

SLAM – An Integrated Strategy to **SL**.ow **A**.sh **M**.ortality in Emerald Ash Borer Outlier Sites

Steven Katovich

USDA Forest Service, Forest Health Protection



SLAM objectives

- **Slow** the onset and progression of widespread ash mortality in an EAB outlier site.
- **Reduce** the rate at which EAB populations grow or spread or both.

Cooperative Emerald Ash Borer Project
 EAB locations in Illinois, Indiana, Iowa, Kentucky, Maryland, Michigan, Minnesota, Missouri, New York, Ohio, Pennsylvania, Tennessee, Virginia, Wisconsin, West Virginia and Canada

November 1, 2010

Map Key

- EAB source
- EAB under quarantine systems, found in forest or woodland
- Quarantine EAB control the boundary
- EAB quarantine generally in forest area
- EAB source
- EAB under quarantine systems, found in forest or woodland
- Quarantine EAB control the boundary
- EAB quarantine generally in forest area

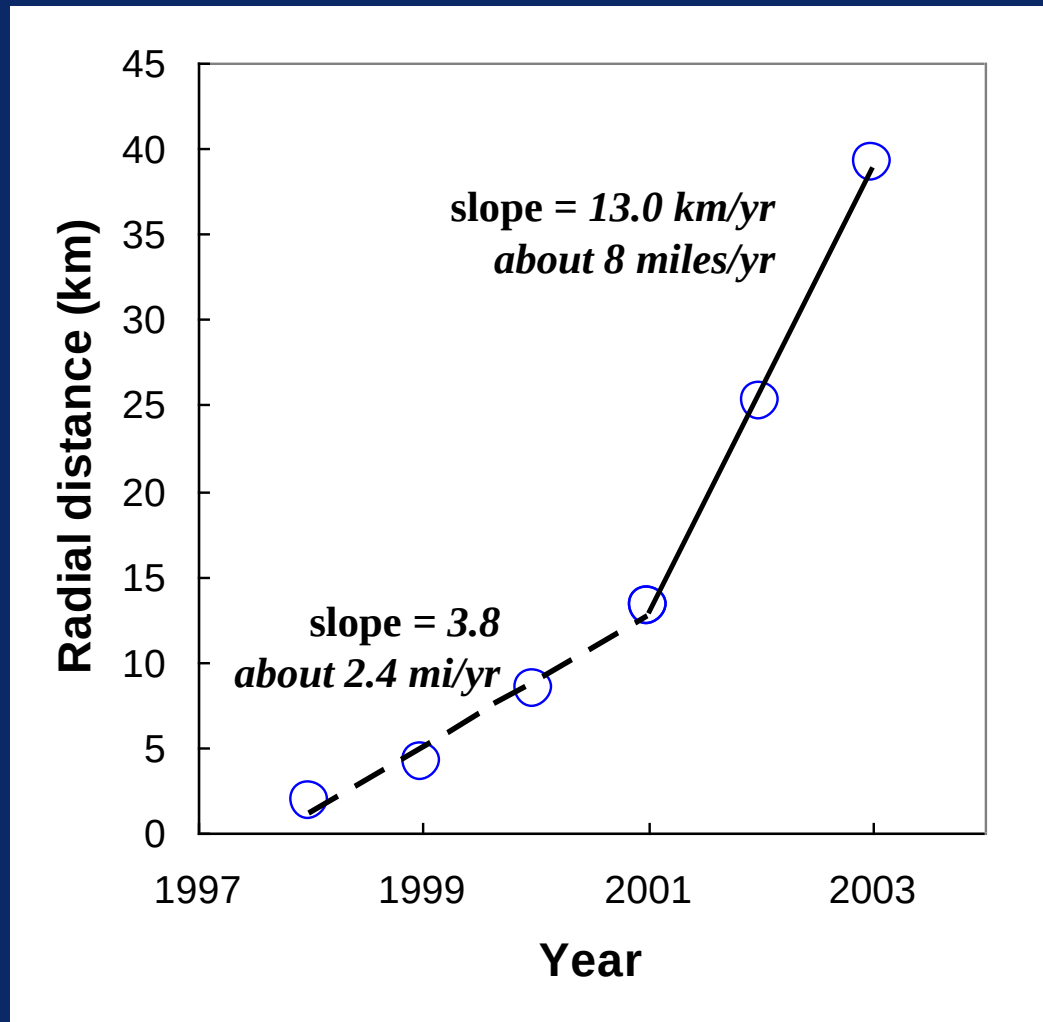
USDA

- SLAM is not an eradication program – this means that we should expect local EAB populations to build and spread....but this should occur at a slower pace than what would happen if SLAM tactics were not applied.
- SLAM is an attempt at buying time, locally and regionally.

The Over-Riding Theme of a SLAM Strategy

- **Reduce** EAB numbers and the growth of EAB populations

Radial Distance of the Expanding EAB Core in SE Michigan



Type 2: Biphasic radial expansion of the EAB invasion, data from N. Siegert

SLAM

Steps in Implementing a Strategy to SLow A.sh
M.ortality

March 2010

For further information contact: Steven [Katovich](mailto:skatovich@fs.fed.us), USDA Forest Service, skatovich@fs.fed.us
or Deborah McCullough, Michigan State University, mccullo6@mail.msu.edu

SLAM components

- EAB surveys for distribution and density
- Ash surveys for distribution and amount
- Population suppression tools and tactics
 - Removal of infested trees, insecticide treatments, girdled ash trees (sinks), ash utilization (phloem reduction)
- Regulatory activities
- Data management and evaluation
- Outreach and communications

SLAM

