Invasive Non-native Forest Pests In New York: Impacts, Issues, and Actions

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Department of Natural Resources

Asian Longhorned Beetle (ALB)

Emerald Ash Borer (EAB)

Asian Longhorned Beetle Impact

Asian Longhorned Beetle Impact

Emerald Ash Borer

The EAB in North America

- 2002 First detected near Detriot, MI
- First established in 1994
- Has spread to 13 states and 2 Provinces
- Movement primarily by:
  - Firewood
  - Nursery stock
  - Saw timber

Howard Russell, Michigan State University, Bugwood.org

EAB Life cycle

David Cappaert, Michigan State University, forestryimages.org

Adults lay eggs in mid to late June

Eggs laid on bark surface, cracks

Creamy white turning to amber

Hatch in 7 to 10 days

Larva – four instars

301 to 315 days

David Cappaert, Michigan State University, Bugwood.org

EAB Life cycle

David Cappaert, Michigan State University, bugwood.org

Larvae

David Cappaert, Michigan State University, bugwood.org

Late instar larvae feeding on bark

Michigan Department of Agriculture, bugwood.org

Larval galleries under bark

EAB Life cycle

Toby Petrice, USDA Forest Service, Bugwood.org

Late instar larva

Pre pupa

David Cappaert, Michigan State University, bugwood.org

David Cappaert, Michigan State University, bugwood.org

Pupa – about 28 days

EAB Life cycle

Daniel Herms, The Ohio State University, Bugwood.org

Emergence holes

David Cappaert, Michigan State University, bugwood.org

Toby Petrice, USDA Forest Service, Bugwood.org

EAB Life cycle

David Cappaert, Michigan State University, bugwood.org

Daniel Herms, The Ohio State University, Bugwood.org

David Cappaert, Michigan State University, bugwood.org

Adult – female lives 21 to 25 days

2-3 week maturation feeding on leaves

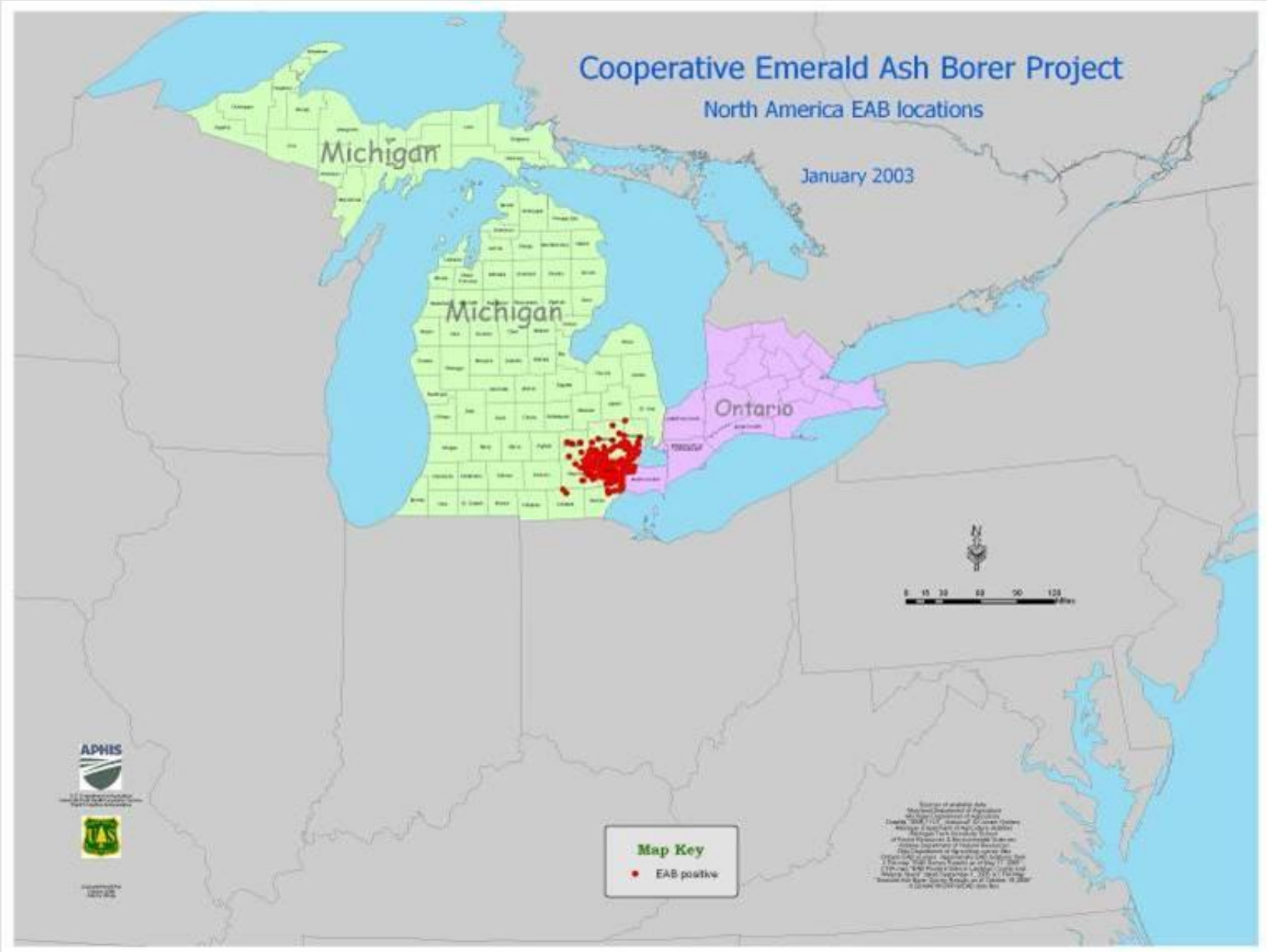
Female lays 60 to 90 eggs

Signs & Symptoms

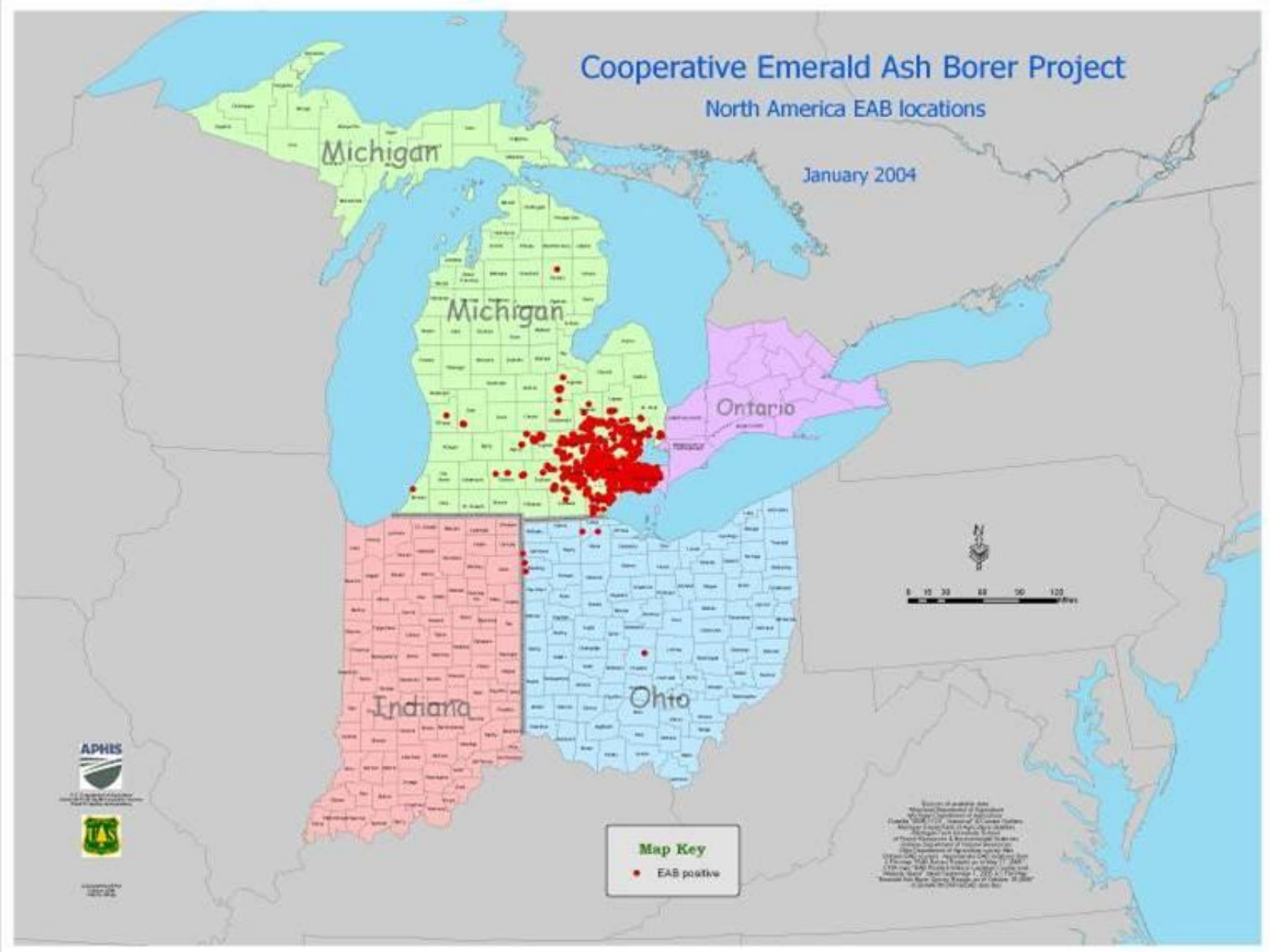
- Start infesting branches in the top of the tree
- Likes open grown or edge trees
- Canopy thinning
- Branch dieback
- “D” shaped adult exit holes
- Increased woodpecker activity
- Epicormic, or water sprouting

