

# Wood Utilization Options for Urban Trees Infested by Invasive Species



Upper Midwest Invasive Species  
Conference 2016  
LaCrosse, Wisconsin  
October 18, 2016

# Don Peterson

- Renewable Resource Solutions, USDA Forest Service Forest Products Laboratory Contractor
  - Mechanized Urban Harvesting
  - Workforce Development
  - Forest Industry Technical Assistance
  - National Forest Stewardship Assistance

# Acknowledgments



**Forest Products  
Laboratory**  
Research Working For You



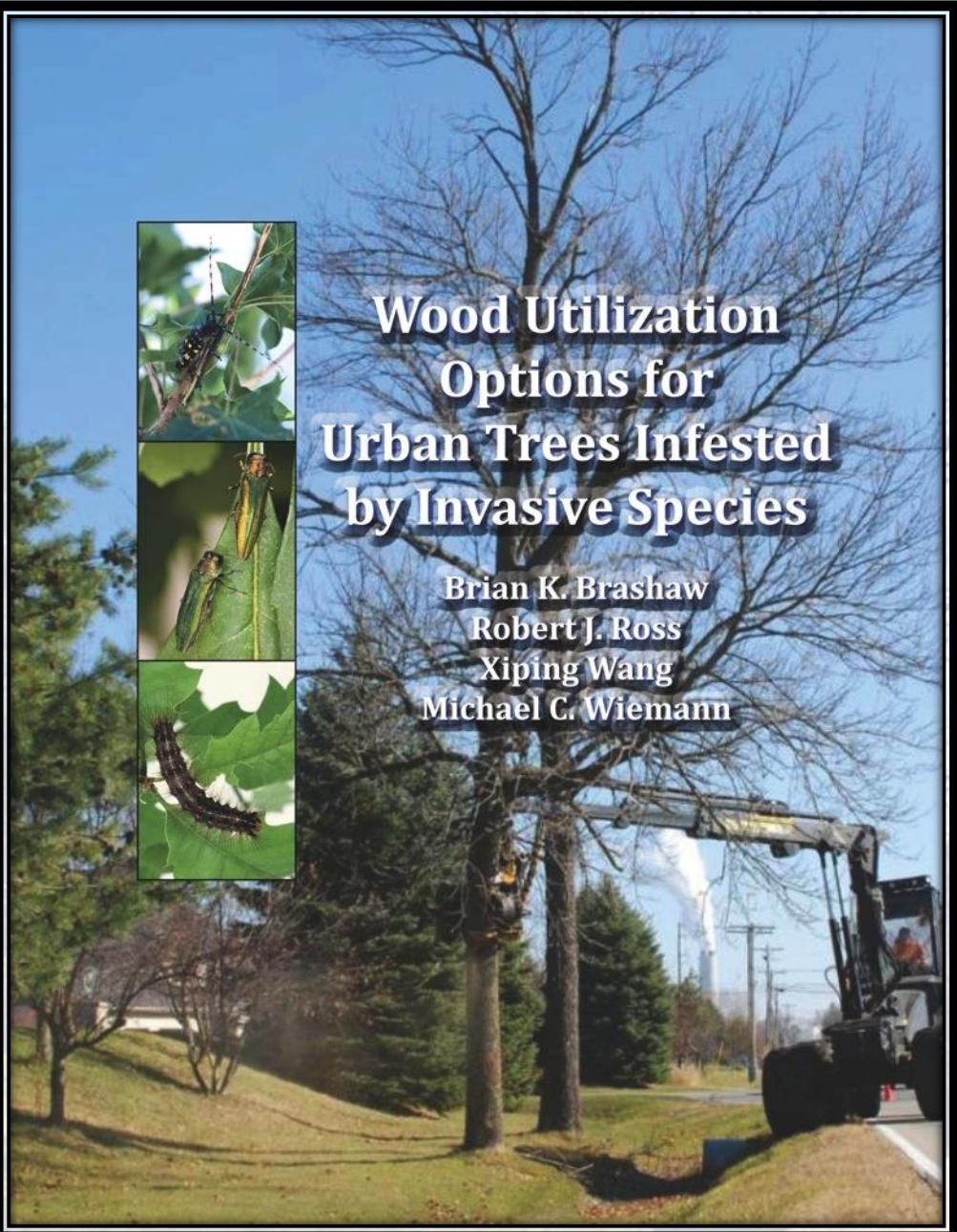
WOOD EDUCATION  
AND RESOURCE CENTER

**Natural Resources  
Research Institute**

UNIVERSITY OF MINNESOTA DULUTH  
Driven to Discover



- The work for developing “Wood Utilization Options for Urban Trees Infested by Invasive Species” was funded in whole or in part through a grant awarded by the Wood Education and Resource Center, Northeastern Area State and Private Forestry, Forest Service, U.S. Department of Agriculture.
- The University of Minnesota and USDA are equal opportunity employers.



*"Wood Utilization Options for Urban Trees Infested by Invasive Species"* is a reference for land managers, arborists, utilization specialists, and other natural resources professionals. It provides comprehensive information on wood technology, markets, and technical information for hardwoods affected by invasive species.

