



Emerald ash borer  
(*Agrilus planipennis*)



UGA0949056



**HELP!**  
**We're Surrounded!**  
So, how DO we slow down the movement of invasive species?



**Pathways and Transportation Corridors for Alien Invasions**



**Donald A. Eggen, Ph.D.**  
**Pennsylvania Department of Conservation & Natural Resources**





# Overview

- Invasion Pathways – Domestic
- Policy and Management Options
- Recommendations
- Pennsylvania Plans – DCNR and PISC
- Training
- Public Outreach
- Planning & Coordination
- PA Examples & Approach



*Ecological Society of America*

## **Biological Invasions:**

# **Scientific Recommendations for U.S.**

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## Invasion Process

Species in Pathway



Transported and Released Alive



Population Established



Spread



Ecological, Human Health, or Economic Impact

## General Policy and Management Options

Prevention

Early Detection, Rapid Response & Eradication

Slow the Spread & Control

Human Adaptation (bear the costs)

## Specific Recommendations

- 1) Reduce species in pathways
- 2) Institute risk screening
- 3) Detect early
- 4) Eradication rapidly
- 5) Fund slow the spread programs
- 6) Establish Center for Invasive Species Management

# Domestic Pathways



# Busted!





# ***Pennsylvania EAB Task Force***

- Formed in 2003
- Agencies with Major Responsibilities to deal with threat
- Communication, Coordination, Division of Labor – Surveys, Outreach, etc.
- PA Dept of Ag, DCNR, USDA APHIS PPQ, USDA FS, PSU Coop Ext, PennDOT, PA Game Commission, others
- Coordinates activities on EAB, ALB, SOD, Sirex, Exotic bark beetles (EDRR)
- PA External Quarantine on Firewood



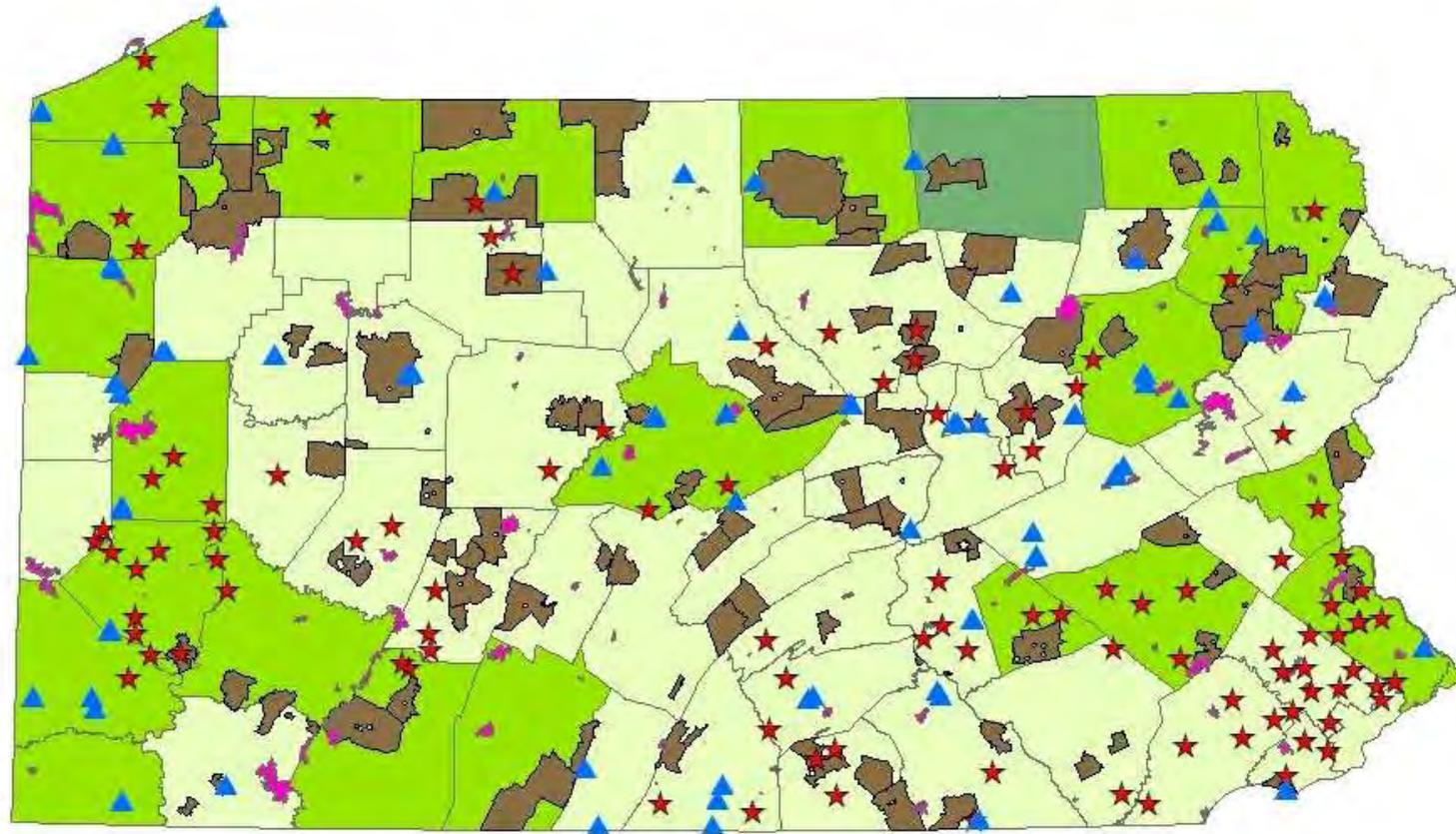


# *Quarantines: What are they good for?*

- Hard to Enforce; Costs; Resources
- Why Bother?
- Posted Speed Limits on Highways
- Good PR
- Catch the Really Bad Guys
- Get the Public Thinking & Asking Questions
- PA Firewood Quarantine



