen, if one was observed

Describe any ash tree damage seen

Hole in tree (indicate size and shape), S-shaped tunnels in bark, die-back of upper canopy of tree, etc.
What you can do: Prepare!

- Why prepare?
  - Respond quickly and efficiently to EAB
  - Slow Ash Mortality (SLAM)
  - Spread out costs over time
  - Save money $$$
EAB Preparedness: Plan

- Written document outlining objectives and approaches to address and mitigate the impact of EAB

- Administration
  who is involved and what are their responsibilities

- Management Plan
  inventories, removals, treatments, replanting, wood utilization

- Monitoring and reporting

- Resources, needs, and opportunities
  personnel, financial, partnerships

- Education and outreach
EAB Preparedness: Inventory

- Individuals and communities cannot begin planning for EAB unless they know what they have:
  - How many trees?
  - How many are ash?
  - Where are they?
  - What is their condition?
EAB Preparedness: Inventory

- Only collect the information you need!
  - This may include: species, size, condition, location, management recommendations
  - Condition of trees should only be evaluated by professionals or well-trained individuals

- Data collectors might include:
  - municipal or in-house staff
  - hired consultant arborists
  - volunteers
  - any combination of these
EAB Preparedness: Inventory

- **DCR Urban and Community Forestry Challenge Grant**
  - Annual grant program ($1,000 - $30,000)
  - Matching grant
  - Deadline November 1, 2018

- The DCR Urban and Community Forestry Program can also help with planning inventories & volunteer training

For more information visit: [www.mass.gov/dcr/urban-and-community-forestry](http://www.mass.gov/dcr/urban-and-community-forestry)
EAB Preparedness: Management Strategy

- Decide if the trees are worth saving
  - Balance costs and hazard

- Considerations for treatment vs. removal:
  - Extent of damage
  - Location
  - Size
  - Value (aesthetic, emotional)
EAB Preparedness: Management Strategy

- Tree removal
  - More cost efficient to remove trees before they become infested

- Treatment
  - Find a tree care professional in your area
EAB Preparedness: Wood Utilization

- Use the wood in your backyard:
  - Lumber
  - Landscape materials
  - Art and furniture
  - Firewood

- Economically dispose of it:
  - Sell your ash to a reputable industry
  - Dispose of tree at a local disposal site
  - Provide materials to local woodworkers
  - Donate the wood
EAB Preparedness: Wood Utilization

- Start a wood bank in your community!
  - Great for communities where wood is used to heat homes
  - Free wood for residents
  - Volunteer run

- The DCR Market & Utilization program can help, for more information:
  - Peter Church, Director of Forest Stewardship
    617-626-1461 or peter.church@state.ma.us
Municipality Case Study: Cambridge

Inventories

- Forestry Division has an active tree inventory
- 775 ash trees in the City under the Tree Warden’s jurisdiction
- Determine status of trees and priority removals
Municipality Case Study: Cambridge

Response Plans
Instituted an EAB management

- Treatment
- Removal of ash trees in poor/dead condition
- Replanting locations
Municipality Case Study: Cambridge

Outreach Materials

- Created an EAB page on their Forestry website
  www.cambridgema.gov/eab

- Site includes:
  - EAB background
  - Info on Cambridge plans
  - City maps of replanting sites, removal sites, and potential removals)
Municipality Case Study: Cambridge

Treatments
• Have completed 1 full round of treatments using TreeAzin
  ➢ ½ the ash population was treated Summer 2014
  ➢ ½ of ash population was treated Summer 2015
Tree Tagging Kits

- Kit includes:
  - Plastic tree tags
  - Fluorescent green flagging tape
  - Tips for a successful event

- Raises awareness by drawing attention to ash trees in your neighborhood, school yard, conservation land etc.

- Arbor Day Tree Tagging Project!
Tree Tagging Kits
Additional Outreach Materials & Swag

- ID cards
- Pamphlets
- Flyers & posters
- Pest alerts
- Stickers
- Temporary tattoos
Key Points

- EAB is a destructive, wood-boring pest, now found in Massachusetts that threatens ash trees and safety.

- It is essential to begin preparing for EAB now.

- By preparing for EAB, individuals and communities can proactively respond to an infestation, allowing them to transition through this pest on their terms and budget.
More information

Javier Marin, Forest Pest Outreach Coordinator
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www.massnrc.org/pests
www.emeraldashborer.info

We can help with talks, surveys and outreach material!