

Michigan Department of Natural Resources



Forest Health Update 2019

Sustainable Forestry Conference
Florence, WI
April 4, 2019

Simeon Wright
Forest Health Specialist

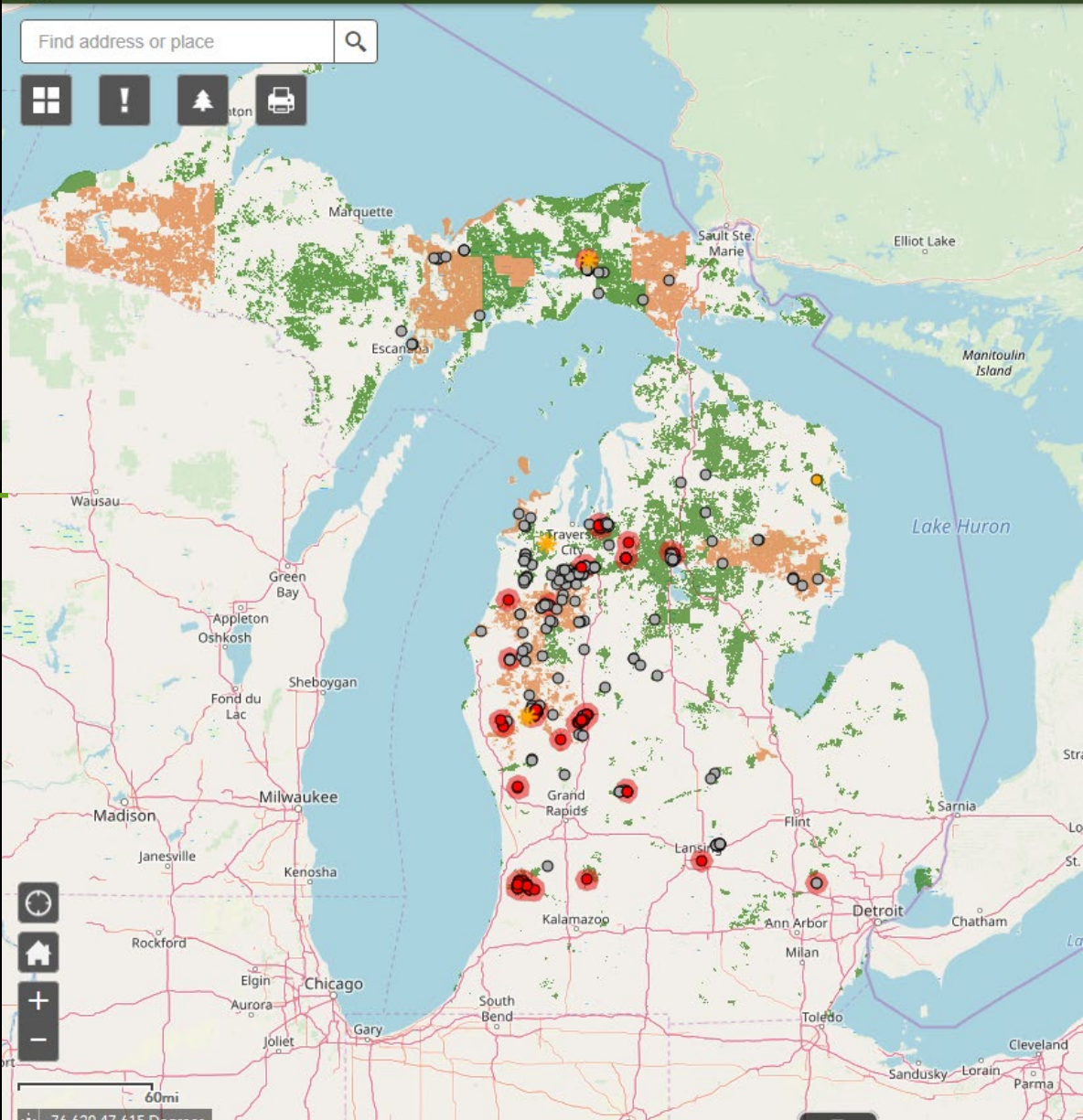


An aerial photograph of a forested hillside. The forest is dense and green, but there are several distinct areas where the trees are sparse or dead, appearing as lighter brown or grey patches. These patches are irregular in shape and seem to be expanding across the slope. The sky is overcast and grey.

