



Photo: USFWS

Maine Forest Service  
Forest Entomologists

168 State House Station  
(50 Hospital Street)  
Augusta, ME 04333

[Charlene.Donahue@Maine.gov](mailto:Charlene.Donahue@Maine.gov)

[Allison.Kanoti@Maine.gov](mailto:Allison.Kanoti@Maine.gov)

[Colleen.Teerling@Maine.gov](mailto:Colleen.Teerling@Maine.gov)

(207) 287-2431

# Invasive Insect Threats to Maine Forests

# What are invasive species?

- Are not naturally found in the area
- Cause harm to:
  - environment
  - economy
  - human health

\* Most non-native (alien) species are not invasive



Photo: Jennifer D'Appollonio, University of Maine, Orono

# Familiar invasive forest pests

## Gypsy Moth



Photo: Wisconsin Lake Shore Preserve

## Browntail Moth



Photo: Maine Forest Service

## Chestnut Blight



Photos: Maine Forest Service

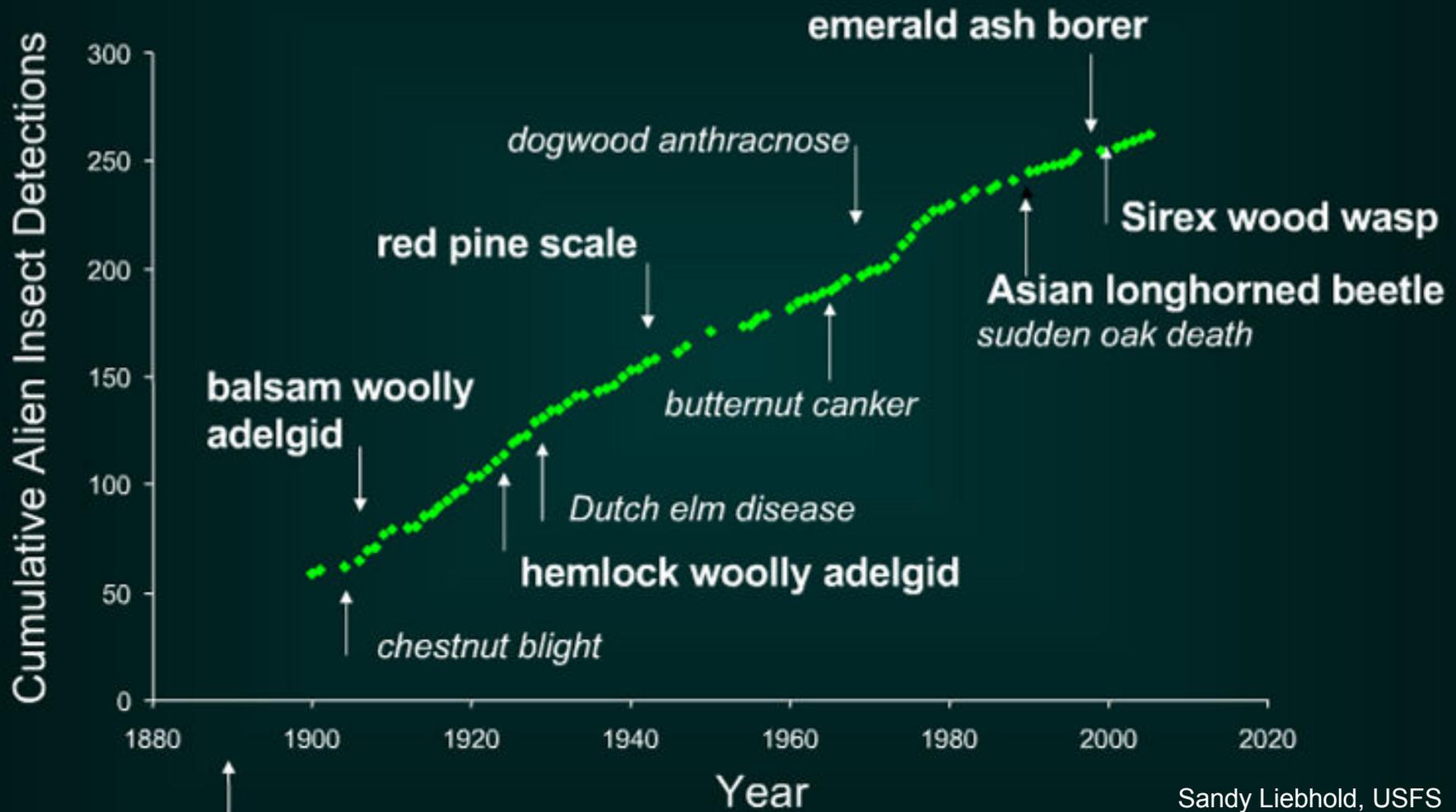
## Beech Bark Disease



Photos: Center: USDA, L+R: William Ostrofsky

Healthy Beech + Scale + Fungus = Disease

# Some Notable Insect & Disease Introductions



Pre 1900: gypsy moth, beech scale, larch casebearer, white pine blister rust

# Many Invasive Pests Can Be Moved in Firewood

- Firewood
  - Recreational
  - Camp owners
  - Commercial dealers

## *Take Home Message:*

*Buy firewood locally.*

*Try not to buy firewood harvested more than 50 miles away.*



Photo: Troy Kimoto

# Firewood--recreational



Leave your Firewood at Home

Buy It Where You Burn It  
Don't Give Bugs a Free Ride!



