Emerald Ash Borer (EAB)

A Serious Threat to Our Trees

This meeting is being sponsored by :

The Shade Tree Commission...established by Borough Council

The Commission is composed of volunteers and professionals with extensive knowledge of our urban forest:

Chris May - Chairman (ISA Certified Arborist)

Robert McMullin - Doylestown Borough's Arborist (ISA Certified Arborist)

James Resek - Recording Secretary

Carter van Dyke - Registered landscape architect (RLA)

Baldev Lamba - Registered landscape architect (RLA)

Judith Stratton - Master Gardener

Dave Burger - Doylestown Borough Parks Foreman, Liaison for Shade Tree Commission

This meeting is being presented by :

Mr. Chris May

Mr. Bob McMullen

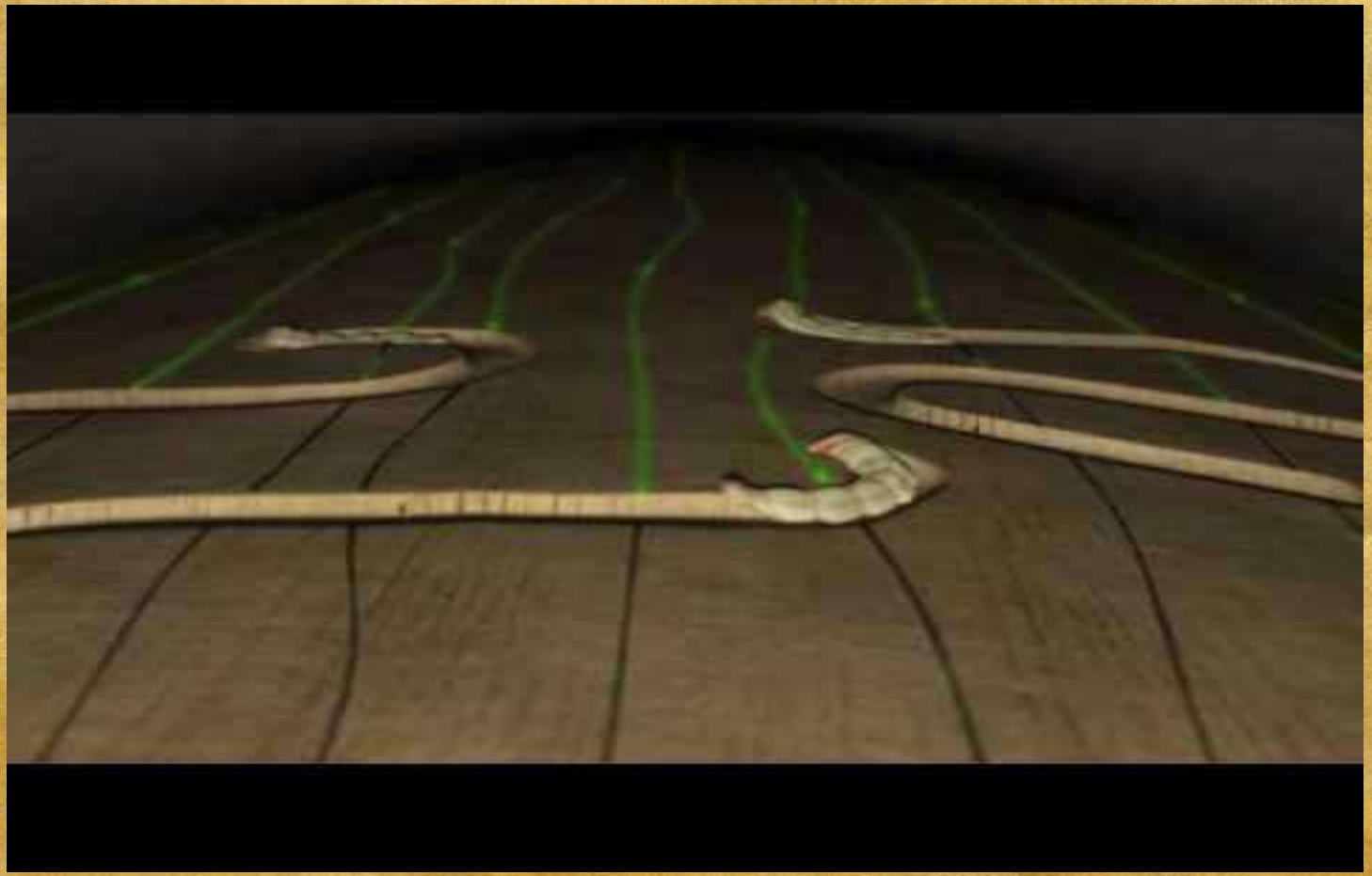
What is the Emerald Ash Borer?

