



# Emerald Ash Borer

in New Jersey

# Emerald Ash Borer (EAB)



## History of the spread

- First discovered in Michigan in 2002
- Infestation likely to have started in 1990's
- Has killed tens of millions of ash in Michigan alone
- Spread to 24 additional states, killing hundreds of millions of ash



2005

2010

2015

# Emerald Ash Borer (EAB)

## Background

- Native to Asia
- Primarily infests true ash in North America
- Will infest white fringetree
- Infestations move  $\approx$ 1 mile per year
- Humans help spread EAB much further

Green ash



White fringetree

# Emerald Ash Borer (EAB)

## Ash distribution in NJ

- NJ has over 24 million ash trees in forested areas
- Green, White, Black, and Pumpkin ash found in NJ
- Ash is a commonly planted tree

### Distribution of Ash on Forest land

#### Basal area (ft<sup>2</sup>/acre)



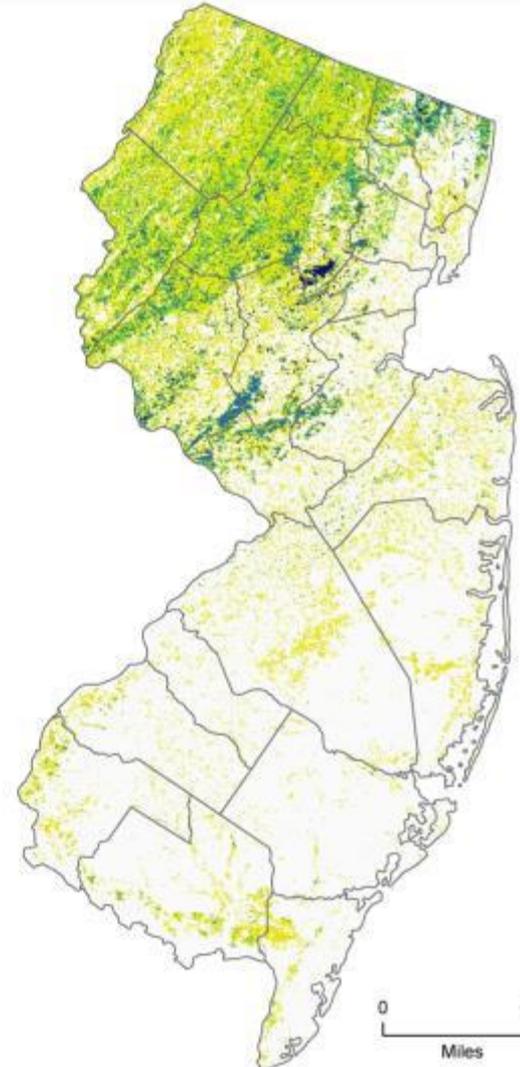
Processing note: This map was produced by linking plot data to MODIS satellite pixels (250 m) using gradient nearest neighbor techniques. The resulting image was resampled to 500 m pixels.

Projection: Albers Equal Area Conic, NAD83.  
Source: U.S. Forest Service, Forest Inventory and Analysis program. Geographic base data provided by the National Atlas of the USA. FIA data and mapping tools are available on-line at <http://fiatools.fs.fed.us>. Data credit: B. T. Wilson and D. Griffith. Cartography: S.J. Crocker. Jan, 2011.

Disclaimer: Information displayed on this map was derived from multiple sources. FIA maps are only for graphic display to meet general reporting purposes. Inquires concerning information displayed on FIA maps, their sources and intended uses should be directed to:



USDA Forest Service  
Northern Research Station  
1992 Folwell Ave., St. Paul, MN



0 25  
Miles

# Ash Tree I.D.

*Fraxinus* species  
true ash

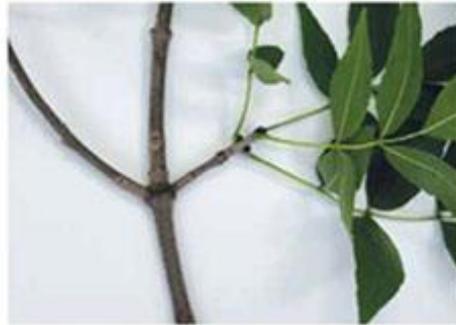
- Opposite branching
- Compound leaf
- Paddle-shaped seed (female trees only)
- Diamond shaped bark



