City of Milwaukee Forestry

Readiness Plan for the Control of Emerald Ash Borer (EAB)

Emerald Ash Borer – News Headlines

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Ash tree pest on state's doorstep

Beetle, now in Illinois, could devastate trees

By LEE BERGQUIST
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The dreaded emerald ash borer, a destructive pest that has been responsible for killing millions of trees in the Midwest, has been discovered in Illinois about 35 miles from the Wisconsin border.

Officials in Illinois confirmed Tuesday in that the non-native beetle had been found the yard of a home in Kane County, east of Lilly Lake.

The news could have devastating consequences for Wisconsin's urban canopy, where 30% of trees in cities and towns are ash trees, according to state officials.

Wisconsin is now bookended by states with the deadly beetle. Last September, Michigan officials reported that the emerald ash borer had hit the Upper Peninsula along the Lake Superior shore in Brimley State Park, west of Sault Ste. Marie.

It all underscores the prediction of Wisconsin officials who say that an infestation will eventually hit Wisconsin.

"This just brings it that much closer to Wisconsin," said Jane Larson, spokeswoman for the Wisconsin Department of Agriculture, Trade and Consumer Protection.

Officials have always viewed southeastern Wisconsin as a prime entry point for the emer-

Milwaukee Journal Sentinel
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Sunday
June 17, 2007
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CROSSROADS

Gregory Stanford: History is unfolding in a tragically familiar way in Iraq. 3J

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THEY'RE HUNGRY AND THEY'RE NEARLY HERE

Eradication is not stopping the emerald ash borer. Maybe it's worth considering insecticide.

By PAUL MARKOWSKI

The emerald ash borer threatens all ash trees in the Midwest. It has not been found in Wisconsin as of June 12, but it is in northern Illinois.

The million-dollar question seems to be: "Can I protect my ash trees, and, if so, when should I start?"

Unfortunately, there are differing opinions, and the facts are not conclusive. Most of the money that has been spent on borer control — more than $100 million — has gone into removing trees with the hope of eradicating the pest.

While some money has been put toward research into adult-beetle trapping methods, a better understanding of the borer's life cycle and biological controls, there still is much to be learned.

One thing that seems evident is that eradication is not working.

The great results that Grosse Pointe Farms, Mich., has achieved by treating ash trees with pesticides show that there is an alternative to the eradication program. I also have talked with numerous arborists in Michigan who have successfully used pesticides to save ash trees in highly infested areas. Granted, there have been losses, but saving some is better than just cutting them all down.

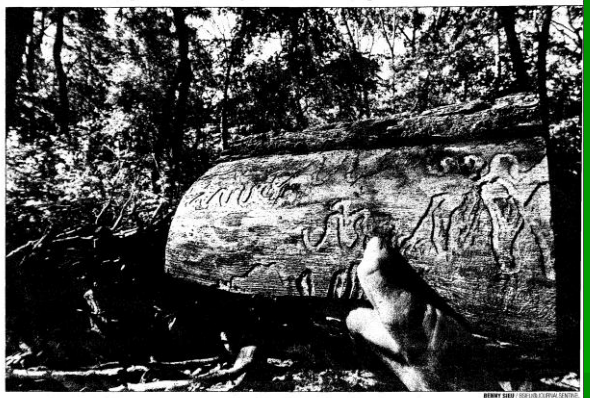
Consider these things when thinking about treating your trees:

■ Only valuable, important trees should be considered for treatment: specimen trees, trees shading your home or patio and so on. These trees should be healthy and vigorous.

■ The systemic insecticide imidacloprid has been shown to protect ash trees from emerald ash borers. It is not 100% effective — nothing in nature is. When used as a soil injection, studies suggest it is 85%

▶ Results: Michigan has the tests to show that insecticides can save trees. 6J

With emerald ash borer closing in and 700 million trees at risk, Wisconsin experts use neighbor states' experience to plan response



BENNY SIEU / JOURNAL SENTINEL

The telltale signs of an ash tree damaged by the emerald ash borer are serpentine trails from larval feeding underneath the bark. This chunk was found in Michigan.

Michigan learned the hard way

By LEE BERGQUIST
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Westland, Mich. — Neighbors talk about the good old days when ash trees arched over the streets, turning blocks of suburban Detroit into veritable tunnels of greenery.

Then in 2002, a voracious visitor from Asia, the emerald ash borer, was found to be killing the trees.

The worst-affected neighborhoods were transformed, as wooden skeletons dotted yards where the grand trees once stood.

Then came chain saws, and whole blocks turned barren. Fifty-year-old neighborhoods suddenly took on the look of a freshly built subdivision waiting for a delivery of trees.

"I had old people crying in the streets," recalled Tom Wilson, director of public works in Westland.