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- **Part Two** - Basic Wood Properties of Hardwood Affected by Invasive Species (R. Ross and M. Weimann)
- **Part Three** – Market and Utilization Options for Ash Logs, Lumber and Other Products (B. Brashaw and J. Simons)
- **Part Four** - Heat Treatment of Wood for Invasive Forest Pests (X. Wang)

# Part One - Overview

- Invasive Species are “considered non-native to the ecosystem and whose introduction causes or is likely to cause economic or environmental harm or harm to human health” ~ National Invasive Species Plan 2008
  - Emerald ash borer (EAB)
  - Asian longhorned beetle (ALB)
  - Gypsy moth
  - Thousand cankers disease

# Emerald Ash Borer



Photo courtesy of Stephan Ausmus, USDA ARS



Photo courtesy of David Cappaert,  
[www.bugwood.com](http://www.bugwood.com)

# EAB Quarantine Map (8/1/2016)

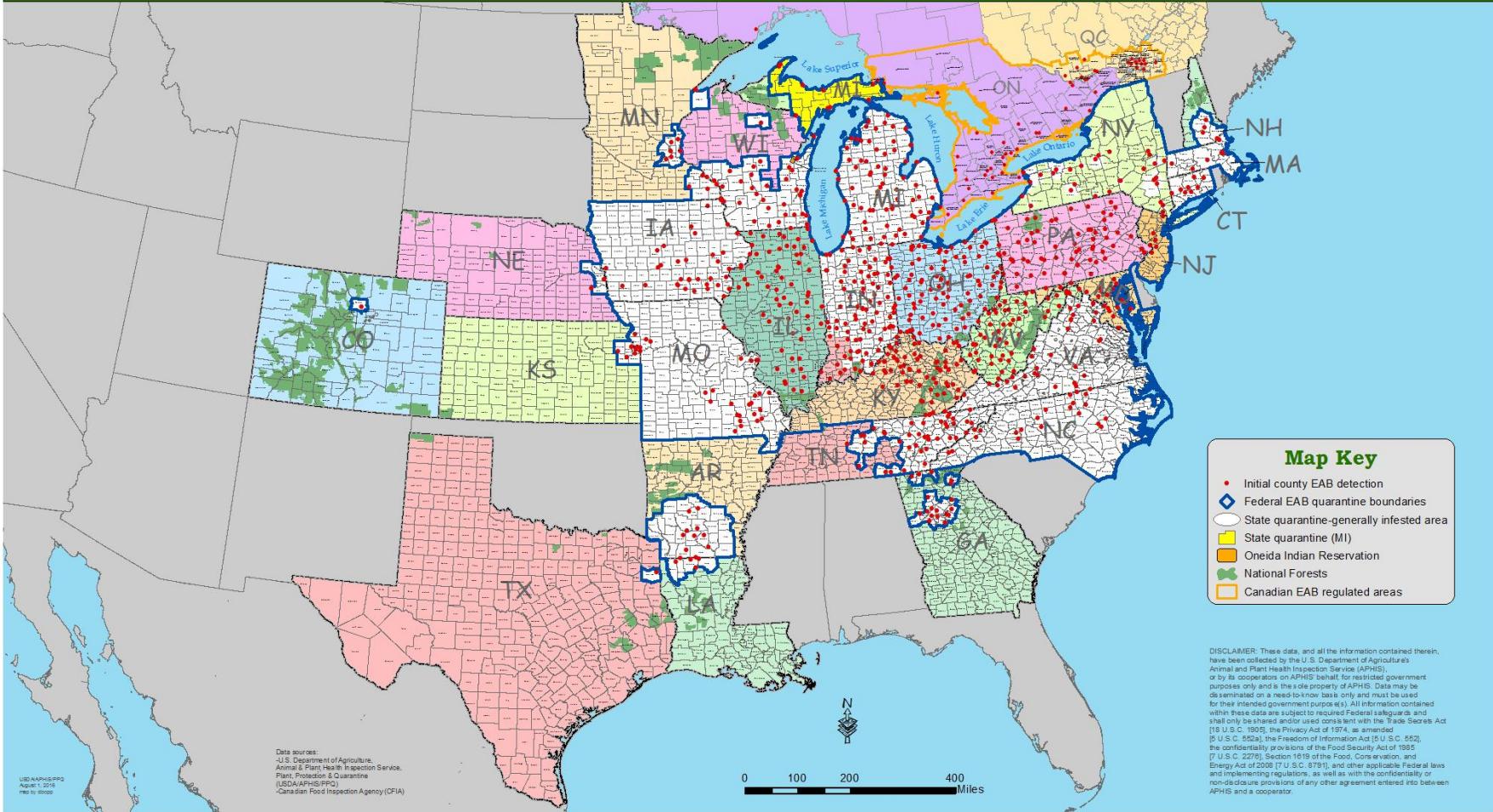


United States  
Department of  
Agriculture

## Cooperative Emerald Ash Borer Project

Initial county EAB detections in North America

August 1, 2016



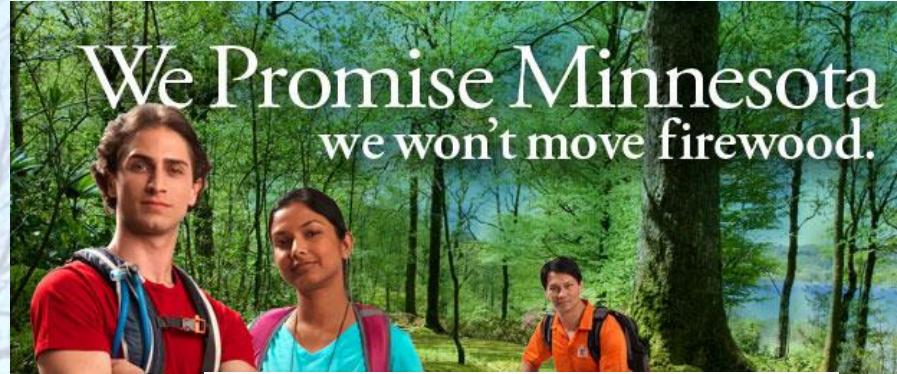
# Federal Initiatives

- USDA Animal and Plant Health Inspection Service

- Detection, control, eradication and education