1. Leaves are compound and composed of 5 to 11 leaflets.



2. Seeds on female trees are paddle shaped.



3. Branches and buds are in pairs directly across from each other (opposite branching).



4. Mature bark has diamond-shaped ridges.

Iowa State University - University Extension, SUL21, Jan 2011



# Adult

Active May - August

- Bullet shaped body
- Metallic green in color
- 1/2" long



# Larvae

- White/cream color
- Bell-shaped segments
- Up to 1-1.3" long
- 4 larval stages



## Bark Flecking



## D-shaped exit holes



# Galleries



# Bark Cracks



# Crown Dieback and Epicormic Sprouts



Crown dieback



Epicormic sprouts

# Emerald Ash Borer (*Agrilus planipennis*)

## Detection Methods

### Traps

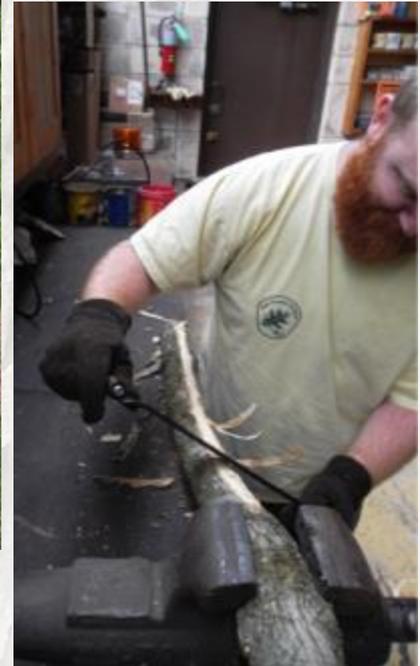
- Purple sticky traps
- Green funnel traps

### Visual

- Woodpecker flecking
- Bark cracks

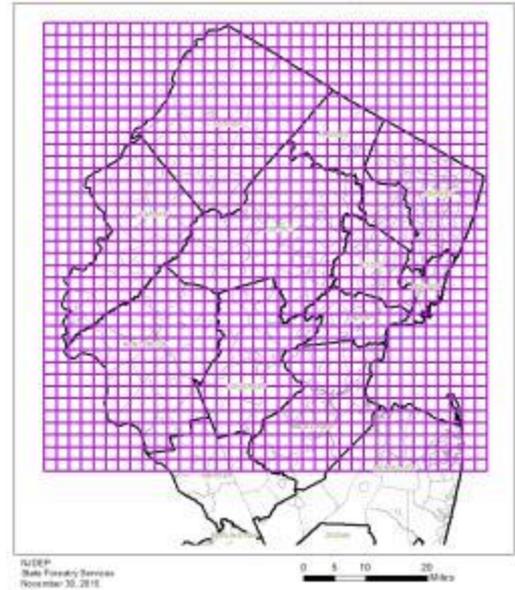
### Detection/trap trees

- Girdle in late spring/early summer
- Cut and peel in winter/spring before adults emerge

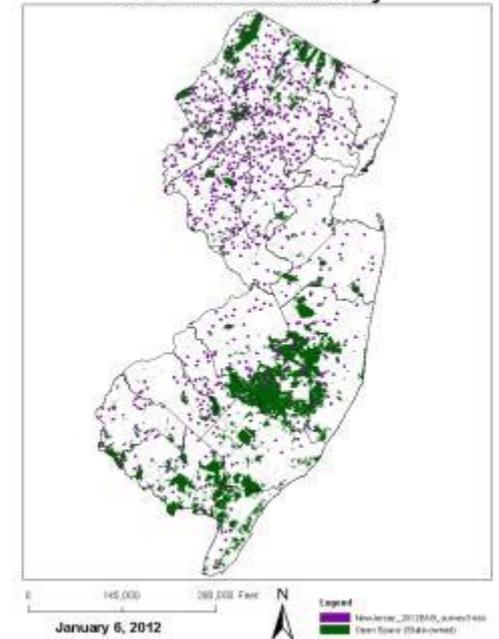


# EAB Survey In NJ

Year	NJ SFS	NJDA/USDA	Total
2015	15 (5 girdled)	66	81
2014	25 (3 girdled)	395	415
2013	24 (2 girdled)	250	274
2012	52	407	459
2011	105	540	645
2010	3	77	80