As it spread across Michigan, the bug also moved to Ohio, Indiana and Ontario. Then it jumped to Maryland and Virginia, and most recently, to Illinois. In Michigan alone, the loss of more than 15 million trees has been attributed to the emerald ash

"I had old people crying in the streets."
Tom Wilson, director of public works in Westland, Mich.

The emerald ash borer is on its way.

Given its mobile ways, most experts agree it will soon strike Wisconsin, with its 700 million ash trees, and where 30% of all street trees are varieties of ash.

"We are potentially looking at an

Nancy Sml
crosses a c
patch where
ash tree onc
stood in fror
her condo in
Southfield,
Mich. Smith
says condo
owners have
had to pay
more to wat
their lawns
cool their
homes since
the trees di
appeared.

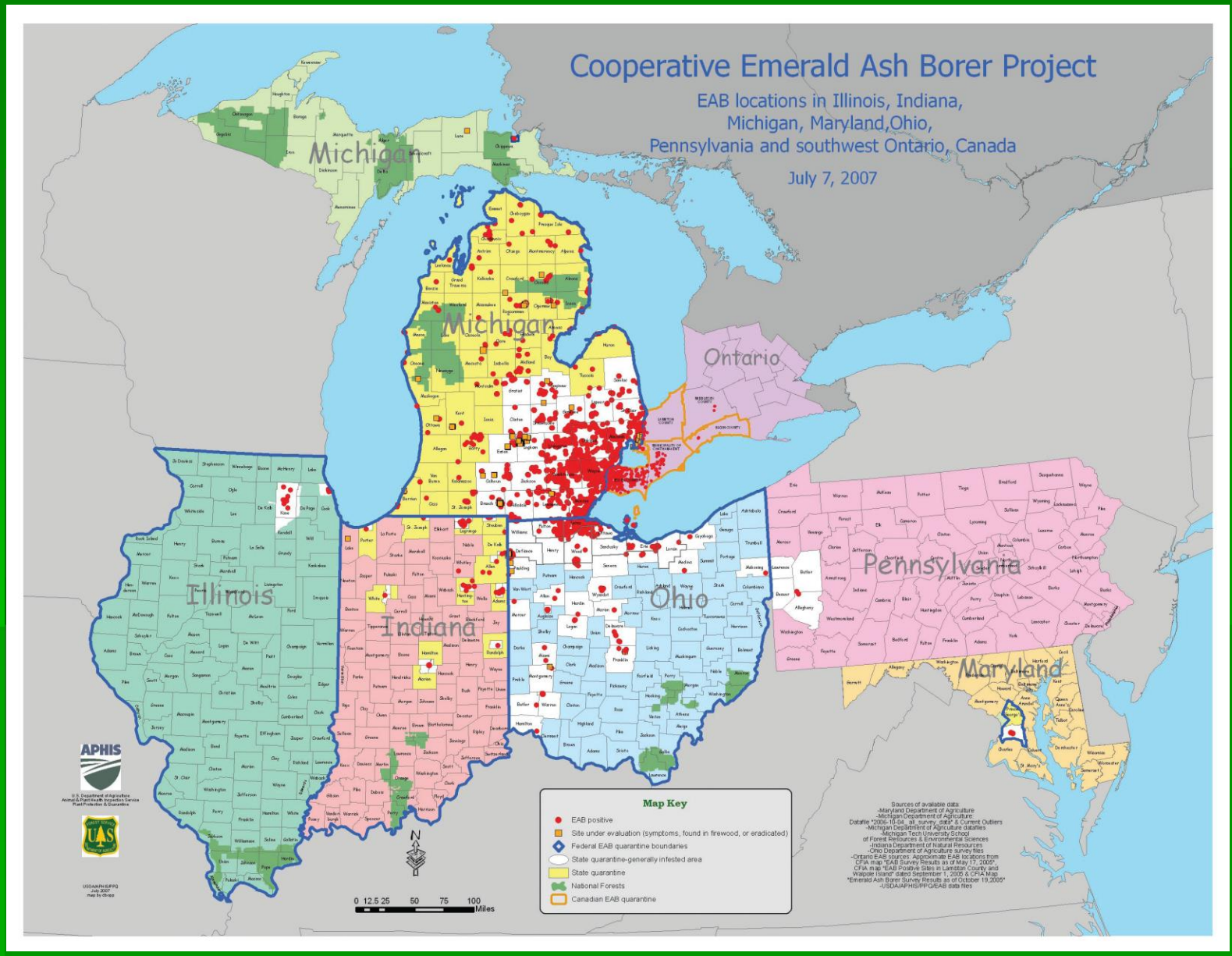
Why is Emerald Ash Borer a threat?