Toby Petrice, USDA Forest Service, bugwood.org

January 2003



January 2004



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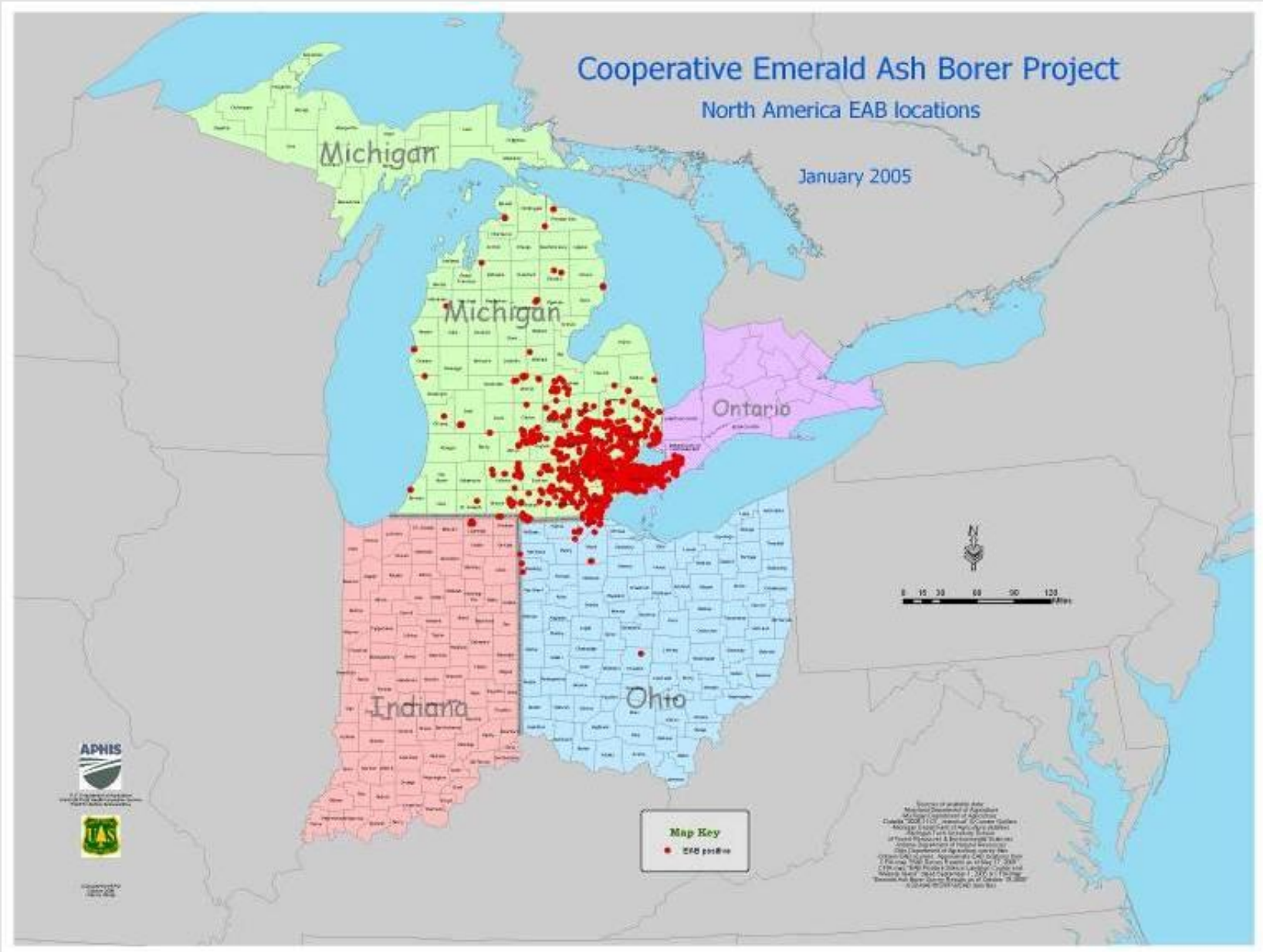
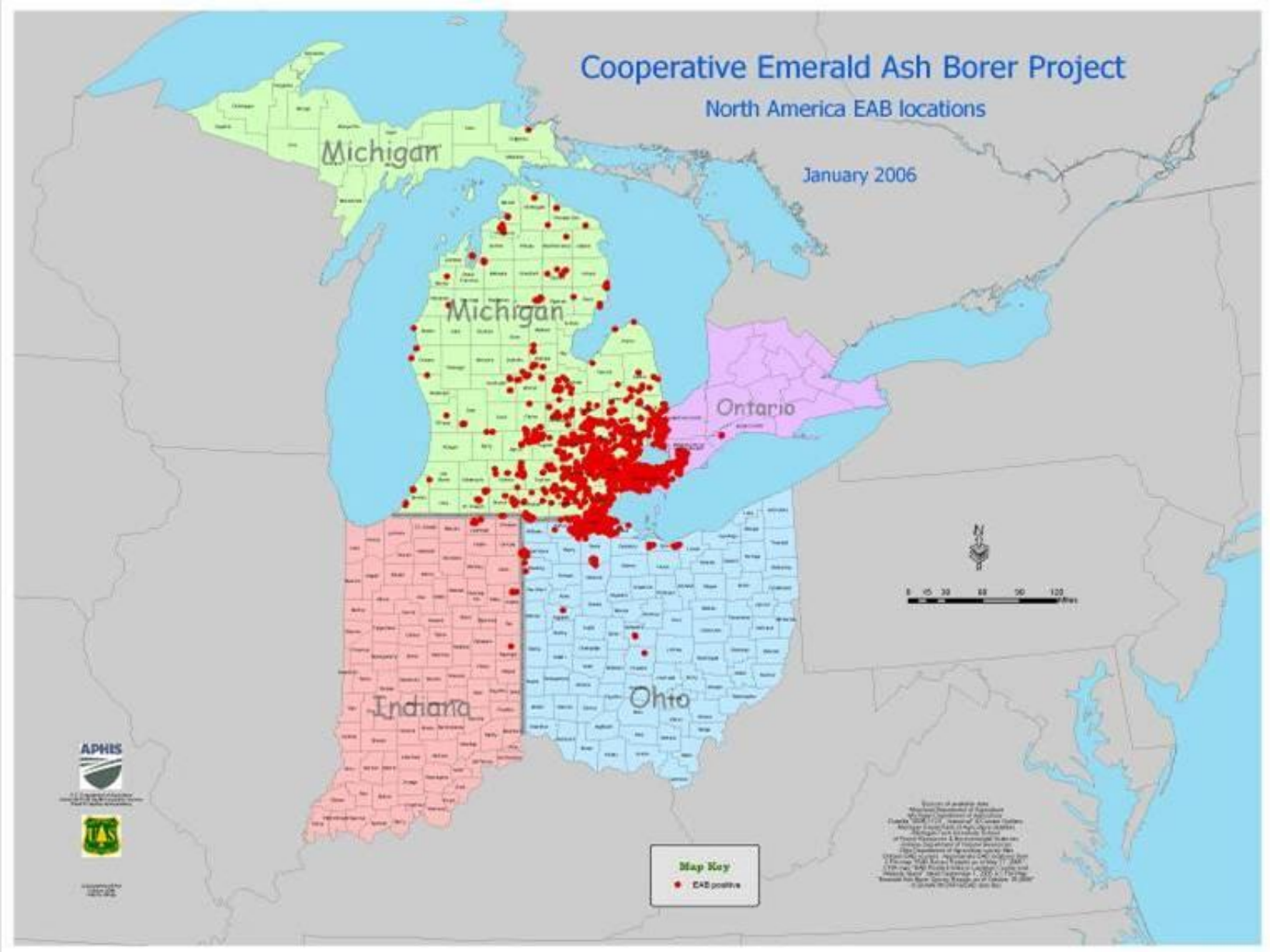
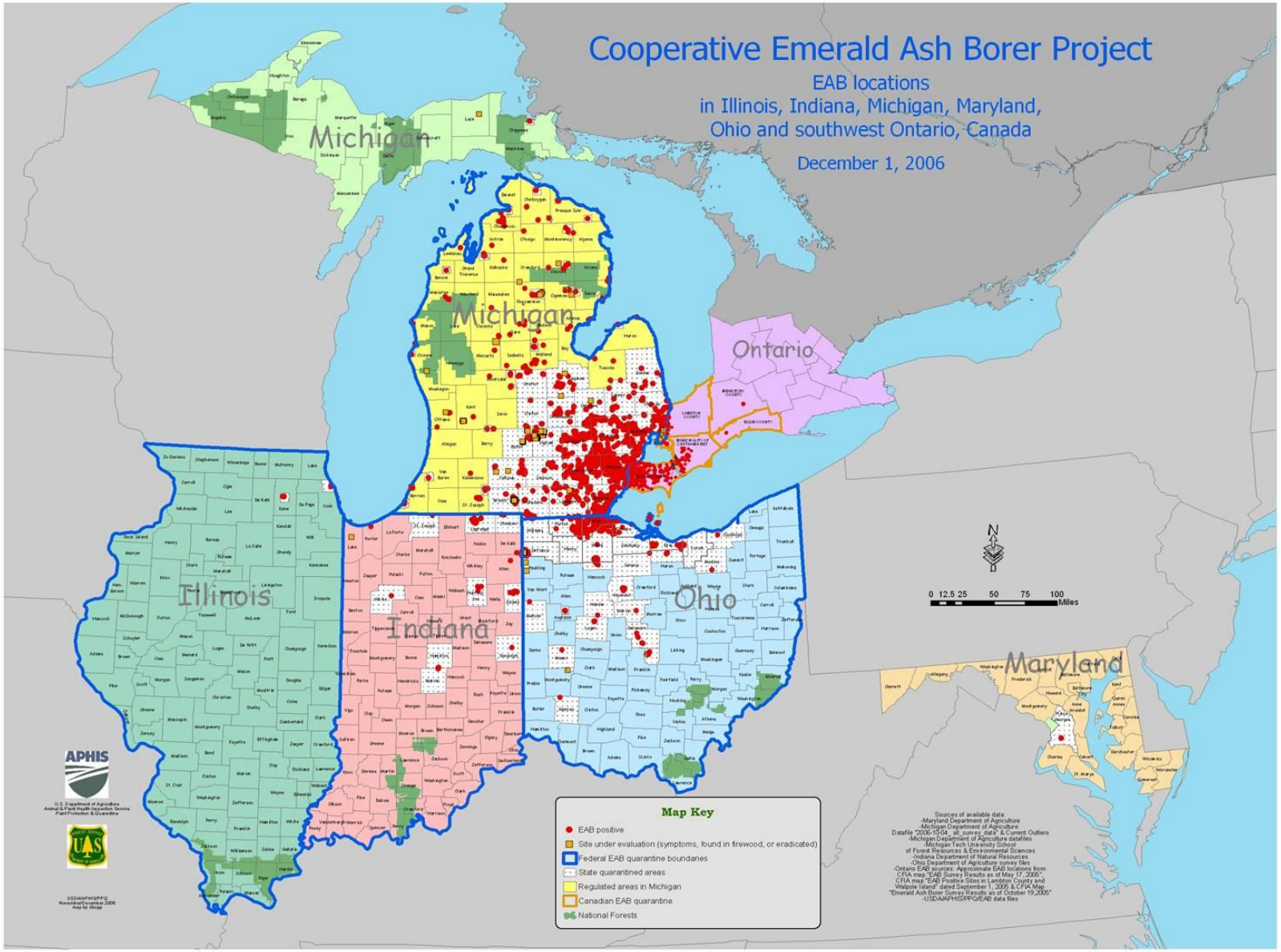