**Pack marshmallows.  
Not firewood.**



[www.StopTheBeetle.info](http://www.StopTheBeetle.info)  
United States Department of Agriculture

**Don't move firewood. Buy it at your destination.**

Several pests, like the emerald ash borer in the mid-west, are killing trees and spreading to new areas.

Insects and diseases can hitchhike from your woodpile to Maine's forests when you vacation.

**"Help Keep Maine's Trees Alive"**

Buy firewood near your camping destination and help keep serious forest pests out of Maine.

For more information, contact the Maine Forest Service at:  
<http://www.maine.gov/doc/mfs/fhm/pages/firewood.html>



Please leave your firewood at home

- Buy local firewood
- Travel with kiln-dried wood

**If you brought firewood from home, please burn it within 24 hours**

Photos: Maine Forest Service

# Asian Longhorned Beetle (ALB)



Pennsylvania Department of Conservation and Natural Resources - Forestry Archive



Photo: Kenneth R. Law, USDA APHIS PPQ, United States

**Invasion Pathway:**  
Solid Wood Packing Material

**Spread:**  
Firewood, Nursery Stock



Photo: E. Richard Hoebeke

# Recognizing ALB

- **Large**—1.25 to 1.5 inches—larger than a paper clip
- **Shiny**—like a bowling ball, patent leather, or a new car



Photo: USDA APHIS

- **Black**— deep dark black (not sort of black, no traces of brown)
- **White markings**—bold stripes on antennae, distinctive blotches on back (blue feet when alive)