- Attacks stressed and healthy ash trees
- Kills tree within 2-4 years
- 25 million ash trees killed in U.S. and Canada (40,000 Sq. Miles)
- 717 million ash trees at risk in Wisconsin (7% of all tree cover in Wisconsin)
- Estimated 5.1 million ash throughout urban landscapes in Wisconsin
- 20%-30% of Wisconsin's street and park trees are ash
- Huge economic, environmental, and sociological impact

Emerald Ash Borer – Economic Impact

- $300 billion-total value of nation's ash trees (U.S. Forest Service)
- $7 billion-estimated cost for local governments and homeowners to remove and replant trees
- $100 million in federal funds spent since 2002 to fight EAB

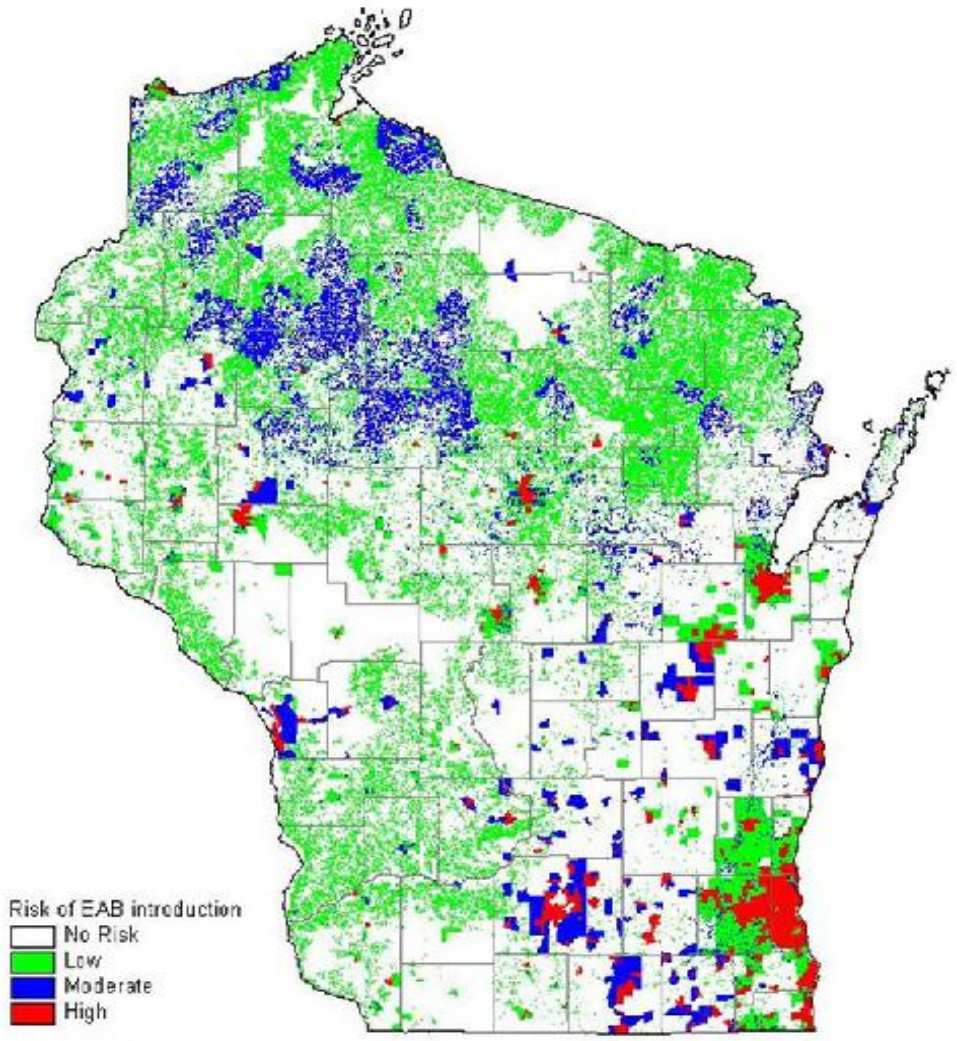
Emerald Ash Borer Current Distribution



How does EAB Spread?