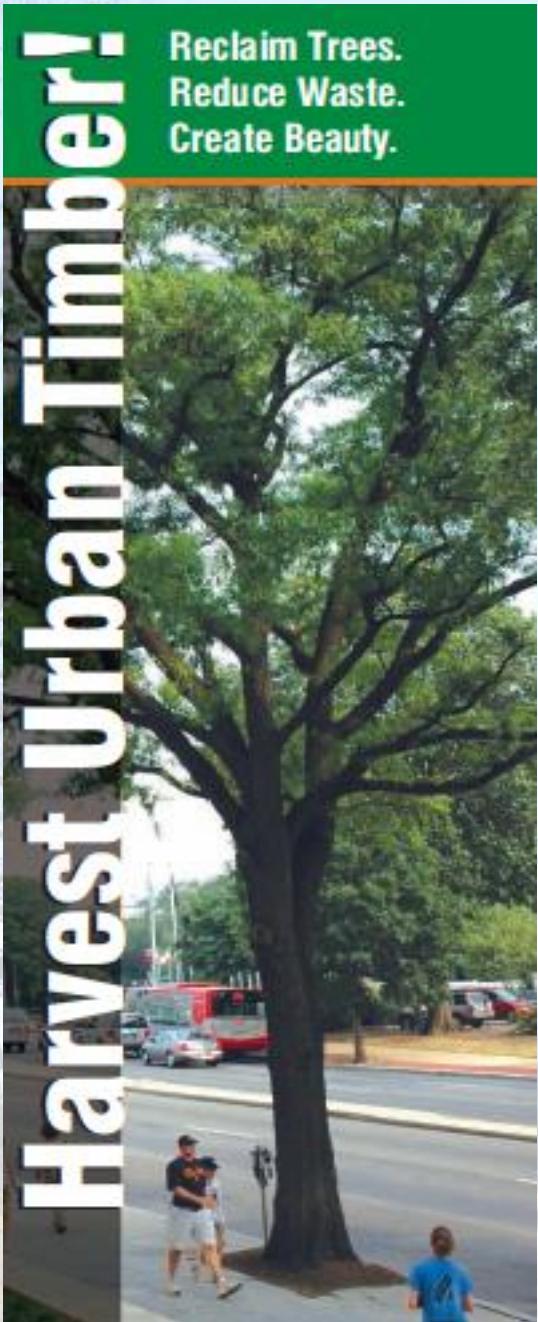
- USDA Forest Service

- Research into prevention, biology, control, management, utilization and market research and development



# State Programs

- Southeast Michigan Resource Conservation and Development District
  - Ash Utilization Options Project
- Illinois EAB Wood Utilization Team
  - Focused on developing an understanding of infestation and wood utilization for arborists, sawyers, woodworkers, intermediaries and end-users



Reclaim Trees. Reduce Waste.  
Create Beauty.

Reclaimed wood from all dead and diseased trees could equal nearly one quarter of annual hardwood consumption in the United States. This is a huge, untapped resource!



Urban forests cleanse our air, protect our water, reduce home energy use, and add natural beauty. But when trees must come down they need not become waste. They remain very valuable!



Reclaimed urban trees can yield:

- High quality lumber
- Character wood for woodworking
- Mulch for landscaping
- Fuel for heat or to generate electricity
- And much more!

Reclaiming local trees is a green and sustainable practice.

Arborists can safely remove trees to preserve their integrity and local sawmills can reclaim the lumber maximizing each tree's value.

