



Forest Insects To Watch For

Maine Department of
Agriculture, Conservation
and Forestry -
Stewardship Forester/Tree
Farm Inspector Workshops
April 2015



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Hemlock

- Watch for:
 - Increased Light Through Canopy
 - Abnormal Crown Recession
- Damage Increases With:
 - Decreasing soil moisture
 - (Soil type, aspect, weather)
 - Increasing Tree/Stand Age
 - Proximity to Coast



Hemlock Woolly Adelgid– *Adelges tsugae*



CAUTION:

You can carry this pest when it is an egg or crawler (~Mar through Early Aug)

Sometimes Hard to See!

- crawlers are invisible, summer stage aestivates



Elongate 'Hemlock' Scale – *Fiorinia Externa*

- Also look for this one on **fir**, spruce and other conifers.
 - Especially near residential areas
 - Especially where hemlock woolly adelgid is established

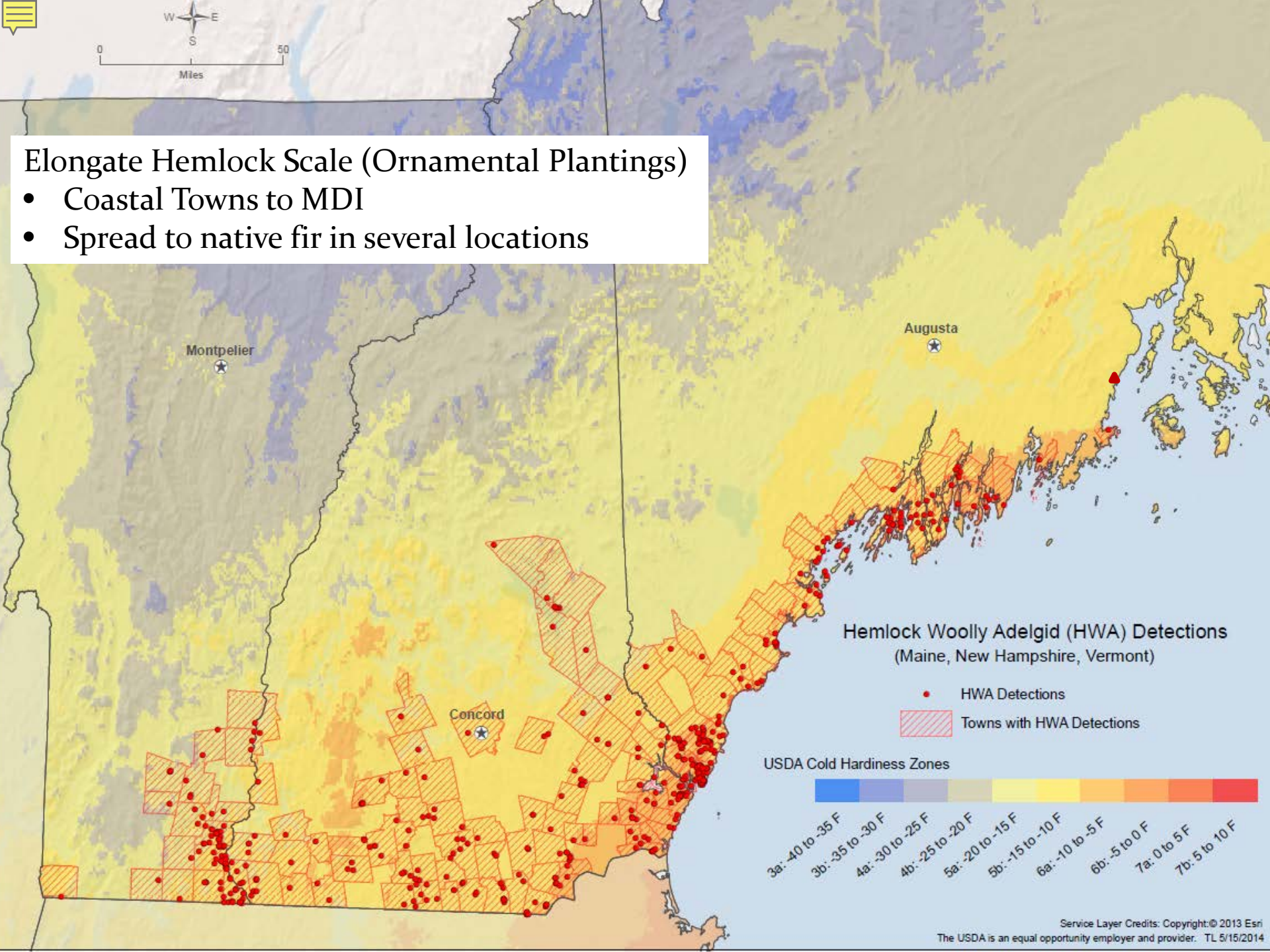




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Miles

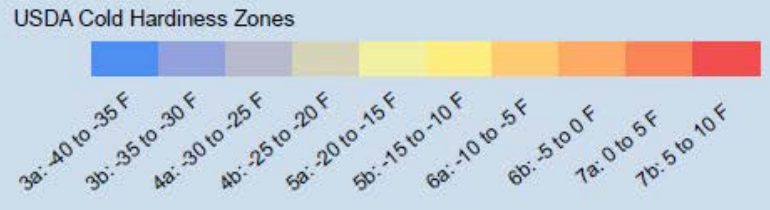
Elongate Hemlock Scale (Ornamental Plantings)

- Coastal Towns to MDI
- Spread to native fir in several locations



Hemlock Woolly Adelgid (HWA) Detections
(Maine, New Hampshire, Vermont)

- HWA Detections
- ▨ Towns with HWA Detections



Balsam Fir

...WHITE SPRUCE, Red Spruce, Black Spruce

- Look for...
 - Early Spring Mining of previous year needles
 - Destruction of current year buds/needles
 - Back feeding on previous year needles



BALSAM FIR; White, Red, Black Spruces

- Messy Feeding
- Mid-Summer Reddening of Foliage
- Moth Flights--July
 - REPORT any significant moth flight
 - Collect samples