- Natural spread – ½-2 miles per year. Adults do fly!
- Human movement of infested wood and trees (more likely)
  - Firewood
  - Logs
  - Nursery stock
  - Packing crates
  - Any parts of an Ash with bark attached

Emerald Ash Borer Wisconsin areas at risk of introduction



Milwaukee's Urban Forest

Street Trees: (30% sampling)

- 200,000 estimated street trees
- Condition – 92% generally healthy
- Species distribution
  - 60 different species, 28 different genera
  - Norway Maple – 44%
  - Ash – 18%
  - Honeylocust – 15%
  - Linden – 11%
- 68% are 15" Diameter or less

- 16% average tree canopy coverage in City of Milwaukee
- An estimated 144,000 additional ash trees on other public and private property within Milwaukee city limits

Emerald Ash Borer

City of Milwaukee Economic Impact

- 36,000 Ash street trees
- Average replacement costs per 12” tree:
  - Removal = $340
  - Replanting = $400
  - Total per tree = $740
- Potential cost to remove and replace all Ash street trees = $26,640,000
- Significant increase in urban wood waste stream
- Significant increase in dead and hazard tree inspections

EAB - Current Control & Management Options

- Species diversity
  - 20% in any one genera
    - Ash: 18%
  - 10% in any one species
- Inter-block diversity
- Intra-block diversity

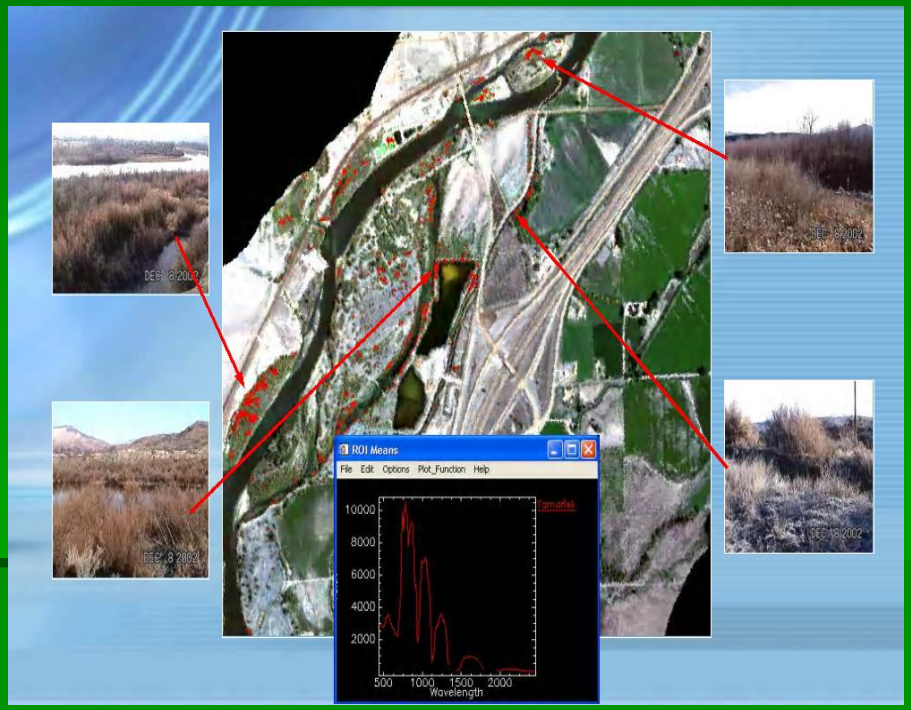
EAB - Current Control & Management Options

- Ash tree inventory
  - City street trees
  - Private and other public trees

- Street tree inventory
  - 100,000 inventoried to date (50%)
  - Projected completion date: Sept. 2009

EAB - Current Control & Management Options

- Private/other public ash tree inventory
  - Hyperspectral Imaging
    - Aerial near-infrared photography
    - Canopy map all ash in city
    - 90%+ accuracy
    - Cost: $190,000
    - Seeking Grant funding
      - 2008 Legislative earmark request (Senator Kohl)
      - Other grants



EAB - Current Control & Management Options

Firewood regulations & Public awareness:

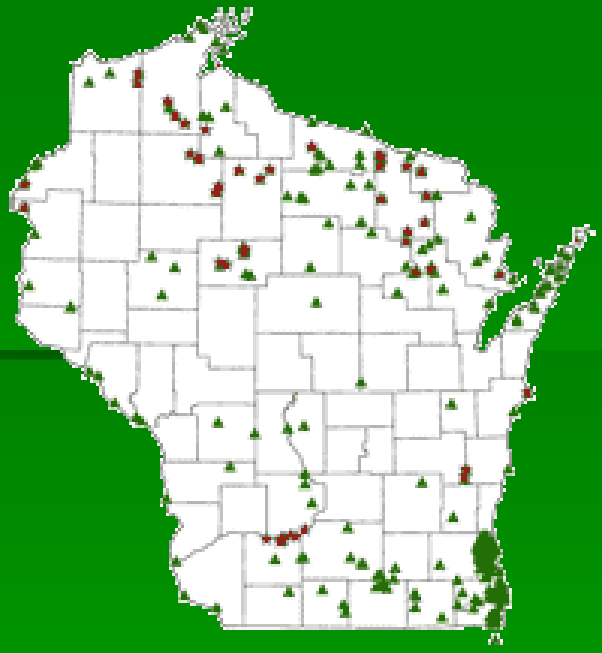
- No firewood movement out of EAB quarantined area
- State forests & campgrounds – firewood prohibited from > 50 miles
- Federal property – prohibits firewood from out of state
- Firewood Certification Program(2007)-firewood dealers

