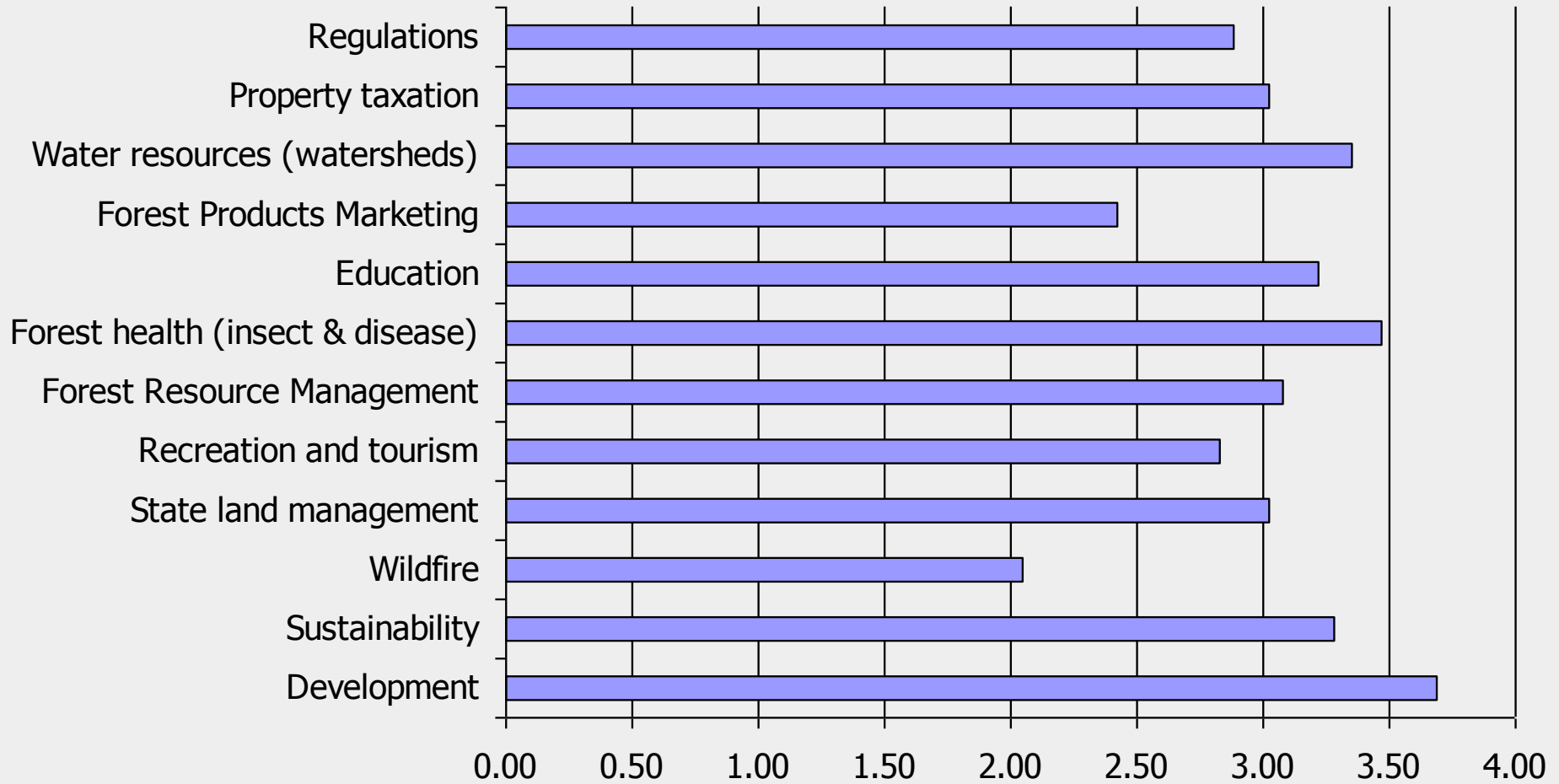


Rhode Island Forest Health Program

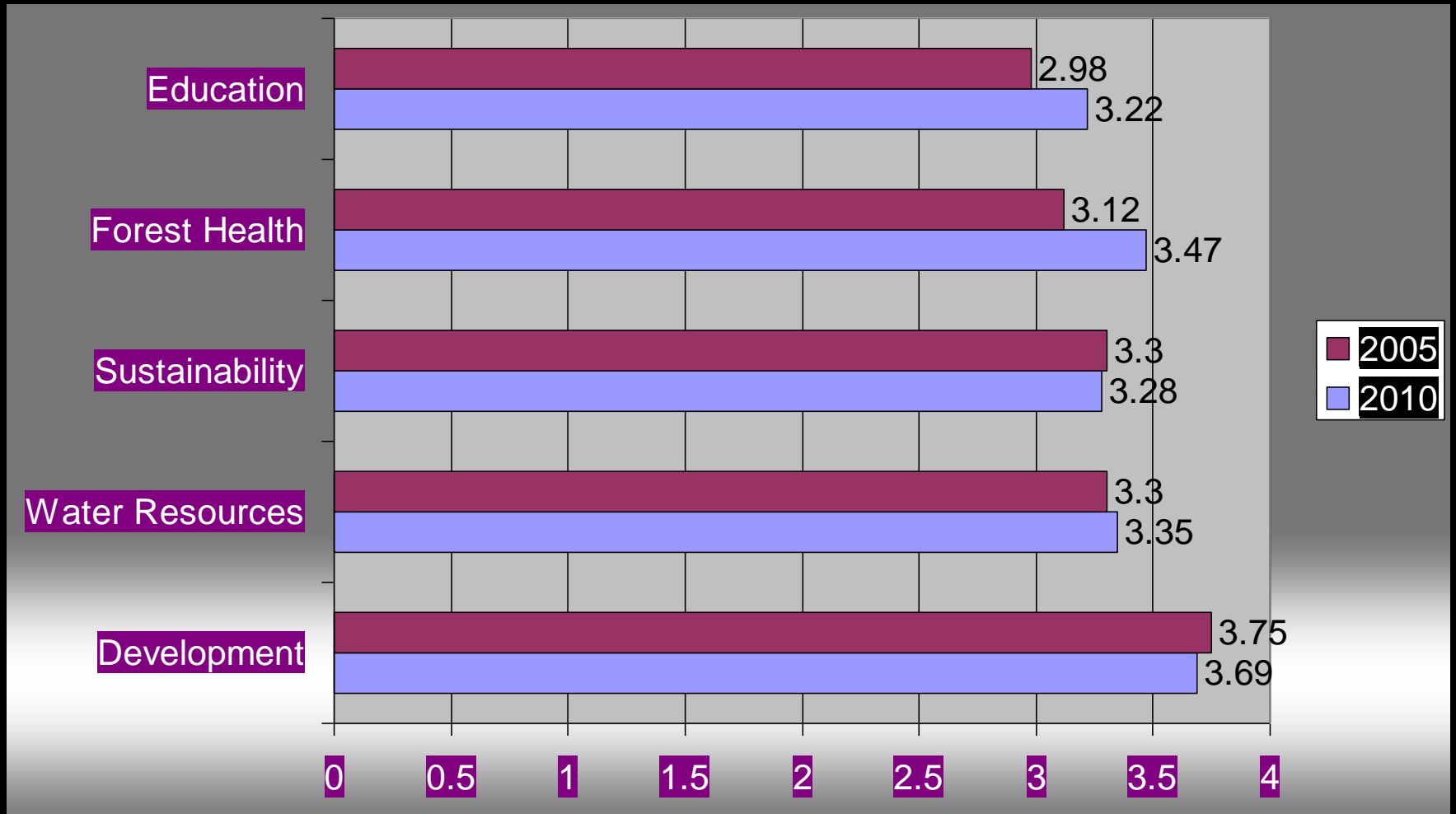
RIFCO Meeting February 11, 2012



What are the key issues affecting the forest resources of Rhode Island.



