



# **Invasive Insect Pests**

**Winter Pesticide Recertification Meetings**

## **Virginia Forest Pest Management Update**

**Presented by**

**K. Jason Fisher**

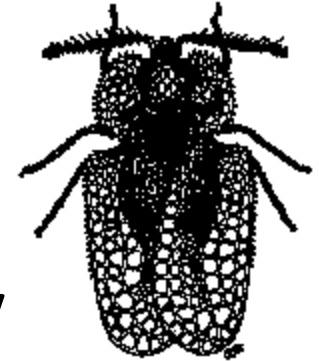
**Extension Agent/ANR**

**Forestry and Natural Resources**



<http://www.idlab.ento.vt.edu/>

**Welcome to the  
Insect Identification Laboratory  
at Virginia Tech**



**A Service for Extension Agents and Citizens of Virginia**



[HTTP://WWW.FORESTPESTS.ORG/](http://www.forestpests.org/)

# “BUGWOOD”



## Insects

[Foliage Feeding](#)

[Bark Beetles and Phloem Boring](#)

[Wood Boring](#)

[Terminal, Shoot, Twig and Root](#)

[Seed, Cone, Flower and Fruit](#)

[Sapsucking Insects and Mites](#)

[Gall Makers](#)

[Other Important Insects](#)

<http://www.hungrypests.com/>

Also visit:

<http://www.hungrypests.com/>



# A FEW PHONE CALLS THIS SPRING WERE FROM PERIODICAL CICADA





# FORECASTS FOR THE “CHOIR BOYS”

County	17 - year	13 - year
Brunswick	2012	2011
Buckingham	2013	
Cumberland	2013	
Lunenburg	2013	
Prince Edward	2013, 2017	
Pittsylvania	2013, 2020	

**Exit Holes from  
emerging pupae**





# Concerns only on fruit crops





2002 17 Year Cicada emergence map



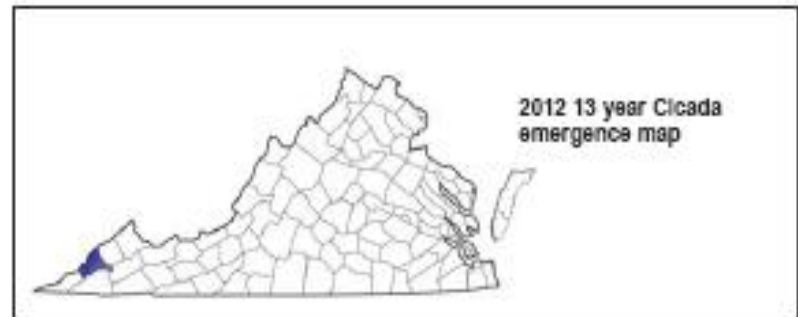
2003 17 Year Cicada emergence map



2004 17 Year Cicada emergence map



2012 17 Year Cicada emergence map



2012 13 year Cicada emergence map

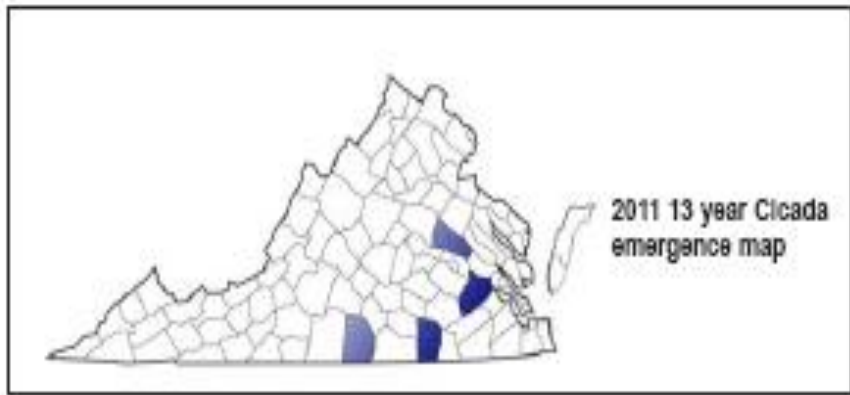


2013 17 Year Cicada emergence map





2011 17 Year Cicada emergence map



2011 13 year Cicada emergence map



2016 17 Year Cicada emergence map



2017 17 Year Cicada emergence map



# Emerald Ash Borer Update

## Emerald Ash Borer - *Agrilus planipennis* Fairmaire, 1888



Adult emerald ash borer  
Photo by: David Cappaert,  
Michigan State University



Michigan Department of Agriculture

### Quarantine Information

All movement of hardwood firewood, ash wood and wood products in Virginia and other quarantined areas is regulated. The following items may not be moved from quarantined areas without a compliance agreement:

- all hardwood firewood
- ash nursery stock
- ash green lumber

[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/emerald\\_ash\\_b/background.shtml](http://www.aphis.usda.gov/plant_health/plant_pest_info/emerald_ash_b/background.shtml)

- ash waste
- ash compost
- ash chips



# Emerald Ash Borer

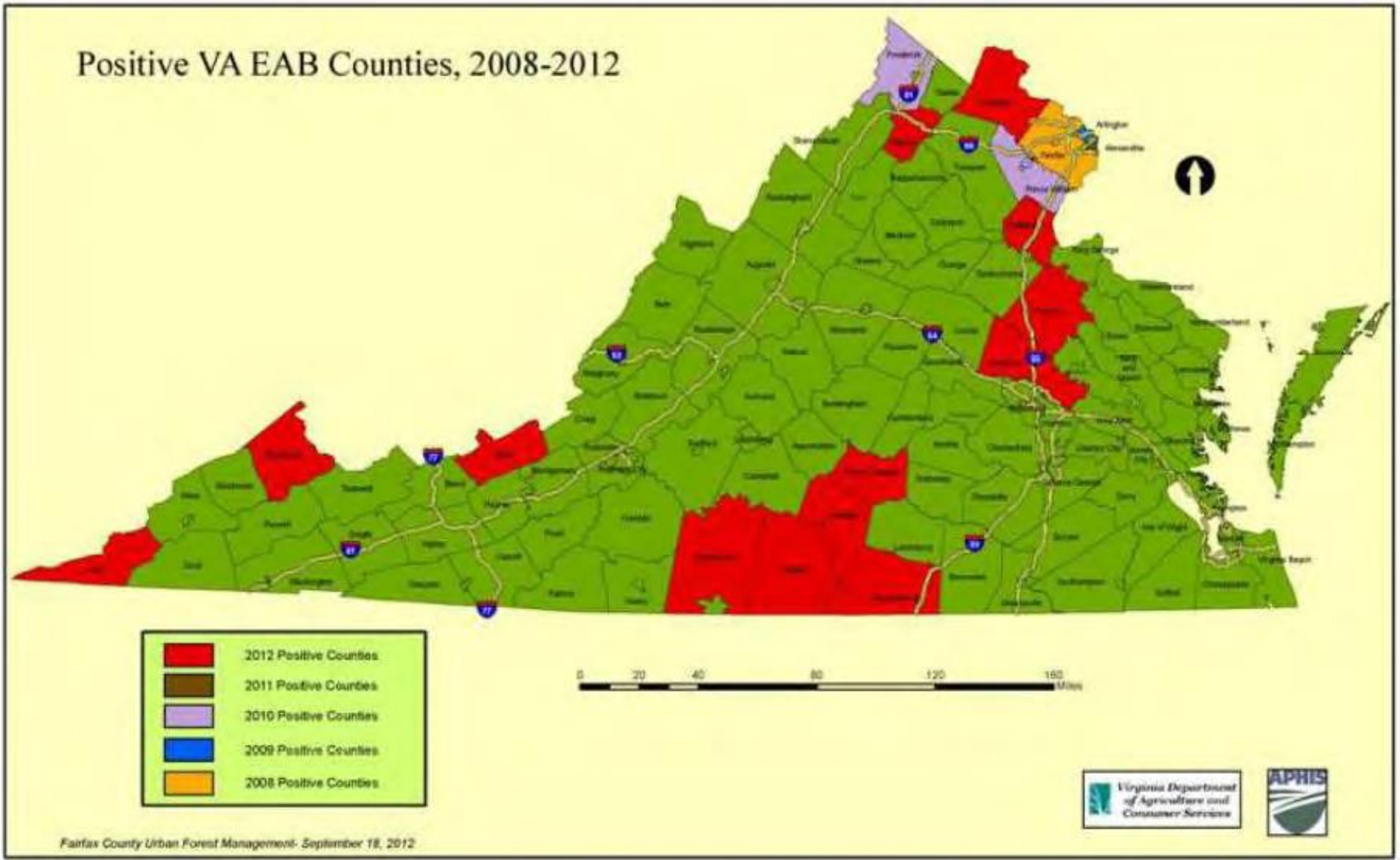
## History FACTS

- First identified in Michigan in 2002
- Detected in Ohio in 2003
- Northern Indiana in 2004
- Northern Illinois and Maryland in 2006
- Western Pennsylvania and West Virginia in 2007
- **Wisconsin, Missouri, and Virginia in 2008**
- Minnesota and New York in 2009