# PA Emerald Ash Borer Risk Map



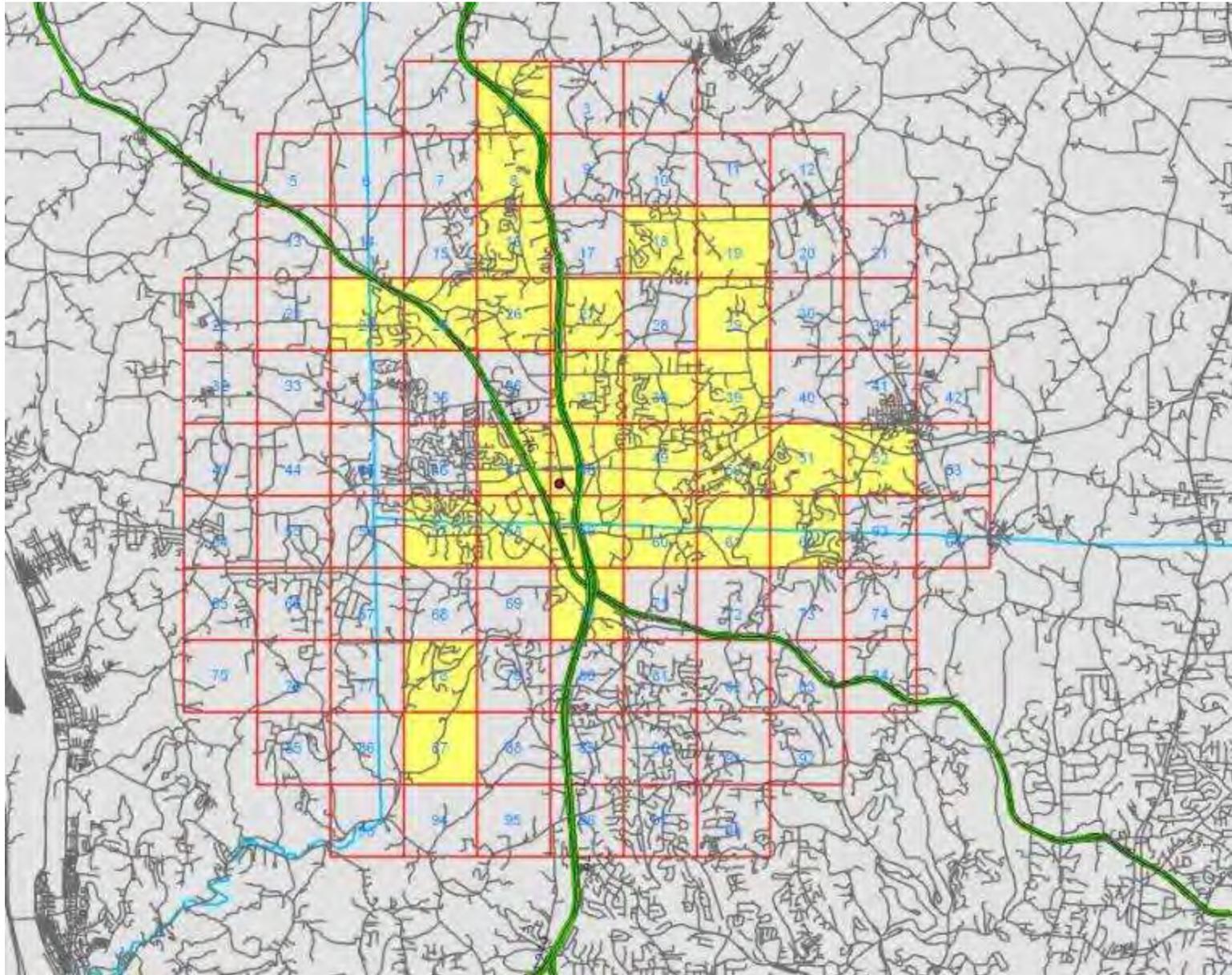
0 25 50 100 Miles

- State Parks
- Rest Areas
- Top PA Ash Nurseries
- Ash Forest Products Dealers (by zip code)