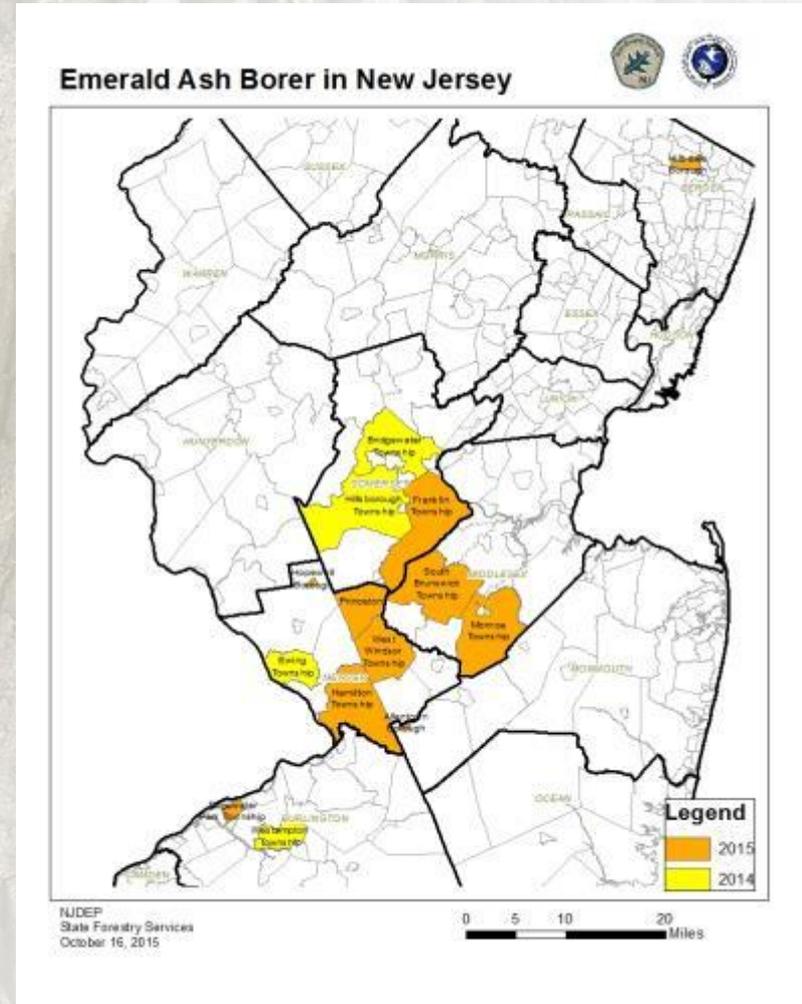
EAB 2012 Grid Survey



# Emerald ash borer in NJ

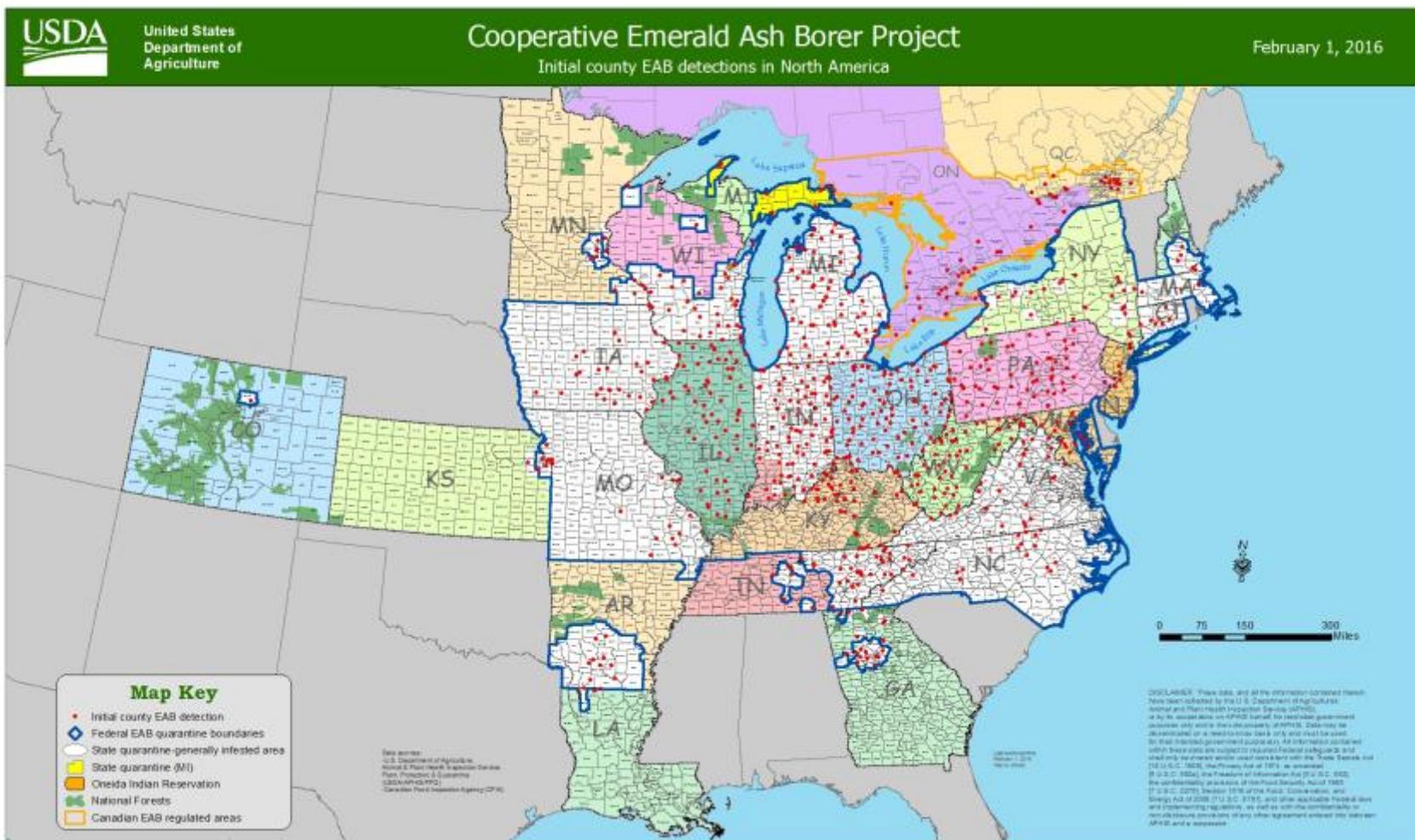
## Detected in 15 municipalities

- First detected in 2014 in Bridgewater and Hillsborough
- Statewide quarantine
- Delimiting Survey
- Develop an EAB Task Force
- NJ specific EAB website



# Emerald Ash Borer (*Agrilus planipennis*)

## EAB Federal Quarantine



# Emerald Ash Borer (*Agrilus planipennis*)

## EAB Response Plan

- Survey
  - Tree removal
  - Insecticide treatments
- Biological Control
- Wood utilization/disposal
- Restoration
- Budget – EAB cost calculator

# Survey

## Locate and evaluate ash trees

- Location
- Diameter
- Overall health
- Notes
- Select trees for treatment
- Select trees for removal



Liberty State Park in Jersey City, NJ

# Survey

## Tree Removal

- Already declining/dead ash trees
- Ash in poor planting locations
- Ash that are not being treated that will pose a risk
- Infested trees