Heterobasidion root disease (HRD): MI Approach

Expanding pockets of r.p. mortality

Look for Heterobasidion Root Disease



www.michigan.gov/foresthealth

Concern:

- Maturing red pine plantations with multiple entries
- Fresh cut stumps, widespread inoculum, root-grafted monoculture and an ideal environment for HRD
- Increasing HRD impacts into the future

Where/when is the risk?

- Most spores:
 - Produced between spring and late fall
 - Restricted by extended freezing temperatures and snow cover
 - Most land within 300 feet, but some carried for miles

HRD Advisory (MI state lands)

- 5 mile HRD advisory zone
 - Assess red pine plantations within the zone
 - If surveys indicate high risk of infection, harvest:
January 1-March 30

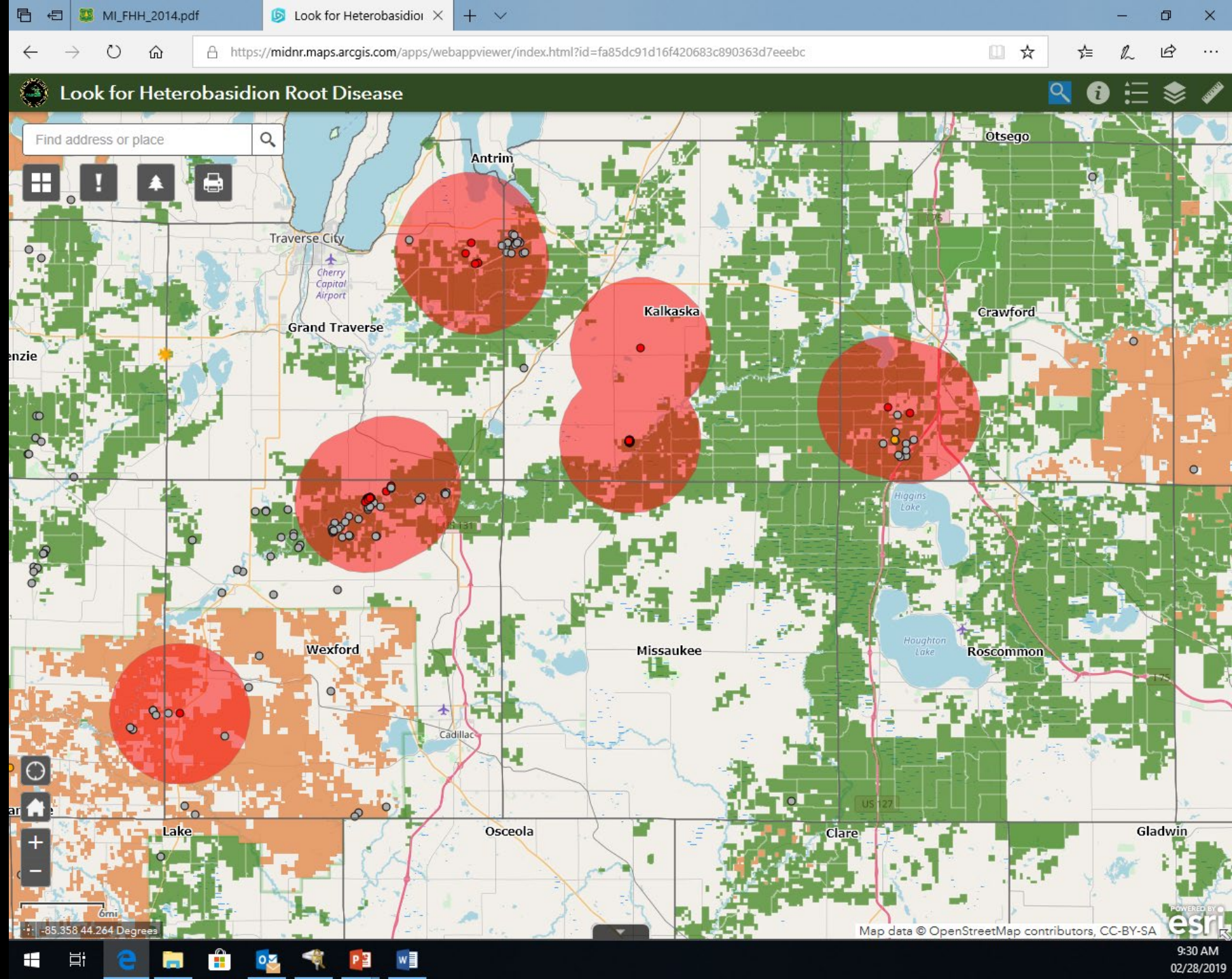
OR

April 1-December 31 with stump treatment
(RotStop C or Cellu-Treat)