For more information on harvesting urban timber, email:  
[Info@IllinoisUrbanWood.org](mailto:Info@IllinoisUrbanWood.org)

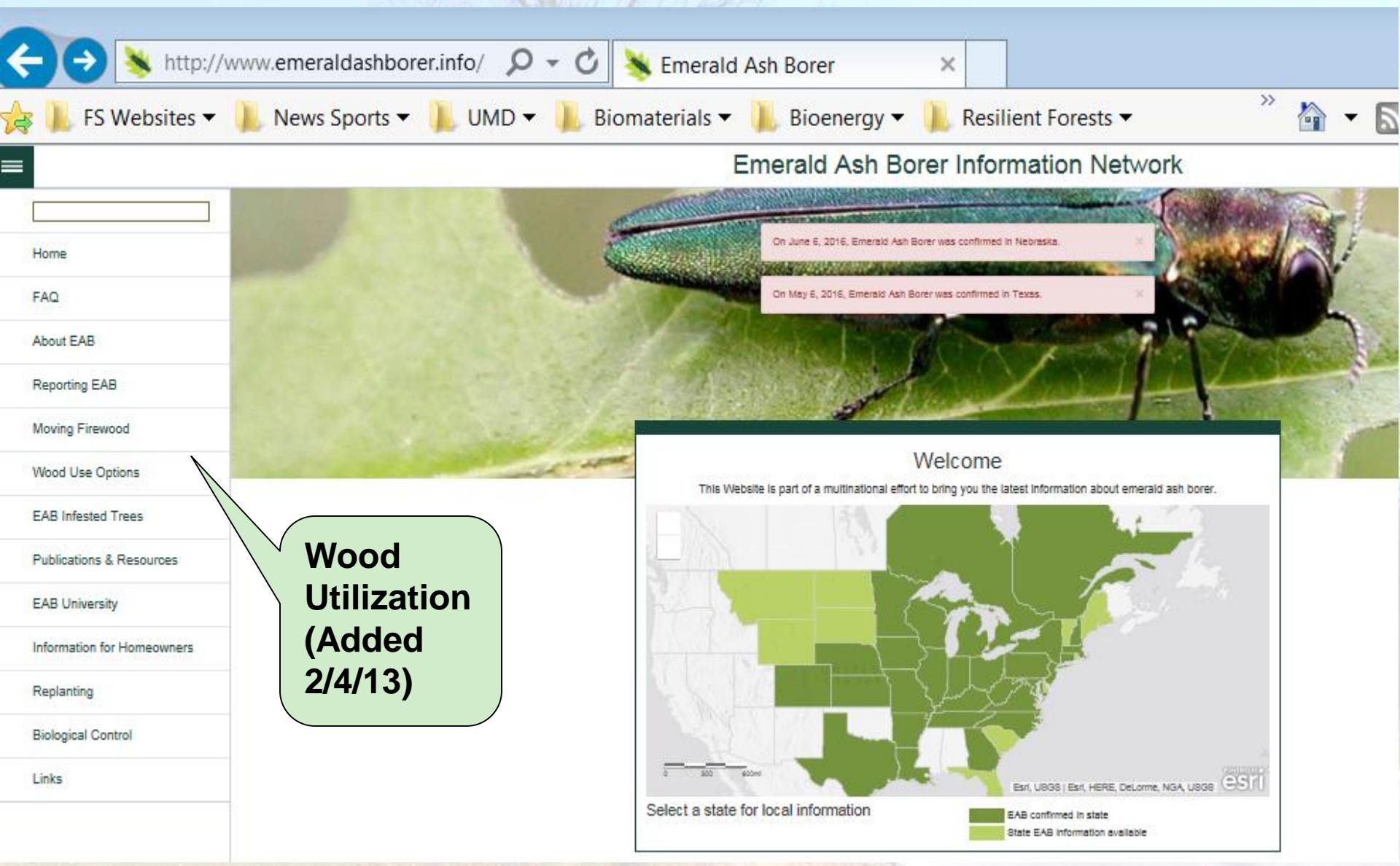
Illinois Emerald Ash Borer Wood Utilization Team



Sponsored by the U.S. Forest Service  
Wood Education and Resource Center.

Photos courtesy of [www.illinoisurbanwood.org](http://www.illinoisurbanwood.org)

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



The screenshot shows a web browser displaying the [Emerald Ash Borer Information Network](http://www.emeraldashborer.info) website. The URL is visible in the address bar. The page features a large image of an emerald ash borer beetle on a green leaf. Two small text boxes on the beetle mention confirmed sightings: "On June 6, 2016, Emerald Ash Borer was confirmed in Nebraska." and "On May 6, 2016, Emerald Ash Borer was confirmed in Texas." The left sidebar contains a navigation menu with links to Home, FAQ, About EAB, Reporting EAB, Moving Firewood, Wood Use Options, EAB Infested Trees, Publications & Resources, EAB University, Information for Homeowners, Replanting, Biological Control, and Links. A green speech bubble on the left side of the page contains the text: "Wood Utilization (Added 2/4/13)". The main content area includes a "Welcome" message, a map of the United States showing EAB infestation status by state, and a legend for the map. The map shows green shading for states where EAB is confirmed and yellow shading for states where EAB information is available.

http://www.emeraldashborer.info/   Emerald Ash Borer 

FS Websites  News Sports  UMD  Biomaterials  Bioenergy  Resilient Forests    

Emerald Ash Borer Information Network

Home

FAQ

About EAB

Reporting EAB

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EAB Infested Trees

Publications & Resources

EAB University

Information for Homeowners

Replanting

Biological Control

Links

Wood Utilization (Added 2/4/13)

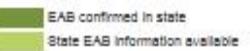
Welcome

This Website is part of a multinational effort to bring you the latest information about emerald ash borer.