Scientific Name:

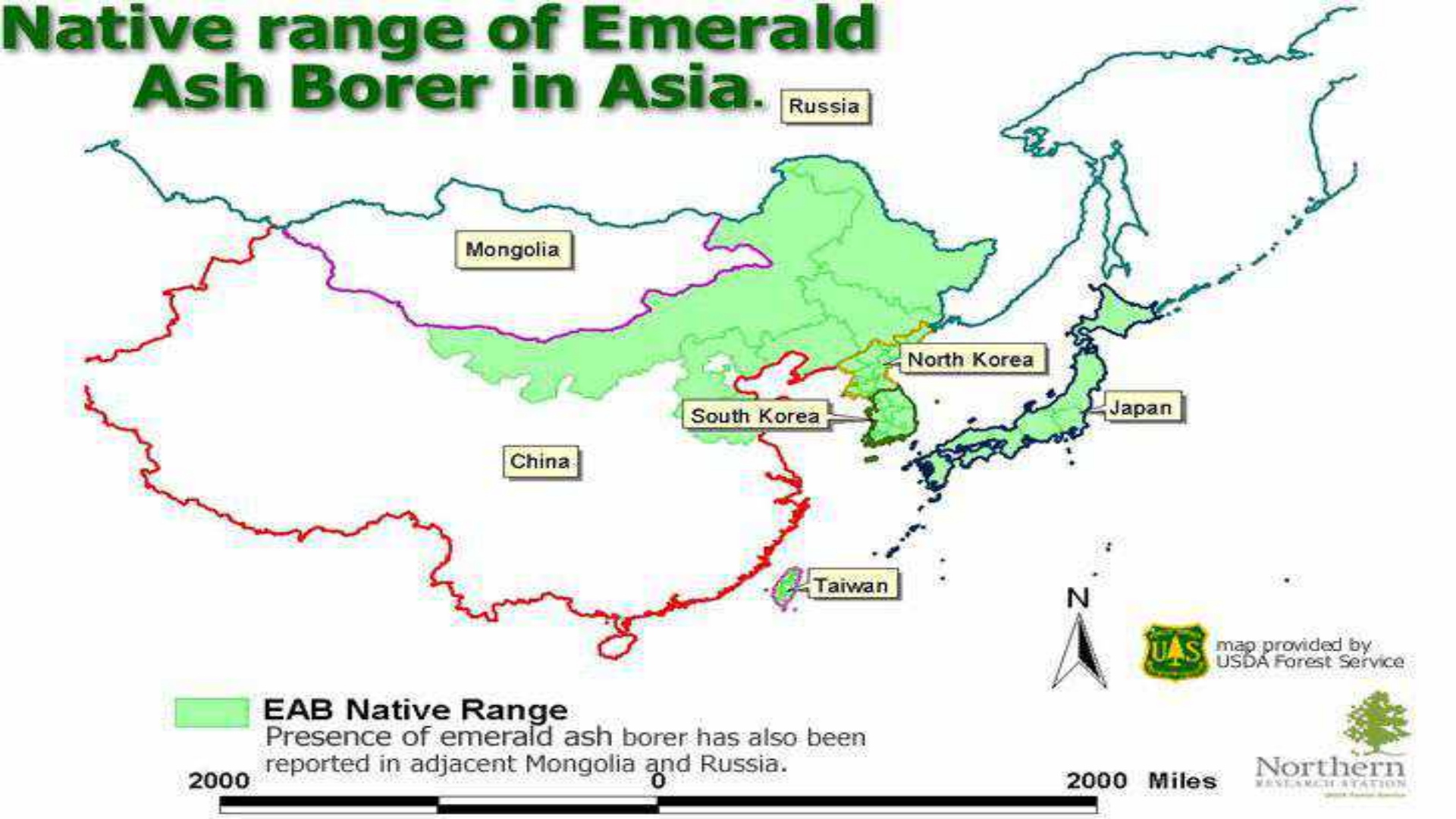
- Order Family- Coleoptera: Buprestidae “metallic wood boring beetle”
- Species- Agrilus planipennis “Emerald Ash Borer”

<u>EAB is a wood Boring Beetle:</u>

- It spends a large portion of it’s life cycle under the bark of a tree, where it consumes vascular tissues (primarily the phloem)



Native range of Emerald Ash Borer in Asia.