Photos: NR Canada Except as Noted



USDA Forest Service –
NA Archive, Bugwood.org

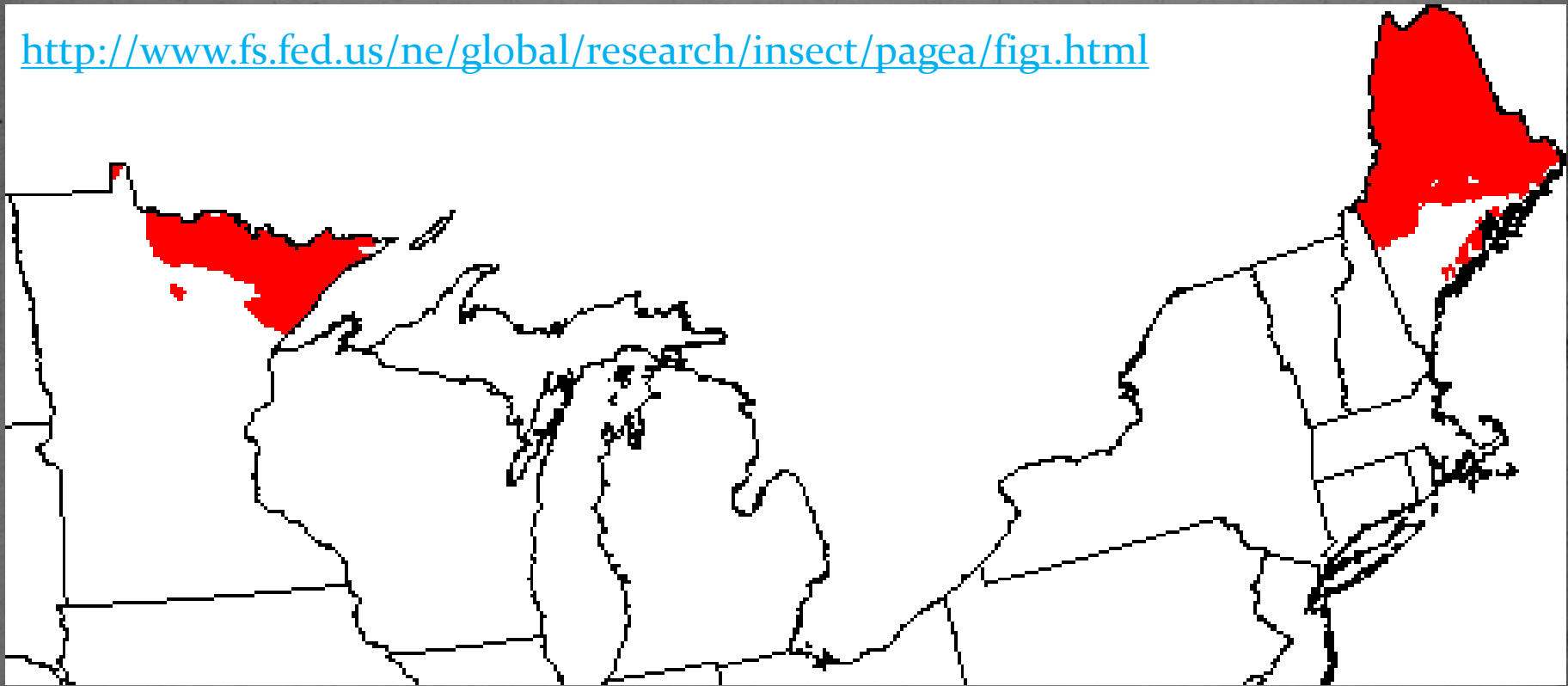


Severely Defoliated Balsam Fir Stand in July

Areas in the northeastern and north central United States
defoliated by spruce budworm, 1954-1980

Williams and Liebhold 1997

<http://www.fs.fed.us/ne/global/research/insect/pagea/fig1.html>



Not all red/defoliated = SBW

Balsam Fir Issue



Spruce Issue



...Not to mention wood borers, bark beetles, and diseases.

Not all red/defoliated = SBW

Not Yet Found in Maine:

Brown Spruce Longhorned Beetle

- Attacks healthy and declining spruce.
- Adult mistaken for native *Tetropium*
- Key to detection: resin flow (not diagnostic)
- Found in NS and NB
CAN



Photo: Jon Sweeney bugwood.org

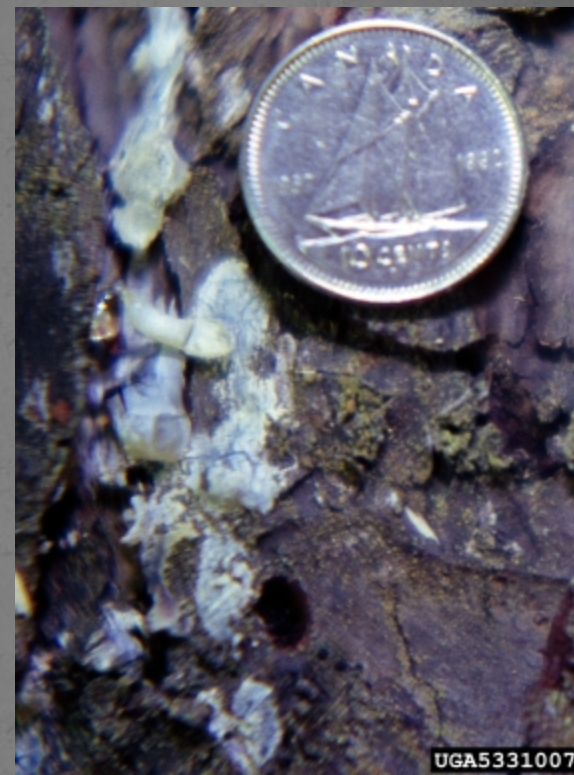
Recognizing BSLB



Yellowing Foliage



Resin Covered Trunks



Round to D-shaped
1/8" exit holes

Photos: CFIA (left), Jon Sweeney, bugwood.org (middle and right)