# Emerald Ash Borer Update

Positive VA EAB Counties, 2008-2012





# Cooperative Emerald Ash Borer Project

## Federal EAB Quarantine & Authorized Transit

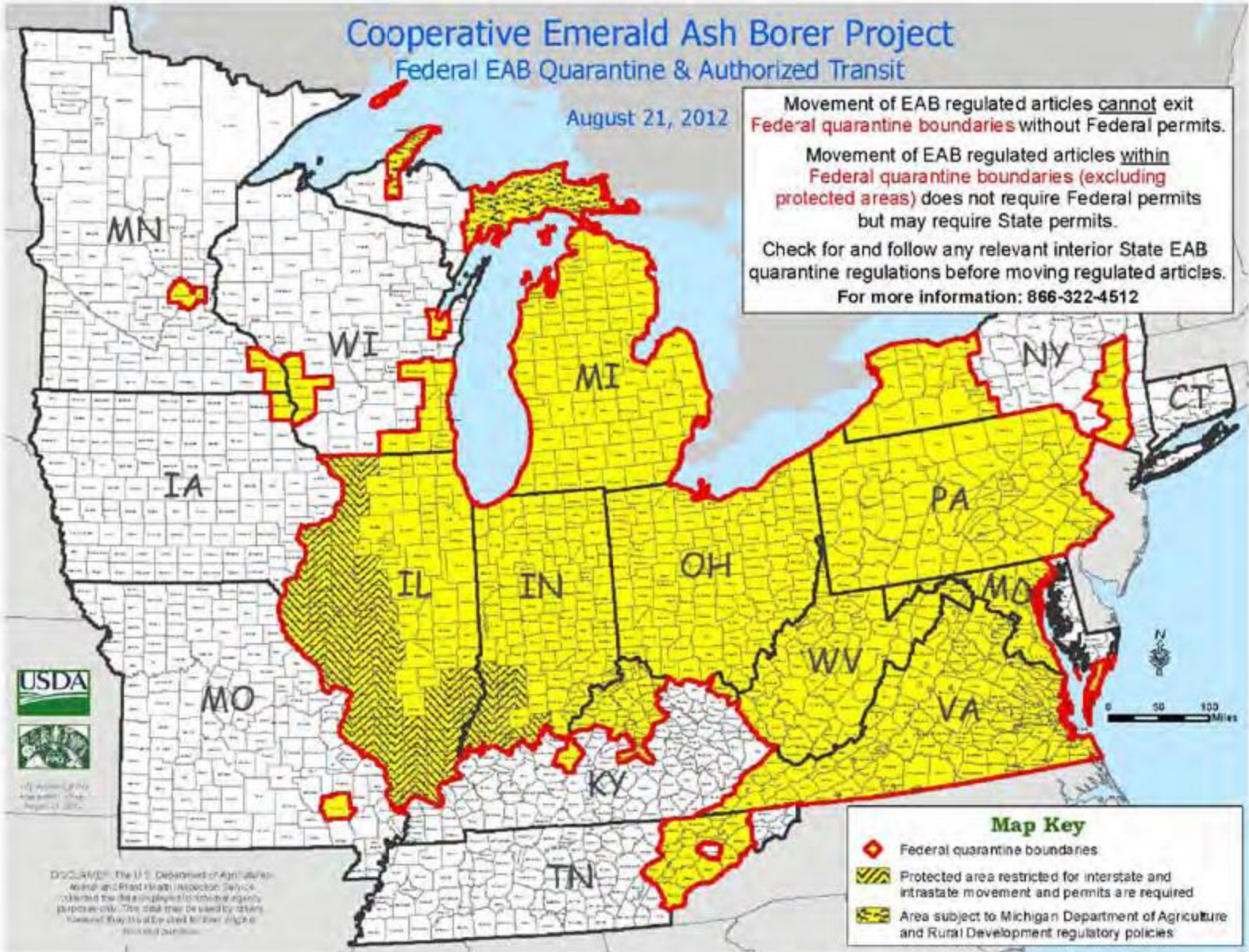
August 21, 2012

Movement of EAB regulated articles cannot exit Federal quarantine boundaries without Federal permits.

Movement of EAB regulated articles within Federal quarantine boundaries (excluding protected areas) does not require Federal permits but may require State permits.

Check for and follow any relevant interior State EAB quarantine regulations before moving regulated articles.




For more information: 866-322-4512



U.S. Department of Agriculture  
Forest Service

DISCLAIMER: The U.S. Department of Agriculture Forest and Plant Health Inspection Service compiled the data displayed on this map for informational purposes only. The data may be used by others without liability to the United States Forest Service.