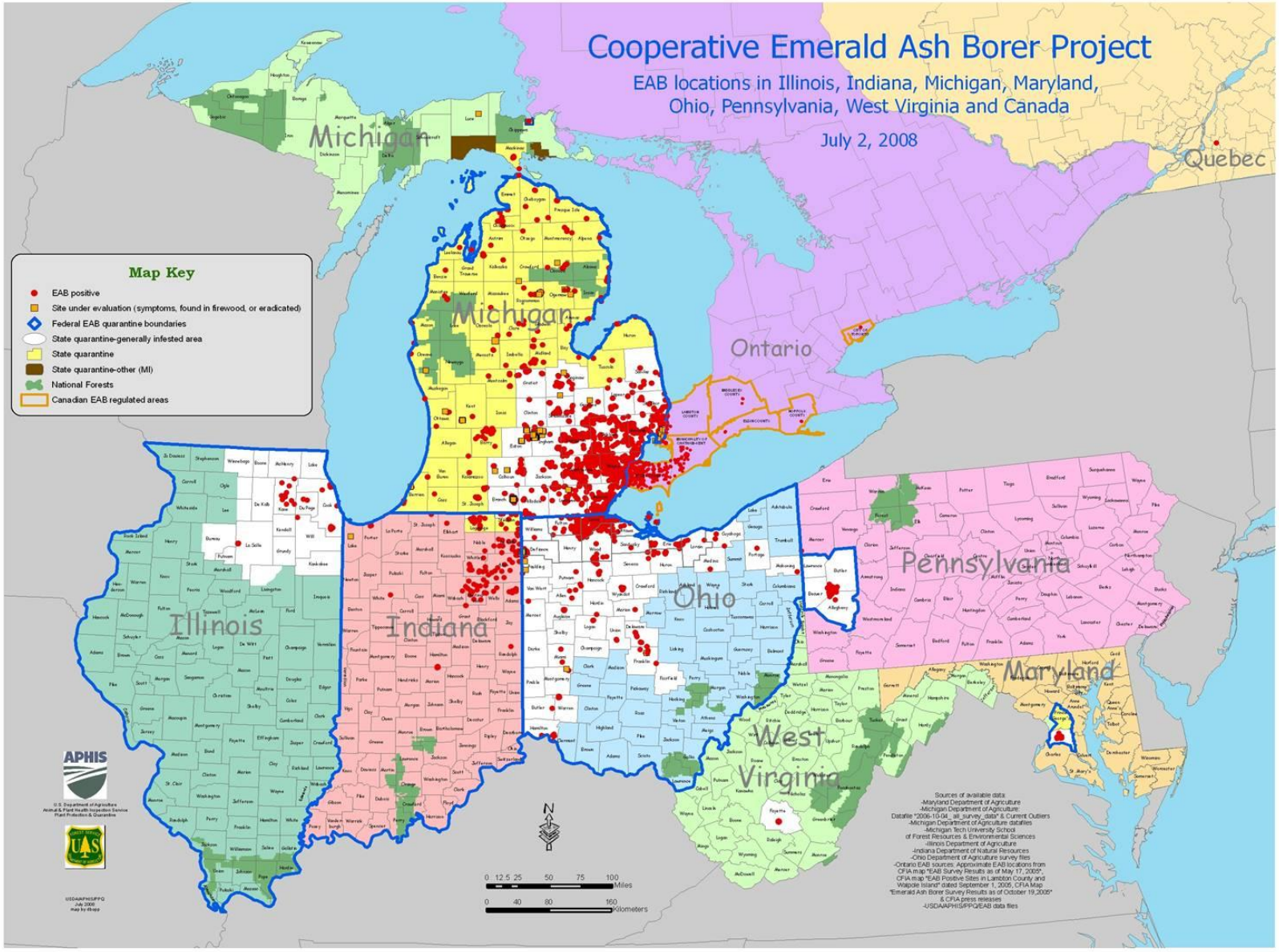
January 2006



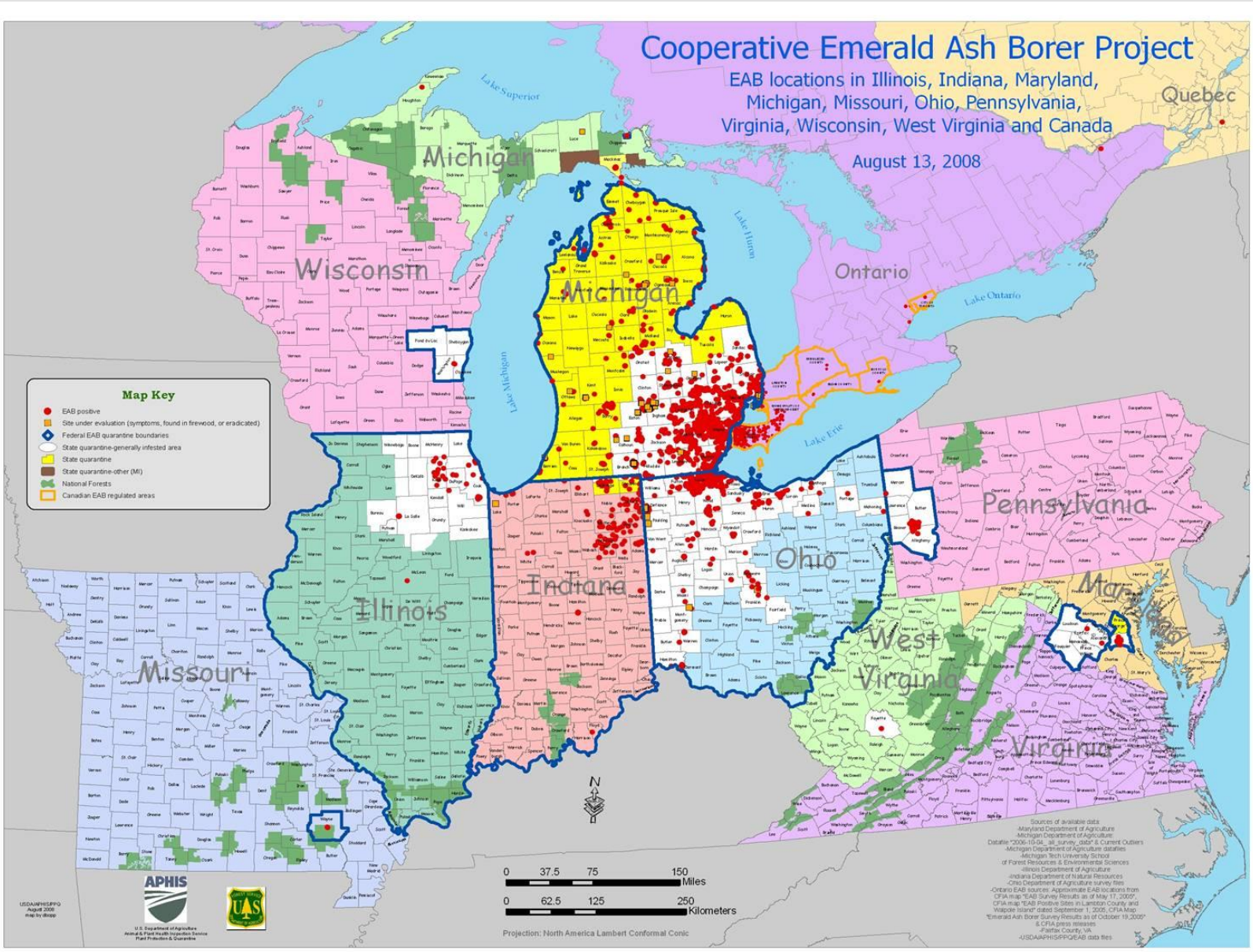
December 2006



July 2008


Cooperative Emerald Ash Borer Project
EAB locations in Illinois, Indiana, Michigan, Maryland,
Ohio, Pennsylvania, West Virginia and Canada
July 2, 2008
Map Key
EAB positive
Site under evaluation (symptoms, found in firewood, or eradicated)
Federal EAB quarantine boundaries
State quarantine-generally infested area
State quarantine
State quarantine-other (MI)
National Forests
Canadian EAB regulated areas
Michigan
Michigan
Ontario
Quebec
Illinois
Indiana
Ohio
Pennsylvania
Maryland
West Virginia
APHIS
N
0 12.5 25 50 75 100 Miles
0 40 80 160 Kilometers

