Michigan
Department of
Natural Resources

Forest Health Update 2019

Sustainable Forestry Conference
Florence, WI
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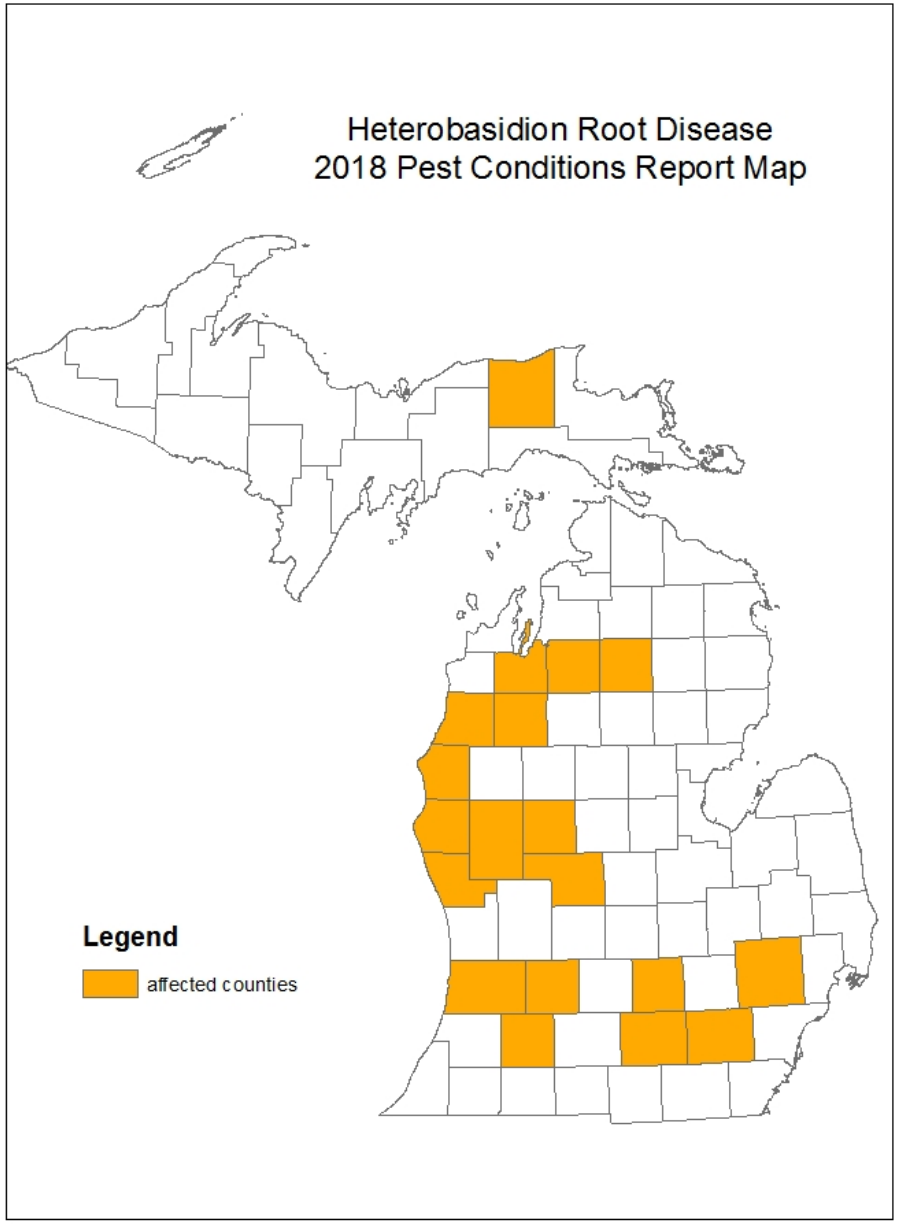
Heterobasidion root disease (HRD):
MI Approach
Expanding pockets of r.p. mortality

- HRD first detected in S. MI 1963
- Extensive surveys since 2015
- Current:
  - 18 L.P. Counties
  - 1 U.P. County