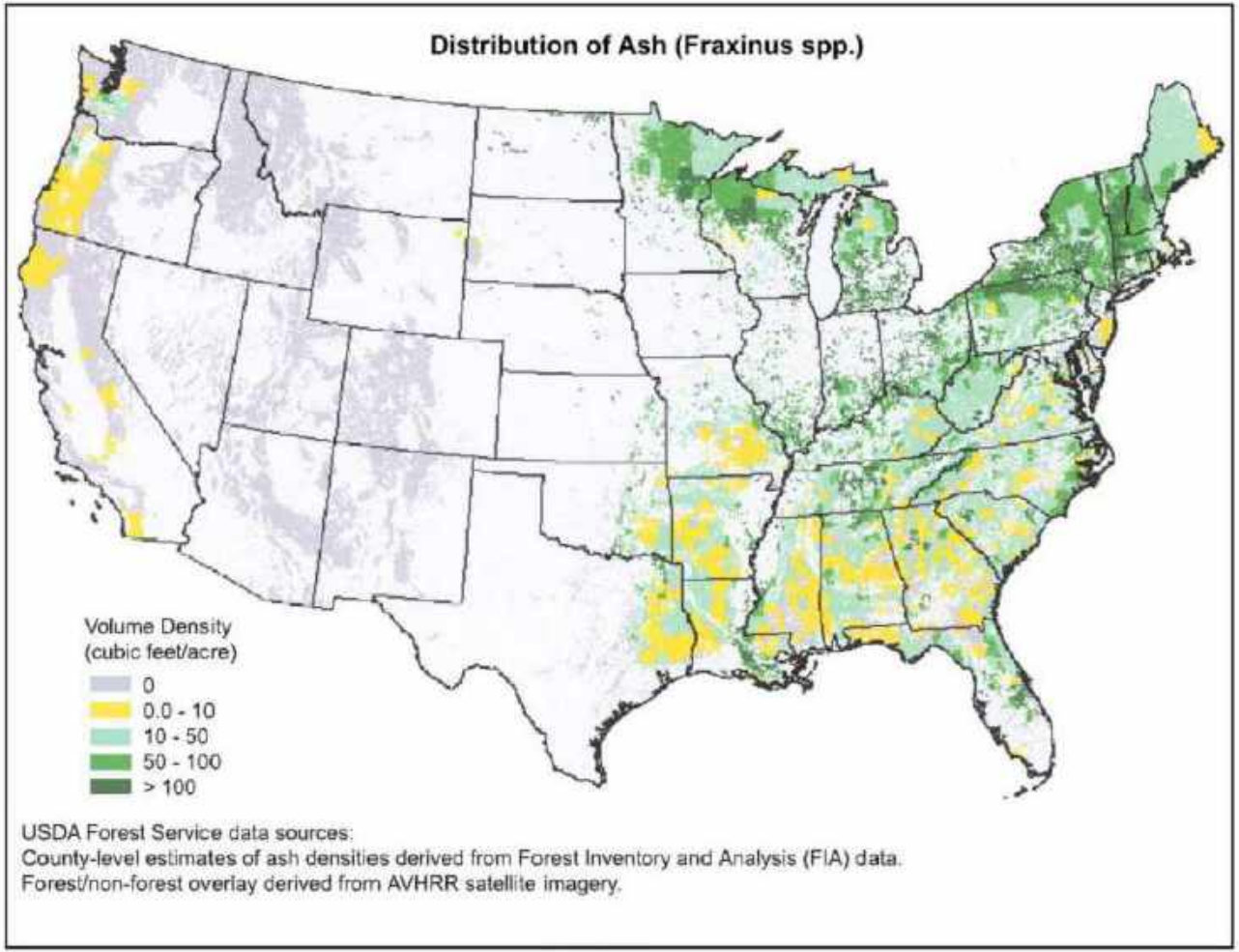
Why is EAB a problem?