**Ash Component**  
**Millions of Trees / County**

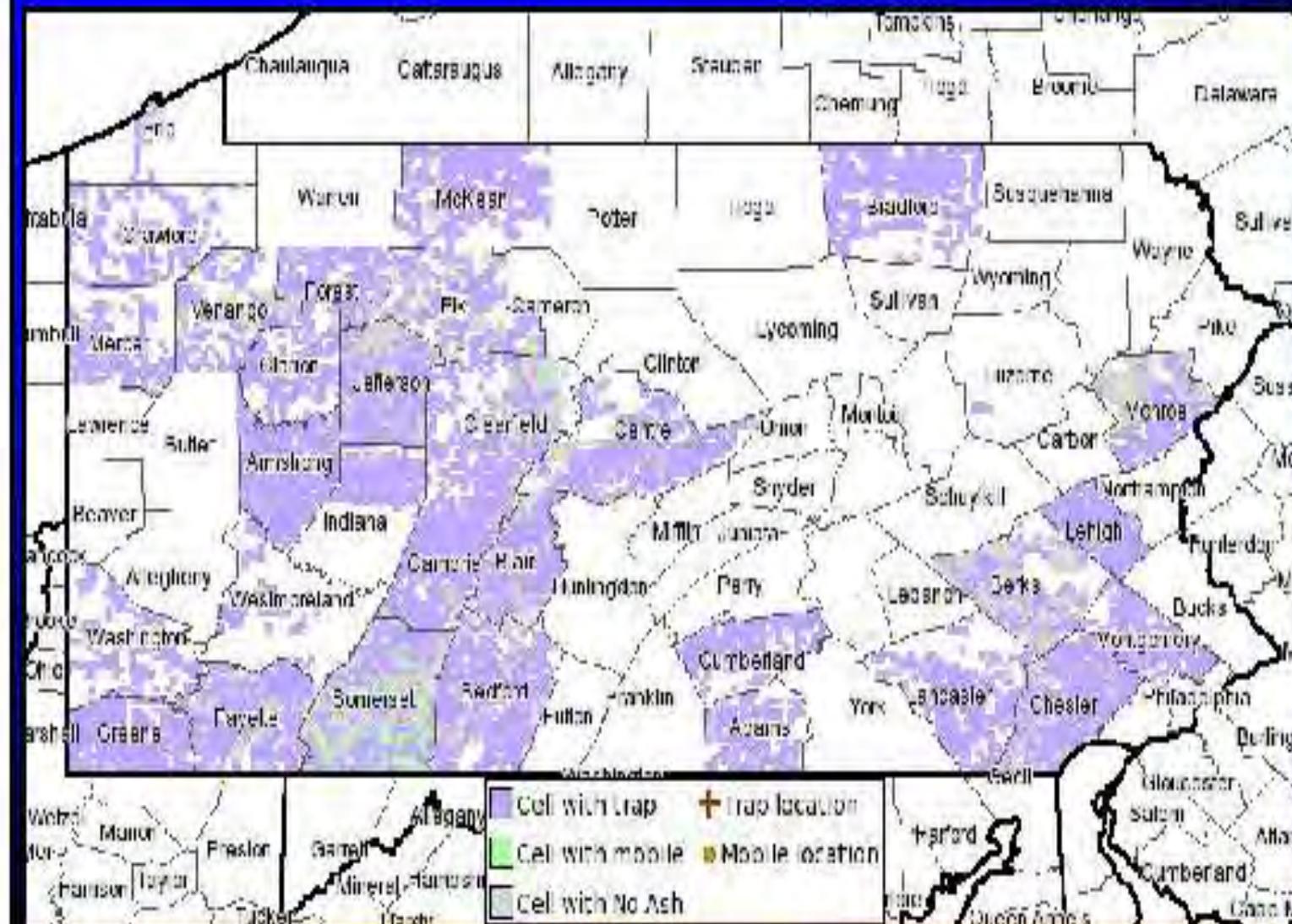
- 0-5
- 5-15
- 15-30

# Butler Co. PA – June 2007



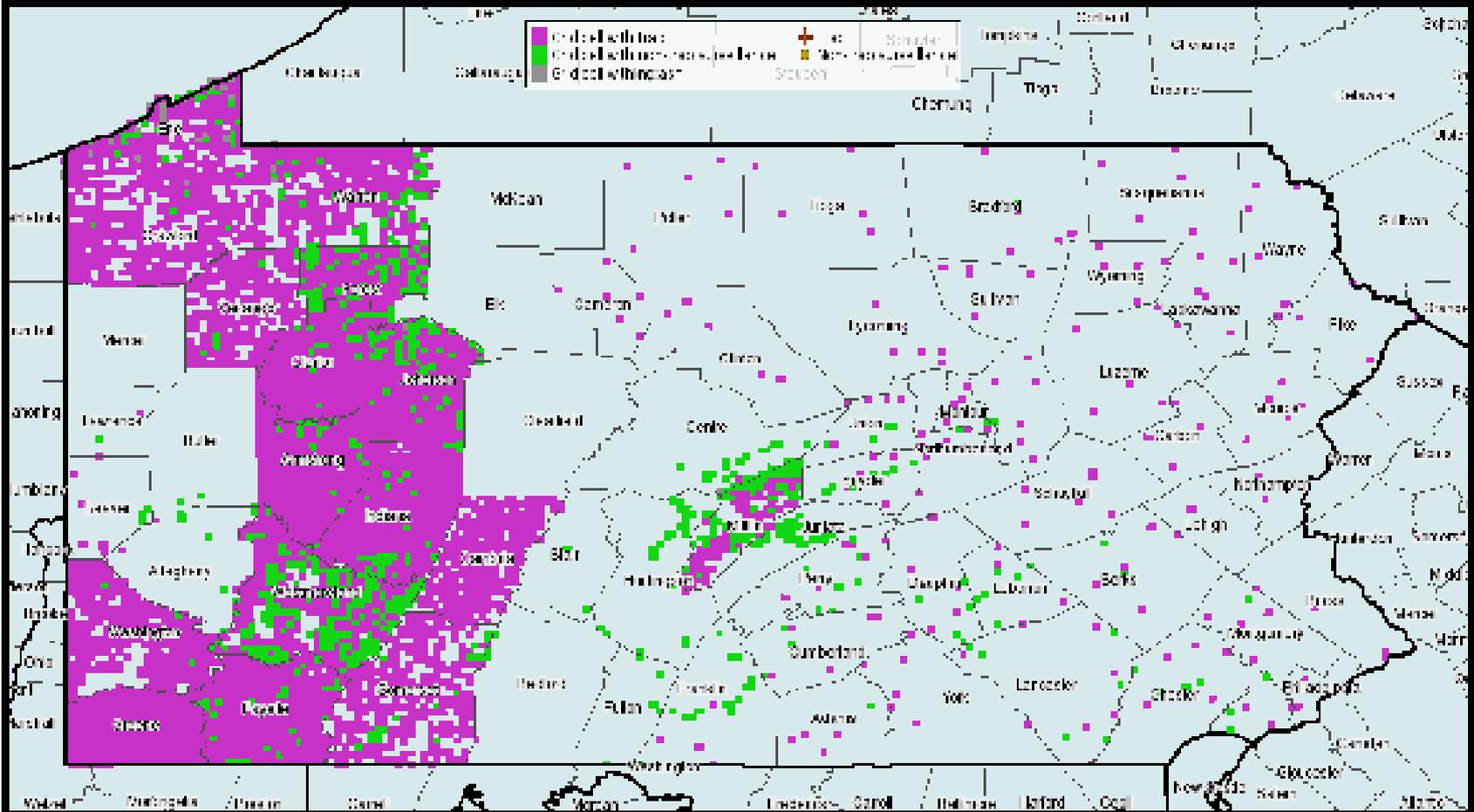
# 2008 Pennsylvania Department of Agriculture Emerald Ash Borer Surveillance