Esri, UBGIS | Esri, HERE, DeLorme, NGA, USGS 

Select a state for local information



A large, leafless tree stands prominently in the center of a park-like setting. The tree has a complex, branching structure. In the background, there is a road with a utility pole and some power lines. The sky is clear and blue.

## **Part Two – Basic Wood Properties of Hardwoods Affected by Invasive Species**

# Objective

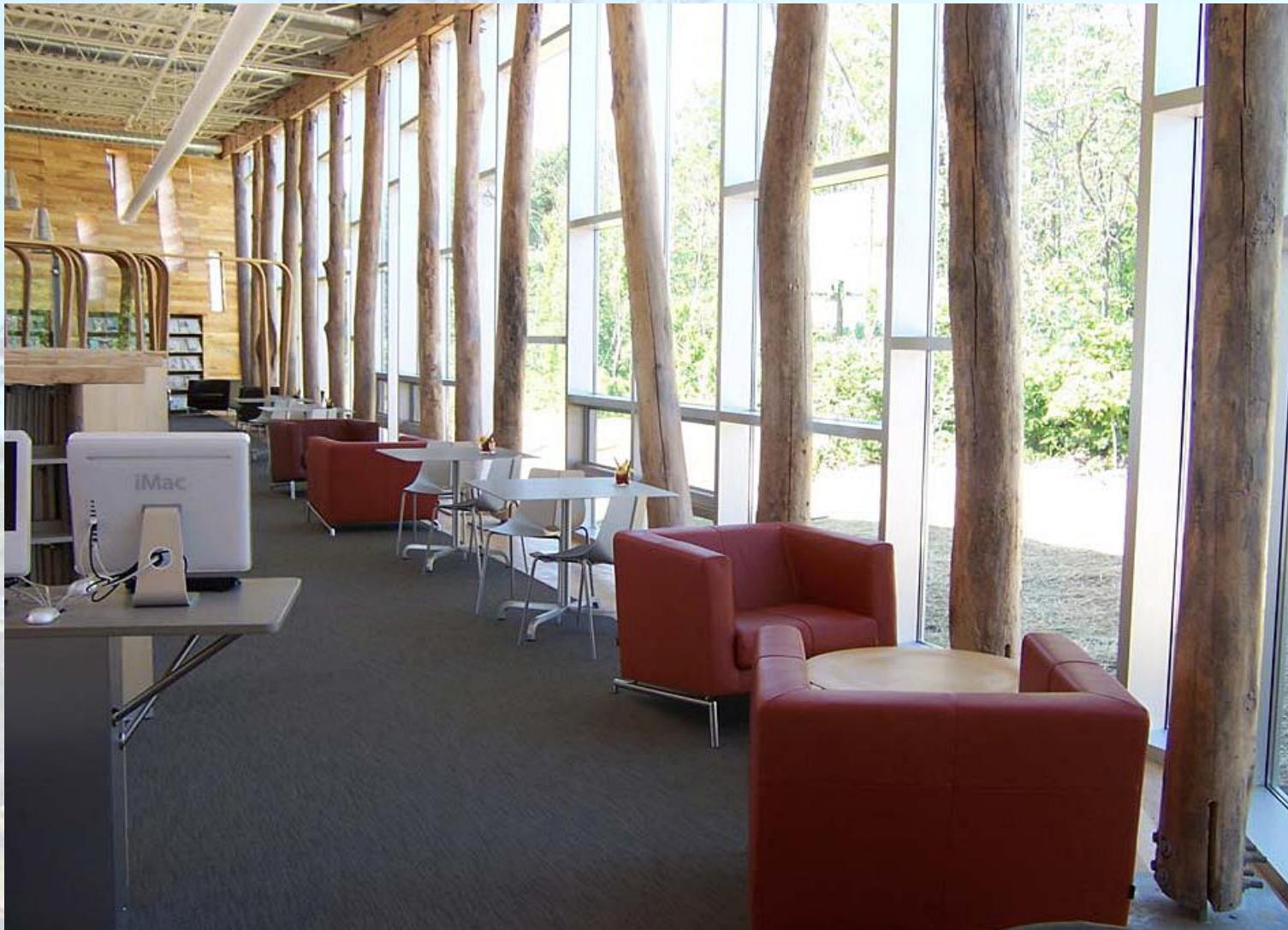
- To assist users by providing a starting point for gathering important technical information for wood from trees infested by invasive species
- To provide basic information on important characteristics

A large, leafless tree stands prominently in a park-like setting. In the background, a road with utility poles and a street lamp is visible. The overall scene is somewhat hazy, suggesting a misty or overcast day.