# Comparison of ALB with native beetles

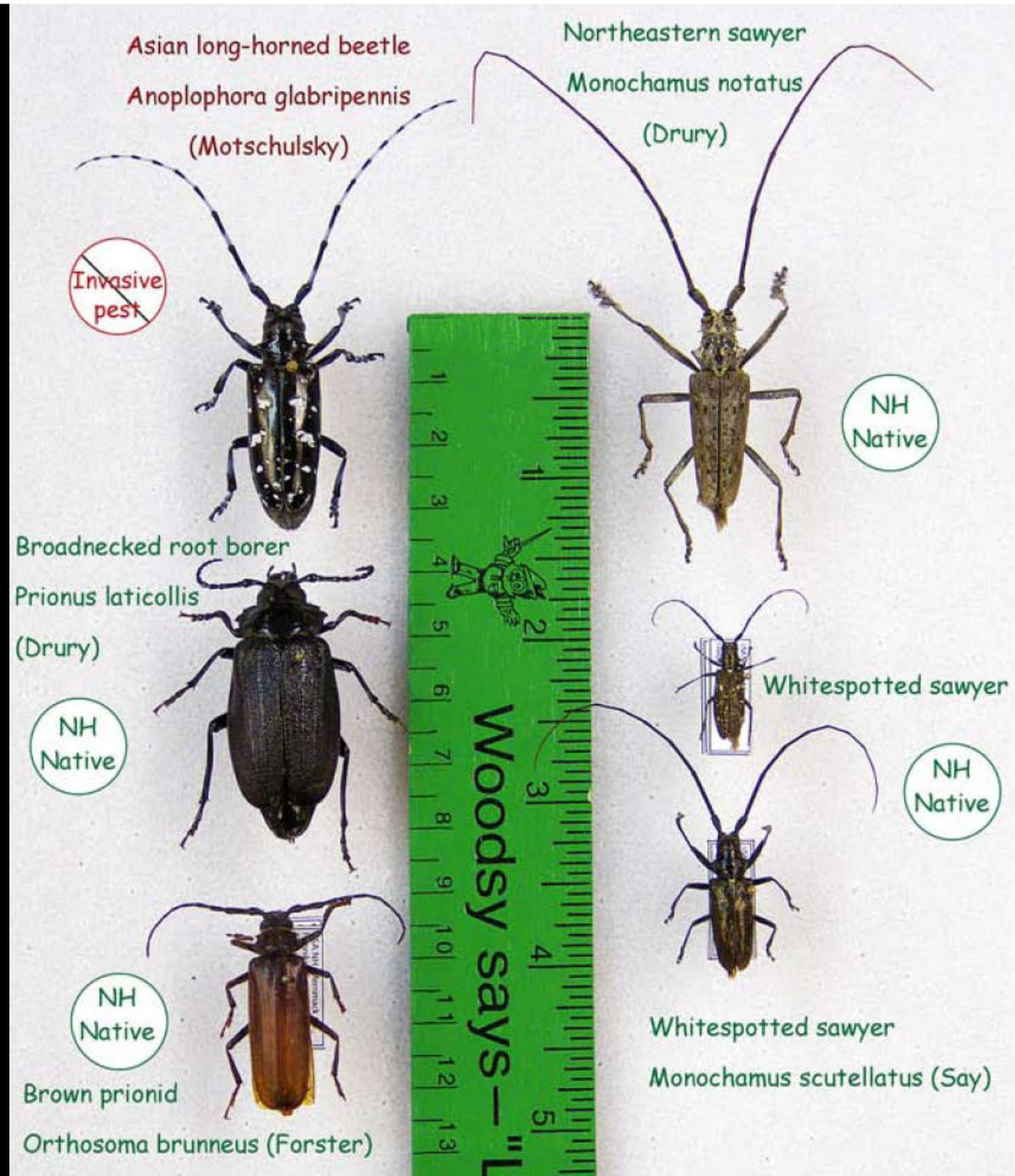


Photo: NH DRED Forest Health

# Recognizing ALB

A heavily  
infested tree  
can look  
reasonably  
healthy

But look for...



Photo: USDA APHIS

# Recognizing ALB



Large exit holes  
(size of pencil or larger)

Photo: E. Richard Hoebeke



Egg niches  
(chewing marks visible)

Photo: Massachusetts Introduced Pests Outreach Blog

Tunnels  
within the  
wood



Photo: UMassExtension

# Recognizing ALB

Sawdust or wood shavings on limbs



Photos: USDA APHIS



Adult feeding along midribs of leaves



Oozing foaming sap



Hosts: **Maple, Birch, Willow, Elm**  
**Poplar, Horse-chestnut, Ash, Mountain-ash**

Photos: USDA APHIS

# Closest Known Infestation <110 Mi.

- Worcester, Mass and surrounding area
- Detected in August 2008 **(was present for 8-15 years before detection!)**
- High potential for **legal and innocent** movement of infested wood to homes, camps, campgrounds in Maine