Data uploaded as of 14 July 2008

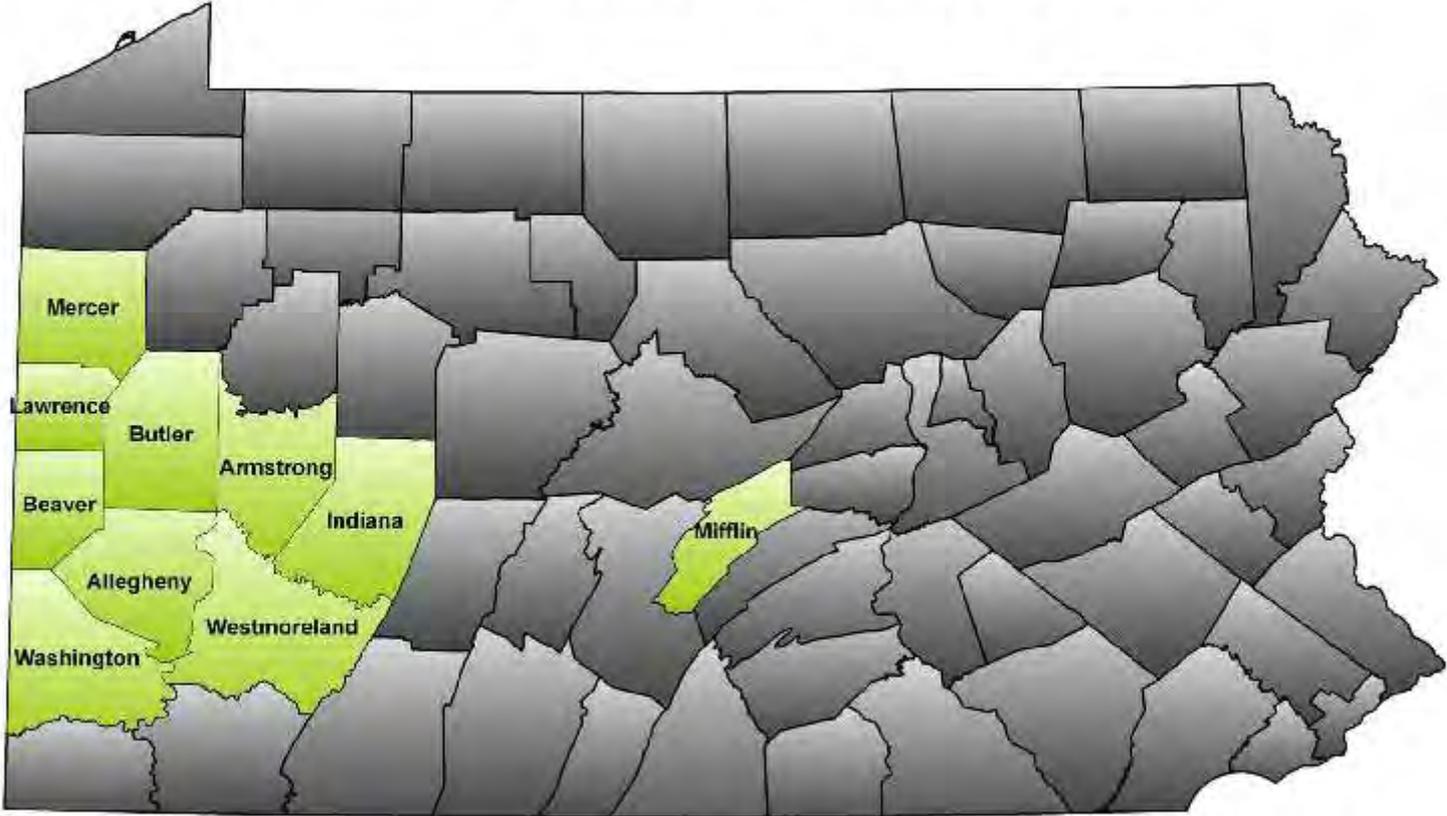


# Survey Coordination

Emerald Ash Borer Surveillance January 1<sup>st</sup> through August 13<sup>th</sup> 2009



# Pennsylvania Department of Agriculture Map of Counties Quarantined for Emerald Ash Borer July 22, 2009



EAB Quarantined County



Non-Quarantined County

# Master Gardener Training Program in Feb. 2009



# ALERT!

*Protect our  
Forests and Trees.*

*Help Stop the Movement  
of Exotic Pests.*



## DO NOT MOVE FIREWOOD!

Exotic pests like the emerald ash borer can be spread when infested firewood is transported to new areas.