Issues Critical to Forest Resources in Rhode Island





NATIONAL INSECT and DISEASE RISK MAP

TOP AGENTS BY RANK

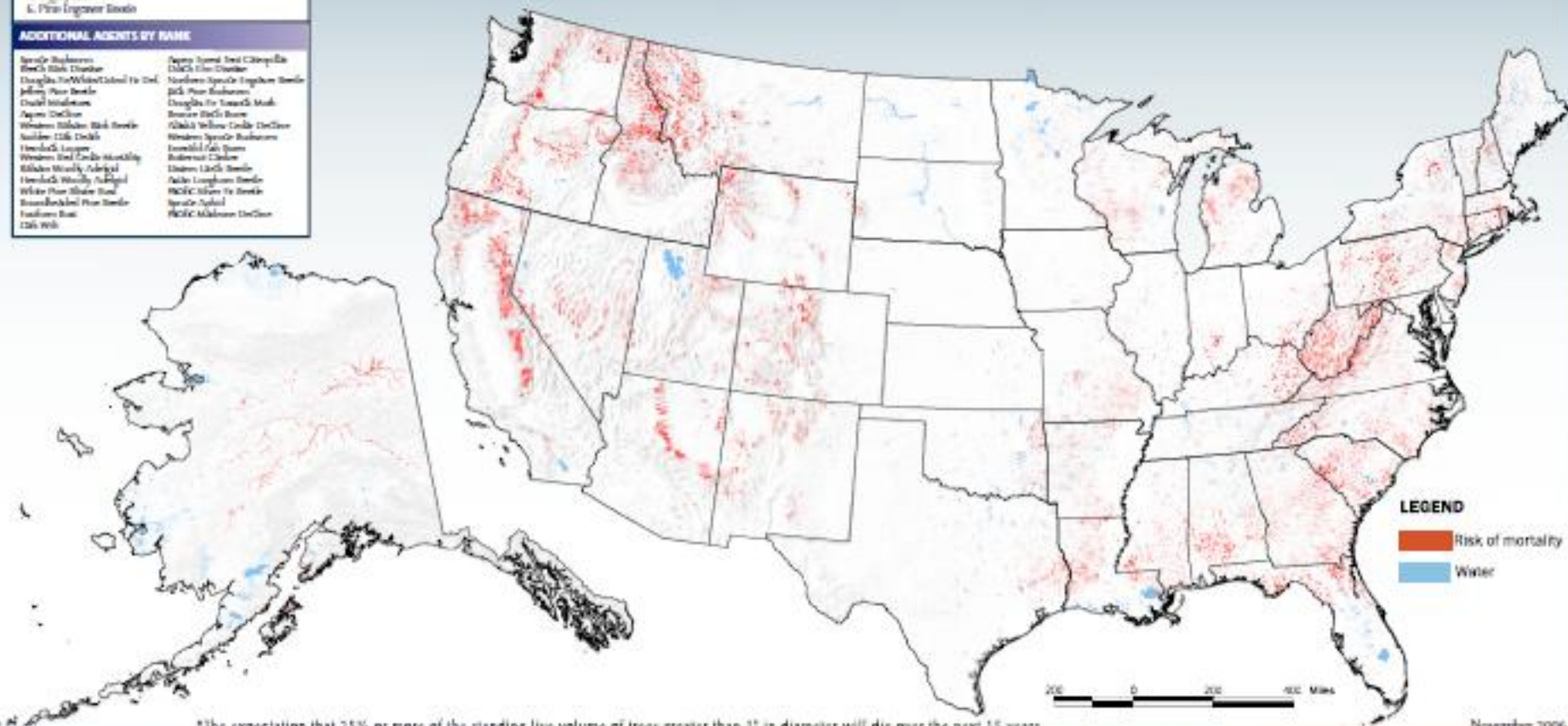
1. Mountain Pine Beetle
2. Red Oak Decline
3. Southern Pine Beetle
4. Root Disease - All
5. Cypress Moth
6. Pine Engraver Beetle
7. Fir Engorged Beetle
8. Douglas-Fir Beetle
9. Spruce Beetle
10. Hardwood Decline
11. Western Pine Beetle

ADDITIONAL AGENTS BY RANK

- | | |
|--------------------------------|---------------------------------|
| Spruce Budworm | Agave Scale and Citrus Scale |
| Pine Bark Beetle | Black Pine Decline |
| Douglas-Fir Wood Boring Insect | Northern Spruce Engorged Beetle |
| Yellow Pine Beetle | Pink Pine Barkworm |
| Coastal Redwood | Douglas-Fir Sawfly Moth |
| Japan Deciduous | Brown Bark Beetle |
| Western Redwood Bark Beetle | Black Yellow Conifer Decline |
| Western Elm Decline | Western Spruce Barkworm |
| Western Spruce Bark Beetle | Western Elm Decline |
| Western White Pine Bark Beetle | Western Elm Decline |
| Western White Pine Bark Beetle | Western Elm Decline |
| Western White Pine Bark Beetle | Western Elm Decline |
| Western White Pine Bark Beetle | Western Elm Decline |
| Western White Pine Bark Beetle | Western Elm Decline |

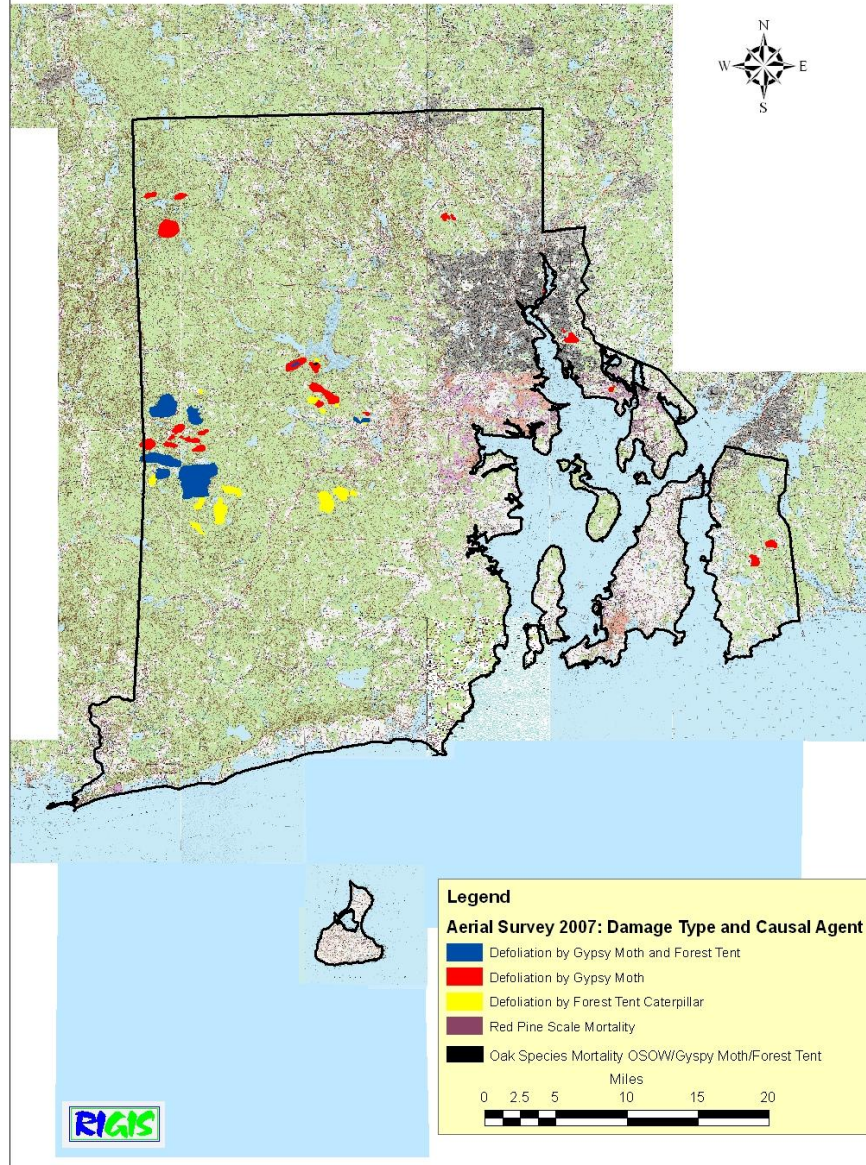
National 2006 Composite Insect and Disease Risk* Map