EAB - Current Control & Management Options

Firewood regulations & public Awareness:

- **Buy It Where You Burn It!**
- Public service announcements – Summer 2007
  - WI-DNR – Radio PSA
    - 15 week campaign
    - 1,500 PSA state-wide
    - Targeting 22 radio stations in metro-Milwaukee area
  - APHIS billboard campaign – Summer 2007
    - Pack marshmallows. Not firewood.
    - Pack hotdogs. Not firewood.
  - TV PSA with Mayor Barrett

EAB - Current Control & Management Options



EAB Detection Surveys in Wisconsin

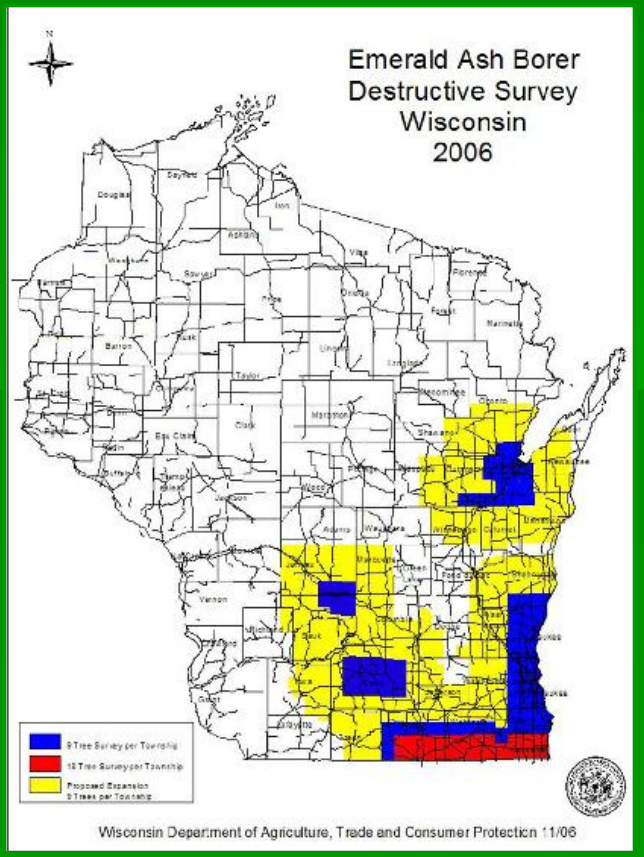
- Visual surveys
- Detection tree surveys
  - Declining ash removed and peeled
  - Ash trees are girdled, sticky banded, left standing 1-2 growing seasons, and then peeled to inspect for larvae and/or galleries
- 2004
  - Surveys conducted in 51 state parks and forests
  - Emphasis on campgrounds & firewood storage and sales areas
  - No EAB detected

EAB - Current Control & Management Options

EAB Detection Surveys in Wisconsin

- 2005
  - Visual surveys – private & county campgrounds
  - Detection tree surveys - Lower Wisconsin River Way
  - Visual surveys - urban areas in southeast Wisconsin
  - No EAB detected
- 2006/2007
  - Wisconsin Department of Agriculture, Trade & Consumer Protection (WDATCP) is conducting EAB detection surveys in 17 high risk counties in SE Wisconsin
  - City of Milwaukee contributed 27 declining/small ash trees to the survey

    No EAB detected



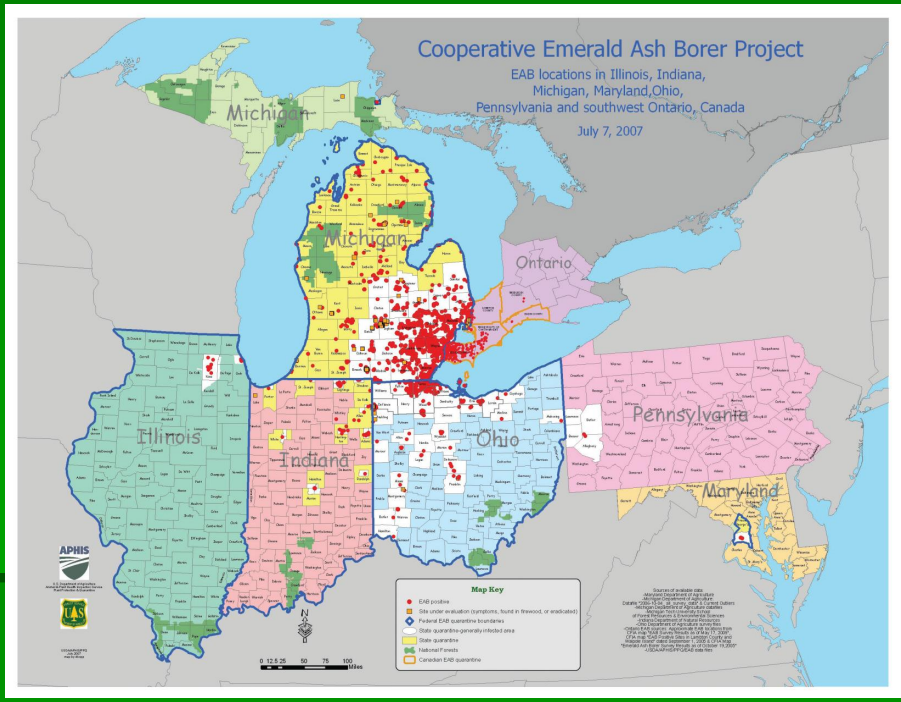
EAB - Current Control & Management Options