## **Part Three – Market and Utilization Options for Ash Logs, Lumber and Other Products**



# Trees



Traverwood Branch Library – Courtesy Ann Arbor District Library

# Lumber



TrueNorth Woods



SE Michigan RC&D Council

# Furniture

- Residential and commercial product lines
- Most furniture is clear cuttings, solid wood
- Increasing amounts of veneered surfaces
- Custom and unique designs

# Cabinetry

- Both solid and veneered products
- Visual appearance resembles oak
- Clear and rustic grades often used
- Large and small manufacturers
- Cabinets now used throughout home and garage



Douglas Remodeling

# Millwork

- Produced mostly from solid lumber, increasing amounts of veneer
- Moldings, paneling, doors, mantles



Weaber, Inc. and the American Hardwood Information Center

# Flooring

- Solid strip, plank or engineered
- 2 ¼ to 8+ inches wide
- 9/16 to ¾ inch thick
- Clear and character grades
- Unfinished and prefinished



Armstrong Hardwood Flooring and the American Hardwood Information Center

# Marketing Urban Wood in Michigan



**Jessica Simons**  
**Wood Utilization Options for Urban Trees**

# The Urban Wood Marketplace

Southeast Michigan's Resource for Reclaimed Wood



**Unique. Sustainable. Local. Quality.  
Perfect for your next project!**

Every neighborhood is different. That's what makes the Urban Wood Marketplace special – Because Urban Wood is reclaimed from tree removals in local communities, our products are as one-of-a-kind as the trees on your own street.





## ReUse Center Urbanwood Marketplace Sales Growth

2008 - \$18K  
2009 - \$29K  
2010 - \$37K  
2011 - \$67K  
2012 - \$124K





- Products vary by mill
- Many cater to hobby woodworkers
- As many as 30 different species available





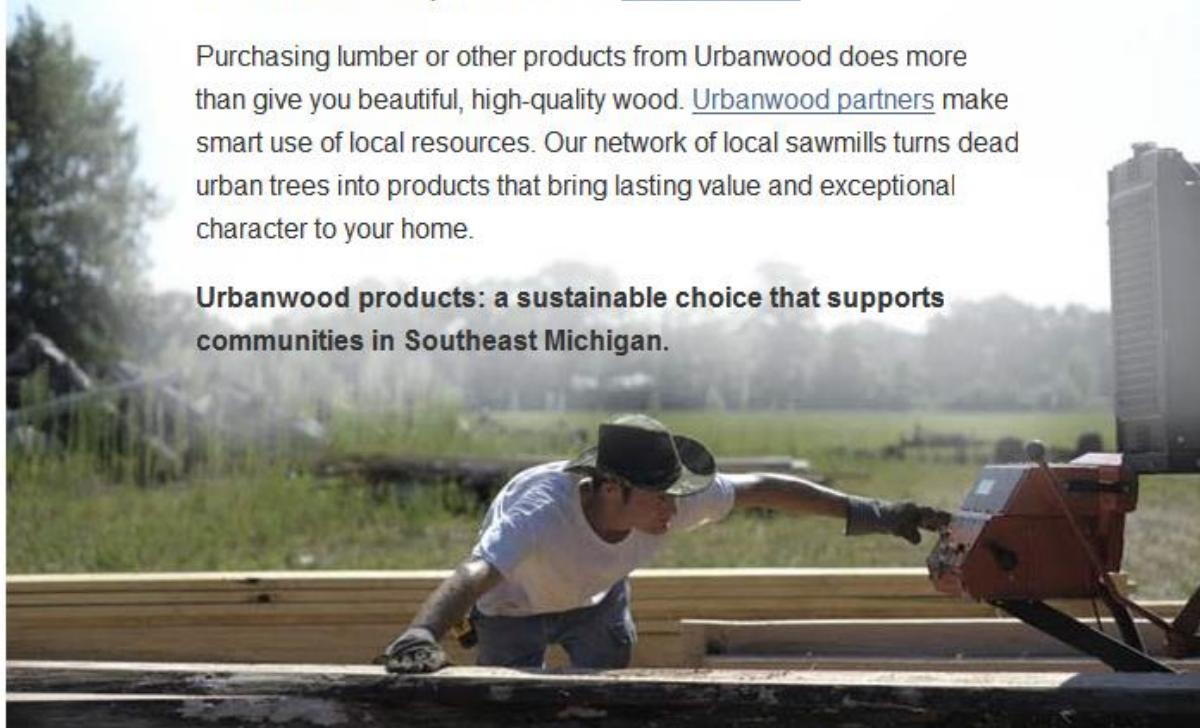
## Don't chip that tree. Reclaim it!

Did you know that Southeast Michigan's dead urban trees could produce almost five million board feet of lumber each year?

Unfortunately, trees removed from our cities are usually fated for the chipper. Instead, by saving and recycling the best logs, our partners create a wide variety of remarkable [green products](#).

Purchasing lumber or other products from Urbanwood does more than give you beautiful, high-quality wood. [Urbanwood partners](#) make smart use of local resources. Our network of local sawmills turns dead urban trees into products that bring lasting value and exceptional character to your home.

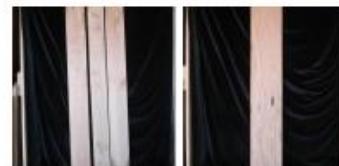
**Urbanwood products: a sustainable choice that supports communities in Southeast Michigan.**



Two Ways to Shop

### View Online

If you see something you like, just contact the mill listed for the product.



[MORE PRODUCTS](#)

### View in Person

Visit [Recycle Ann Arbor's ReUse Center](#) to see the latest products in stock. We're located at 2420 South Industrial Hwy. in Ann Arbor, Mich. See [map](#).