Acres at risk: Approximately 58 million

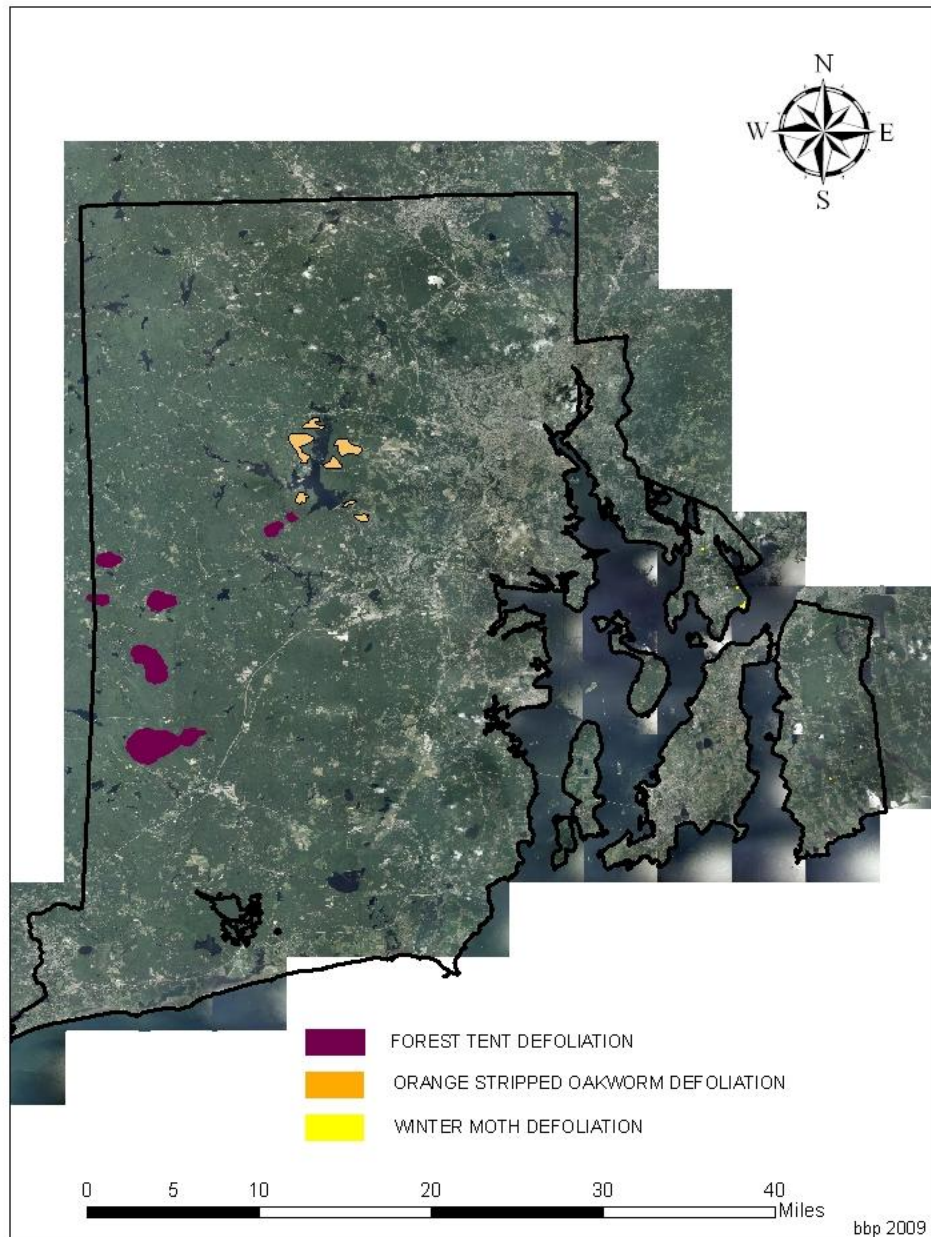


*The expectation that 25% or more of the standing live volume of trees greater than 1" in diameter will die over the next 15 years.