Hardwoods

- Look For Defoliation:
 - REPORT any significant defoliation

Indications for years of ↑ populations



Photo: Gidget Gamester, USDA APHIS

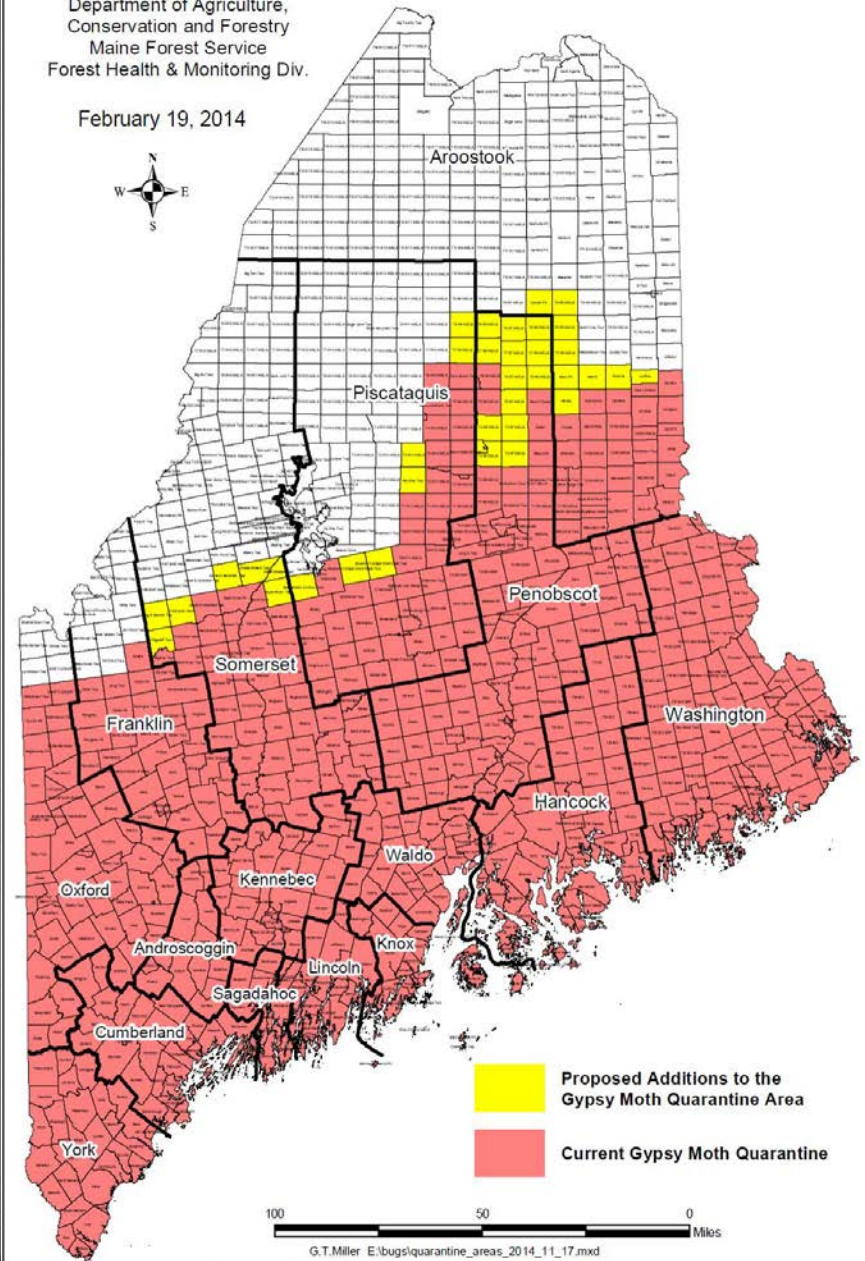
Gypsy Moth



Gypsy Moth Quarantine Area

Department of Agriculture,
Conservation and Forestry
Maine Forest Service
Forest Health & Monitoring Div.

February 19, 2014



Hardwoods... Winter Moth

(*Operophtera brumata*)



