HELP!
We’re Surrounded!

So, how DO we slow down the movement of invasive species?

Pathways and Transportation Corridors for Alien Invasions

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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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Pathways of Nonindigenous Species in the US

**Transportation Related**
- Modes
  - Wood
  - Seaweed
  - Other plant materials
  - Soil
- Containers & Packing Materials
- Mail, internet
- Travelers
  - Baggage
  - Humans as disease vectors
  - Plants & animals (e.g. pet shows, rodeos, garden shows)
  - Consumables
- Plant trade (aquatic & terrestrial)
  - Pet, aquarium, watergarden trade
  - Aquaculture
  - Bait
  - Non-pet animals (research, zoos, fur, racing, hunting, breeding)
  - Other live animals
  - Live seafood (freshwater & marine)
- Food (transportation of organisms for consumption)
  - Plants & plant parts
  - Livestock
- Plants & animal parts (e.g. pet shows, rodeos, garden shows)
- Construction, firefighting vehicles
- Hikers, horses, pets
- Whole plants
- Seeds
- Below ground (bulbs, roots, culms, tubers)
- Above Ground (Cuttings, Budwood, etc.)

**Commerce in Living Organisms**
- Pet, aquarium, watergarden trade
- Aquaculture
- Bait
- Non-pet animals (research, zoos, fur, racing, hunting, breeding)
- Other live animals
- Live seafood (freshwater & marine)
- Food (transportation of organisms for consumption)
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- Below ground (bulbs, roots, culms, tubers)
- Above Ground (Cuttings, Budwood, etc.)
Invasion Process

Species in Pathway

Transported and Released Alive

Population Established

Spread

Ecological, Human Health, or Economic Impact

<table>
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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

Human Adaptation (bear the costs)
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
Cooperative Emerald Ash Borer Project
EAB locations in Illinois, Indiana, Kentucky, Maryland, Michigan, Minnesota, Missouri, New York, Ohio, Pennsylvania, Virginia, Wisconsin, West Virginia and Canada

September 4, 2009

Map Key
- Red Circle: EAB location
- Orange Circle: Area with active detection
- Light Orange Circle: Area with recent detections
- Dark Orange Circle: Area with past detections
- Yellow Circle: Area with past detections of early detection
- Light Yellow Circle: Area with past detections of late detection
- White Circle: Area with no detections

Map Scale:
- 0 37.5 75 150 Miles
- 0 62.5 125 250 Kilometers

Sources of available data:
- U.S. Forest Service
- Wisconsin Department of Agriculture, Trade and Consumer Protection
- Illinois Department of Agriculture
- Indiana Department of Natural Resources
- Michigan Department of Natural Resources
- Ohio Department of Natural Resources
- Pennsylvania Department of Agriculture
- Virginia Department of Conservation and Recreation
- West Virginia Department of Natural Resources

Cooperative EAB Project
United States Department of Agriculture
Animal and Plant Health Inspection Service
Pests and Diseases Division
Cooperative Emerald Ash Borer Team

APHIS
United States Department of Agriculture
Pests and Diseases Division

U.S. Forest Service
United States Department of Agriculture
Butler Co. PA – June 2007
2008 Pennsylvania Department of Agriculture Emerald Ash Borer Surveillance
Data uploaded as of 14 July 2008
Pennsylvania Department of Agriculture Map of Counties Quarantined for Emerald Ash Borer July 22, 2009
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/
or
www.emeraldashborer.info/

What is the Emerald Ash Borer?

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

The USDA is an equal opportunity provider and employer: FS-808c
EAB – Mifflin Co., PA
Mifflin Co. – Woodpecker Activity
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

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

This Web site has lots of info and videos on the emerald ash borer. www.dontmovefirewood.org/
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

[Map showing counties in green and gray, indicating EAB Quarantined County and Non-Quarantined County, respectively.]

- 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
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

Emerald ash borer  Asian long-horned beetle  Sirex wood wasp
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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