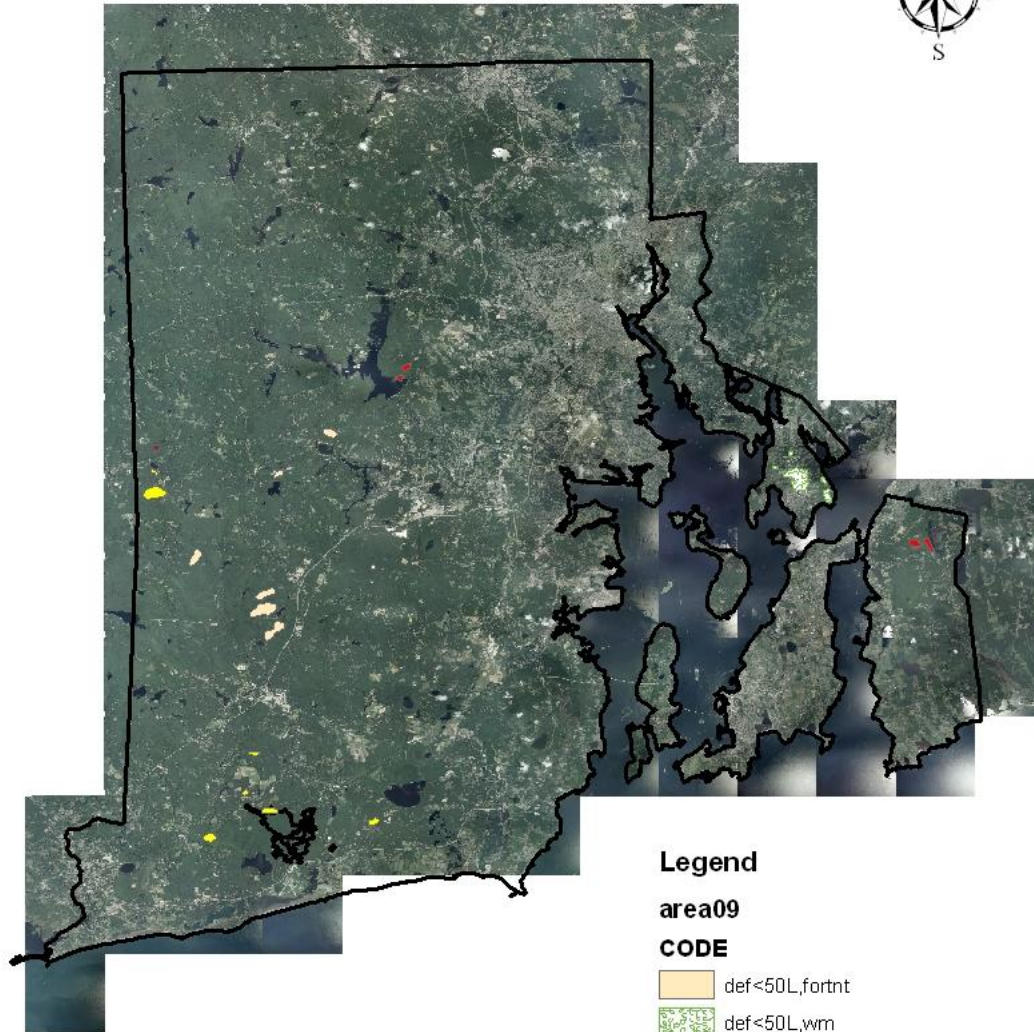
RHODE ISLAND 2007 AERIAL SURVEY



RHODE ISLAND 2008 AERIAL SURVEY







AERIAL SURVEY RHODE ISLAND 2009



Legend

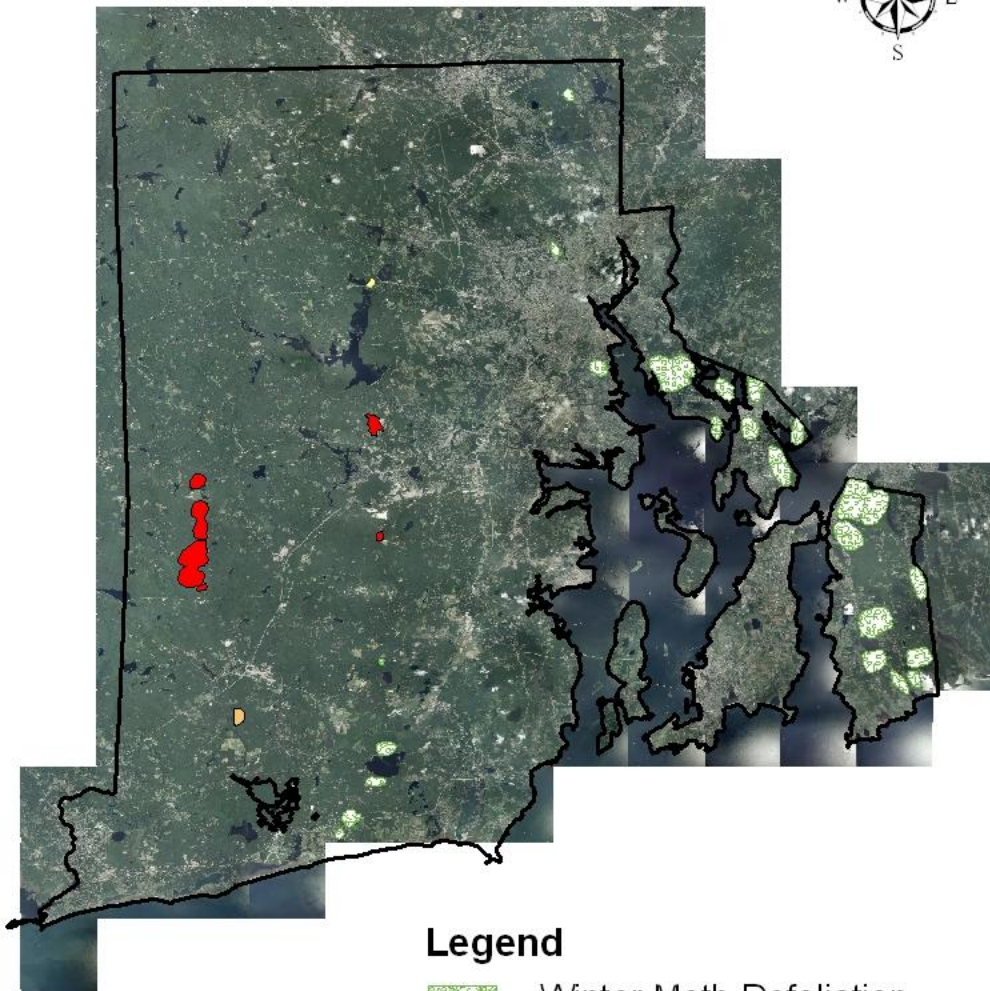
area09

CODE





-  def<50L,fortnt
-  def<50L,wm
-  def>50H,fortnt
-  mort
-  whtpne,disclr

0 2.5 5 10 15 20
Miles

AERIAL SURVEY RHODE ISLAND 2010

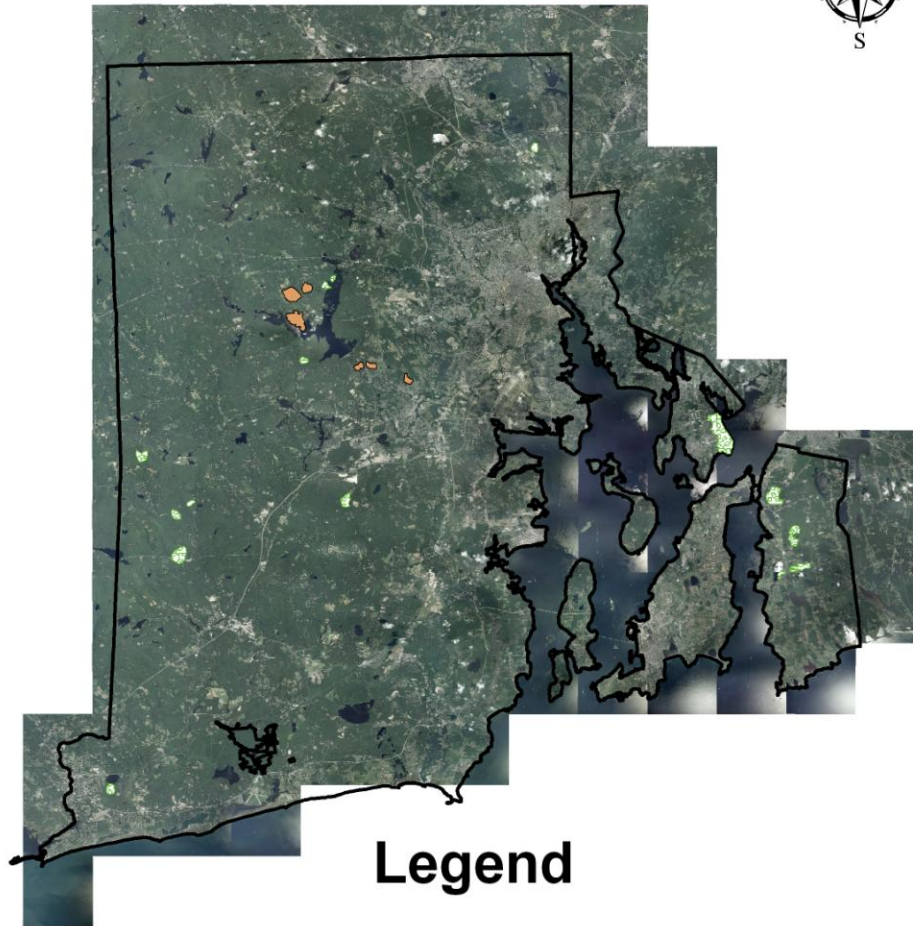


Legend

-  Winter Moth Defoliation
-  Mortality
-  Discoloration
-  Dieback



AERIAL SURVEY RHODE ISLAND 2011



Legend



Winter Moth



Orange-striped Oakworm

0 2 4 8 12 16
Miles

gypsy moth (*Lymantria dispar*) on European white birch (*Betula pendula*)



gypsy moth (*Lymantria dispar*)







gypsy moth (*Lymantria dispar*)





nuclear polyhedrosis virus (*Nucleopolyhedrovirus*) on gypsy moth (*Lymantria dispar*)



gypsy moth (*Lymantria dispar*)



gypsy moth (*Lymantria dispar*)



Joseph O'Brien, USDA Forest Service, Bugwood.org

gypsy moth (*Lymantria dispar*)



gypsy moth (*Lymantria dispar*)



UGA2122004

forest tent caterpillar (*Malacosoma disstria*)



1150086

















forest tent caterpillar (*Malacosoma disstria*)



orangestriped oakworm (*Anisota senatoria*)



hemlock woolly adelgid (*Adelges tsugae*) on hemlock (*Tsuga* spp.)



hemlock woolly adelgid (*Adelges tsugae*) on eastern hemlock (*Tsuga canadensis*)



hemlock woolly adelgid (*Adelges tsugae*) on eastern hemlock (*Tsuga canadensis*)



hemlock woolly adelgid (*Adelges tsugae*) on eastern hemlock (*Tsuga canadensis*)



hemlock woolly adelgid (*Adelges tsugae*) on eastern hemlock (*Tsuga canadensis*)



hemlock woolly adelgid (*Adelges tsugae*) on eastern hemlock (*Tsuga canadensis*)



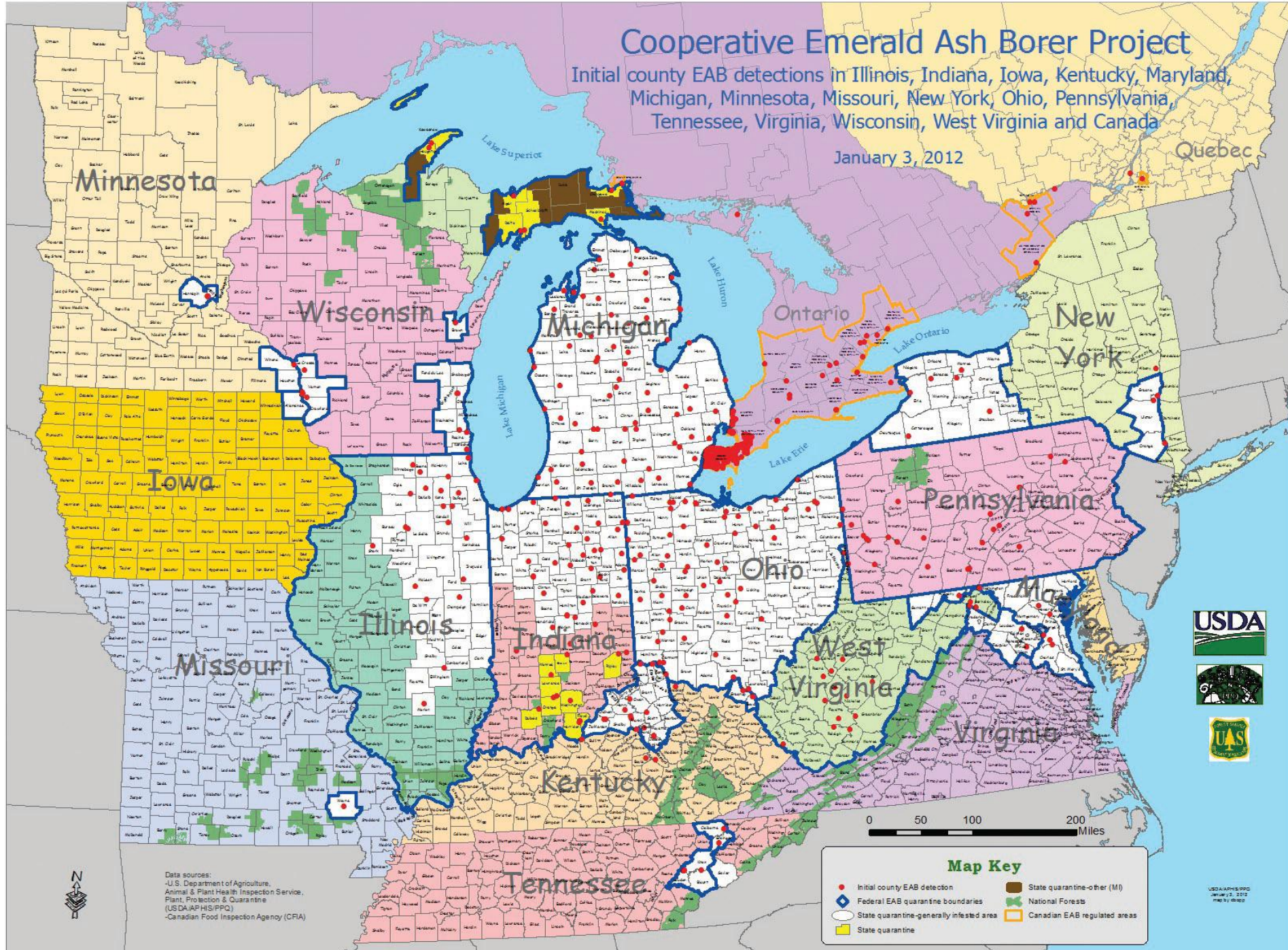
UGA1344121

Cooperative Emerald Ash Borer Project

Initial county EAB detections in Illinois, Indiana, Iowa, Kentucky, Maryland, Michigan, Minnesota, Missouri, New York, Ohio, Pennsylvania, Tennessee, Virginia, Wisconsin, West Virginia and Canada

January 3, 2012

Quebec



Data sources:
 -U.S. Department of Agriculture, Animal & Plant Health Inspection Service, Plant Protection & Quarantine (USDA/APHIS/PPQ)
 -Canadian Food Inspection Agency (CFIA)

Map Key

- Initial county EAB detection
- ◊ Federal EAB quarantine boundaries
- State quarantine-generally infested area
- State quarantine
- State quarantine-other (MI)
- National Forests
- Canadian EAB regulated areas



emerald ash borer (*Agrilus planipennis*)



UGA1241011

emerald ash borer (*Agrilus planipennis*) on ash (*Fraxinus* spp.)