- Use **LOCAL** firewood
- Do not bring firewood into PA. This is banned under order of quarantine.
- If you have already transported firewood, do not take it home, do not leave it - **BURN IT!**

# REPORT!

If you think you have  
found emerald ash borer,  
report it by contacting:

PA Department of Agriculture:  
1-866-253-7189

PA Department of Conservation and  
Natural Resources (DCNR)

Penn State Cooperative Extension

or

United States  
Department of Agriculture

or

Report your sighting by e-mail at:  
**Badbug@state.pa.us**

Consult

[www.paemeraldashborer.psu.edu/](http://www.paemeraldashborer.psu.edu/)

or

[www.emeraldashborer.info/](http://www.emeraldashborer.info/)



Pennsylvania Department of  
AGRICULTURE



PA Department of Conservation and Natural Resources



PENN STATE Cooperative Extension



United States Department of Agriculture

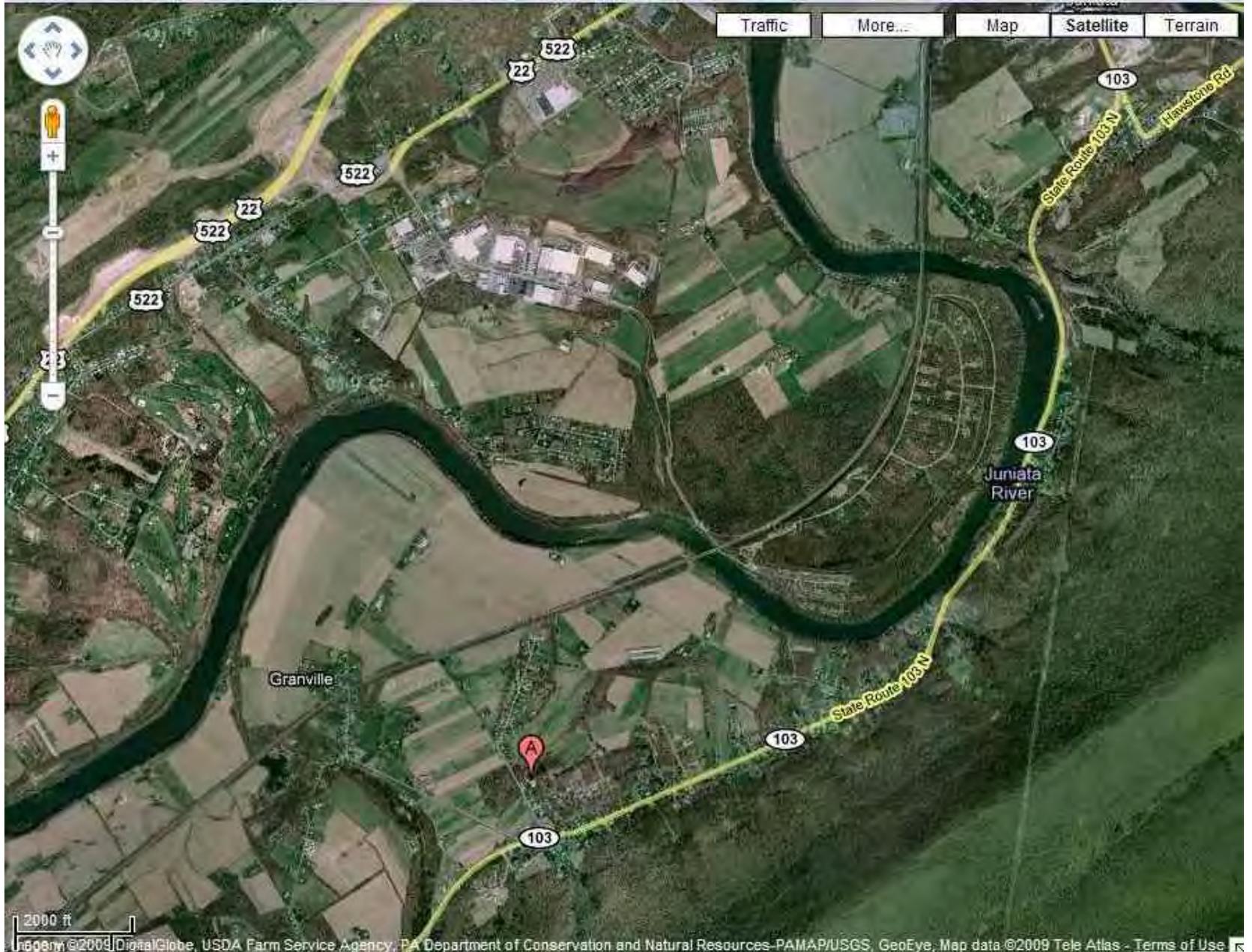
The USDA is an equal opportunity provider and employer. PS-508c

# What is the Emerald Ash Borer?



USDA Forest Service  
Northeastern Area  
State and Private Forestry  
NA-PR-05-04  
Revised January 2008  
(PA)