- It is a Non-native Invasive Species

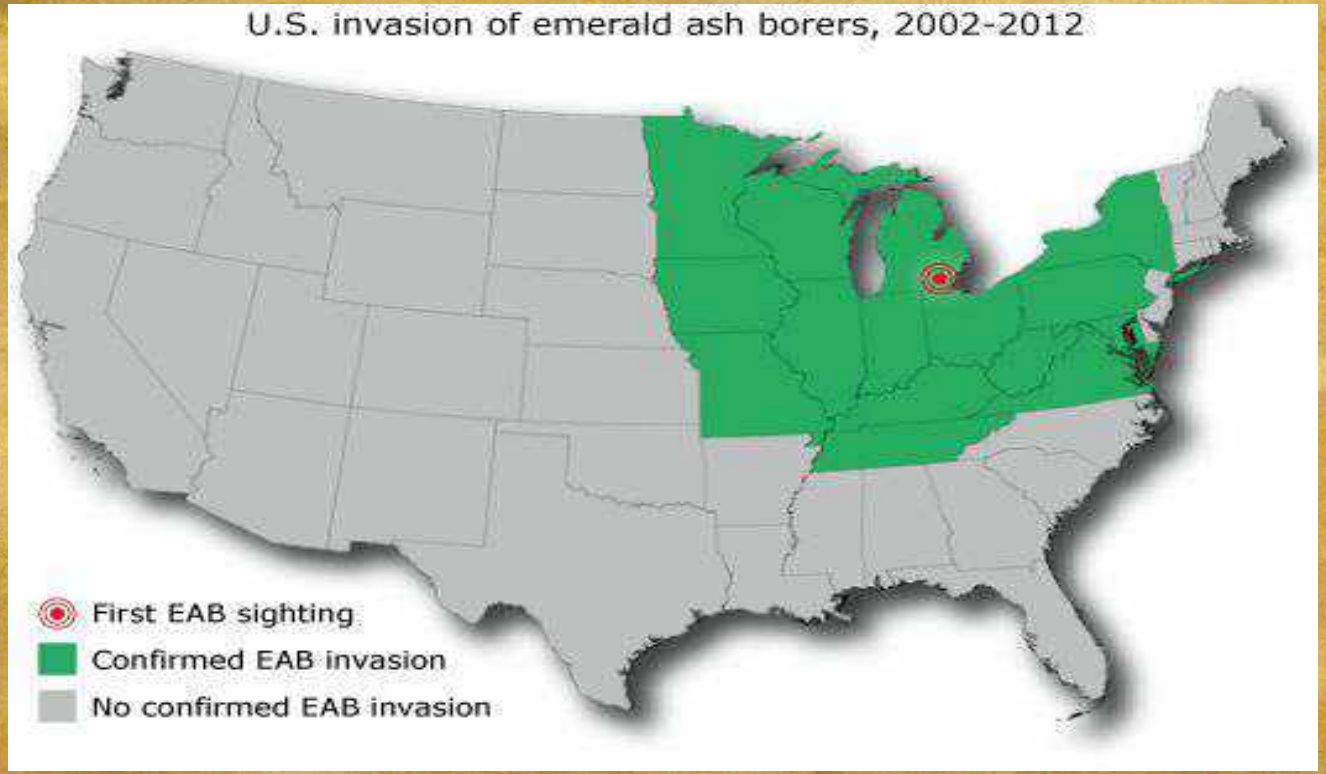
  Non-Native- It currently inhabits an area outside of the historical range where it evolved (China, Japan, Korea, Mongolia, and Eastern Russia)

  Invasive- It does harm to the ecosystem it inhabits

- Ash species have a very large range in North America
- North American ash species are an ideal host
- EAB attacks healthy ash trees
- Not enough predators to control the EAB population
- EAB populations stay until all trees are dead (including saplings and sprouts)