5449380

emerald ash borer (*Agrilus planipennis*)



emerald ash borer (*Agilus planipennis*) on ash (*Fraxinus* spp.)



emerald ash borer (*Agrilus planipennis*) on ash (*Fraxinus* spp.)



emerald ash borer (*Agrilus planipennis*) on ash (*Fraxinus* spp.)



5449376

emerald ash borer (*Agrilus planipennis*)



5382317

Asian longhorned beetle (*Anoplophora glabripennis*) on boxelder (*Acer negundo*)



downy woodpecker (*Picoides pubescens*)



UGA1372002



emerald ash borer (*Agrilus planipennis*)



emerald ash borer (*Agrilus planipennis*) on ash (*Fraxinus* spp.)

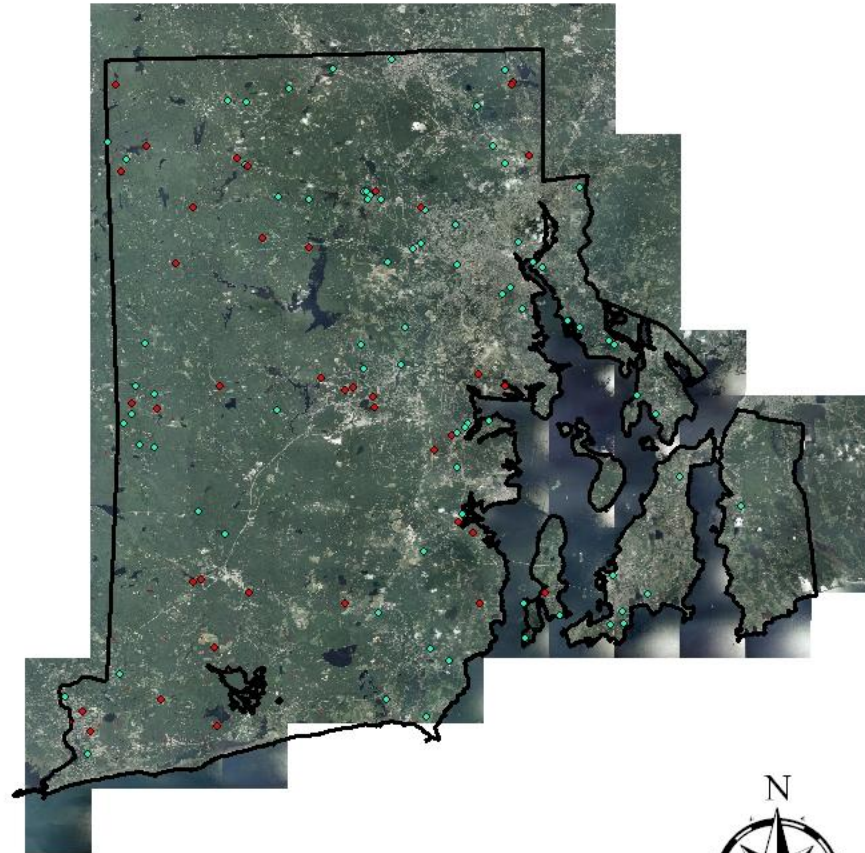


Sphecid wasp (*Cerceris fumipennis*)

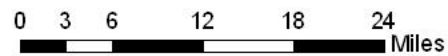


5387760

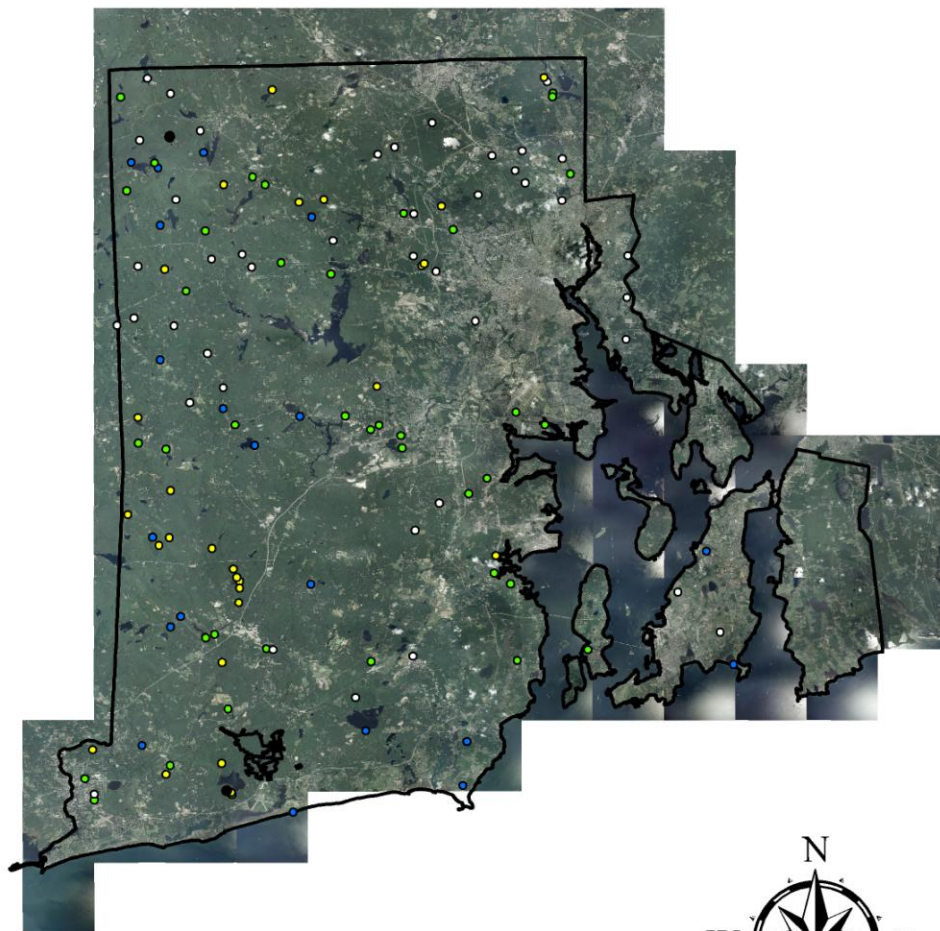
RHODE ISLAND CERCERIS FUMIPENNIS SURVEY LOCATIONS DFE 2010