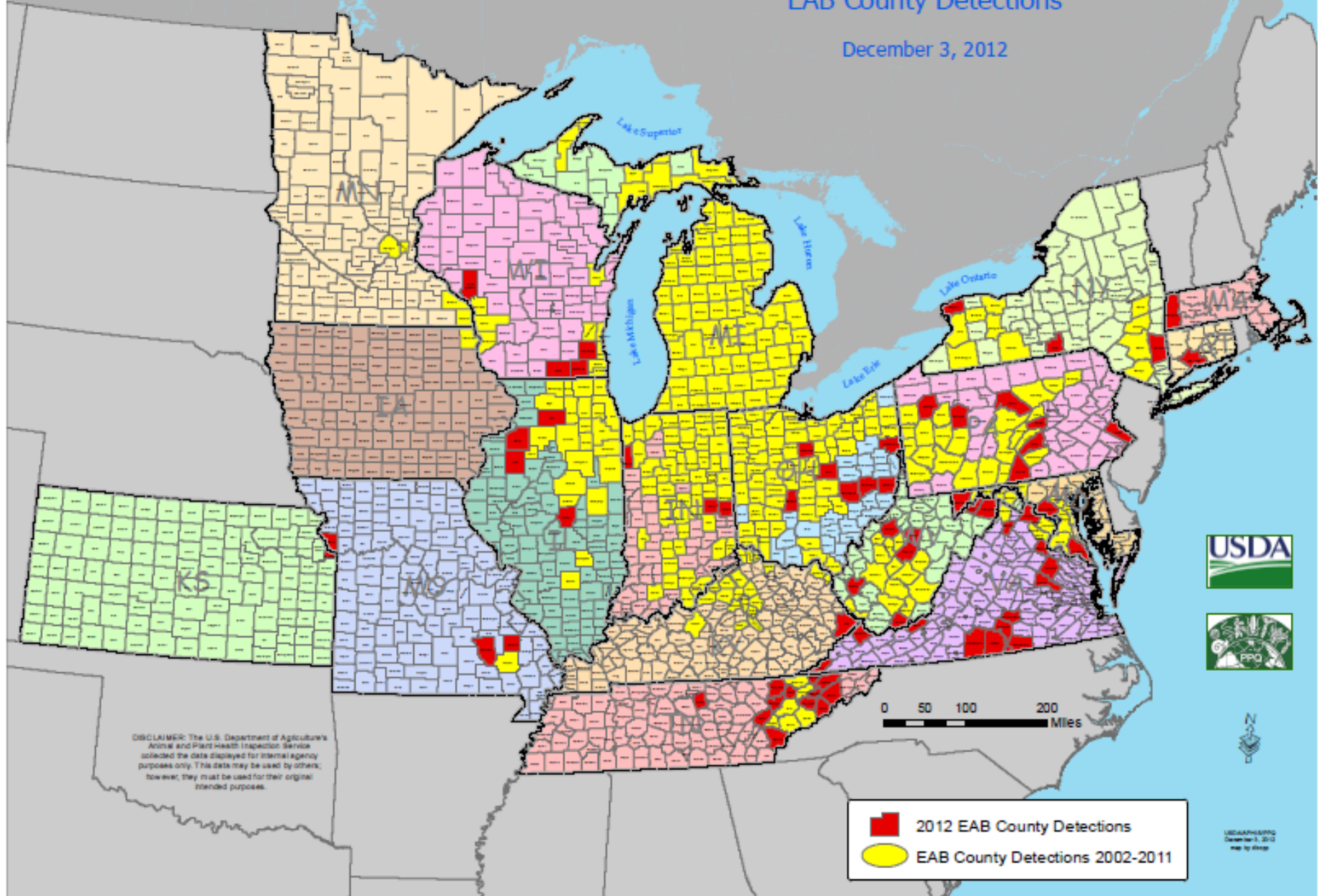
### Map Key

-  Federal quarantine boundaries
-  Protected area restricted for interstate and intrastate movement and permits are required
-  Area subject to Michigan Department of Agriculture and Rural Development regulatory policies

# Cooperative Emerald Ash Borer Project



## EAB County Detections

December 3, 2012



DISCLAIMER: The U.S. Department of Agriculture's Animal and Plant Health Inspection Service collected the data displayed for internal agency purposes only. This data may be used by others; however, they must be used for their original intended purposes.