# Minimize EAB Spread

Perform tree work September/October thru March/April



EAB adults present  
May – August in NJ



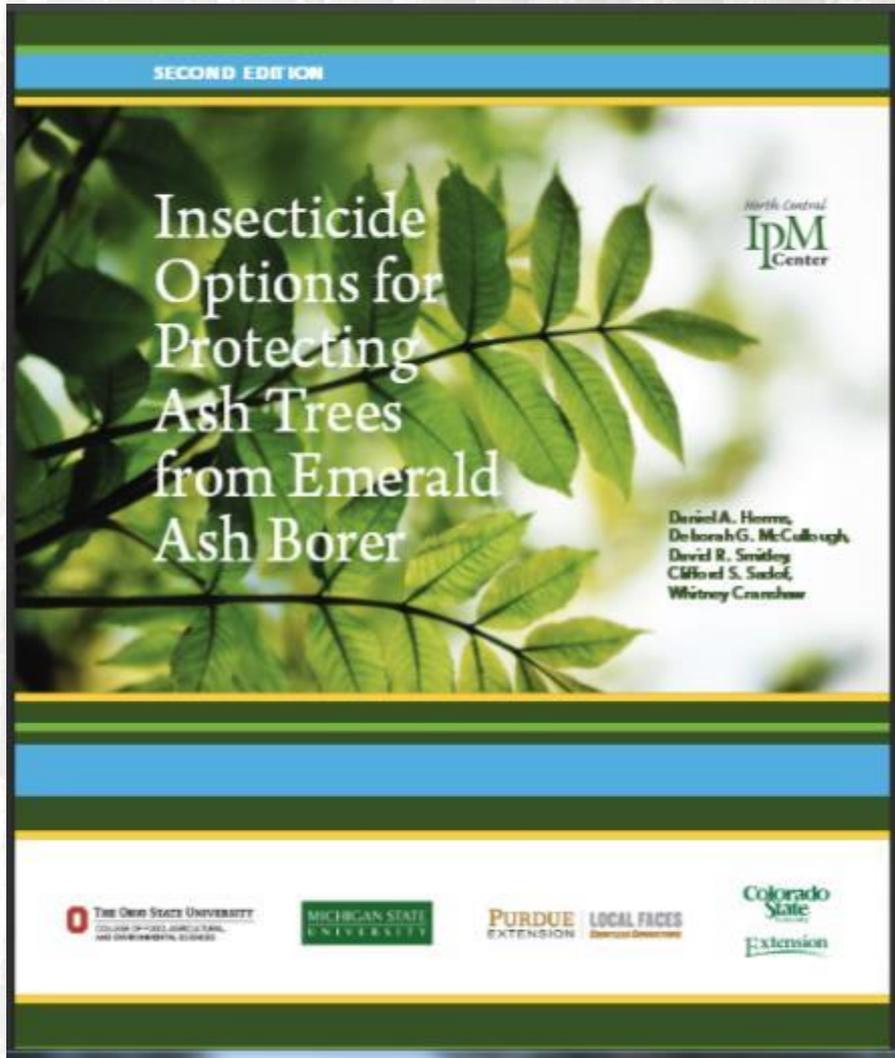
# Survey

## Insecticide Treatment

- Select high-value ash trees
- Insure ash are relatively healthy (>70% live crown)
- Cooperate with neighbors to increase tree numbers to reduce costs



# Insecticide Treatment



Insecticide Formulation	Active Ingredient	Application Method	Recommended Timing
<i>Products Intended for Sale to Professional Applicators</i>			
Mari® (7SWP, 7SWSP, 2F)	Imidacloprid	Soil injection or drench	Early to mid-spring or mid-fall
Safari™ (20 SG)	Dinotefuran	Soil injection or drench	Mid- to late spring
Transact™ (70WSP)	Dinotefuran	Soil injection or drench	Mid- to late spring
Xylan® Liquid Systemic Insecticide	Dinotefuran	Soil injection or drench	Mid- to late spring
Xylact™ (2F, 7SWSP)	Imidacloprid	Soil injection or drench	Early to mid-spring or mid-fall
Azatio™	Azadirachtin	Trunk injection	Mid- to late spring after trees have leafed out
Imicide®	Imidacloprid	Trunk injection	Mid- to late spring after trees have leafed out
TREE-age™	Emamectin benzoate	Trunk injection	Mid- to late spring after trees have leafed out
TreeAzin®	Azadirachtin	Trunk injection	Mid- to late spring after trees have leafed out
Safari™ (20 SG)	Dinotefuran	Systemic bark spray	Mid- to late spring after trees have leafed out
Transact (70 WSP)	Dinotefuran	Systemic bark spray	Mid- to late spring after trees have leafed out
Zylan® Liquid Systemic Insecticide	Dinotefuran	Systemic bark spray	Mid- to late spring after trees have leafed out
Astro®	Permethrin	Preventive trunk, branch, and foliage cover sprays	Two applications at 4-week intervals; first spray should occur at 450-550 degree days (DDP, Jan. 1); coincides with black locust blooming
Oxyx™	Bifenthrin		
Tempo®	Cyfluthrin		
Savio® SL	Carbaryl		
<i>Products Intended for Sale to Homeowners</i>			
Bayer Advanced™ Tree & Shrub Insect Control	Imidacloprid	Soil drench	Early to mid-spring
Optrol™	Imidacloprid	Soil drench	Early to mid-spring
Ortho Tree and Shrub Insect Control Ready to Use Granules®	Dinotefuran	Granules	Mid- to late spring

Posted on our website: [www.emeraldashborer.nj.gov](http://www.emeraldashborer.nj.gov)

Contact a licensed pesticide applicator for assistance

# Biocontrol

Using EAB predators to control/  
suppress EAB populations

- Stingless parasitic wasps
  - *Tetrastichus* - larvae parasite
  - *Oobius* - egg parasite
  - *Spathius* – larvae parasitoid
- Criteria:
  - EAB detected in the area
  - 40 + acre tracts
  - >25% ash of various age classes
  - Relatively healthy ash
  - Areas not slated for development, treatments, tree removal



Photos from [forestryimages.org](http://forestryimages.org)

# Wood Utilization

- Wood has value!
- Can offset tree removal costs
- Utilize wood to keep it out of landfills/waste

Products can include:

- Lumber
  - Portable sawmill
  - Loggers
- Clean chip
- Mulch
- Pellets



# Emerald Ash Borer (*Agrilus planipennis*)

## The Facts about EAB

- EAB will kill 99% of ash trees
- NJ has over 24 million ash trees
- Spreading costs over multiple years is easier to manage than paying all at once
- Start planning and activities before EAB is detected
- Areas within 10-15 miles of a known EAB find are at high risk for EAB infestation
- Doing something is better than doing nothing





# Questions?

[www.EmeraldAshBorer.nj.gov](http://www.EmeraldAshBorer.nj.gov)