Steps in Implementing a Strategy to SLow A.sh
M.ortality

March 2010

For further information contact: Steven [Katovich](mailto:skatovich@fs.fed.us), USDA Forest Service, skatovich@fs.fed.us
or Deborah McCullough, Michigan State University, mccullo6@mail.msu.edu

March 2010 Revision – Suppression Component

- Increased emphasis on the use of insecticide injected trees
- Emphasis on removing known infested trees before emergence occurs
- Look for opportunities to use sinks, especially at “newer” sites.
- Reduced emphasis on the use of phloem reduction (should be combined with sink trees or insecticide treated trees).

Population suppression tools and tactics - Prompt removal of infested trees

- EAB infested trees can produce ca. 8-10 EAB adults per square ft of bark surface area.
- A single 20 inch diameter ash tree can produce 3600-4000 beetles.

Reduce EAB numbers and the growth of EAB populations



Population suppression tools and tactics – insecticide treated trees toxic to EAB

- Newly emerged beetles feed on ash leaves prior to mating and egg laying – toxic leaves will kill any EAB adults that feed on them.
- Place treated ash trees around an EAB infestation so that dispersing beetles encounter toxic trees as they move out of an area.



Photo – David Cappeart

Reduce EAB numbers and the growth of EAB populations

Population suppression tools and tactics – girdled ash trees that act as EAB sinks



- Dispersing female beetles will be attracted to stressed, freshly wounded ash trees where they will lay eggs. This concentrates EAB into trees that can be removed before emergence of the next generation of beetles.

Reduce EAB numbers and the growth of EAB populations

Population suppression tools and tactics – ash utilization

- Harvesting ash trees for timber or firewood reduces the amount of ash phloem EAB larvae need for development – less phloem – less food – fewer offspring.....
- By itself removing ash phloem is unlikely to reduce spread rates – it should be done along with sinks and/or insecticides. Sinks should help retain beetles in the area.