- CERCERIS FUMIPENNIS SURVEY LOCATIONS
- CERCERIS FUMIPENNIS POSITIVE SURVEY LOCATIONS



RHODE ISLAND FOREST HEALTH SURVEY LOCATIONS



- Cf+ SURVEY LOCATIONS
- ASH TRAP TREE LOCATIONS
- 2012 PROPOSED EAB TRAP LOCATIONS
- CAMPGROUND LOCATIONS



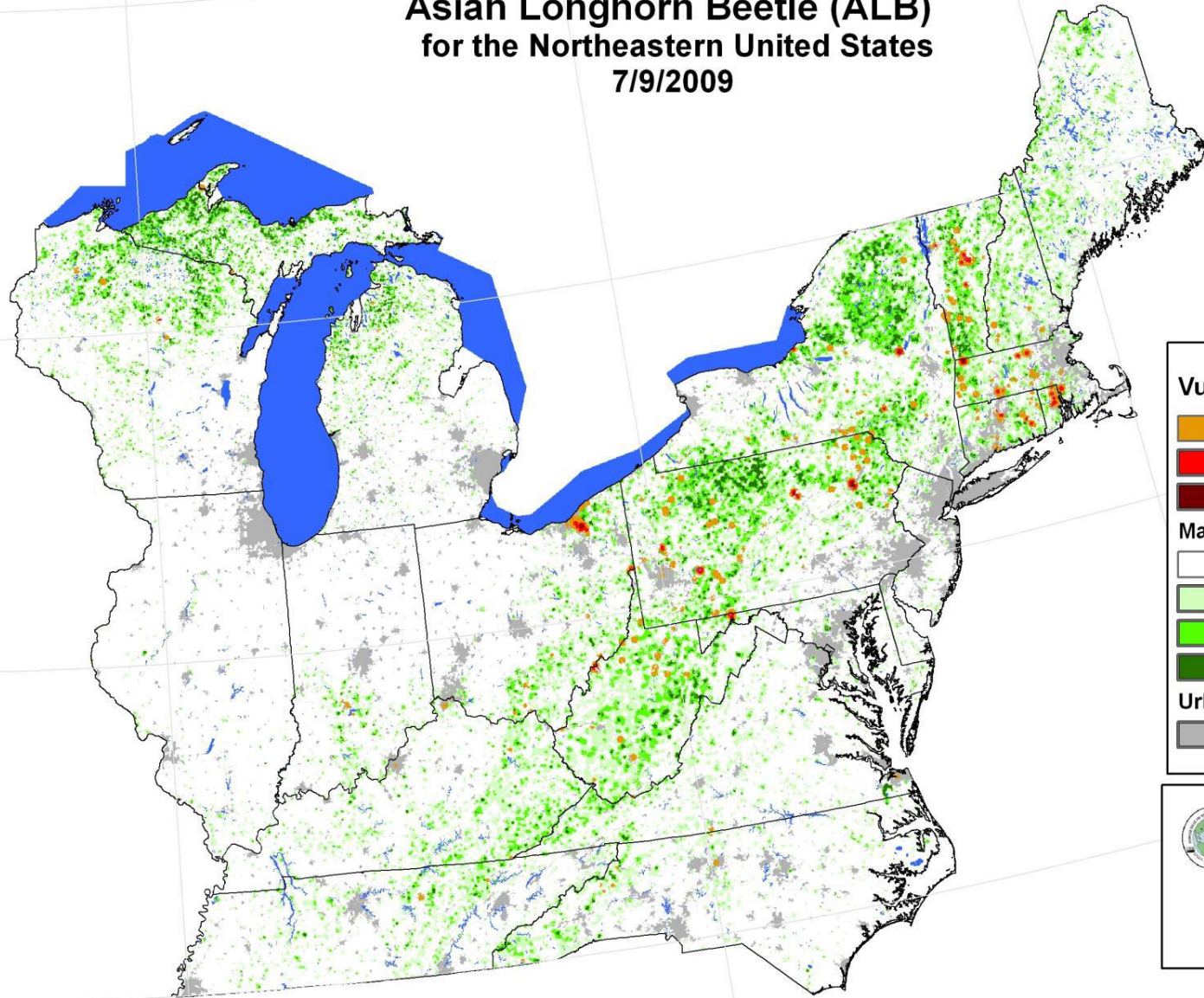
0 2.5 5 10 15 20
Miles

Asian longhorned beetle (*Anoplophora glabripennis*)



UGA0949056

Vulnerability Potential for *Anoplophora glabripennis* (Motschulsky) Asian Longhorn Beetle (ALB) for the Northeastern United States 7/9/2009



Vulnerability Potential

- Medium/High (7)
- High (8)
- Very High (9)

Maple Basal Area

- Little or No
- Low
- Medium
- High

Urban Areas

- Little "Natural" Maple Host Present

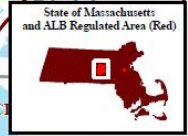
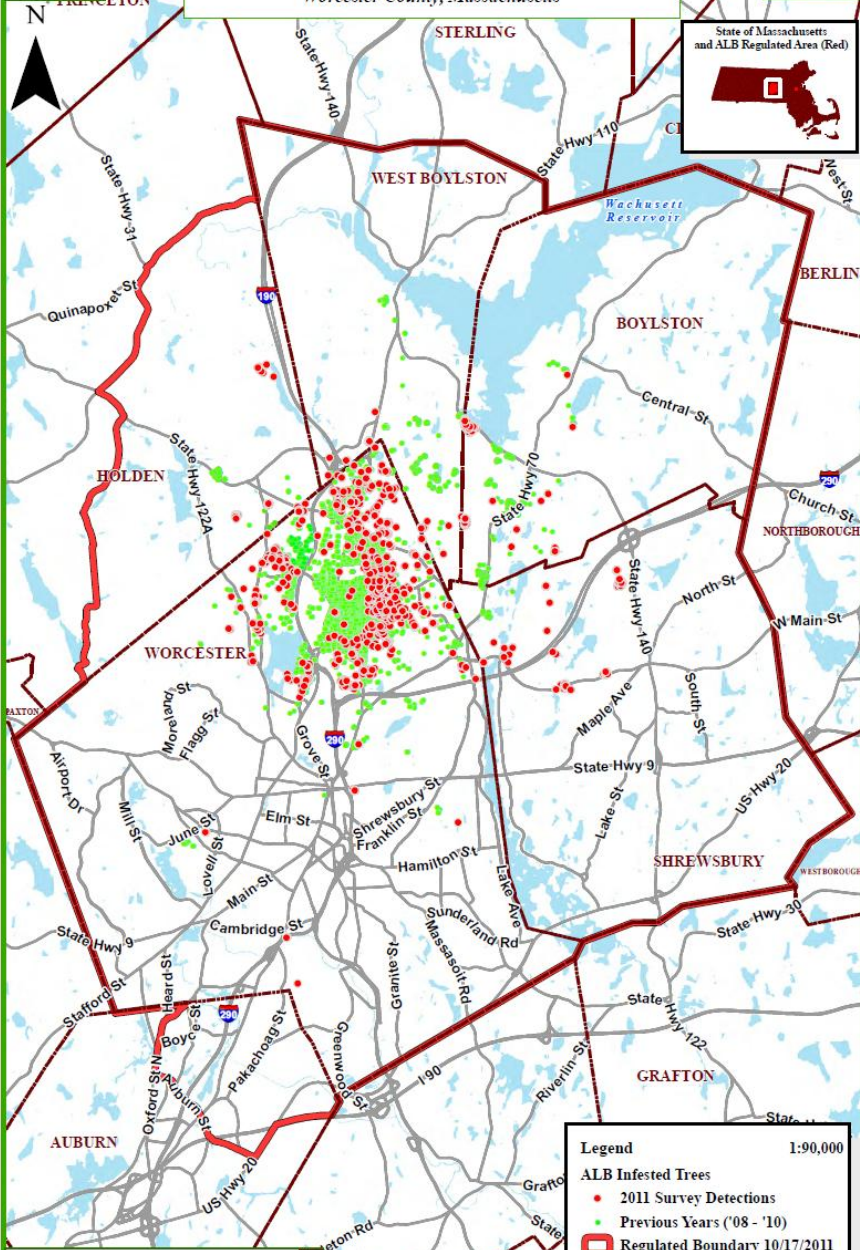
0 50 100 200 300 400 500
Kilometers
Albers Equal Area Conic Projection

Map produced by FHTET, MFT
Fort Collins, CO on 7-13-2009

file: NE_alb_model_fht4.mxd
GRID: ne_alb_model_maple_BA &
urban_areas



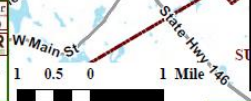
Asian Longhorned Beetle Cooperative Eradication Program
1/1/2012
Worcester County, Massachusetts



Legend 1:90,000

- ALB Infested Trees
 - 2011 Survey Detections
 - Previous Years ('08 - '10)
- ▭ Regulated Boundary 10/17/2011
- ▭ Major Roads
- ▭ Municipal Boundaries
- ▭ Water bodies

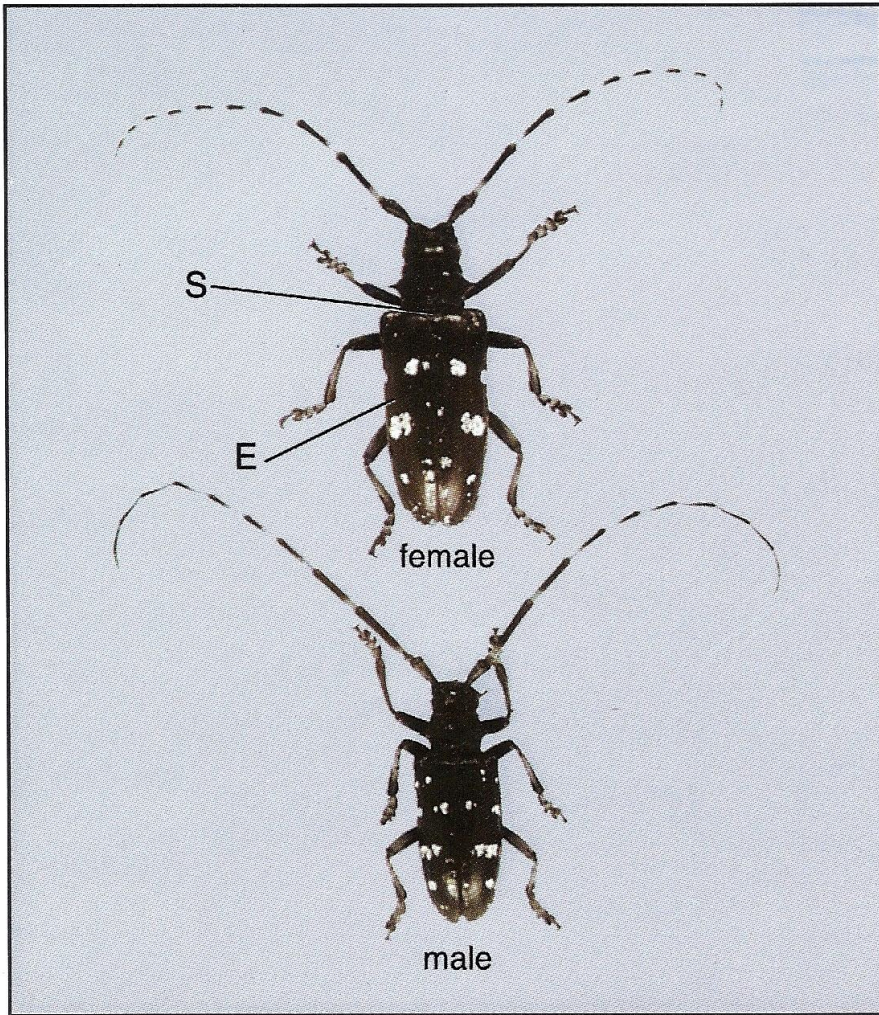
DISCLAIMER: The U.S. Department of Agriculture's Animal and Plant Health Inspection Service collected the data displayed for internal agency purposes only. This data may be used by others, however, they cannot be used for their original intended purposes. These data provided by Office of Geographic & Environmental Information (OGEI), Commonwealth of Massachusetts Executive Office of Energy & Environmental Affairs. Acknowledgements: Ms. DOR, and Ms. DCR.