# EAB – Mifflin Co., PA



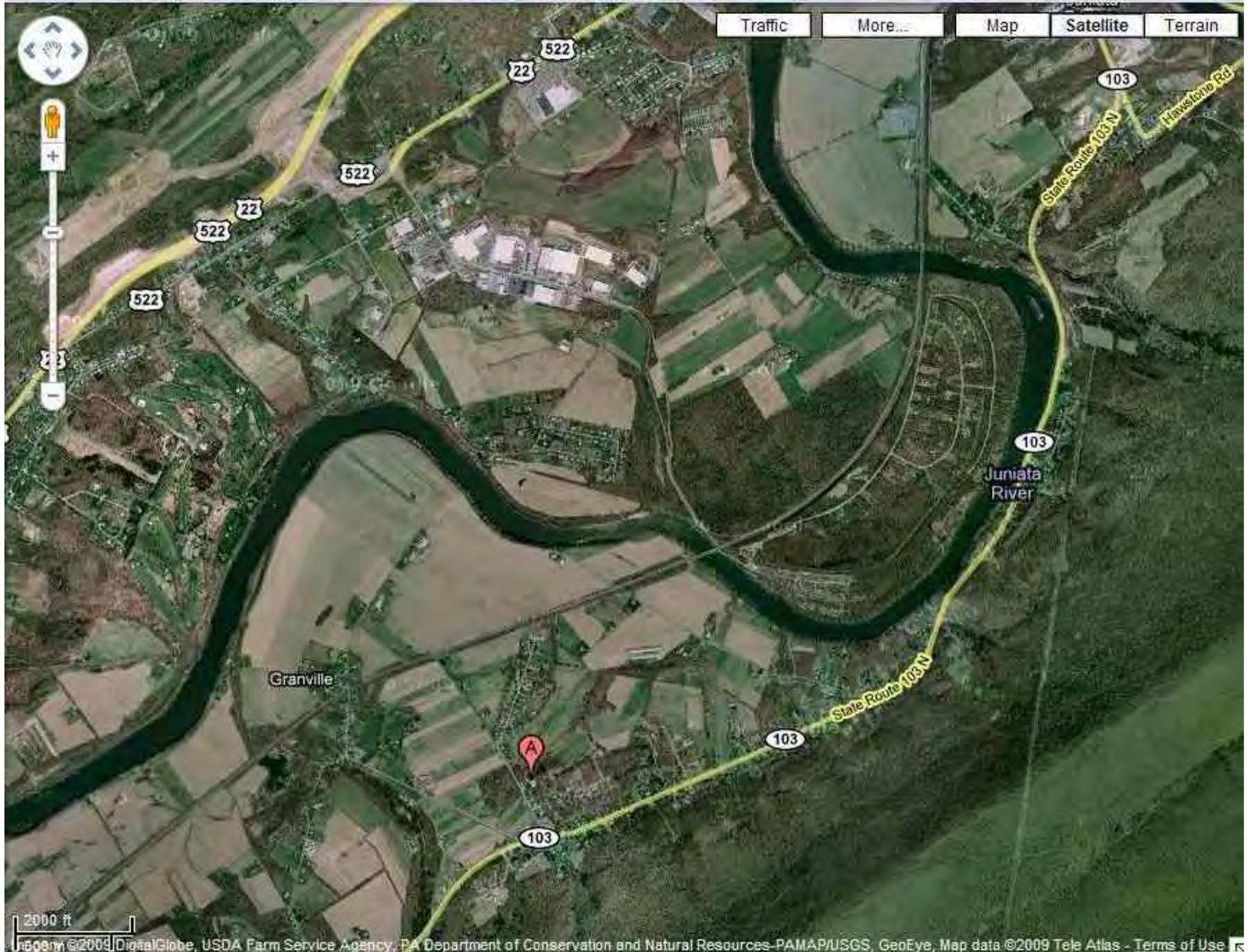
# Mifflin Co. – Woodpecker Activity



# EAB Detection 2009 - Mifflin Co., PA



# EAB – Mifflin Co., PA

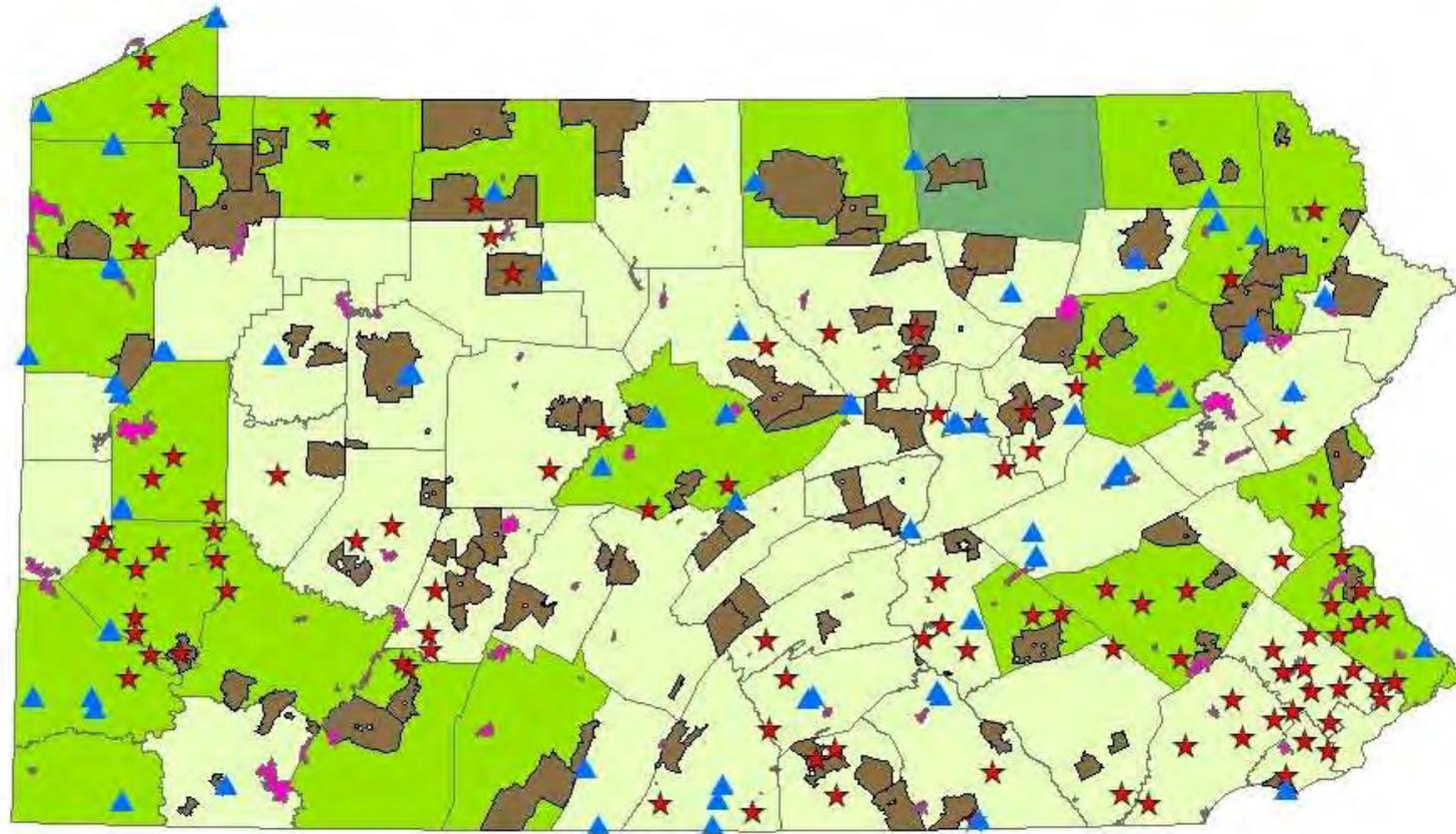


LOOP RD  
T478

INDUSTRIAL PARK RD  
T772

STOP

# PA Emerald Ash Borer Risk Map



0 25 50 100 Miles

- State Parks
- Rest Areas
- Top PA Ash Nurseries
- Ash Forest Products Dealers (by zip code)

**Ash Component**  
**Millions of Trees / County**

- 0-5
- 5-15
- 15-30



# *PA Dept of Conservation & Natural Resources Invasive Species Management Plan*

- August 2005
- Internal Department Plan – Working Document – Update in 2010
- Early focus on **Staff Training**, Communication, Information Sharing, Management of DCNR Forests & State Parks, Policy Review, Grants Awarded, BMPS



# ***DCNR Bureau of Forestry Training***

- 20 Forest Districts in PA Bureau of Forestry
- Each has an Insect & Disease Coordinator
- Each has an Invasive Plant Coordinator – Coordination by Ecological Services Section
- Training Workshops – Penn State, Internal
- State Forest Resource Management Plan
- Landscape Exams
- Department Presentations on Invasive Species
- Result: increased reporting of invasive plant species; quick treatments of spot infestations; firewood policy



# ***DCNR Bureau of State Parks Training***

- 117 State Parks in PA Bureau of State Parks
- Resource Management Division Coordinates Invasive Species Training, Outreach, Management
- Training of Park Staff and Park Rangers
- Increased Coordinated Surveys
- Invasive Species Plan for each State Park
- Result: increased reporting of invasive plant species; quick treatments of spot infestations; treatments of hemlock for HWA
- Firewood policy and enforcement by Park Rangers