SLAM Pilot Project

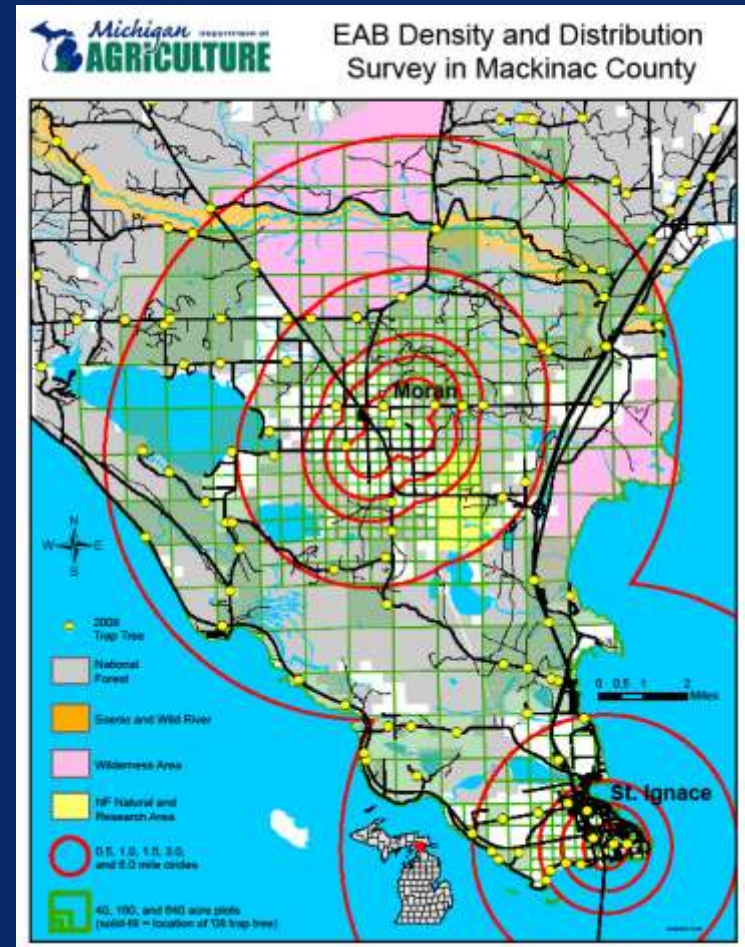
Moran and St. Ignace, Michigan

Fall 2007

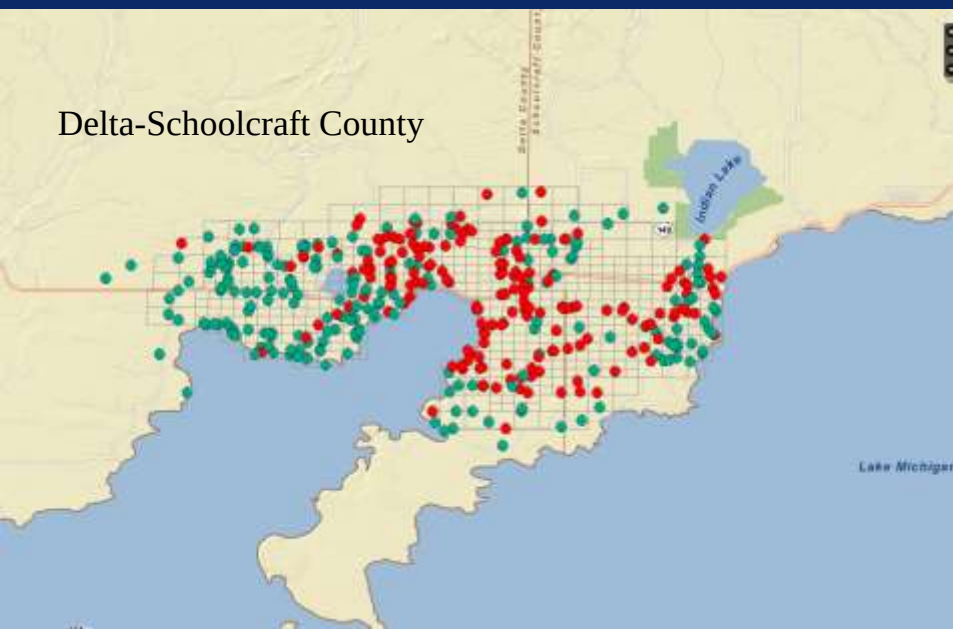
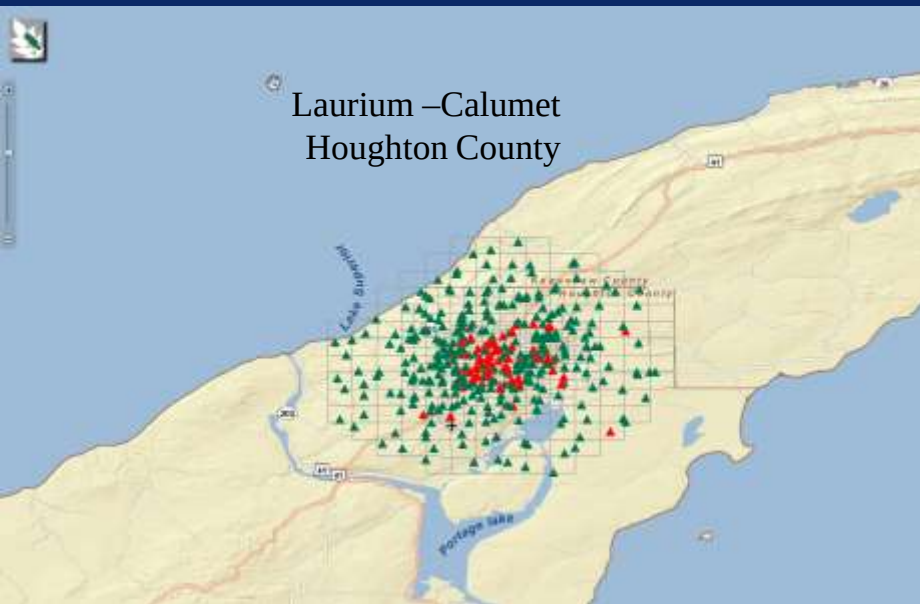
A total of 13 infested trees were identified in Moran by Nov. 2007. The oldest larval gallery was dated to 2005.