August 2008


Cooperative Emerald Ash Borer Project
EAB locations in Illinois, Indiana, Maryland, Michigan, Missouri, Ohio, Pennsylvania, Virginia, Wisconsin, West Virginia and Canada
August 13, 2008
Map Key
EAB positive
Site under evaluation (symptoms, found in firewood, or eradicated)
Federal EAB quarantine boundaries
State quarantine-generally infested area
State quarantine
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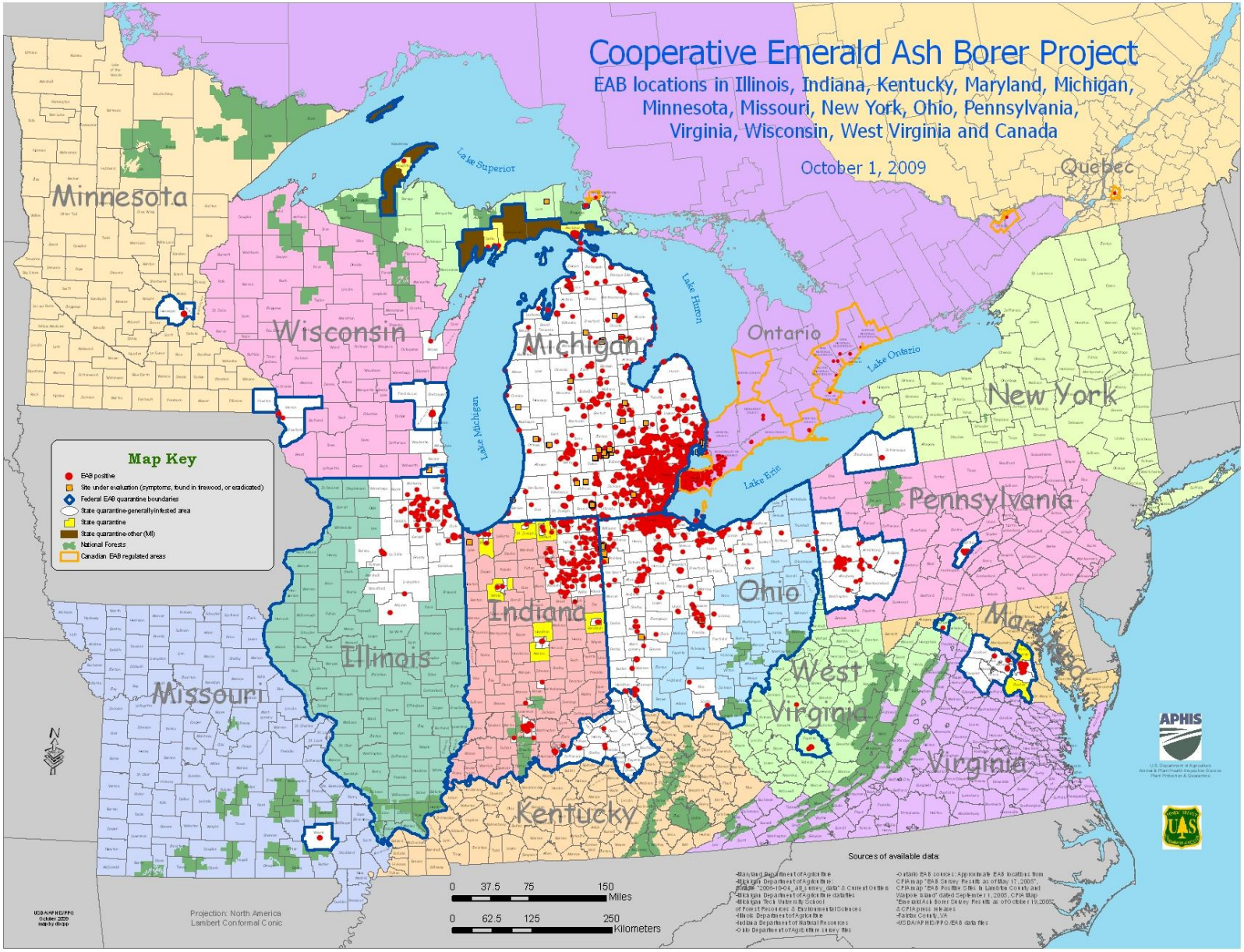
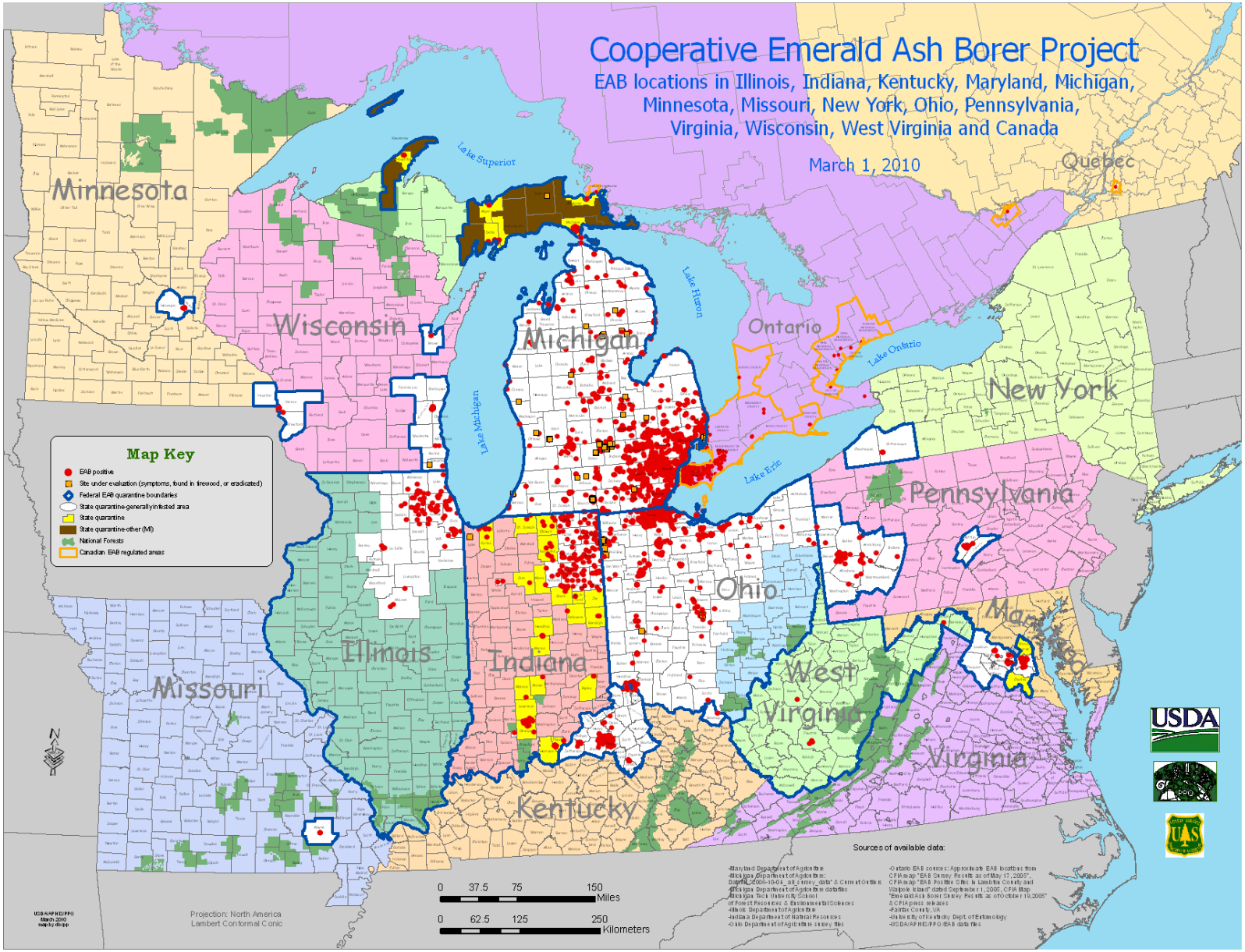
National Forests
Canadian EAB regulated areas
Lake Superior
Lake Huron
Lake Michigan
Lake Erie
Lake Ontario
Michigan
Wisconsin
Michigan
Ontario
Quebec
Pennsylvania
Ohio
Indiana
Illinois
Missouri
West Virginia
Virginia
Maryland
N
0 37.5 75 150 Miles
0 62.5 125 250 Kilometers
Projection: North America Lambert Conformal Conic
APHIS
U.S. Department of Agriculture
Animal & Plant Health Inspection Service
Plant Protection & Quarantine