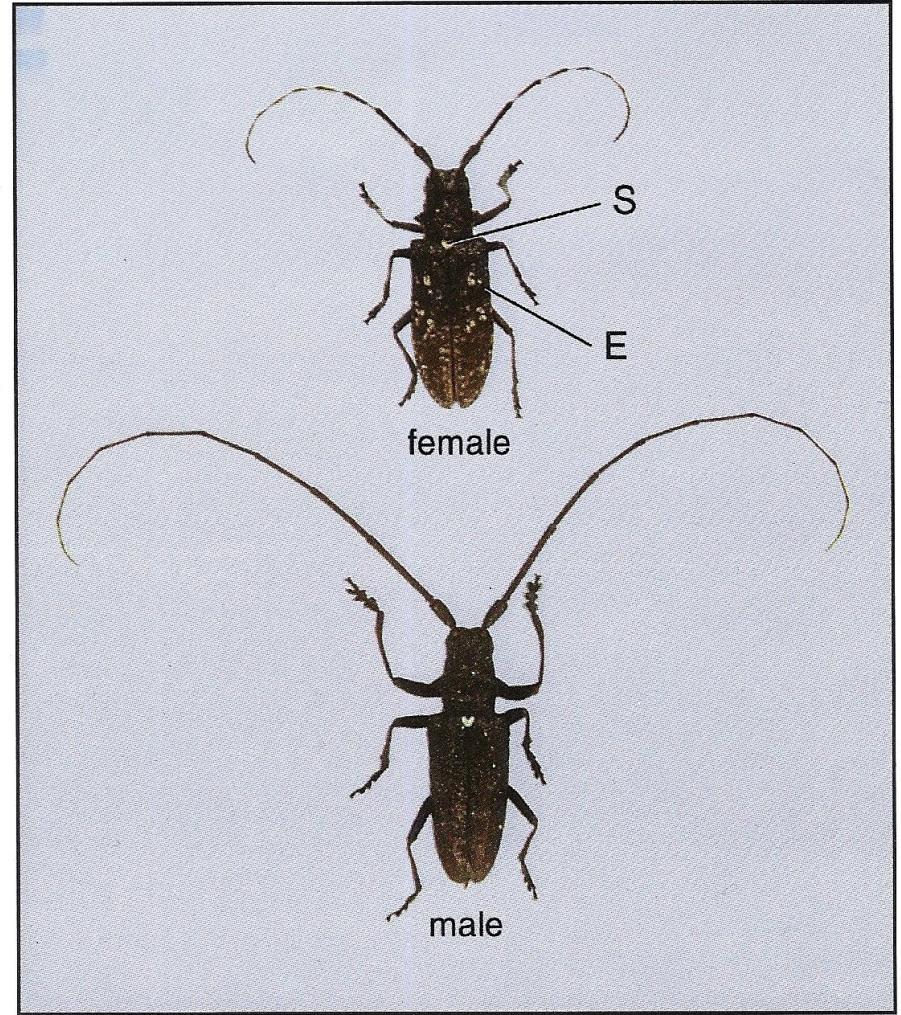
Asian longhorned beetle (*Anoplophora glabripennis*)



Asian Longhorned Beetle or Whitespotted Sawyer?



Asian Longhorned Beetle
Anoplophora glabripennis (Motschulsky)



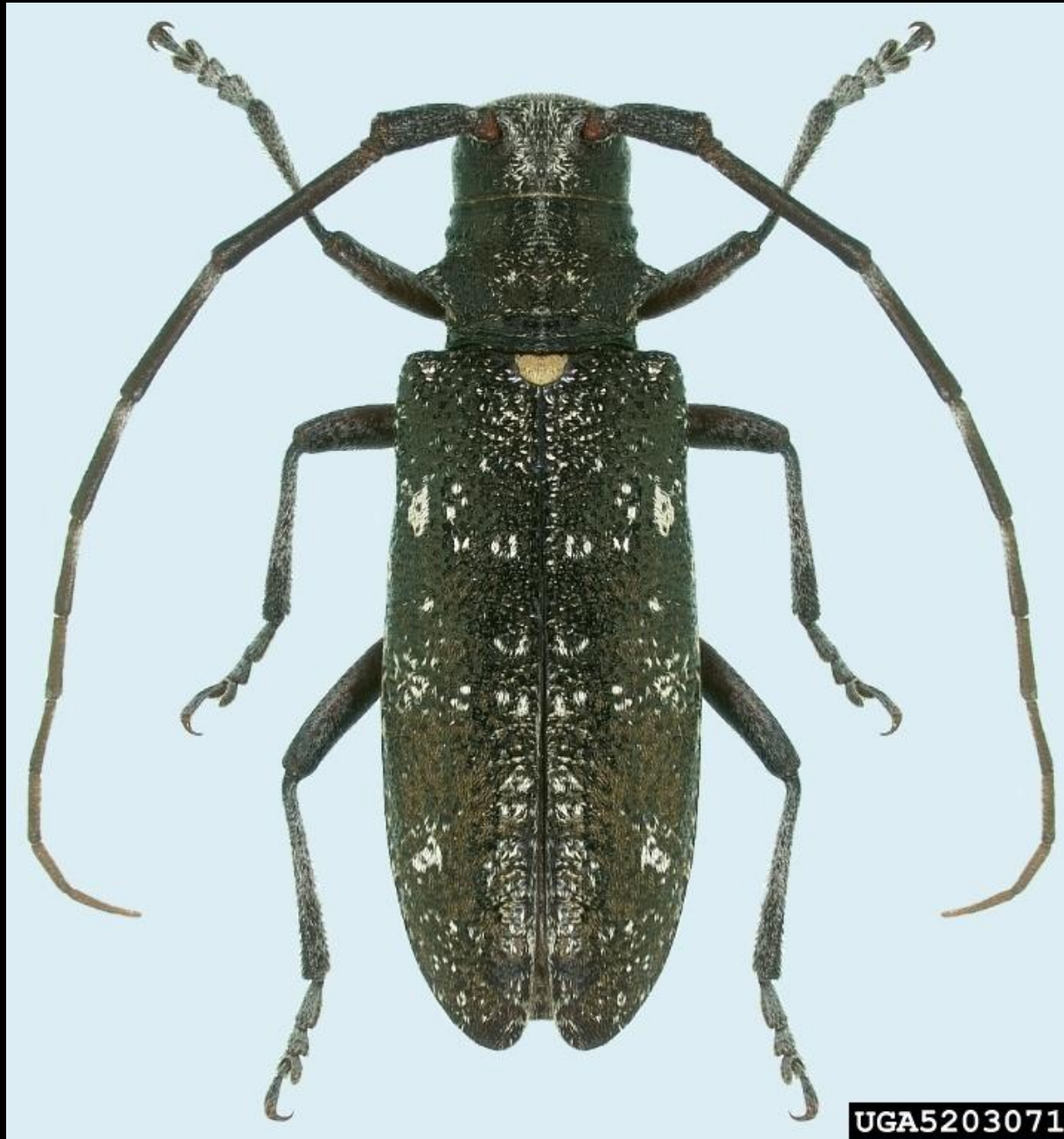
Whitespotted Sawyer
Monochamus scutellatus (Say)

Asian longhorned beetle (*Anoplophora glabripennis*)



UGA1262002

whitespotted sawyer (*Monochamus scutellatus*)



UGA5203071

Asian longhorned beetle (*Anoplophora glabripennis*) on maple (*Acer spp.*)



5392768

Asian longhorned beetle (*Anoplophora glabripennis*)



Thomas B. Denholm, New Jersey Department of Agriculture, Bugwood.org

Asian longhorned beetle (*Anoplophora glabripennis*)



5392769

Asian longhorned beetle (*Anoplophora glabripennis*)





WINTER MOTH





elongate hemlock scale (*Fiorinia externa*)



elongate hemlock scale (*Fiorinia externa*) on hemlock (*Tsuga* spp.)