## Firewood Advisory

# Attention! Invasive Beetles found in Firewood Threaten Forests

**Before bringing firewood to a Pennsylvania State Park, please read the information below about a very real threat to forests in Pennsylvania and all of North America.**

Firewood may contain non-native insects and plant diseases. Bringing firewood into the park from other areas may accidentally spread pest insects and diseases that threaten park resources and the health of our forests. Management of trees infected with these pests involves drastic measures, such as the complete removal of all trees (infested and otherwise) in the immediate and surrounding areas.

The Asian Long Horned Beetle and Emerald Ash Borer are two insects that can be easily spread in firewood. Although the adult beetle may not be present, the firewood may be infested with the immature stage of these insects.

Movement of any/all firewood from infested and/or quarantine areas is prohibited in accordance with the Pennsylvania Plant Pest Act of 1992. All such regulated firewood will be confiscated and destroyed. First time offenders will be issued a warning letter by Pennsylvania Department of Agriculture, with repeat offenders subject to prosecution according to provisions in the Pennsylvania Plant Pest Act. Even if you are not within a quarantine area using local firewood is best. Do not take wood home with you and do not leave firewood - Burn It!

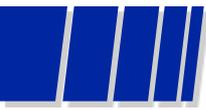
The emerald ash borer has been found in Pennsylvania.

Emerald Ash Borer Beetle Quarantine exists in portions of Michigan, Indiana, Ohio and Pennsylvania. For further information go to: [www.aphis.usda.gov/ppq/ep/eab/quarantine.html](http://www.aphis.usda.gov/ppq/ep/eab/quarantine.html)

This .pdf from the U. S. Department of Agriculture and the National Park Service has pictures of the beetles. [www.nps.gov/acad/pdf/firewood.pdf](http://www.nps.gov/acad/pdf/firewood.pdf)

This Web site has lots of info and videos on the emerald ash borer. [www.dontmovefirewood.org/](http://www.dontmovefirewood.org/)





# *PA Invasive Species Council*

- Governor Executive Order Formed Council in 2004
- PA Invasive Species Management Plan
- Full-time Invasive Species Coordinator: Ashley Walter
- Early Focus on Risk Assessments and Prevention/**Pathways**
- Two Working Groups: Aquatic and Terrestrial