0 50 100 200 Miles

-  2012 EAB County Detections
-  EAB County Detections 2002-2011



USDA/APHIS/PPQ  
December 3, 2012  
map by Gloger



# EAB Control



- Systemic options for parks and public areas

## **Research options with variable to little success have included: (USFS)**

1. Imicide using Mauget capsules (has 10% imidacloprid)
2. Trunk injection with emamectin benzoate
3. A non-invasive trunk spray of Macho 2F (imidacloprid) + Pentra Bark (disease efficacy)

Biological Control – mainly parasitic wasps

[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/emerald\\_ash\\_b/downloads/eab-biocontrol.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/emerald_ash_b/downloads/eab-biocontrol.pdf)



# Halifax Initial EAB find







# Dead and dying Ash



# D-shaped exit holes







# EAB Recommendations

- Do not move firewood – buy it and burn it locally!
- Historical and “sensitive” sites may be treated with imidacloprid as a soil drench in late March – caution of toxicity to pollinating insects and upland game birds if used in pelletized form
- Conduct a salvage cut before infestation occurs; recommend chipping within 18 months of infestation
- Visit <http://www.hungrypests.com/the-threat/emerald-ash-borer.php>



# EAB Contacts

- **Virginia:** [Quarantine Information](#)
- Contact The Virginia Department of Agriculture and Consumer Services: 804-786-3515 for permits or quarantine questions.
- Or Virginia Cooperative Extension Agent Jason Fisher at 434-476-2147 – [jasonf@vt.edu](mailto:jasonf@vt.edu)
- Local VA Department of Forestry State Forester – see [www.vdof.virginia.gov](http://www.vdof.virginia.gov)