EAB Detection Surveys in Wisconsin

- 2007 Research
- Traps
  - Experimental – detection method
  - Purple, sticky trap
  - Lure – leaf and bark extract
  - Set in Wisconsin at various state parks and forests

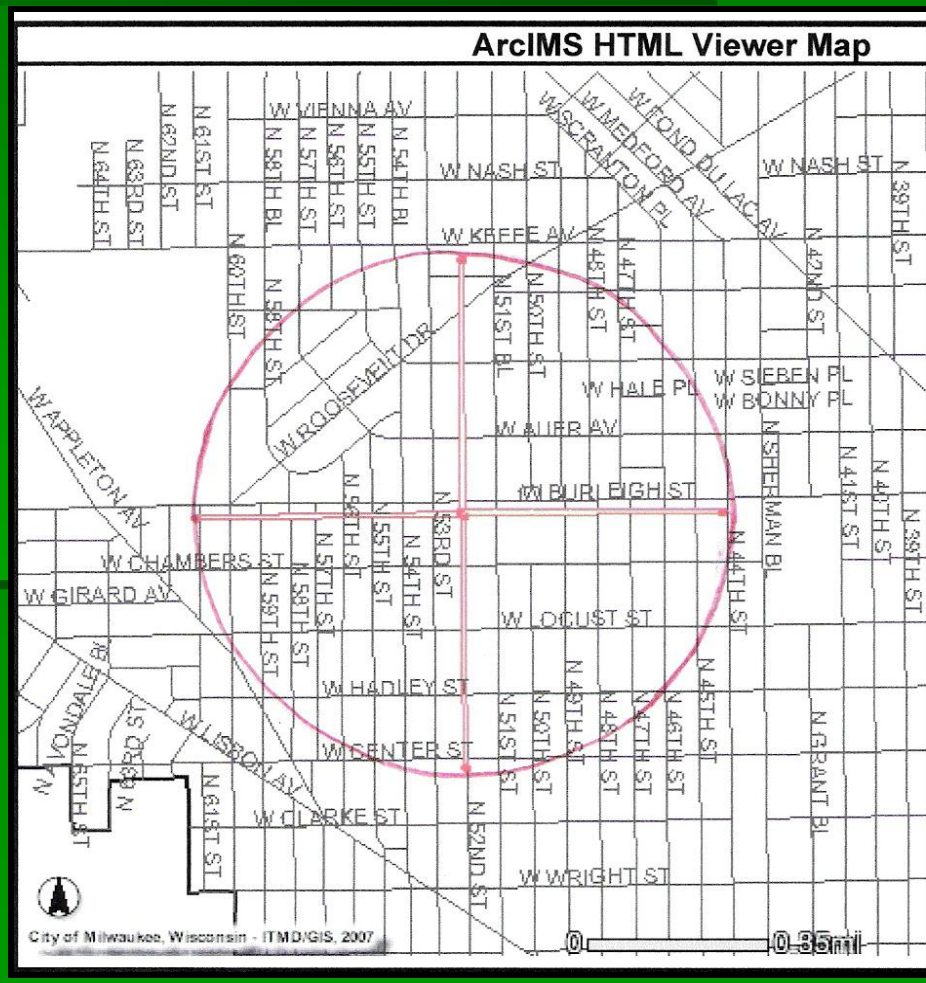
EAB - Current Control & Management Options

- **Quarantines**
  - Restricts movement of infested host material such as logs, firewood, mulch, or nursery stock
  - Area may be an individual property, township, county or an entire state



EAB - Current Control & Management Options

- **Eradication cuts**
  - Removal of all ash >1" DBH within ½ mile of an infested tree
    - Includes trees previously treated for EAB