Another infested tree was later found in St. Ignace, MI, 7 miles south of Moran.

These two apparently isolated, young infestations provided an opportunity to implement and evaluate the SLAM strategy



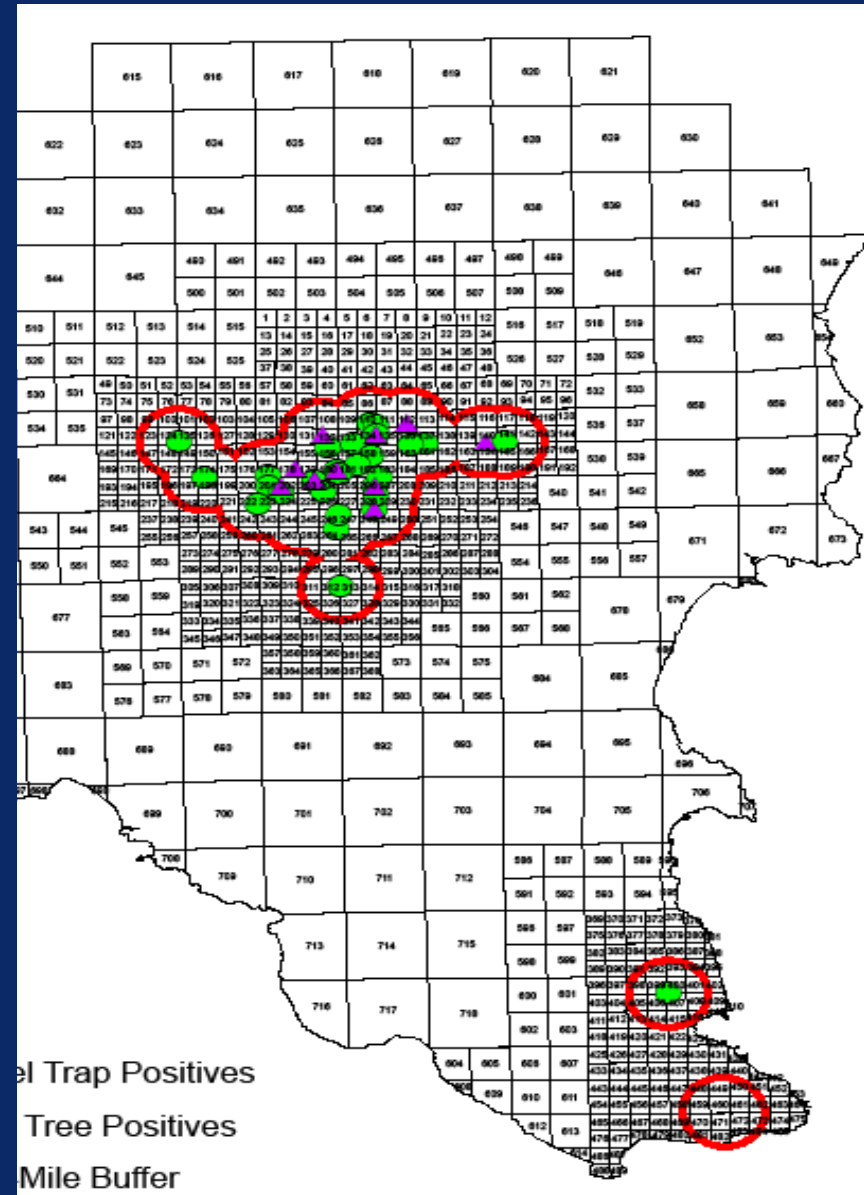
SLAM Pilot Project – Upper-Peninsula of Michigan