# Asian Longhorn Beetle

New York 1988  
Chicago 1991



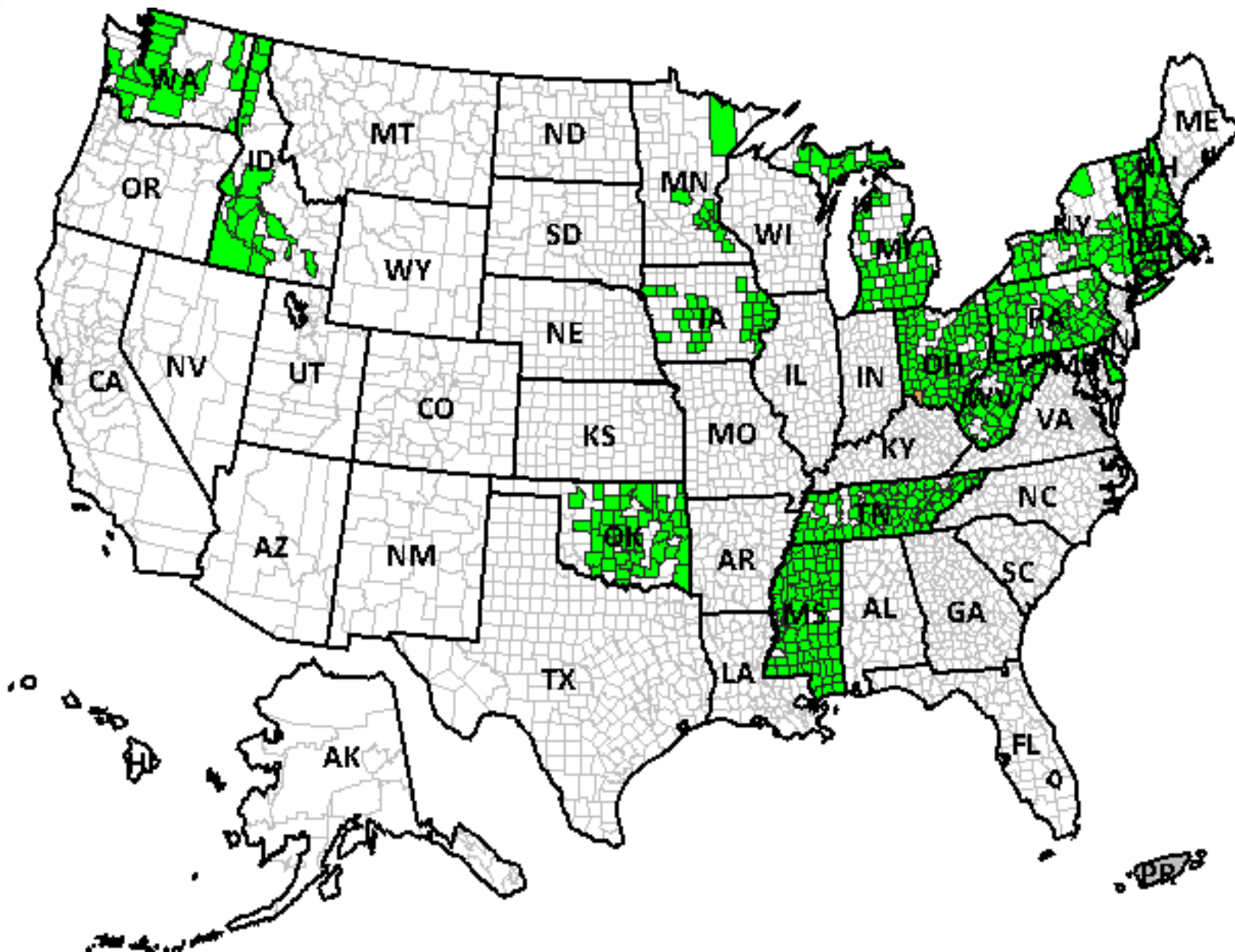
UGA1262001



UGA4798041

# 2010 to present

source <http://pest.ceris.purdue.edu/map>





# Host tree species for ALB

Male



Female

**Good Hosts** – Maple family, Elm family, Birch and Sycamore

**Occasional hosts** – Mimosa, hackberry, ash, poplar,

**Questionable hosts** – fruit trees, oak, black locust, basswood, alder

**Unlikely** – chinaberry, tree of heaven





# www.invasivespecies.gov

- [New Pheromone Traps Lure Asian Longhorned Beetles out of Hiding](#) (Winter 2012)

*USDA. Forest Service.*

Entomologists from the U.S. Forest Service's Northern Research Station and Pennsylvania State University have developed a pheromone trap that lures Asian long-horned beetles out of hiding. Although it is not a treatment that can kill lots of beetles, this new trap is a major step forward in being able to detect the beetle. It may be used for finding outliers and hidden infestations in quarantine zones and standing sentry in high-risk areas



*Dendroctonus frontalis*

Zimmermann, 1868

English Common Name: southern pine beetle

Taxonomic Rank: Coleoptera: Scolytidae: Scolytinae: Hylesinini: Tomicina





# SPBB



2516004



**Insect**

--	--	--

**Description**

**Mode of Attack**

**Sign of Attack**

**Southern pine beetle**

Brown-black beetle 1/8 inch long, rounded posterior, with minute notch in front of head when viewed from above.

Bores under bark and girdles southern pines. Attacks middle and upper stem in fall and winter, and lower stem in spring and summer.

Small white pitch tubes on bark or just boring dust. S-shaped and criss-crossed tunnels under bark.



**Turpentine beetles**

Light reddish brown or black beetles from 1/4 to 1/3 inch long with rounded posterior.

Girdles inner bark of stumps and butts of larger pines. Larvae feed in groups. Usually found after fires, logging, or other disturbance.

Large pitch tubes on bark surface at tree base. Tunnels in inner bark are rather shapeless cavities.



**Engraver beetles**

Reddish dark-brown or black beetles less than 1/4 inch long with a posterior that looks cut off and scoop-shaped.

Bores under the bark and girdles small commercial trees.

Small reddish pitch tubes on bark surface or just boring dust in cracks of bark or on ground. Y- or H-shaped tunnels parallel with wood grain on inside bark.

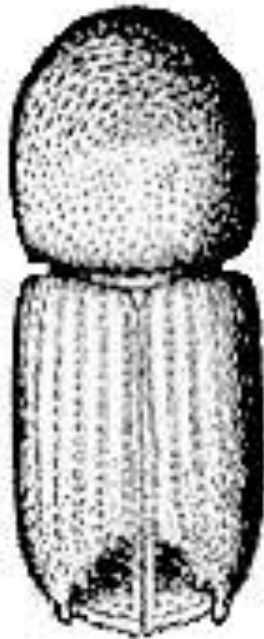




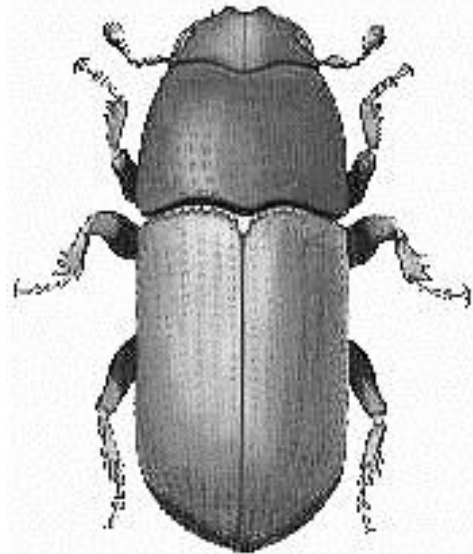
# Comparison of IPS engraver and Southern Pine Bark Beetle

(note concave rear abdomen of IPS)

*Ips*



SPB





# Ips and some Turpentine in 2011



- Field edges particularly showed indication of individual pine tree mortality in parts of VA.
- Drought-induced and “spotty” in nature





# Thousand Cankers Disease

*Geosmithia morbida* (Proposed name)