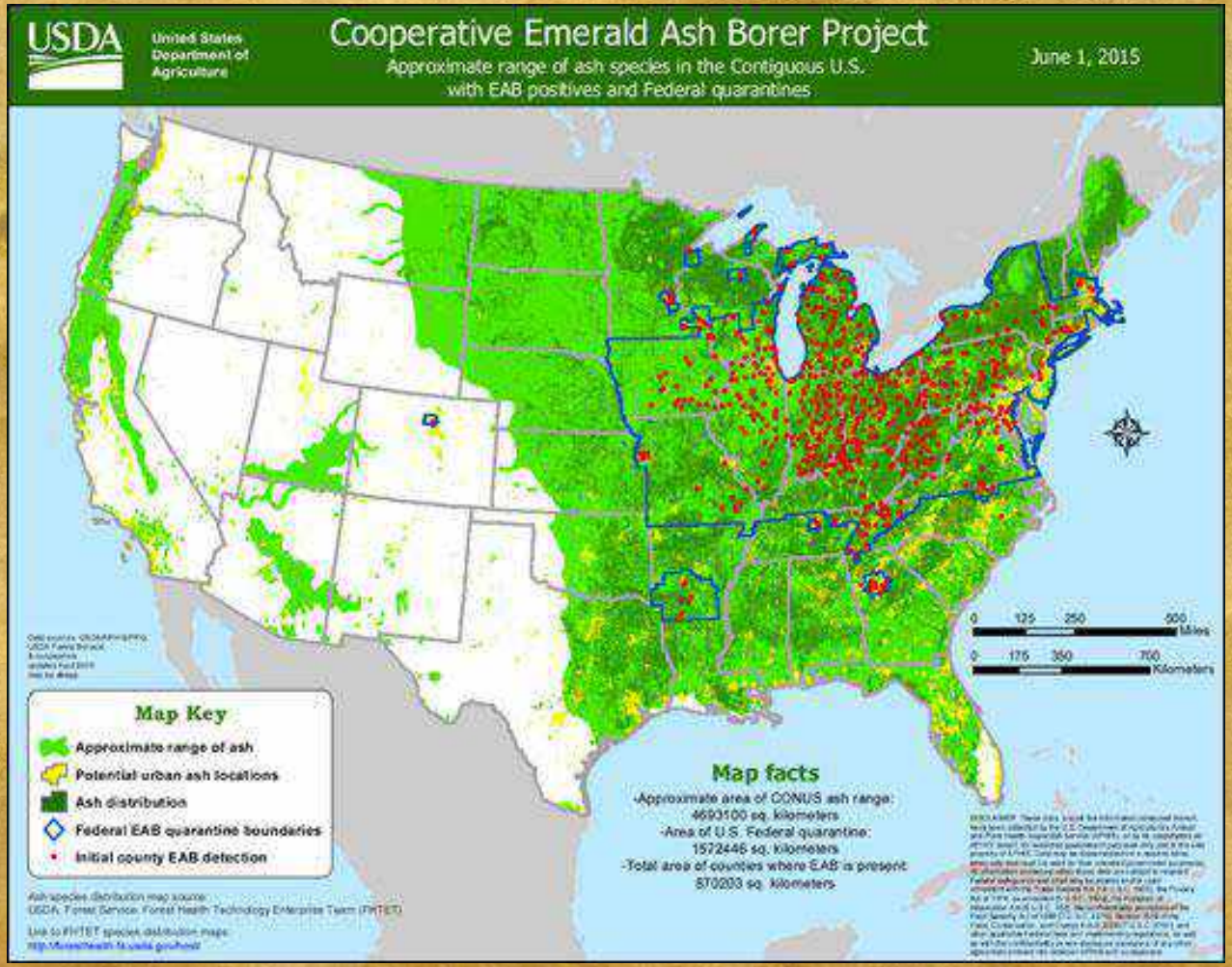

Distribution of Ash (Fraxinus spp.)
Volume Density
(cubic feet/acre)
0
0.0 - 10
10 - 50
50 - 100
> 100
USDA Forest Service data sources:
County-level estimates of ash densities derived from Forest Inventory and Analysis (FIA) data.
Forest/non-forest overlay derived from AVHRR satellite imagery.

2002 - Emerald Ash Borer was discovered feeding on ash trees in Southeastern Michigan and an area across the border in Canada. Initial arrival of EAB likely occurred many years earlier.



How Does EAB Spread?

- EAB can spread naturally by flying to a new host tree...dispersal limited to a few miles a year
- Long distance dispersion occurs when infested wood is transported to a non-infested area


USDA
United States Department of Agriculture
Cooperative Emerald Ash Borer Project
Approximate range of ash species in the Contiguous U.S.
with EAB positives and Federal quarantines
June 1, 2015
0 125 250 500 Miles
0 175 350 700 Kilometers
Map Key
Approximate range of ash
Potential urban ash locations
Ash distribution
Federal EAB quarantine boundaries
Initial county EAB detection
Map facts
-Approximate area of CONUS ash range:
4693100 sq. kilometers
-Area of U.S. Federal quarantine:
1572446 sq. kilometers
-Total area of counties where EAB is present:
870203 sq. kilometers
Ash species distribution map source:
USDA, Forest Service, Forest Health Technology Enterprise Team (FHTET)
Link to FHTET species distribution maps:

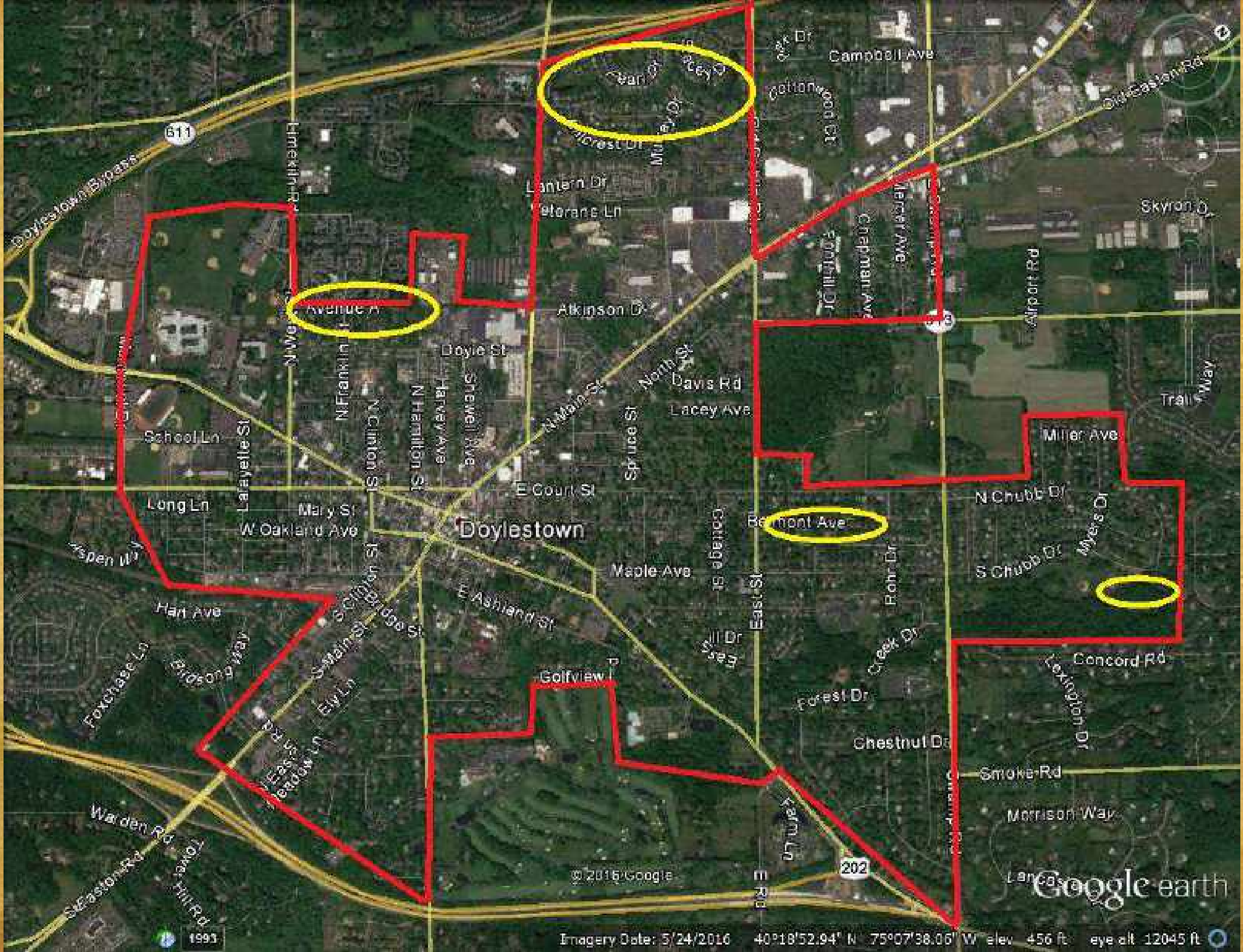
Emerald Ash Borer

Infestation in Pennsylvania

NONE 2008 2010 2012 2014
2007 2009 2011 2013 2015

pennsylvania
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

By May 18, 2015



Campbell Ave
Cottonwood Ct
Old Easton Rd
611
Doylestown Bypass
Lantern Dr
Veterans Ln
Skyron Dr
Atkinson Dr
Avenue A
Doyle St
Davis Rd
Lacey Ave
N Main St
North St
Trails Way
N Franklin St
N Clinton St
N Hamilton St
Harvey Ave
Shewell Ave
Spruce St
Airport Rd
Chapman Ave
Mercer Ave
Miller Ave
School Ln
Lafayette St
E Court St
N Chubb Dr
Long Ln
Mary St
W Oakland Ave
Doylestown
Cottage St
Myers Dr
Maple Ave
S Chubb Dr
Hart Ave
E Ashland St
East St
Rohr Dr
Creek Dr
Concord Rd
Foxchase Ln
Birdsong Way
S Main St
Ely Ln
Golfview
Forest Dr
Lexington Dr
Chestnut Dr
Smoke Rd
Morrison Way
Warden Rd
Farm Ln
202
© 2016 Google
Google earth
Imagery Date: 5/24/2016 40°18'52.94" N 75°07'38.06" W elev 456 ft eye alt 12045 ft
1993

ASH TREE IDENTIFICATION

Across the U.S., ash trees (*fraxinus spp.*) are under attack by the emerald ash borer (EAB), an invasive insect that attacks and kills all native species of ash trees. The information below will help you properly identify ash trees.