Waltham Services

Adults: Nov - Jan



Tom Murray, BugGuide.net

Eggs: Dec - Apr

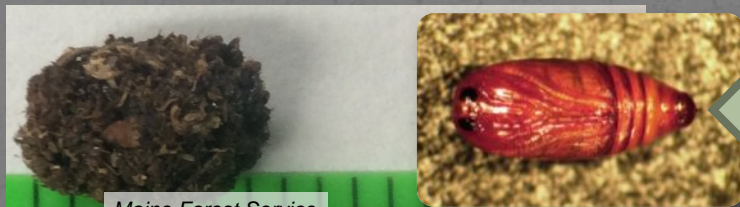


Gyorgy Csoka,
Hungary Forest
Research Institute,
Bugwood.org



Cape Cod Times/Steve Heaslip

Larvae: Apr - Jun



Maine Forest Service

Hannes Lemme, Bugwood.org

Pupae: Jun - Nov

INCHES

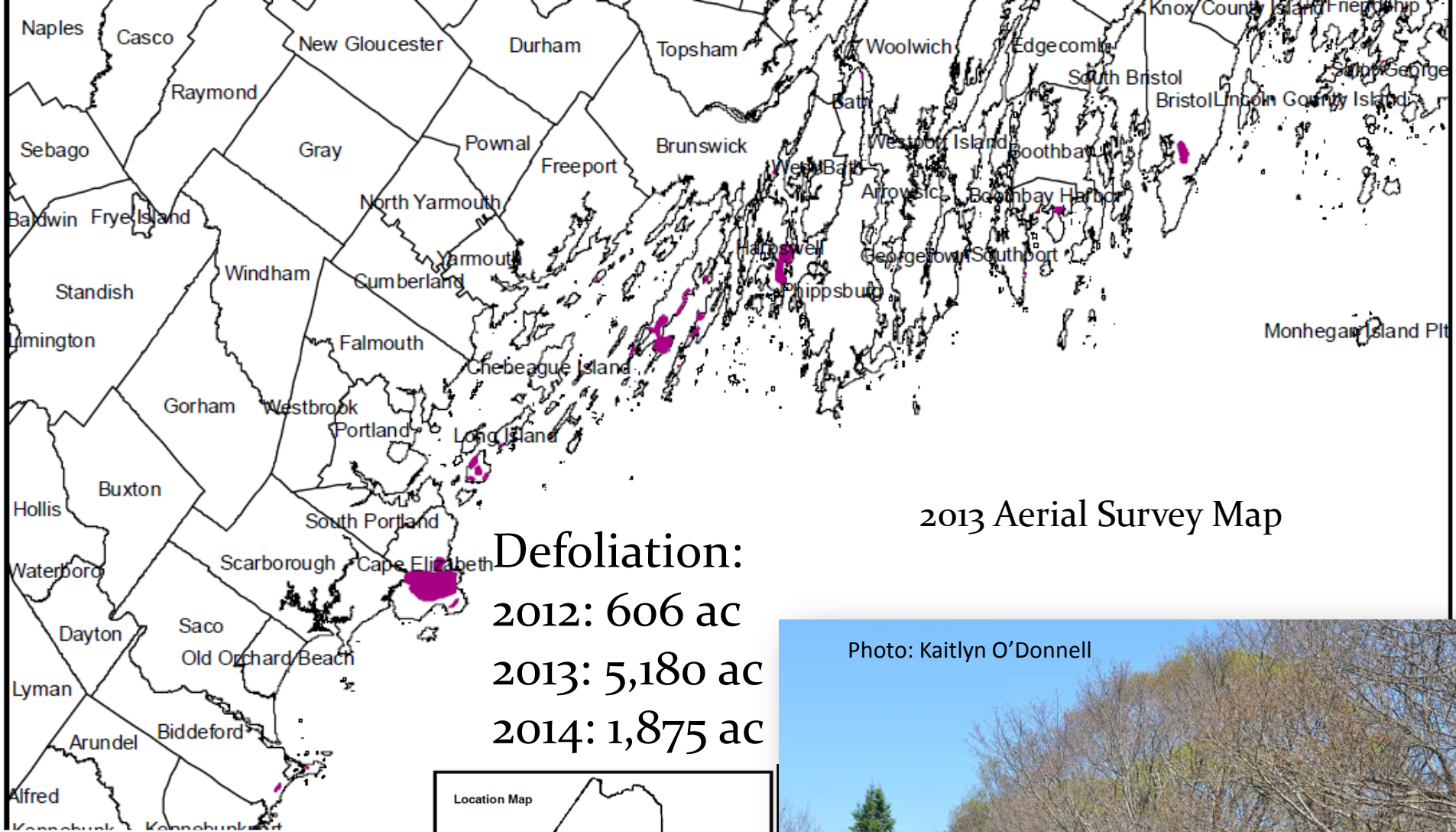
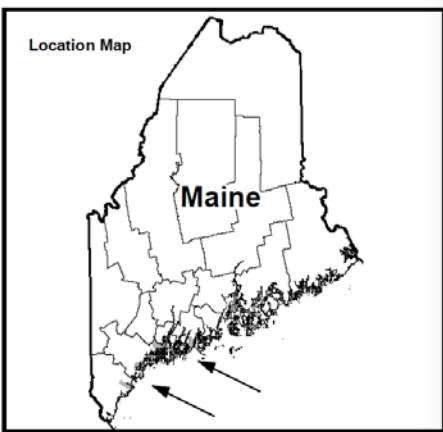


Photo: Kaitlyn O'Donnell



Winter Moth

Biocontrol

- Parasitic fly (*Cyzenis albicans*)
- It will take years for it to become effective
- Not guaranteed to work in ME. Has worked in NS.