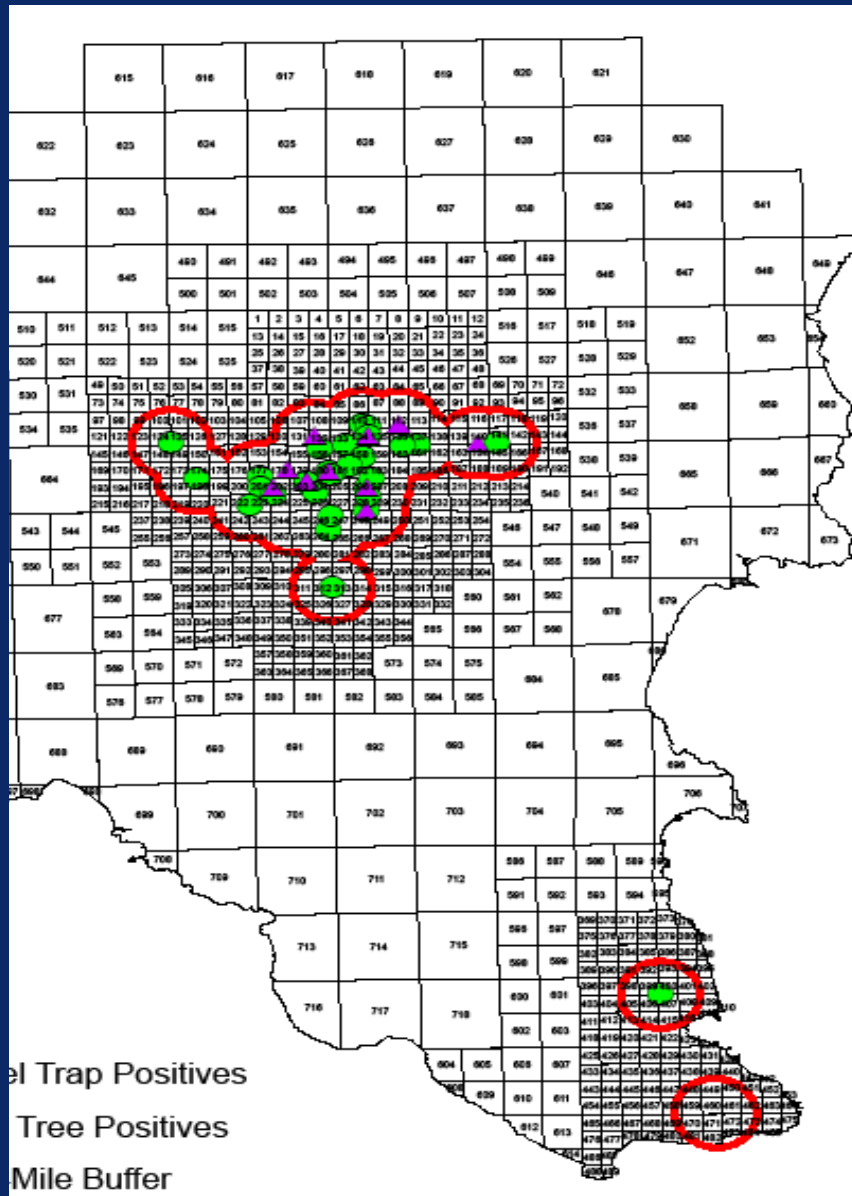
No treatments in 2008

2008 Results

- **Moran**
- 24 positive girdled trees; average larval density = 8 EAB per m² (very low density).
- 10 prism traps captured at least 1 EAB beetle.
- No ash trees had external symptoms of EAB infestation.
- **St. Ignace**
- 2 positive girdled trees; No positive prism traps.