Photo: Ohio DNR Division of Forestry Asian Longhorned Beetle

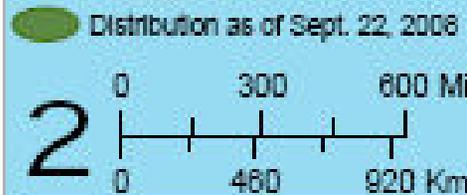
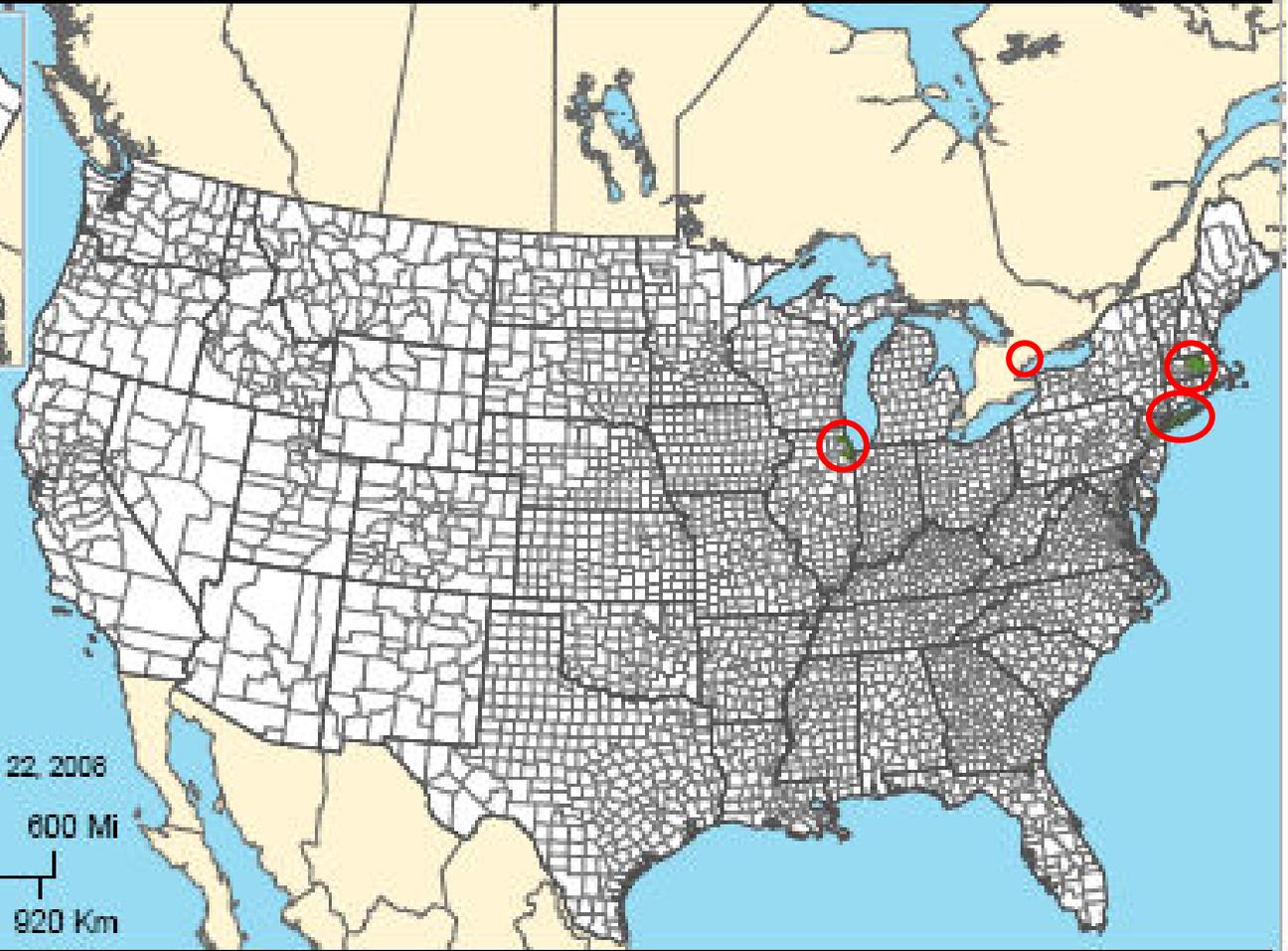
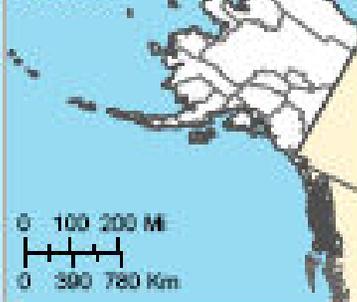