State Land:

Within advisory zone:

Survey stands slated for harvest



Potential future modification with increased knowledge:

1. Pathogen distribution
2. Relationship of season to infection risk
3. Relative susceptibility of conifer species
4. Site characteristics that may relate to risk



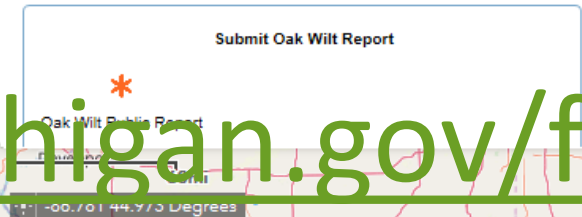
Oak Wilt

Find address or place



Submit Oak Wilt Report

1. Click the asterisk (*) below to add a report.
2. Provide details about the tree(s) being reported.
3. Provide contact information if you are okay with DNR staff contacting you about the report.
4. If you are a DNR affiliate, or local, state, or federal government cooperator, we require a pressure pad photo or an official MSU Diagnostics Laboratory report for data integrity purposes in order to validate a reported infection.



About This Map

Use this map to see the known extent of oak wilt in Michigan and report a possible infection center. Oak wilt infection centers may be present at other locations not shown on the map. There is a small risk of oak wilt infection anywhere oaks are present in Michigan, even if infection centers do not occur nearby.

To report a possible infection site:

- Select the "Submit Oak Wilt Report" tool in the upper left corner of the map.
- A pop-up box will appear. Select the orange star.
- Click on the area on the map where you believe trees are infected with oak wilt.
- Fill out the information in the report box.
- Michigan DNR staff will attempt to confirm the point based on the information you've provided. You also will be asked if you would like someone to contact you with more information or assistance.

To learn more about oak wilt:

Before reporting, check out the "Oak Wilt Identification & More" tool located on the upper left side of the map, depicted as a tree. A dialog box will appear with information about identifying the disease. Click and drag the corner of the box to resize for easier reading.

Additional information is available in the "About Oak Wilt" section of the map in the

Oak Wilt: Management



Private Land Treatments

- Contact your local NRCS office

Environmental Quality Incentives Program Private Forestland



Private Forestland

Even though Michigan is home to three National Forests in addition to state forests, the majority of forestland in the state is not publicly owned. According to the USDA Forest Service, nearly half of Michigan's forestland is owned by families or other private, non-corporate entities.

Forest Management Plans

With most of the state's forestland privately owned, proper management of this resource is important. No matter how a landowner uses forestland, a forest management plan is essential. A forest management plan helps the landowner protect soil, water and wildlife resources and identifies other threats such as invasive species and disease. A forest management plan is designed to optimize the resources that are important to the landowner be it specific game species, sustainable timber production or general recreation.

NRCS provides financial assistance for forest management plans through

harvesting timber. Proper management is especially important near streams and rivers as activities in these areas greatly impact water quality and aquatic habitat.



Forest trails and access roads can cause soil erosion if not designed properly.

Wildlife Habitat

Virtually all of Michigan's forest land has been significantly altered by human activity. The process of deforestation

EQIP

The Environmental Quality Incentives Program (EQIP) provides conservation financial assistance for working lands. Rather than take land out of production, EQIP helps farmers maintain or improve production while conserving natural resources.