2008



2010



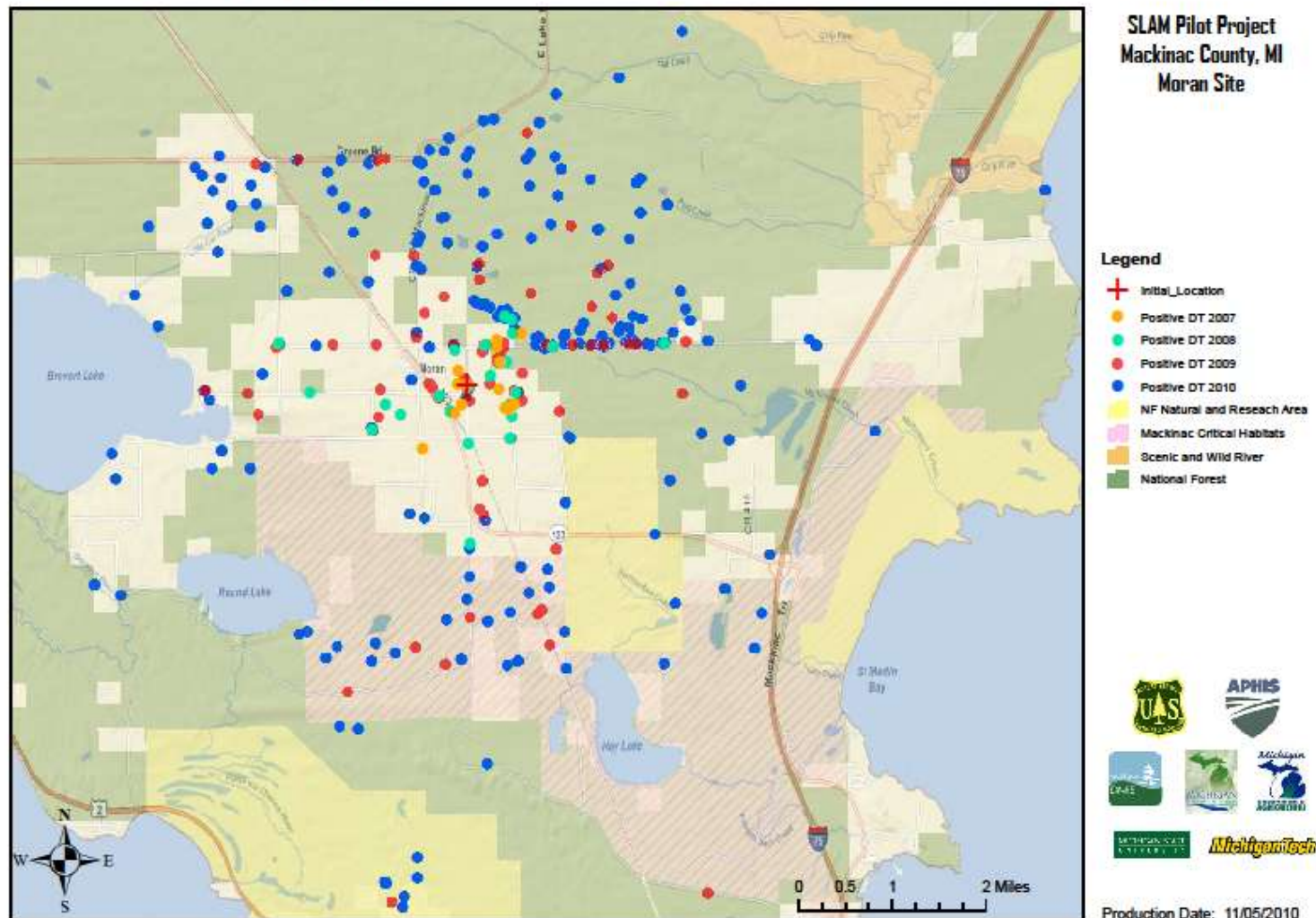
SLAM Objectives

Slow the onset and progression of widespread ash mortality in an outlier site.

Reduce the rate at which EAB populations grow or spread or both.