Ash trees have an opposite branching pattern, meaning that branches are directly across from each other.

Ash seeds are paddle shaped and occur in clusters. Seeds will typically remain on trees until late fall or early winter.

Ash leaves are compound and typically consist of 5-11 leaflets. The edges of the leaflets may be smooth or toothed.

On mature ash trees, the bark has a distinct pattern of diamond-shaped ridges. Younger ash trees have smoother bark.

Background photo: Keith Kanoti, Maine Forest Service, Bugwood.org. Ash photos: Nebraska Forest Service.


UGA0008014


UGA5110042

Visual Signs and Symptoms

- Varies with Pest Pressure

Tier I: Early infestation
Bark Splitting
Woodpecker foraging

Tier II: Mid level infestation
Woodpecker infestation
Canopy thinning
Epicormic sprouting

Tier III: Heavy infestation
Canopy thinning
Woodpecker foraging
Epicormic sprouting
“D” shaped holes in bark

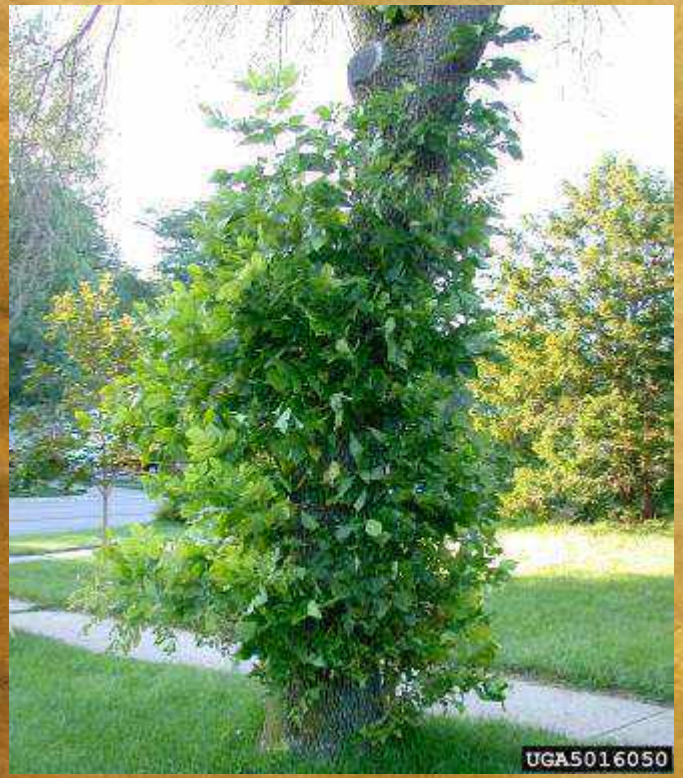
Visual Symptoms/Signs Indicating EAB:

Splits caused by EAB larval feeding/woodpecker foraging

Canopy dieback/thinning

Visual Symptoms/Signs Indicating EAB

Epicormic Sprouting



- Dense clumps of branches (shrub-like)
- Occur along tree trunk or branches where foliage is not common on healthy trees
- Vigorous sprouting, but stems are weak and easy to break