EQIP assistance is available for all types of agricultural operations, including field crops, specialty crops, organic, confined livestock and

Hemlock in Michigan



- Michigan Forests: Over 170 million hemlocks
- Shade rivers, streams, lakes - cool water, prevent erosion
- Diversity across the landscape
- Critical winter cover, food, and habitat for wildlife

HWA

Attacks eastern
hemlock by
sucking moisture
and nutrients
from the tree

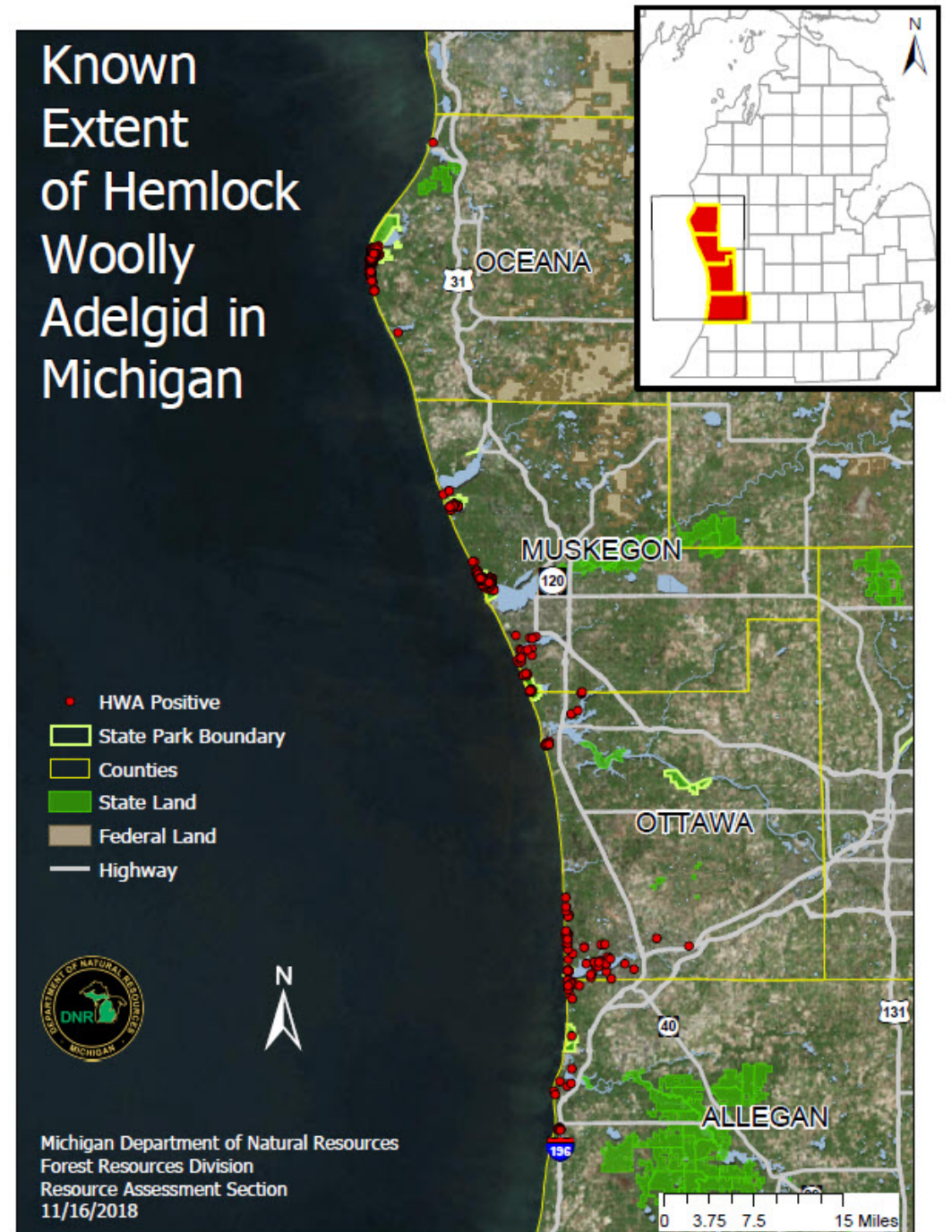
Found on the twig
at the base of the
needle



Hemlock Woolly Adelgid (HWA)

Native to Japan

- First detected Eastern US in 1951
Richmond, Virginia
- First observed in Michigan in 2006



HWA Survey Efforts:

Slow the spread and local eradication

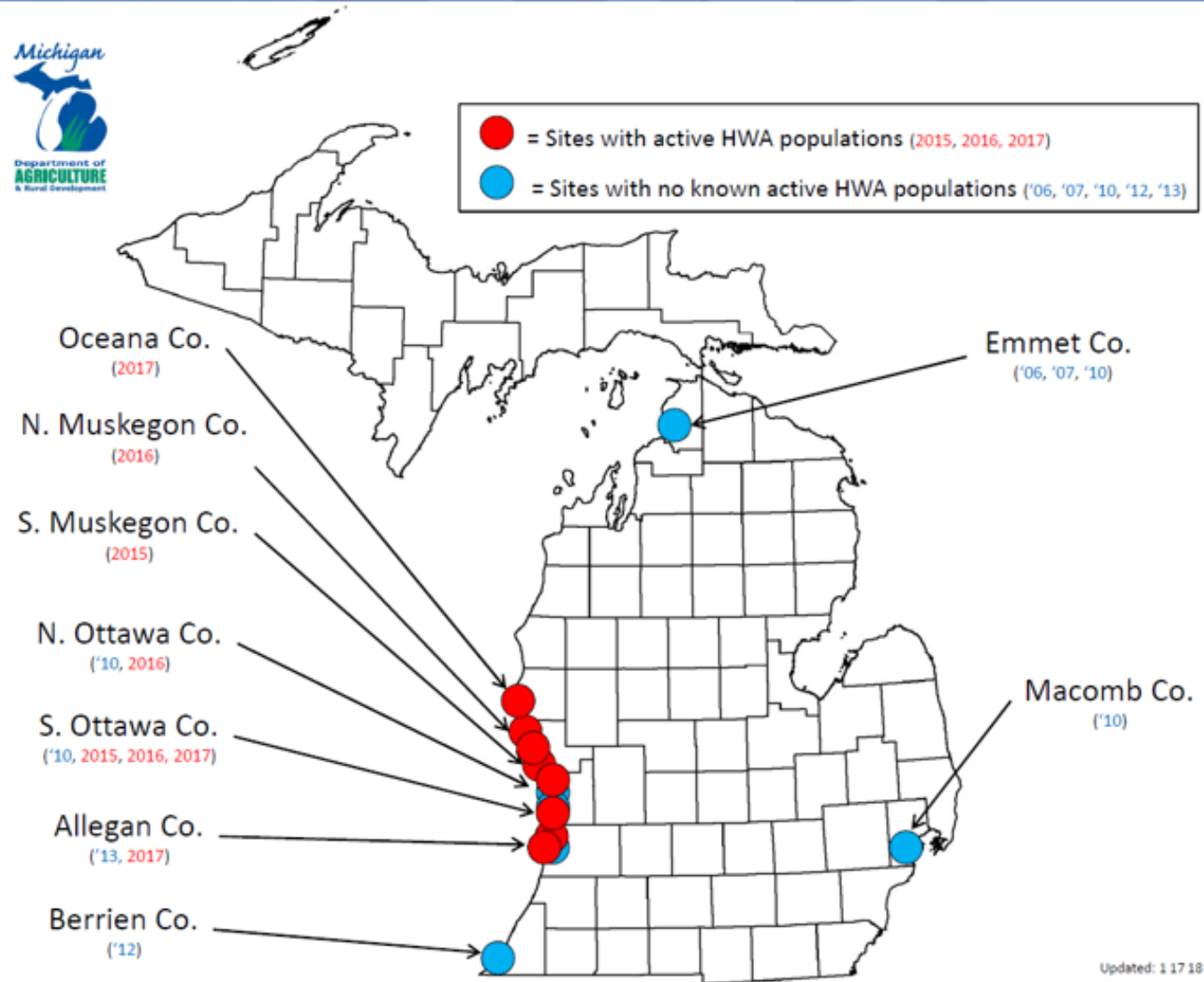
- Detection surveys are being prioritized by risk
 - Proximity to known infestations
 - Moderating temperate zones along Lake Michigan
 - High-cost managed landscapes





Hemlock woolly adelgid infestation history

(Year Detected)



Treatment

Dinotefuran - Applied as a basal trunk spray; Annual application

Imidacloprid - Applied as a tree injection or basal spray; Persists for 3-5 years

Treatments:
All hemlock
within 800 ft
of infested
tree



What to look for?