October 2009



March 2010


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
March 1, 2010
Minnesota
Wisconsin
Michigan
Ontario
Quebec
New York
Pennsylvania
Ohio
Illinois
Indiana
Missouri
West Virginia
Virginia
Kentucky
Lake Superior
Lake Huron
Lake Michigan
Lake Erie
Lake Ontario
Map Key
EAB positive
Site under evaluation (symptoms, found in firewood, or eradicated)
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Canadian EAB regulated areas
N
0 37.5 75 150 Miles
0 62.5 125 250 Kilometers
Projection: North America Lambert Conformal Conic
Sources of available data:
USDA

Infested Green Ash

David Cappaert, Michigan State University, bugwood.org

Infested Green Ash

Pennsylvania Department of Conservation and Natural Resources , bugwood.org

Tree death generally takes 2 to 3 years.

Infested Ash

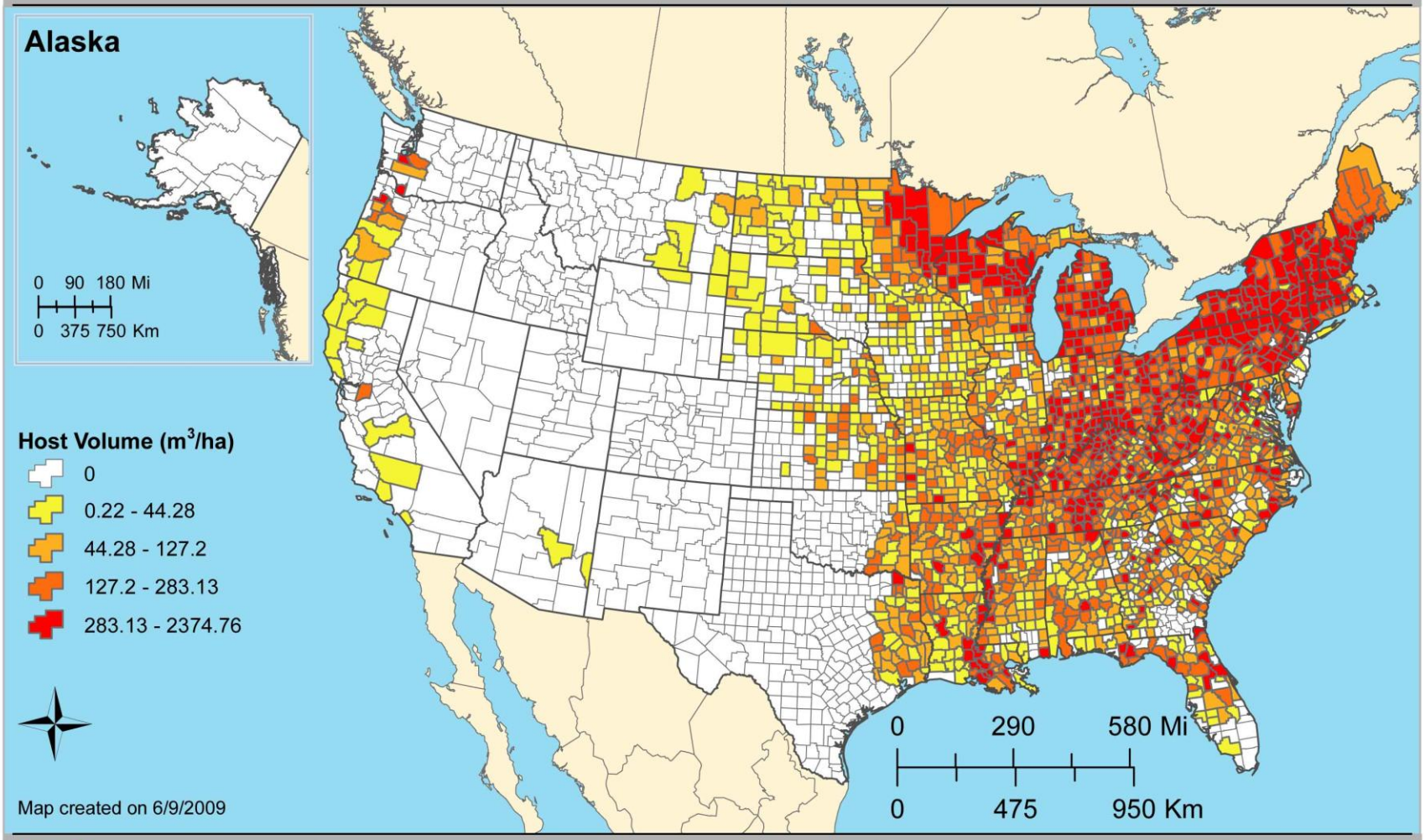
Alien Forest Pest Explorer

www.fs.fed.us/ne/morgantown/4557/AFPE/

Host Tree Volume Map

Emerald Ash Borer

Agrilus planipennis



USDA Forest Service

Northern Research Station

Eastern Forest Enviornmental Threat Assessment Center

Forest Health Technology Enterprise Team

RSAC Remote Sensing Applications Center

Randolph, NY

- **EAB first detected Sunday, 14 June 2009**
- **39 infested trees cut and chipped on 24 June, since then 6 more trees discovered.**
- **Infestation is at least 2 years old, likely more.**
- **Infestation delimitation in progress.**
  - **1800 purple sticky traps deployed in 2009 with 8/ square mile or 1/ 80 acres. No EAB caught.**