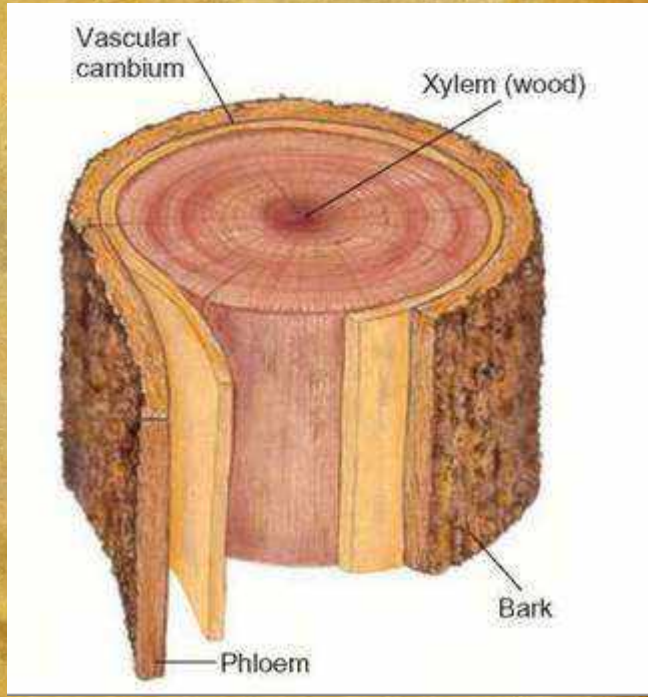
Visual Symptoms/Signs Indicating EAB

Woodpecker feeding

“D” Shaped exit holes

How Does EAB Kill It's Host Trees

- The Cambium layer makes Phloem and Xylem Vascular tissue
- Xylem and Phloem do not regenerate after extensive EAB damage
- EAB consume vascular tissues during their larval stages
- EAB eventually feed their way around the circumference of the tree
- Arborists and foresters refer to trees in this condition as girdled



EAB Larval Galleries - feeding pattern under the bark (Cause of Death)

LIFE CYCLE OF THE EMERALD ASH BORER

1. Female ash borers lay 40 to 70 eggs on the bark of an ash tree.

2. After hatching, the larvae bore into the tree layers just below the bark to feed. They remain there for 1 or 2 years, then pupate into adults.

3. The adults then chew a telltale D-shaped exit hole in the bark.

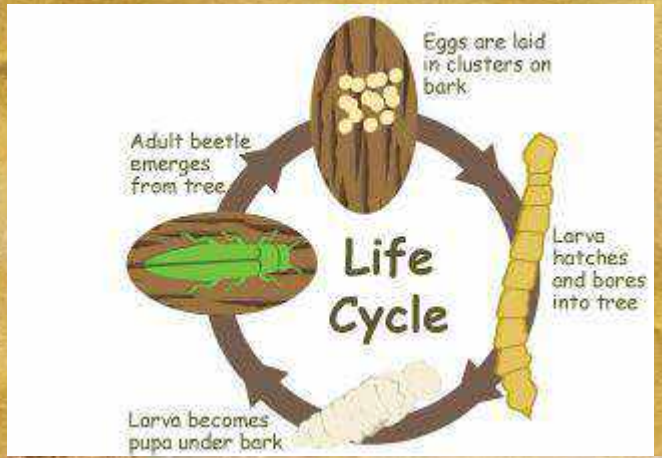
4. Adults, which can fly, then seek out new trees, and the process begins again.

Emerald Ash Borer
(enlarged view)

Actual size

1/2 in. long
1/8 in. wide

Lifecycle of EAB



Before EAB

After EAB

Before EAB

After EAB

How Will EAB Affect Doylestown Borough

- Ash trees on private and public properties including street trees and trees in our parks will die
- Significant loss of tree canopy
- Significant cost to treat and or remove Ash trees
- Cost to plant new trees

What the Homeowner Needs to do!

- ACT NOW!
- Find a Certified Arborist to help with planning and get several opinions/quotes
- Compare the cost of EAB treatments to the cost of taking it down
- If your tree is already infested, your choices are much more limited. Be advised that an infested tree can pose a significant danger on your property. These trees may need to be removed.

NABB
Neighbors Against Bad Bugs
Act now. Save trees. Save $.

Managing Emerald Ash Borer: Decision Guide

DNR
PURDUE UNIVERSITY

Authors:

Begin with an inventory of your ash trees
- How many?
- Where are they?

Do you want to save your ash trees from EAB?

Yes. → **Are some worth saving?**
- Valuable to landscape or owner?
- Healthy and few signs of EAB?
- Located in the right site?

Yes. → **Hire a Tree Care Professional**
- Get at least two estimates
- Hire a certified professional
- Ask for references and insurance

To find one in your area visit:
www.treesaregood.com

Team up with your neighbors and seek discounts for managing all your trees at once!

I don't know. A professional can help.

Determine how big your trees are. Get DBH.

Measure the distance around the trunk (at 4.5 ft. above the ground) and divide it by three to get Diameter at Breast Height.

Are they greater than  **?**

Yes. You will need professional insecticide treatment.

No. → **Homeowners can treat trees themselves.**

Use a soil drench containing imidacloprid. Treat trees between April 1st and May 15th. Always follow all insecticide label directions.

Ensure that drenched area applied to bark soil within 1 ft. of the trunk.

No. → **Ash trees will be killed and need to be cut down.**

Save money. Have unwanted ash removed before they die.

No. → Yes.

Protect your urban forest. Act Now. Save Trees. Save $!

When is the time to start planning?

- Find a reputable Arborist to help with planning and get several opinions/quotes
- Management options will be restricted after the emerald ash borer infests trees on your properties

QUESTIONS

AND

ANSWERS