EAB - Current Control & Management Options

- Marshalling yards
  - For wood disposal
  - Wood is processed into wood chips

EAB - Current Control & Management Options

- **Chemical treatment options**
- Not 100% effective!
- Used as a **preventative** treatment on healthy trees
- Less effective if tree is already infested with EAB
- Only recommended within 10-12 miles from a confirmed EAB infestation
- Insecticides are more effective on smaller trees - <10” DBH

Professional Insecticide Treatments:
Imidacloporid - Applied Annually

- Soil injections

EAB - Current Control & Management Options

- **Chemical treatment options**

Professional Insecticide Treatments:

- Trunk injections
- Foliar and bark sprays

Homeowner Insecticide Treatments:

- Soil Drench
  - Bayer Advanced Garden Tree and Shrub Insect Control

EAB – Chemical Treatment Options

Costs to treat Milwaukee's Ash street trees:

- Target generally healthy Ash – 33,120 trees
- Method of treatment
  - Tree injection (Wedgle) – imidacloporid (Pointer)
  - Systemic
  - One treatment/year

Annual Chemical treatment	Removal & Replacement
$20.00 – 12" Ash tree	$740 – 12" Ash tree

Total annual treatment cost	Total removal & replacement cost
$662,400 / year	$26,640,000

EAB - Current Control & Management Options

- **Biological control options**
- Parasitic wasps
  - Experimental
  - Introduced into Michigan counties
  - Native to China
  - Targets Emerald Ash Borer
  - Lays eggs within larvae and eggs
- Fungus
  - Experimental
  - Beauvaria bassiana – soil borne fungus
  - Attaches and germinates on EAB bodies

How may we find Emerald Ash Borer in Milwaukee?

- Detection surveys
- Dead and hazard tree survey of public and private trees
- Hazard and diseased tree ordinance enforcement
- During municipal forestry operations
  - Tree pruning and removals
  - Evanston, Illinois infestation found by city park crews
- Public awareness programs
- Phone calls from concerned citizens
  - Lily Lake, Illinois infestation noticed & reported by citizen

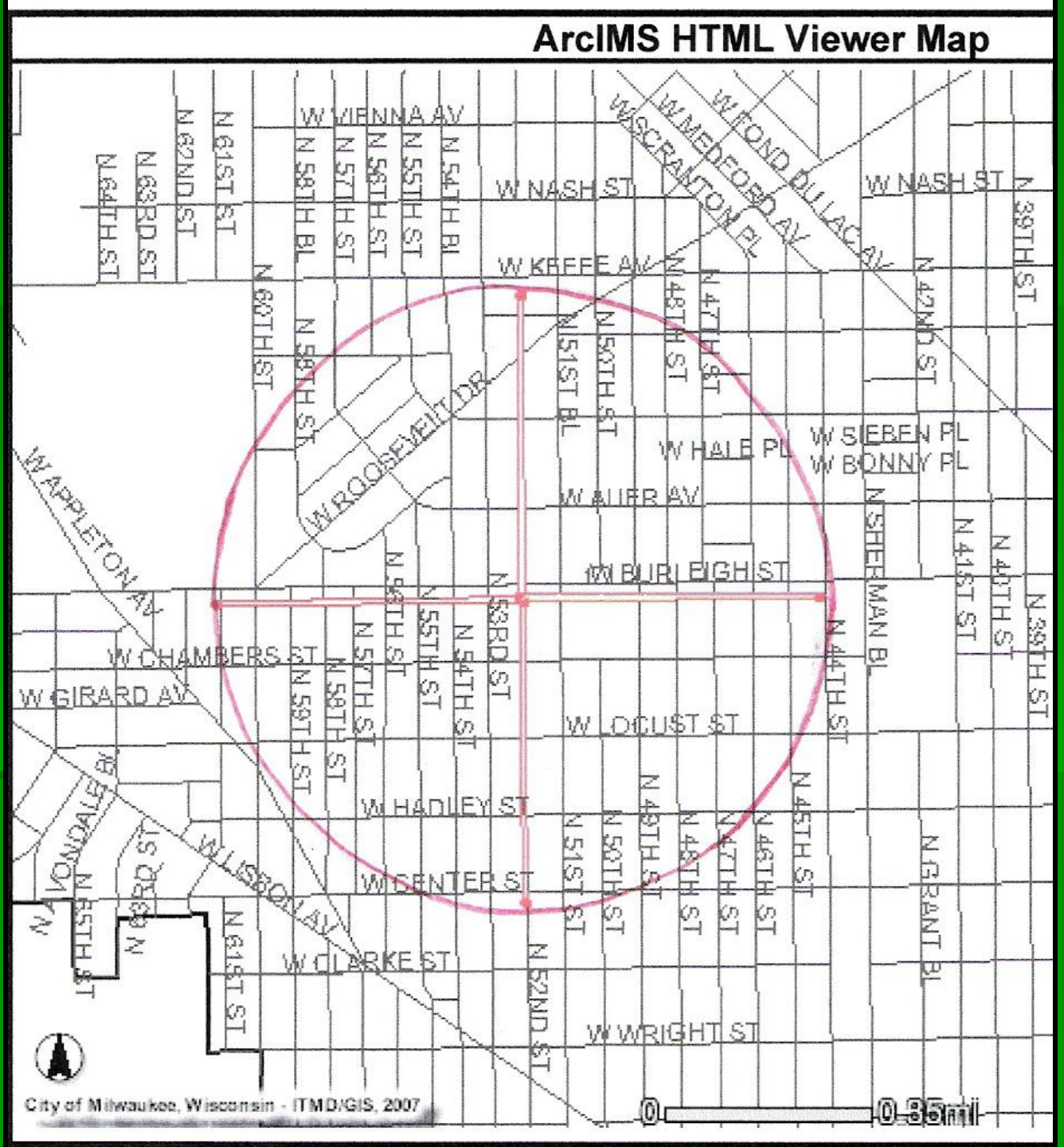
What will happen if EAB is found?