ME Towns with *Cyzenis albicans* Releases

<u>Location</u>	<u>Year</u>
Harpswell	2013, 2014
Cape Elizabeth	2013
Kittery	2014
Vinalhaven	2014



Climate Limitations?

- Eggs are tolerant of extreme freezing temperatures

BUT...



- Late fall/early winter cold/snow/frozen ground reduces adult emergence—especially males.
- A coastal pest?

Hardwoods

- Look For

Photo: Melody Keena, USFS

Hosts = maples,
elms, willows,
and others



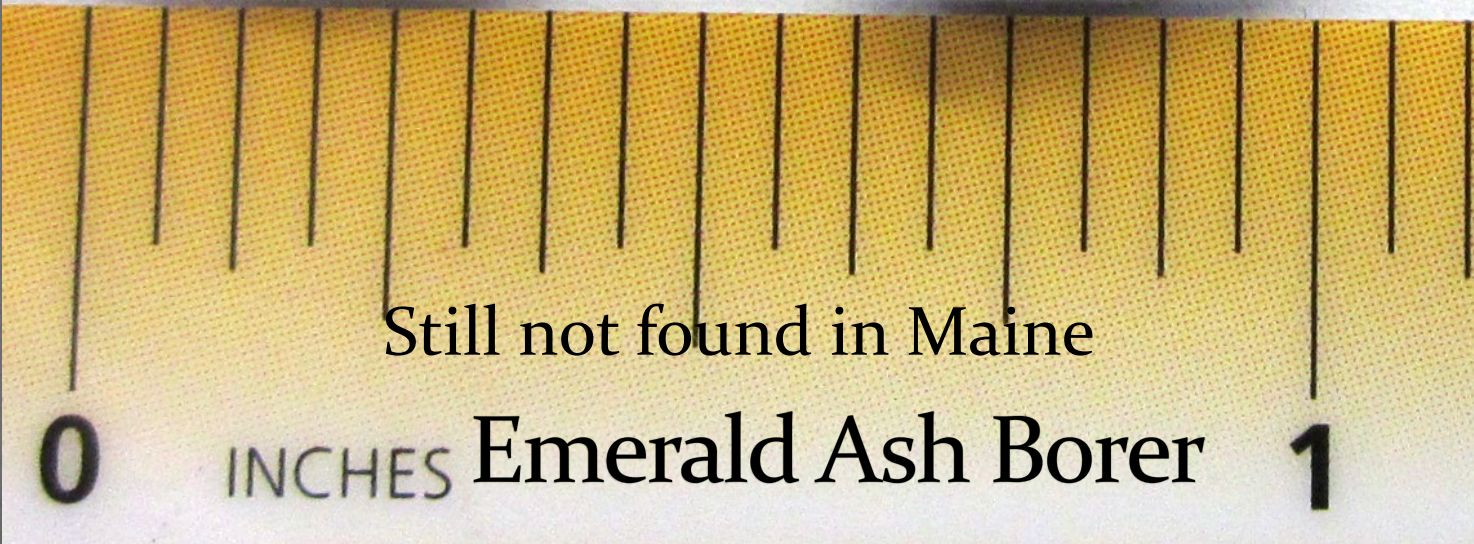
Photos: M. Bohne, USDA FS (TopL); R. Childs UMASS Extension (TopR); C. Donahue, MFS (BottomL)

Ash

- Look For
 - Crown Decline
 - Epicormic Shoots
 - Longitudinal bark splits
 - Larval Galleries
 - Flattened, cream-colored larvae
 - Distinct bell-shaped segments
 - Woodpecker feeding activity