Randolph, NY

CORE EAB INFESTATION - Randolph, Cattaraugus County
June 22, 2009

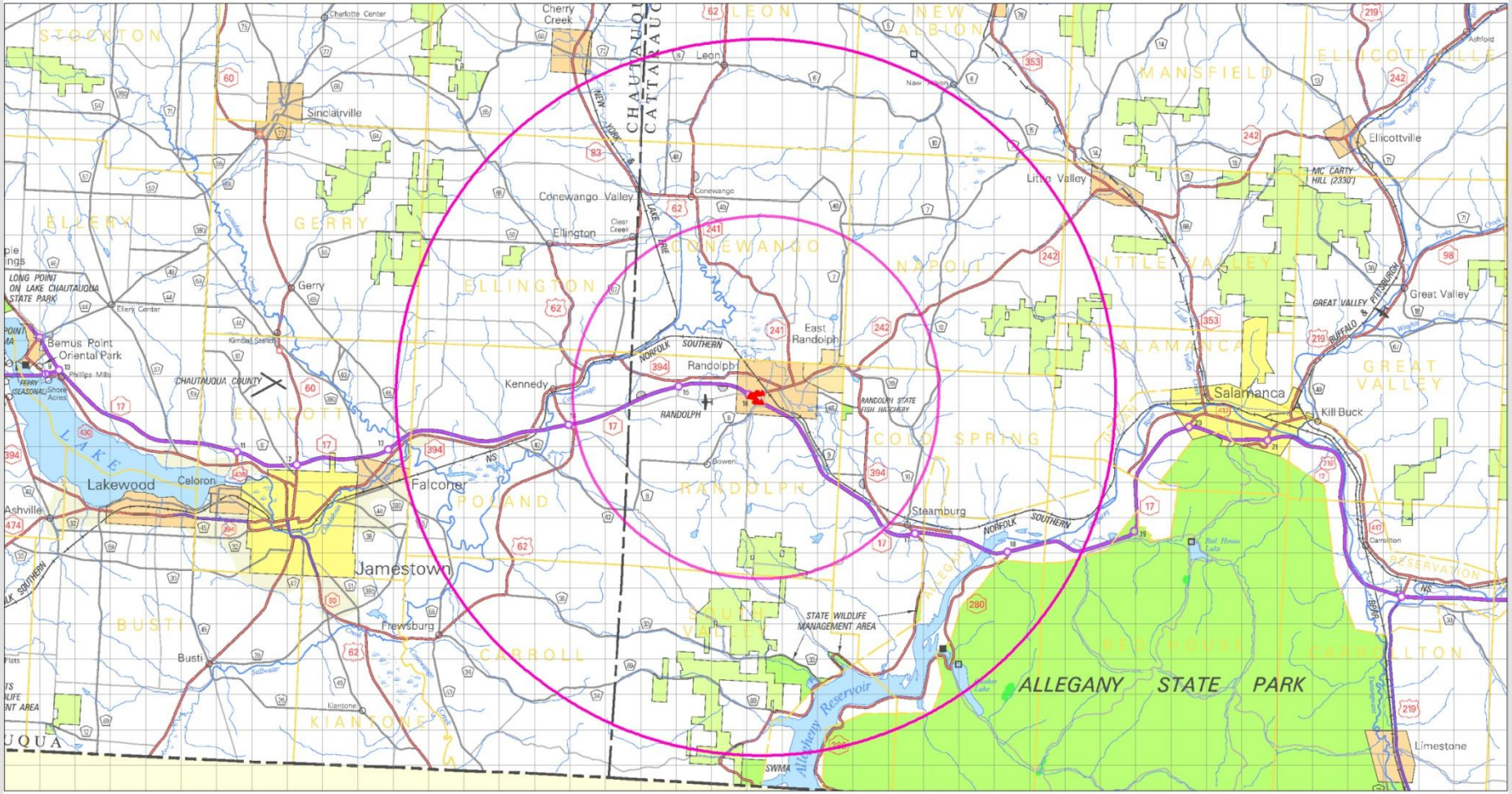
NYS Department of Agriculture & Markets
NYS Department of Environmental Conservation
USDA Animal and Plant Health Inspection Service

0 200 400 600 800 1,000 Feet

N

Randolph, NY

TEN MILE DELIMITING SURVEY - Randolph, Cattaraugus County
June 22, 2009



NYS Department of Agriculture & Markets
NYS Department of Environmental Conservation
USDA Animal and Plant Health Inspection Service

IMPACTS

- Economic
- Cultural
- Ecological

IMPACTS

- **Economic**
  - **Timber value**
  - **Landscaping value**
  - **Home heating/ cooling**
  - **Water use**

IMPACTS

- Cultural
  - Aesthetics
    - Tourism – Fall colors
    - Landscaping
  - Traditional uses
    - Baseball bats, Maple sugar, Baskets

IMPACTS

- Ecological
  - –Potential to lose species
  - –What will replace them?
    - Inasives
  - –Habitat and dependent species

ISSUES

- **Rural Forests**
  - **Declining timber value**
    - **Harvest now?**
  - **Liability and Safety**
    - **Ash rot quickly! No time to lose.**

ISSUES

- Urban Forests
  - Political
    - It's not here, why bother?
    - It doesn't look dead!
    - Proactive vs. reactive resource allocation

ISSUES

- Urban Forests
  - Liability and Safety
    - No street tree inventory.
    - Ash rot quickly, must act fast.
    - Whose tree is that anyway?
    - Pesticide use.

ISSUES

- Urban Forests
  - Resources
    - Ash die quickly, not prepared.
    - Time needed to train personnel.
    - Equipment needs.
    - Search for outside funding sources.

ACTIONS

- Eradication?
- Do nothing?
- Slow the Spread

ACTIONS

- Slow the Spread
  - Time for preparation
  - Minimize economic impact
  - Develop control strategies
  - Education

ACTIONS

- Slow the Spread
  - Time for preparation – Planning!
    - Develop Community Action Plans.
      - Tree inventory
      - Personnel training
      - Treatment decisions
      - Contractual arrangements
      - Inter-municipal cooperation

ACTIONS

- Slow the Spread
  - –Minimize economic impact
    - Develop wood utilization options.
      - –Specialized machinery necessary
      - –Chip utilization – mulch, power
    - Gradual urban tree replacement

ACTIONS

- **SL**ow **A**sh **M**ortality = **SLAM**
  - **Survey**
    - **Early Detection, Rapid Response**
  - **Use Trap Trees**
    - **Detection and Mop-up**
  - **Treat Urban Trees with Pesticides**

Stop Moving Firewood!