Moran 2010

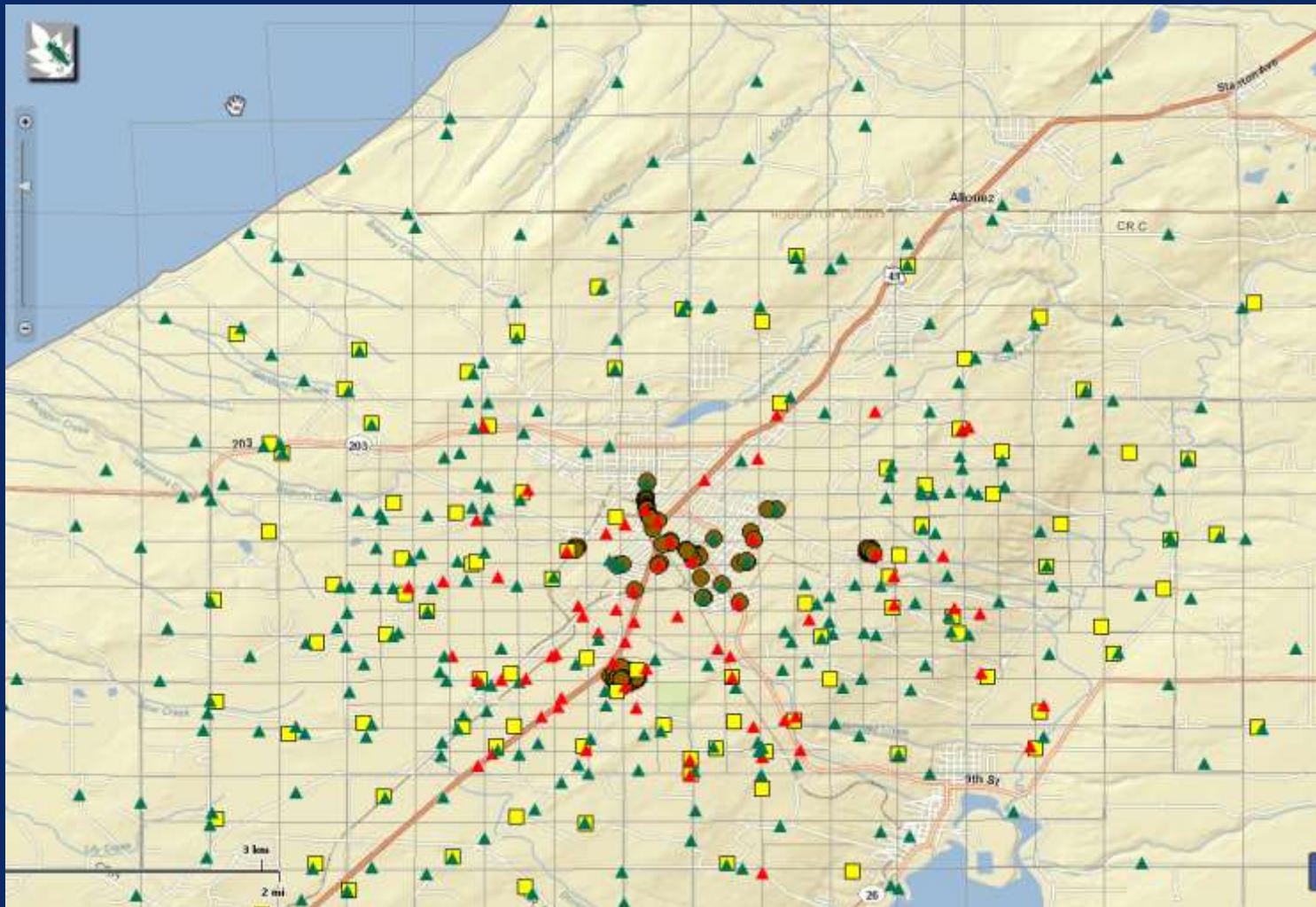
EAB Positive Detection Trees 2007-2010



St. Ignace – 2010 Insecticide Treatments and Positive/Negative Trap Trees



Houghton Co. Site – Insecticide Treatments (brown), Ash Health Plots (yellow), Positive Panel Traps (red) and Negative Panel Traps (green)



SLAM web site — www.slameab.info



SLAM

EMERALD ASH BORER
SLOW ASH MORTALITY
PILOT PROJECT

[Home](#)[About](#)[FAQ](#)[For Landowners & Residents](#)[Implementation](#)[Operations](#)[Partners](#)[Contacts](#)

Working to SLAM EAB



"Everyone agrees that we need to do something besides stand back and watch the ash trees die."

So goes the reasoning behind the project to SLAM — SLow ASH M.ortality — in Michigan's Upper Peninsula, said Deborah McCullough, professor of forest entomology at Michigan State University (MSU). Emerald ash borer (EAB), an exotic pest from Asia, was discovered in southeast Michigan in 2002. Since then, this invader has killed an estimated 40 million ash trees in lower Michigan. Populations of EAB have now been found in at least 14 other states and two Canadian provinces, costing public and private landowners millions of dollars. The SLAM project is a collaborative effort involving MSU, the USDA Forest Service, USDA Animal and Plant Health Inspection Service (APHIS), Michigan Technological University (MTU), the Michigan Dept. of Agriculture (MDA), the Michigan Dept. of Natural Resources (MDNR), and Michigan Conservation Districts in Michigan's Upper Peninsula. The goal of the SLAM pilot project in Michigan's Upper Peninsula is to delay and slow the expansion of ash mortality by reducing populations of the beetle in newly-infested sites, outside of known EAB infestations.