Molly Heuss
NH DFL



Still not found in Maine

0 INCHES **Emerald Ash Borer** **1**

EAB and black oil seeds: MFS

EAB on Penny: Howard Russell, MSU, Bugwood.org

North American EAB Detections

www.emeraldashborer.info

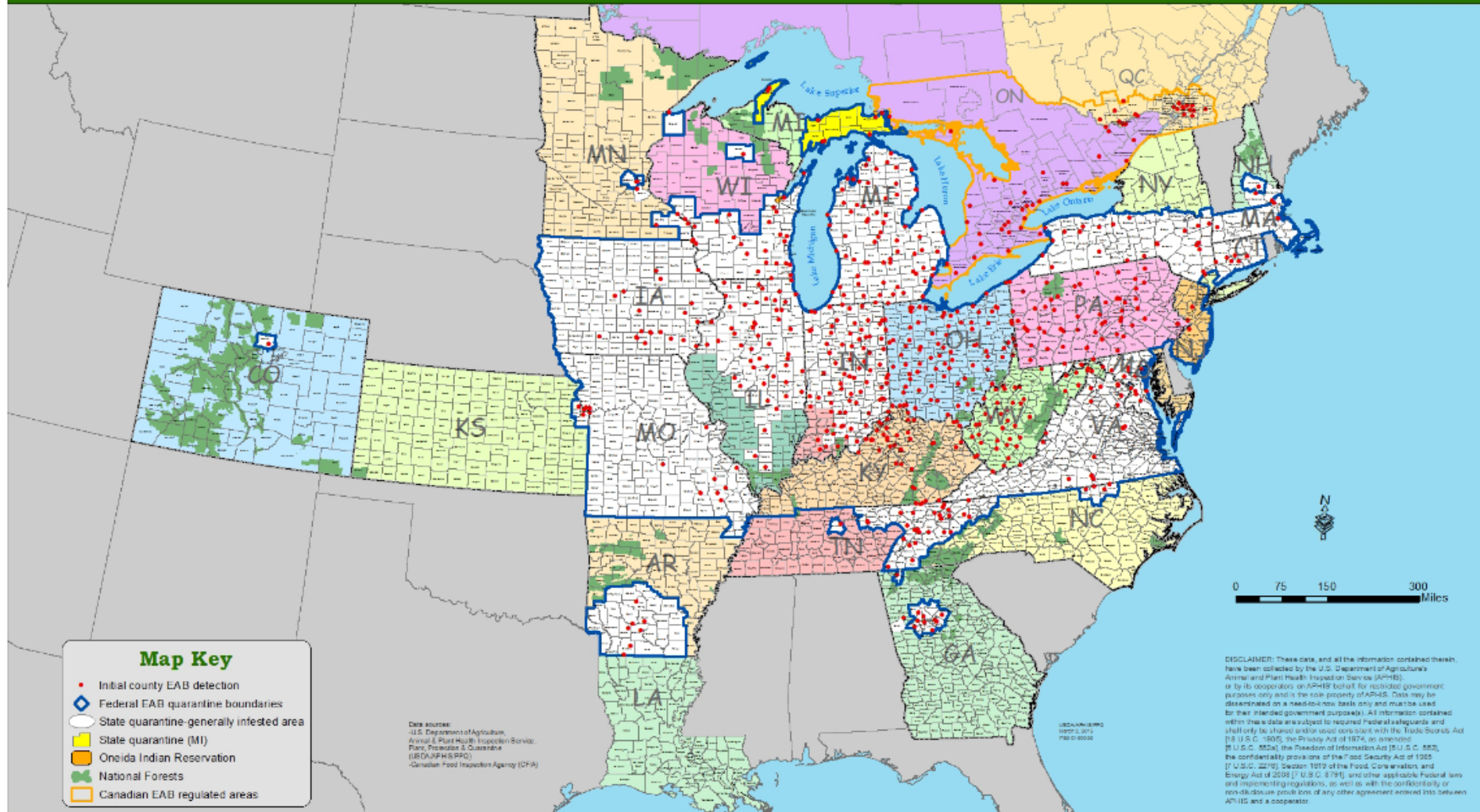


United States
Department of
Agriculture

Cooperative Emerald Ash Borer Project

Initial county EAB detections in North America

March 2, 2015



Map Key

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

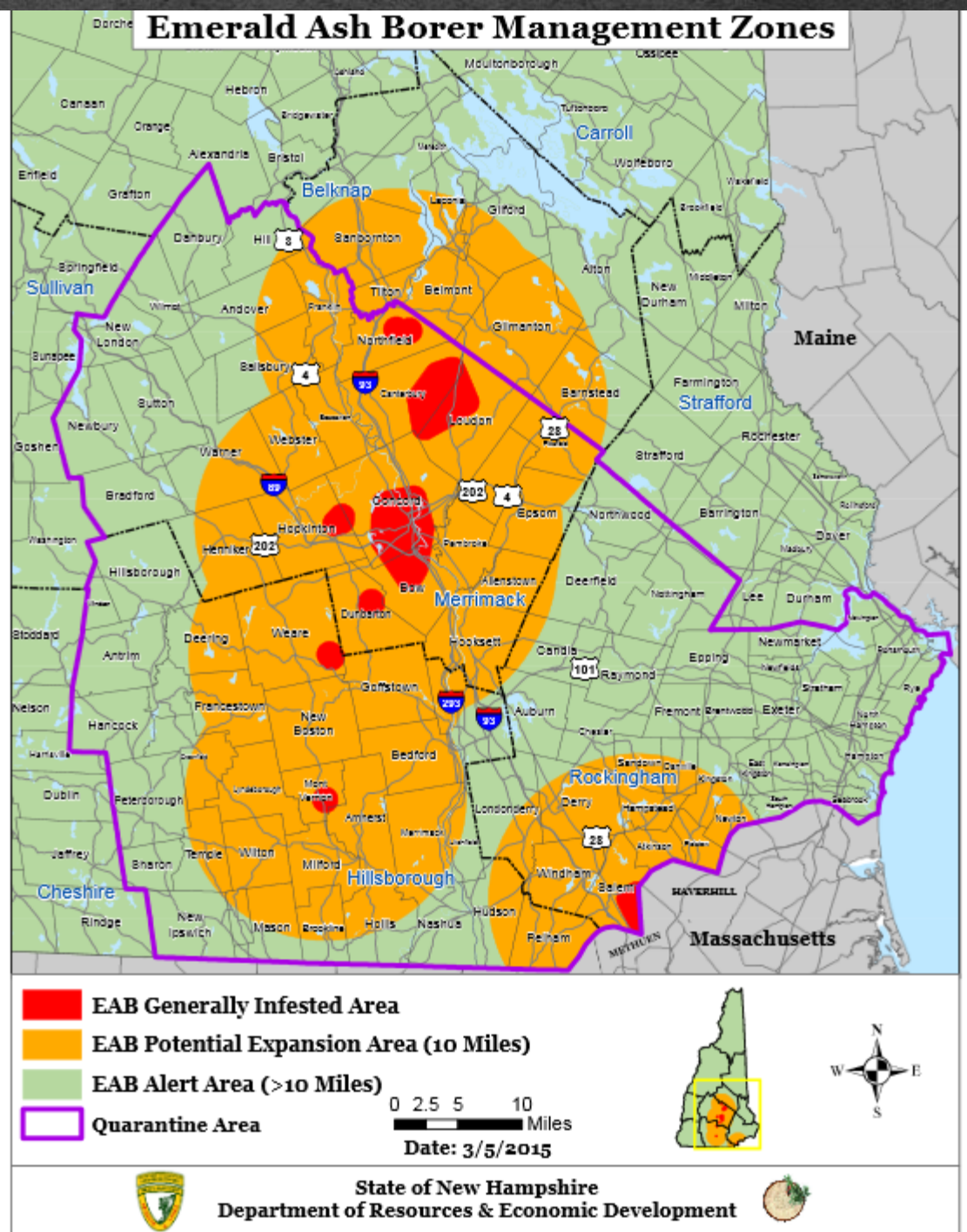
Data sources:
- U.S. Department of Agriculture,
Animal & Plant Health Inspection Service,
Plant, Protection & Quarantine
(USDA/APHIS/PPQ)
- Canadian Food Inspection Agency (CFIA)

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Miles

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New Hampshire

• nhbugs.org



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Bug Lugging



...Firewood Lugs Bugs...LEAVE YOUR FIREWOOD AT HOME!

Questions?

WEBSITE:

www.maine.gov/forestpests

http://www.maine.gov/dacf/mfs/forest_health/index.htm

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Conditions Reports
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New Gloucester: Wayne Searles