White cottony masses found at the base of the needles on the twigs

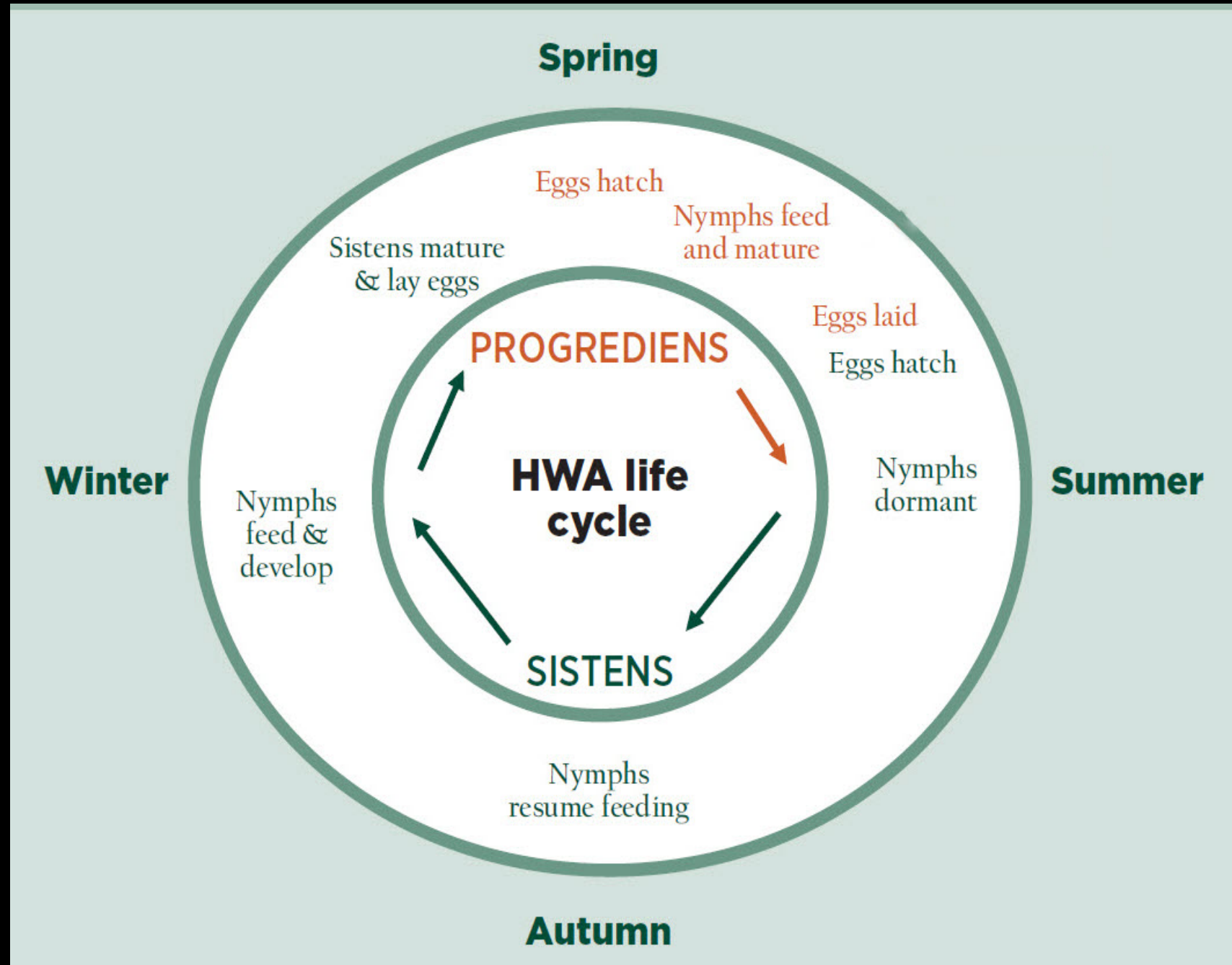


Not to be confused with:



HWA Life Cycle

- Crawlers:
 - Spring and summer:
 - Mobile, blow in wind
 - Transport by wildlife
 - Search for feeding sites on twigs