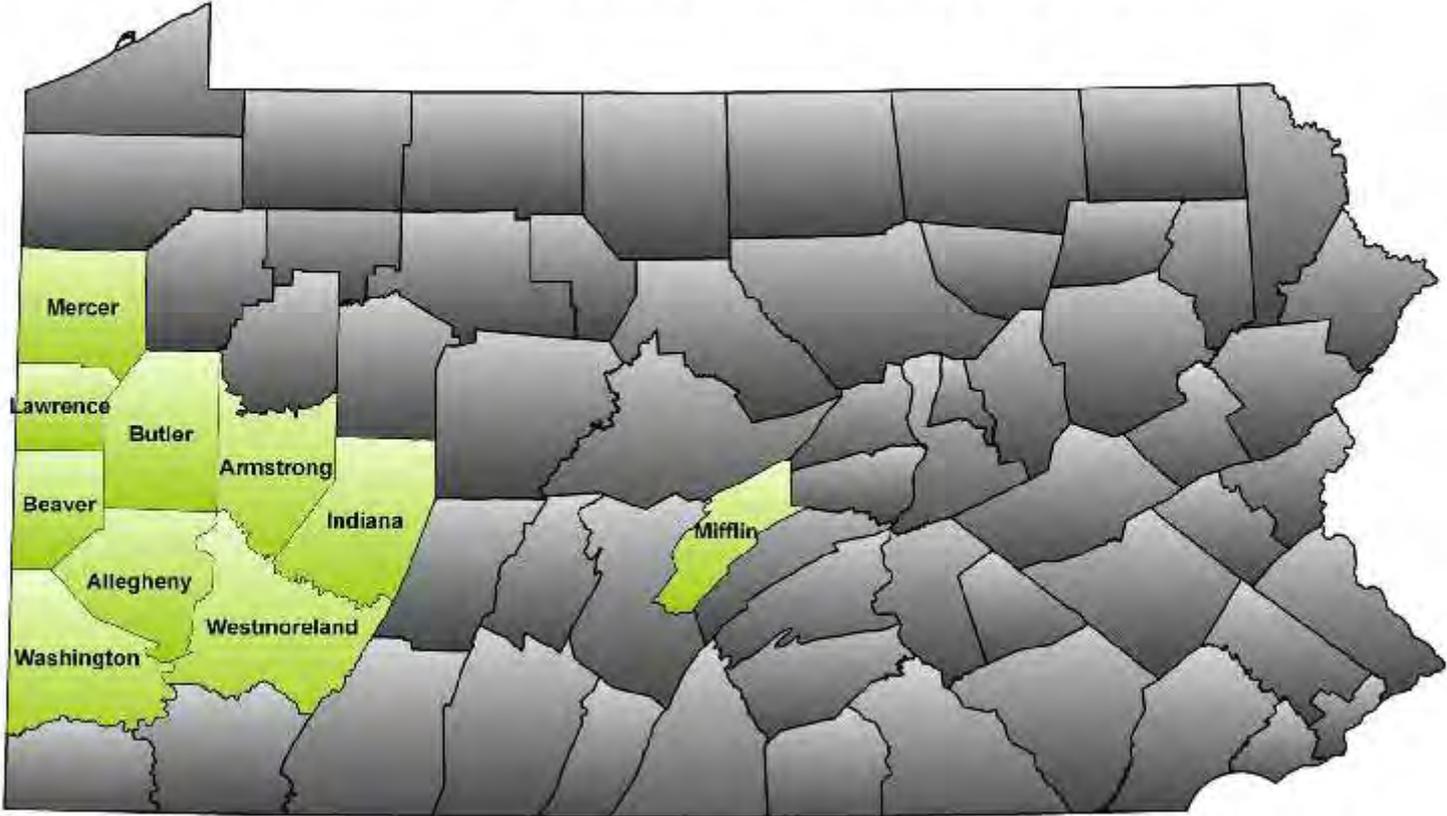


# *Ash Firewood from Ohio*

- Service Forester from the PA Bureau of Forestry
- Saw two Pickup Trucks & trailer with Ohio Plates full of Ash Firewood in Franklin, PA (Venango Co.)
- Tracked Vehicle to Camp near Allegheny National Forest in Forest Co., PA
- Information Turned over to PA Dept of Ag and USDA APHIS IES
- Federal and State Regulations



# Pennsylvania Department of Agriculture Map of Counties Quarantined for Emerald Ash Borer July 22, 2009



 EAB Quarantined County

 Non-Quarantined County



## *Bureau of Forestry Firewood Permits*

- Provide information on EAB and Quarantine
- Permit issued only when they sign document they have received information
- Coordinate with State Plant Regulatory Official
- BOF Controls where firewood is cut and removed from State Forests

# FIREWOOD ALERT

Help stop the movement of exotic pests—

**DON'T MOVE FIREWOOD!**

Exotic wood borers like emerald ash borer, Asian Long-horned beetle and Sirex wood wasp threaten Pennsylvania's forestland. Exotic wood boring insects can become established when infested firewood is transported to new areas.

- Use local sources of firewood
- Do not bring firewood from home
- If you have already brought firewood from home, do not take it back home and do not leave it—BURN IT!

For more information, contact:

**Pennsylvania's Department of Agriculture at**

**1-866-253-7189**

or

report by e-mail at: **[badbug@state.pa.us](mailto:badbug@state.pa.us)**



Emerald ash borer



Asian long-horned beetle



Sirex wood wasp



USDA Forest Service  
NORTHEASTERN AREA  
State and Private Forestry  
NA-PR-02-06 April 2006



PA Department of Conservation and Natural Resources



**DON'T MOVE FIREWOOD**



# ***Training – Pathways – Assessments – Early Detections***

- USDA APHIS PPQ Inspectors – EAB – Western PA
- PA Dept of Ag Inspectors – SOD – Nursery Stock
- Maryland Dept of Ag Inspectors – EAB – Nursery Stock
- PA Dept of Ag - woody debris from NY – ALB – Mulching operation
- Penn State Cooperative Extension/Master Gardener – EAB – Mifflin County, PA detection
- Two USDA ARS researchers – EAB – Randolph, NY – stopped at truck stop on I-86

# EAB is Bigger in PA!



**We** Need to Squash the **Green Bugs!**





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