# Alien Forest Pest Explorer

[www.fs.fed.us/ne/morgantown/4557/AFPE/](http://www.fs.fed.us/ne/morgantown/4557/AFPE/)

## Pest Distribution Map Asian Longhorned Beetle *Anoplophora glabripennis*

Alaska



USDA  
Forest Service



Northern  
Research Station



Forest Health Technology  
Enterprise Team



RSAC  
Remote Sensing  
Applications Center

Also in New York, NY, New Jersey, and Toronto, ON and eradicated from Chicago.

# Emerald Ash Borer (EAB)



Photo: Troy Kimoto

**Invasion Pathway:**  
Solid Wood Packing Material

**Spread:**  
Firewood, Nursery Stock



Photo: David Cappaert, Michigan State University

# Recognizing EAB



Photo: Ohio Tree Care, Inc.

- Exotic beetle (from Asia)
- Bright metallic green
- 1/2 inch long
- Bores under bark of ash trees

**Over 75% of new infestations caused by firewood**



Photo: H. Russel, Michigan State University

# Recognizing EAB



**D-shaped exit holes**

Photo: University of Wisconsin Entomology



Photo: Maryland Department of Natural Resources



Photo: David Roberts, MSU

**Serpentine tunneling under bark**



**Bark  
splitting**

Photo: Oregon Department Of Agriculture, Plant Division

# Recognizing EAB



Photo: David R. McKay

**Crown decline  
(from top down)**



**Epicormic growth**

Photo: Pennsylvania Department of Conservation  
and Natural Resources - Forestry Archive

# Impact

- Hosts
  - Attacks **all** species of North American ash
  - Kills **all** of the trees it attacks
  - Has killed over 40 million trees since 2002
  - Has the potential to wipe out whole genus of ash



Photo: Maine Department of Agriculture



# News Release: Feb 25, 2009

**“...Emerald ash borer has been discovered in Central Pennsylvania in Mifflin County. The infestation has most likely been there for several years. We will be coordinating our DCNR efforts with the PA Emerald Ash Borer Task Force. The infestation was reported by a landowner who sent digital photos...”**

Statement: Pennsylvania Department of Agriculture

# Brown Spruce Longhorned Beetle

- In Nova Scotia
- Kills all species of spruce
- Came in to Port of Halifax, NS before 1998
- Starting to see spread after hurricane in 2004 damaged wide area of forest



Photo: Georgette Smith

# Brown Spruce Longhorned Beetle

*Tetropium fuscum*

- Look for resin covered trunks
- Round to D-shaped 1/8" exit holes
- Can also attack fir, larch, pine



Photo: Jon Sweeney

# Hemlock Woolly Adelgid (HWA)

-Already in Southern Maine-



## Invasion Pathway:

Accidental Introduction, Ornamental planting

## Spread:

Eggs, crawlers on wind, vehicles, clothing, birds, mammals, etc.; all stages on live hemlock

**material**

Background: Maine Forest Service Upper Image: Stanton Gill, University of Maryland

Lower Image: Rusty Rhea, USDA Forest Service



# Recognizing HWA

- Hemlock
- ~1/8" or less discrete white woolly masses
- On undersides of branches
- On outer portions of branch
- Most stages immobile
- Branch dieback bottom up (vs. borer, mite)