120°W

100°W

80°W

Susceptibility Potential

Sirex woodwasp - *Sirex noctilio*

4-26-2006



Susceptibility Potential is the sum of an equal weighted overlay of:

The *Introduction Potential and **Establishment Potential
This one-kilometer resolution data is intended to be used to
develop a detection strategy for monitoring *Sirex noctilio*.

http://www.fs.fed.us/foresthealth/technology/invasives_sirexnoctilio_riskmaps.shtml

***Introduction Potential is determined by the locations of the:**

- Ports that handle commodities with solid wood packing materials shipped from countries where *Sirex noctilio* exists.
- Distribution centers
- Markets

****Establishment Potential is determined by:**

- Pine basal area
- Presence of susceptible host
- Soils Wetness Dryness Index
- Plant Hardiness



Albers Equal Area Conic Projection

Map Produced by PMET
For CSRS, ED on 4/26/06, 8PT
File: suspot0601_001.mxd
0000 4/26/06 11:21
1000 x 1000, 1000000000 x 1000, 30

100°W

80°W

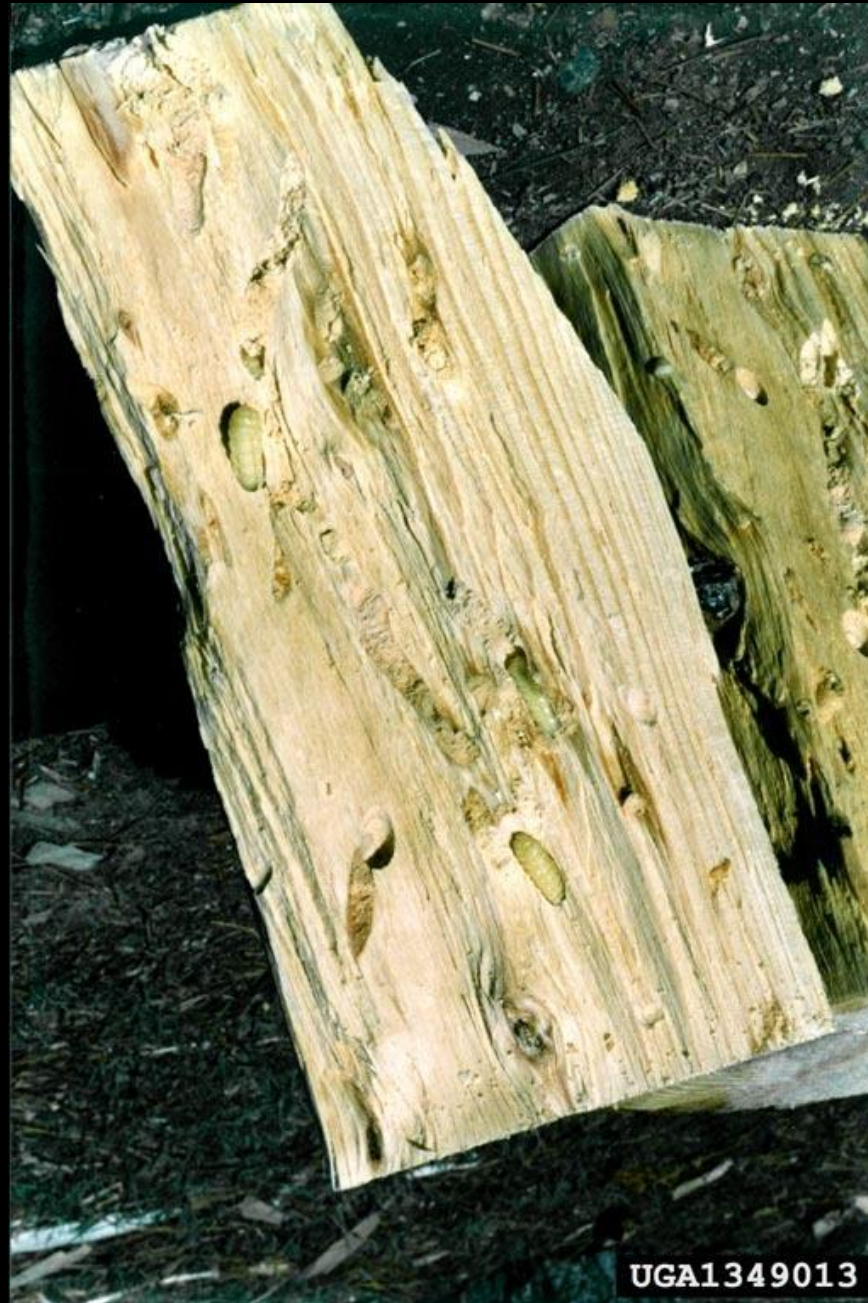
30°N

30°N

Sirex woodwasp (Sirex noctilio) on Scots pine (Pinus sylvestris)



Sirex woodwasp (*Sirex noctilio*)



Sirex woodwasp (*Sirex noctilio*) on Monterey pine (*Pinus radiata*)



UGA1393019

Sirex parasite (*Schlettererius cinctipes*) on Sirex woodwasp (*Sirex noctilio*)



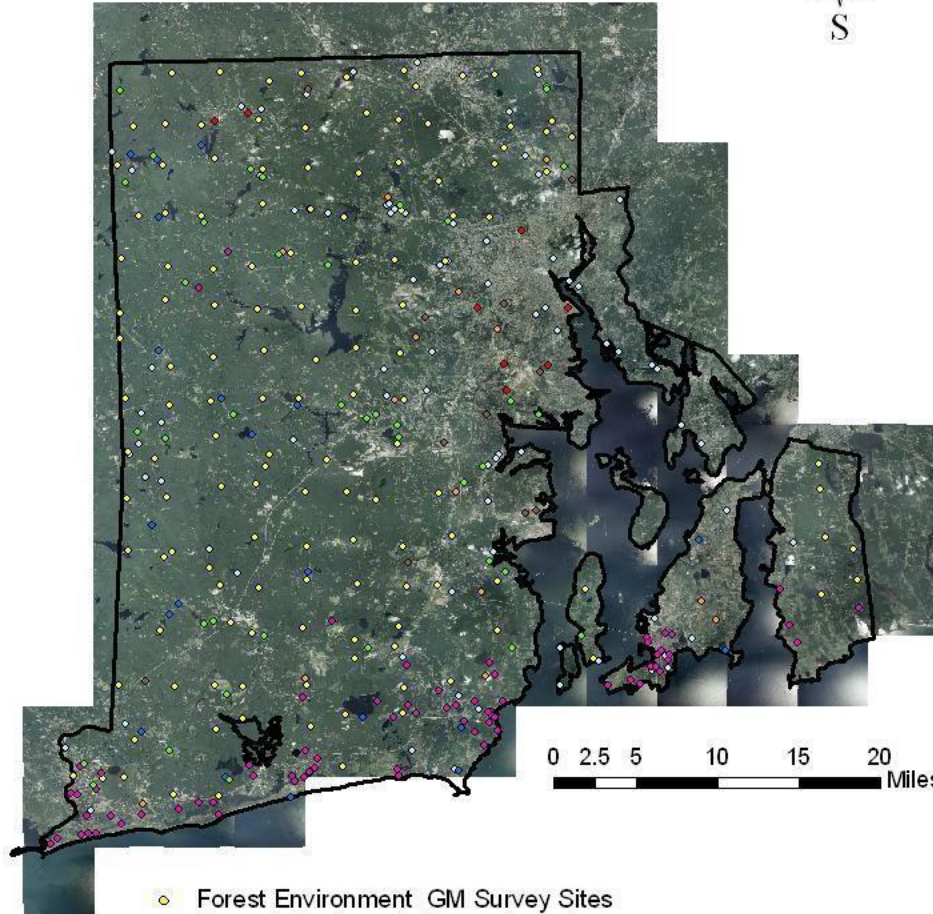
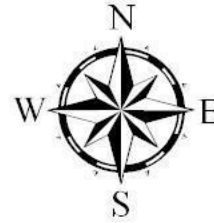


Sirex woodwasp (*Sirex behrensi*)



5451460

RHODE ISLAND FOREST HEALTH SURVEY LOCATIONS 2012



0 2.5 5 10 15 20 Miles

- Forest Environment GM Survey Sites
- *Cerceris fumipennis* Survey Locations
- Forest Environment ALB Survey Sites
- Forest Environment Campground Survey Sites
- Agriculture LBAM Survey Sites
- Agriculture WBBB Survey Sites
- Agriculture ALB Survey Sites
- *Cerceris fumipennis* Positive Colony Locations

emerald ash borer (*Agrilus planipennis*)

**Don't move firewood,
it **BUGS** me!**

Cooperative Emerald Ash Borer Project

www.emeraldashborer.info

5394680

CONTACT INFORMATION:

Bruce Payton, Supervising Forester

RI DIVISION OF FOREST ENVIRONMENT

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CHEPACHET, RI 02814

401-568-2013

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