- Associated with walnut

Twig beetle

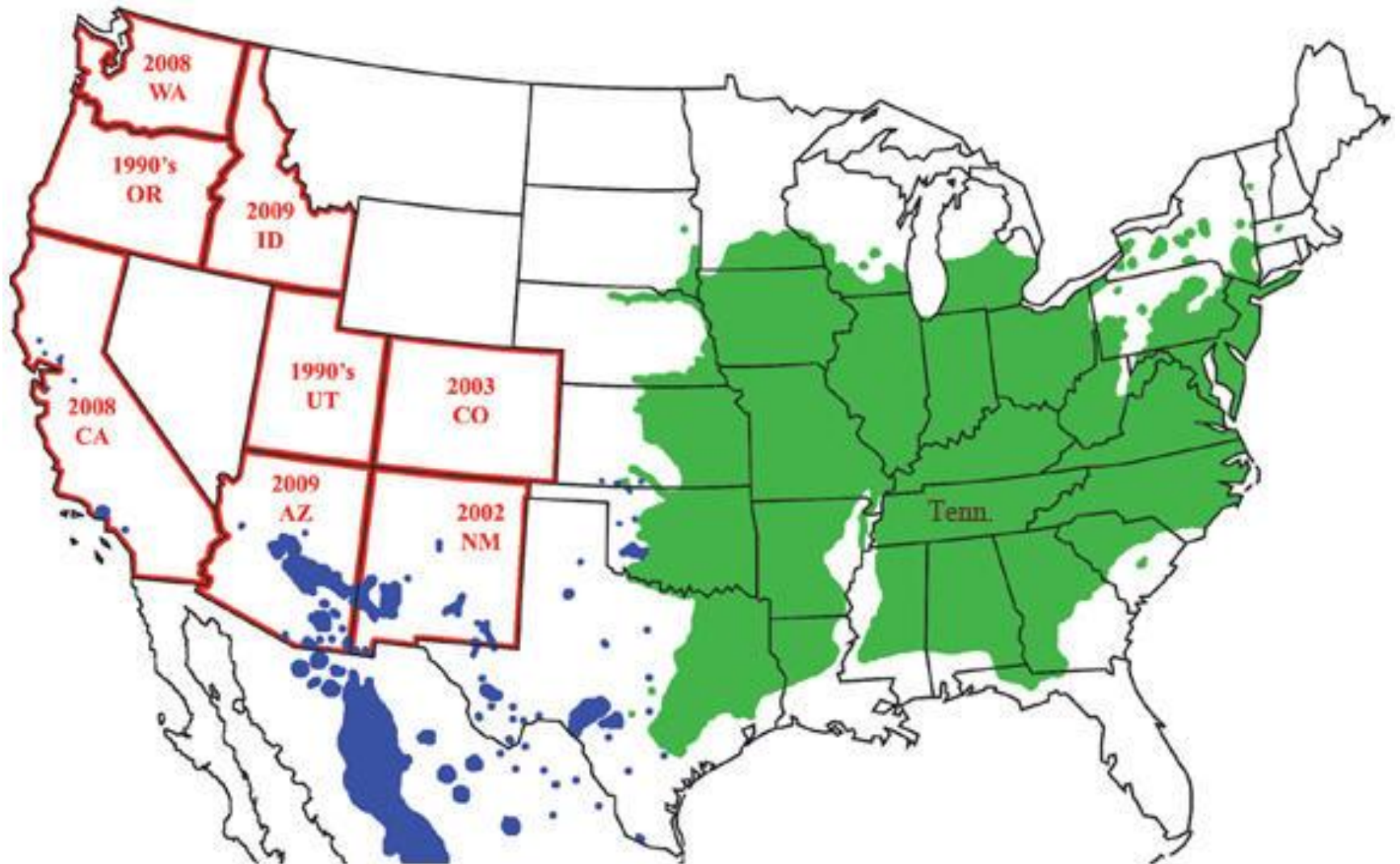


5406045



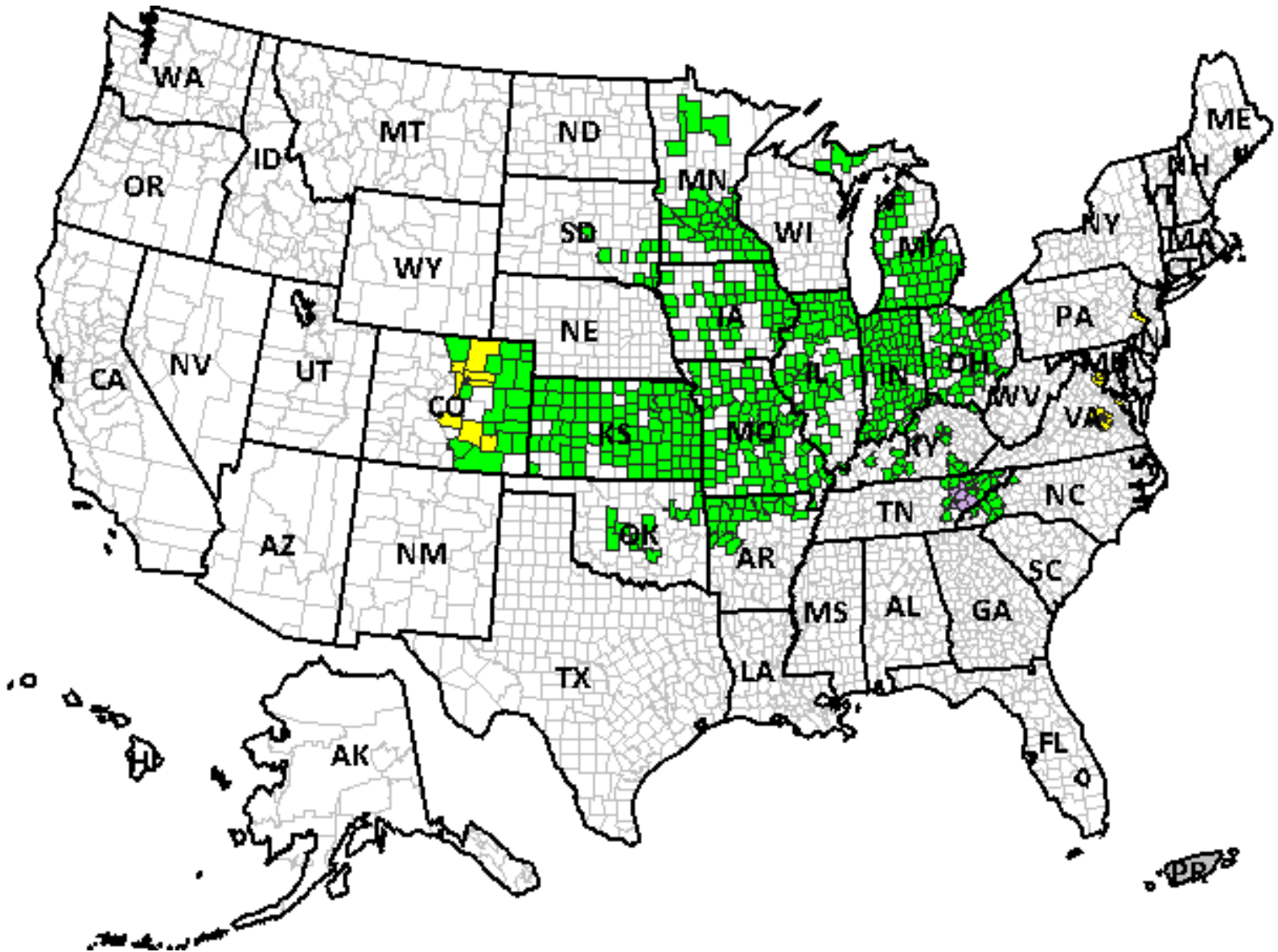
# TCD Distribution

<http://forestthreats.org/>





# TCD Map



# Walnut Twig Beetle





# TCD Control

<http://thousandcankerdisease.com/index.html>

- Currently there are no known insecticide sprays that reliably control this disease.
- Treatments made after symptoms begin to appear are ineffective.
- [Trunk injected](#) fungicides combined with insecticides may be the most effective way to eliminate the [beetle](#) and the fungus. Additionally, [injected fertilizers](#) will assist in restoring the nutrients to the tree.



# USDA APHIS Contacts for VA

- To report an **animal** pest or disease, contact:

[Dr. Terry L. Taylor](#) Area Veterinarian-in-Charge Federal Building 400 North 8th Street, Room 726 Richmond, VA 23219-4824 Phone: (804) 343-2560 Fax: (804) 343-2599

- To report a **plant** pest or disease, contact:

[Bernetta Barco](#) State Plant Health Director 5657 South Laburnum Avenue Richmond, VA 23231-4536 Phone: (804) 771-2042 Fax: (804) 771-2185



# Resources Review

- <http://www.idlab.ento.vt.edu/>
- <http://www.hungrypests.com/>
- <http://www.forestpests.org/>

## AND SEE

- <http://pest.ceris.purdue.edu/index.php> for distribution maps on insects and plants



**THANK YOU FOR YOUR ATTENDANCE**



**For questions or more information contact:**

**K. Jason Fisher  
Extension Agent/ANR Natural Resources  
Virginia Cooperative Extension  
Central District**

**434-476-2147  
jasonf@vt.edu**