# Kenosha County Tree Removal Project



# Mechanized Cut-to-Length System

- Rubber tired harvester
- Rubber tired forwarder

# Traditional Chainsaw Removal

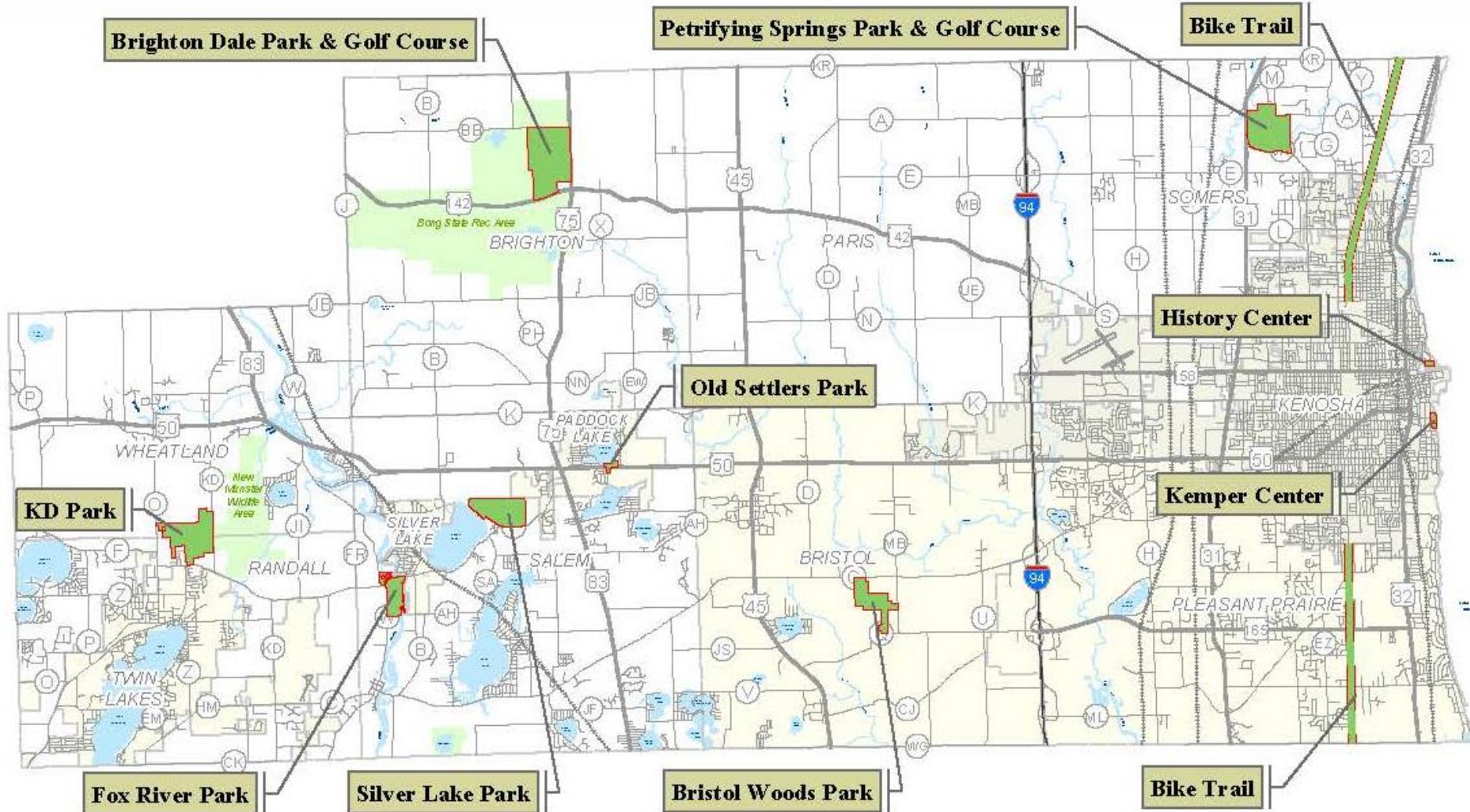
- Ideal for smaller number of trees
- Utilization is typically not as cost-effective with smaller volumes
- Need training to manufacture logs correctly

# Advantages of Rubber Tired Mechanized Logging Equipment

- Can operate on streets
- Can reach out up to 30 feet
- Can process a felled tree
- Top down felling
- Operator is trained in cutting and sorting products
- Safer than doing the same job with a chainsaw
- High visibility
- Removal and processing is fast and efficient

# Harvesting Operations

- Processor operator needed to be isolated with minimal contact for optimum operation.
- Forwarder operator needs safe travel routes to landing areas.



## *Preliminary Ash Locations*

Fox River Park

October 19, 2013



# Fox River Park



## Preliminary Ash Locations

BDL Golf Course

October 19, 2013



# Brighton Dale Park & Golf Course



## Preliminary Ash Locations

Petrifying Springs Park & Golf Course

October 19, 2013



# Petrifying Springs Park & Golf Course

















# ASH TREE REMOVAL & REFORESTATION

## WHAT IS EMERALD ASH BORER?

Emerald Ash Borer (*Agrilus planipennis*) is an invasive, wood boring beetle. It kills ash trees (*Fraxinus*) by eating the tissues under the bark. This metallic green beetle is native to East Asia. It was brought to the United States accidentally, in the wood of shipping crates from China.