- WDATCP – Lead Agency for response
- Conduct delimiting survey to determine core infestation area
- Quarantine the affected area
  - Restricts movement of infested host material such as logs, firewood, mulch, or nursery stock
  - Area may be an individual property, township, county or an entire state
- Identify the source of the EAB
  - Firewood, nursery stock, shipping containers
  - Locate unknown infestations
  - Prevent further introduction of EAB

What will happen if EAB is found?

- Develop plan of action
  - Based on delimitation survey
  - Minimize spread of EAB from site of initial infestation
  - Coordinate response with affected localities
- Eradication
  - Targets isolated infestations
  - Removal of all ash >1" DBH within ½ mile of an infested tree
    - Includes trees previously treated for EAB
  - Initially funded by State and Federal funds
    - Removals conducted by contractors
    - Costly – Approx. $1 million/ eradication cut
    - If eradication program fails or federal funds run out, EAB management will become the responsibility of the local municipality

Single Eradication Zone – City of Milwaukee



What will happen if EAB is found?

- Tree disposal/utilization
  - Challenging due to quarantine restrictions
  - Possible uses of ash material
    - Landscape Mulch
    - Wood pulp chips
    - Solid wood products (lumber, railroad ties)
    - Biomass fuel
  - Regional Urban Wood Utilization Committee - established in 2007

What will happen if EAB is found?

Communications Plan

- Coordinate efforts among cooperators to provide timely, clear, accurate and consistent information to a variety of audiences
- Offer a single point of contact for:
  - Media
  - The public
  - Local officials
  - Federal cooperators
  - Industry
- Develop and distribute outreach materials:
- Conduct public meetings
- Direct outreach materials and public meetings to all impacted groups

Milwaukee Forestry Division
EAB Readiness Planning

Checklist (complete)

- ✓ Provide training for Forestry staff on EAB signs and symptoms
- ✓ Established EAB local and regional readiness teams
- ✓ Keep elected officials informed of EAB threat and the importance of thorough preparation
- ✓ Reviewed tree ordinance for regulatory authority

Milwaukee Forestry Division
EAB Readiness Planning

Checklist (In Progress)

- Develop a written EAB readiness plan
- Survey public and private ash trees for signs of EAB
  - Dead and hazard tree survey done annually by Forestry staff (July-August)
  - Setup protocol for reporting ash tree problems and follow up
- Complete street tree inventory
  - Accurately assess location, size and condition of Ash street trees
  - Projected removal and replacement costs of Ash
  - 2-3 year projected finish

Milwaukee Forestry Division
EAB Readiness Planning

Checklist (In progress)

- Assess budget and service impacts
  - Will current budget cover management costs for EAB?
  - How may other forestry services may be affected?
  - Projected chemical treatment cost
  - Explore alternative funding mechanisms
- Review Species Diversity Plan
  - Consider alternative trees to replace ash
  - Evaluate intra-block species diversity

Milwaukee Forestry Division
EAB Readiness Planning

Checklist (In progress)

- Identifying possible locations for waste wood processing/staging site (marshalling yards)
- Investigate/develop/market utilization opportunities for Ash residue

Milwaukee Forestry Division EAB Readiness Planning

Checklist (pending)

- Inventory private Ash trees
  - Windshield survey
  - Hyper-spectral imagery
    - Legislative earmark for grant funding – Senator Kohl
    - Establish cooperative with other communities and WE Energy
- Develop a public awareness plan to include:
  - Media contacts
  - Messages
  - Strategies

QUESTIONS?