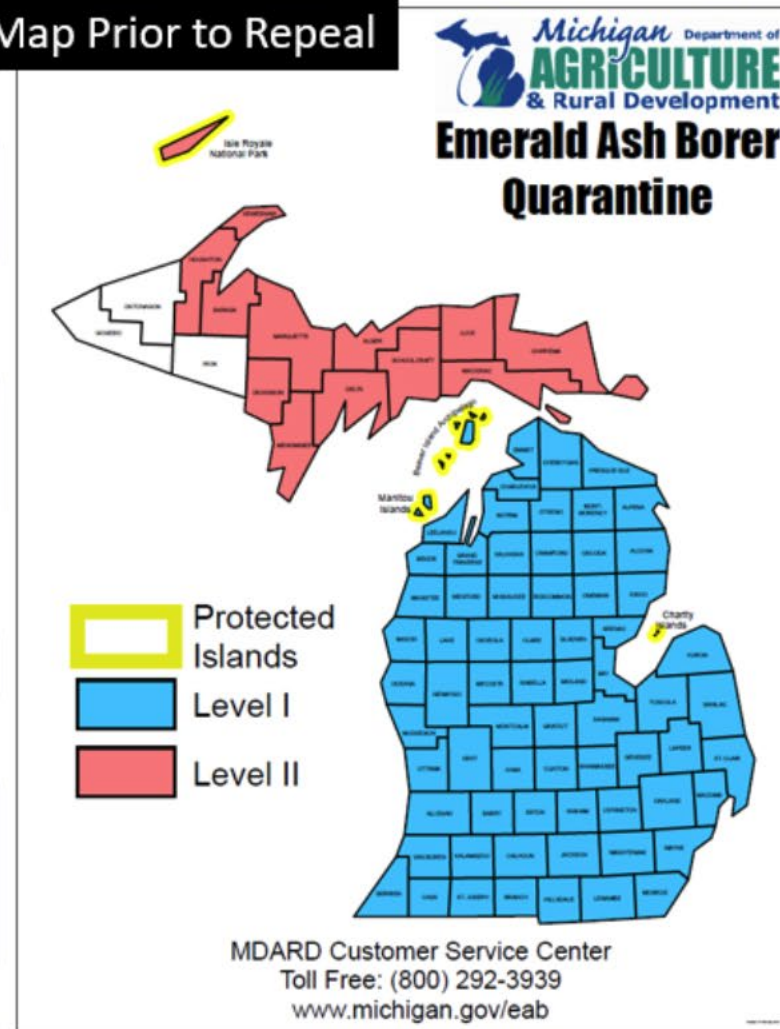




Repeal of Michigan's Internal Emerald Ash Borer Quarantine

- Originally issued: 7/16/02
- Last revised: 2/10/16
- EAB detected in 35 states, the District of Columbia and 5 Canadian Provinces
- All but 4 of MI's 83 Counties are known to be infested. (Iron, Ontonagon, Gogebic and Luce)
- WI full state quarantine: March 2018
- USDA-APHIS no longer trapping in MI (or WI)
- **MI Quarantine Repealed: 10/1/18**

Map Prior to Repeal



“Lingering Ash”

- Surviving ash where EAB has been present for several years
- May or may not indicate EAB tolerance/resistance
- Propagate and utilize in breeding



Selection Criteria for “Lingering Ash”

- Area long infested by EAB
- >95% mortality of mature ash occurred at least 2 years prior
Or
>50% mortality 4 years prior
- Large enough to have been infested during peak EAB
≥10 cm dbh monitoring plot
≥20 cm dbh surviving ash
- Healthy canopy
- FIA data is being used to identify counties appropriate for lingering ash selection. Check with us for updates.



Photo by K. Knight

BBD: Resistance



Susceptible



Resistant?

BBD Resistance

- Propagate resistant trees in seed orchard
- Trial seedling at representative sites
- Eventual restoration?



Workers Jim Sillery and Mary Ann Reiner plant disease-resistant beech trees at Huntington State Park.



2018 Forest Health Highlights



2018 Forest Health Highlights Report

Michigan Department
of Natural Resources

www.michigan.gov/foresthealth



Questions?

- **Michigan DNR Forest Health:**

Website: www.michigan.gov/foresthealth

- **Contact MI DNR Forest Health Program:**

Email: DNR-FRD-Forest-Health@michigan.gov

- **Midwest Invasive Species Network – MISIN:**

Website: www.misin.msu.edu

Download MISIN app to report sightings

Simeon Wright, Forest Health Specialist, Michigan DNR