Photo: Maine Forest Service

# Where in Maine is HWA found?

**2003**

Kittery, York

**2004**

Wells

**2005**

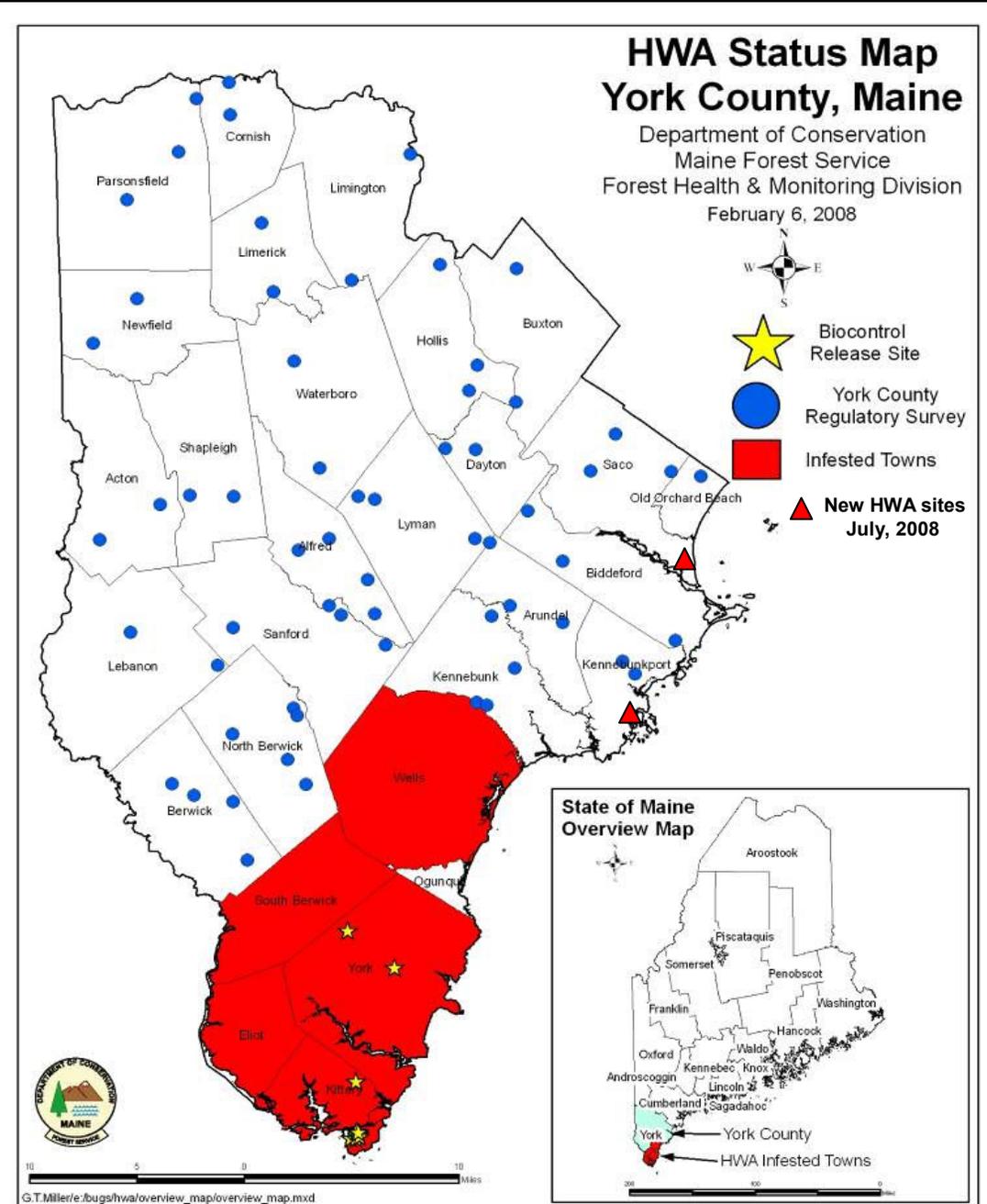
Eliot, South Berwick

**2008**

Saco, Kennebunkport

*Scattered Infestations*

*Note: Ogunquit is within the HWA quarantine.*



# Impacts

Photo: Maine Forest Service

Hemlock health  
Water Quality  
Wildlife (deer, trout)  
Timber

# Should I really worry, or are you just trying to scare me?

Detection methods are poor and infestations are usually not found early.

(ALB in Worcester 8-15 years before noticed)

Many of these pests may already be here: ALB, EAB

You are the best ally for your forest

There are very few entomologists state-wide – we need your help

Therefore: Be informed.

Know your forest, know what it should look like, report concerns/changes.

Know invasive threats, know what to look for, report concerns.

Photo: USFWS