"It's not common to have people from this many agencies collaborate on a project," said John Bedford, MDA pest response program manager. "We all share a goal of developing an integrated management plan for EAB outlier sites that can eventually be used in other states."

Several management tactics can be used to slow EAB spread and ash mortality in a newly-infested site. Data from the project will be evaluated yearly and adjustments will be made as needed.

For more information about the emerald ash borer, please visit <http://www.emeraldashborer.info/>.

News

- SLAM tech teams cuts ash trees to detect EAB
- SLAM project featured in Newsletter of the Michigan Entomological Society
- Federal funds will help efforts to slow the emerald ash borer invasion in Michigan and beyond
- New strategy being developed to deal with emerald ash borer

Important Documents

- SLAM: Steps in Implementing a Strategy to SLow ASH M.ortality (pdf)
- SLAM: A multi-agency pilot project to SLow ASH M.ortality caused by emerald ash borer in outlier sites (pdf)
- Using girdled trap trees effectively for emerald ash borer detection, delimitation & survey (pdf)
- Insecticide options for protecting ash trees from emerald ash borer (pdf)

Acknowledgements – Thanks to the SLAM Working Group

John Bedford – Michigan Department of Agriculture

Bob Heyd and Ron Murray - Michigan DNR

Andrew Storer - Michigan Tech University

Deborah McCullough and Amos Ziegler - Michigan State University

Therese Poland – USFS, Northern Research Station

Jean Perkins - Hiawatha National Forest