EAB is not a threat to human health but it kills North American native ash trees of any size, any age, healthy or unhealthy. The larva (the immature stage of EAB) spends its life inside ash trees, feeding on the inner bark where we cannot see it. This feeding disrupts the trees' ability to move water and nutrients back and forth from the roots to the rest of the tree. The tree starves and eventually dies. A tree that has been attacked by EAB can die within two to four years. It is estimated that more than 50 million ash trees are dead or dying in the Midwest because of this insect.

## KENOSHA COUNTY PARKS & GOLF COURSES

EAB was first confirmed in Kenosha County in 2009. Kenosha County conducted an inventory of ash trees in the county parks and golf courses in 2012 to determine how many and to what extent the trees had been impacted. The decision was made to remove and replace the ash trees based on their poor condition.

The removal of the ash trees will change the appearance of the parks and golf courses. Kenosha County plans to remove them during the winter, so that the project does not interfere with park visitors and golfers. The trees being removed will be in lawn areas, fairways on golf courses, and 60 feet into any woods along lawn areas and along trails in order to keep park visitors and property safe from falling limbs.

A diverse mix of tree species are being planted at a rate of about one for every three to five removed. This diversity is to minimize the impact to the forest by any future invaders. Many trees have been planted in the parks over the last three years in preparation for this removal project. This will be an ongoing process and may last as long as three years.

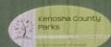
This project to remove the diseased and dying ash trees is being done in the interest of public safety. Please bear with us through the process of removal and reforestation.

## FOX RIVER PARK

As shown on the map, 620 trees will be removed from Fox River County Park.

66 trees will be planted, including: Maple, Kentucky Coffeetree, Locust, Hackberry, Elm, Spruce, Ginkgo, Oak, and Fir trees.

For more information, please contact  
Kenosha County Parks at 262-857-1869.



FOX RIVER PARK



# Harvester Operating along the “Green”



# Harvester About to Process Tree



# Area Post-removal



# Pulpwood to be Shipped to Mill by Rail



# Parking Log Sort Yard – Pulpwood, Saw Bolts, & Sawlogs



# EAB Ash Sawlogs from County Park and Golf Course



# Sawlogs



# Product Piles



# Pre-positioned Trailer



# Kenosha County Tree Removal Project

- Renewable Resource Solutions
  - Setting up the removal plan
  - Bid process
  - Harvesting process
  - Address concerns

# County Responsibilities

Kenosha County was and is responsible for taking care of informing users and the public of the tree removal process

# Contracted Responsibilities

- Renewable Resource Solutions will make every effort to market as many of the products as possible from the harvesting
- All of the tree products/parts that can't be marketed will be the responsibility of Kenosha County

# Renewable Resource Solutions will...

Develop harvest plans, including Maps showing:

- Trees to be removed
- Access points
- Landing areas

# Harvest Plans Con't.

## Trees to be removed

- Do they need to be painted?
- What needs to be done & how to designate:
  - Removal of entire tree
  - Removal of bole wood and leave tops
  - Removal of bole wood and chip tops at stump
  - Cut and leave entire tree

# Golf Courses - When can trees be removed?

- Identify times of year tree removal can be done
- Can the logger travel on cart paths?
- Where are the irrigation lines?

# Landings

- Where can we stack logs and tops?
- Any restrictions on timing, etc.?
- Is there a way to secure the location to prevent firewood theft?
- Noise issues, timing issues, too early/late

# Contracts

- What time of year to harvest?
- Bid out separately (three) or bid as one project?
- How long (1 or 2 years)?
- Are there high need areas that should be treated asap?

A large, leafless tree stands prominently in the foreground on a grassy hill. In the background, a road with utility poles and a person in a high-visibility vest are visible, suggesting a park or urban area.

# MAKING MECHANIZED LOGGING WORK IN AN URBAN SETTING

# Municipality Needs

A large, leafless tree stands on a grassy bank next to a paved road. A mechanical excavator with a grapple attachment is positioned under the tree, appearing to remove branches or the trunk. In the background, there are utility poles with wires, a street lamp, and a person in a high-visibility vest standing near a utility pole on the right side of the road.

- Safe tree removal at the lowest possible cost

# Logger Needs

- Clear identification of what needs to be cut
- Product specifications
- Product landing area(s)
- Removal specifications
- Safety
- Equipment securement

# Problem

- Municipalities don't know mechanized logging or wood products
- Loggers don't know the urban setting or product markets
- Resources are wasted trying to match up

# Solution

- Organizer who knows timber sales & product markets
- Pre-cutting logistics set-up
- Works with logger throughout sale

# Questions?

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906.875.3720

Download “Wood Utilization Options for Urban Trees Infested by Invasive Species”: [www.na.fs.fed.us/werc](http://www.na.fs.fed.us/werc)

Learn more about another urban harvesting demonstration: [www.sustainableinc.org/projects](http://www.sustainableinc.org/projects)