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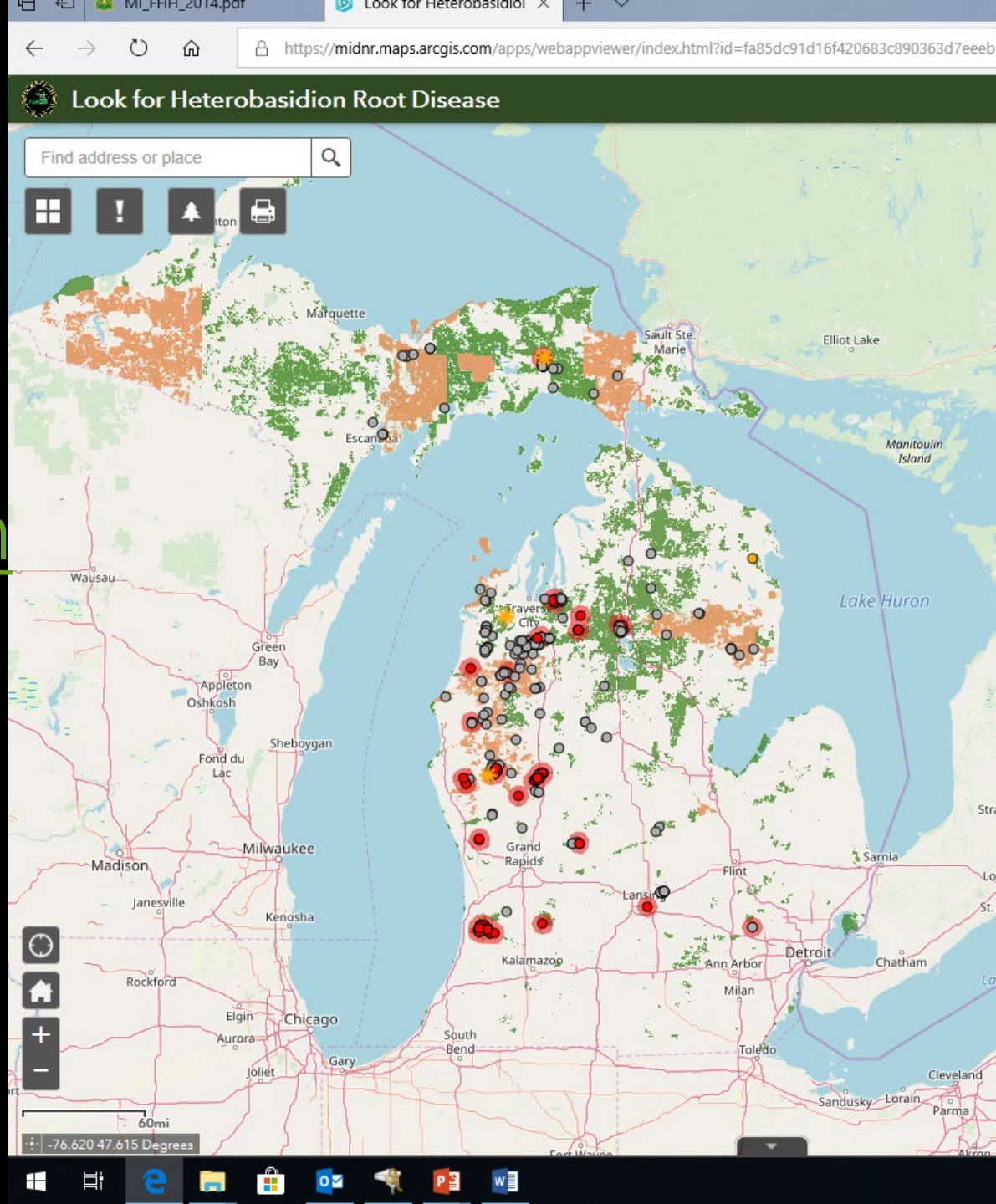


Concern:

- 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:

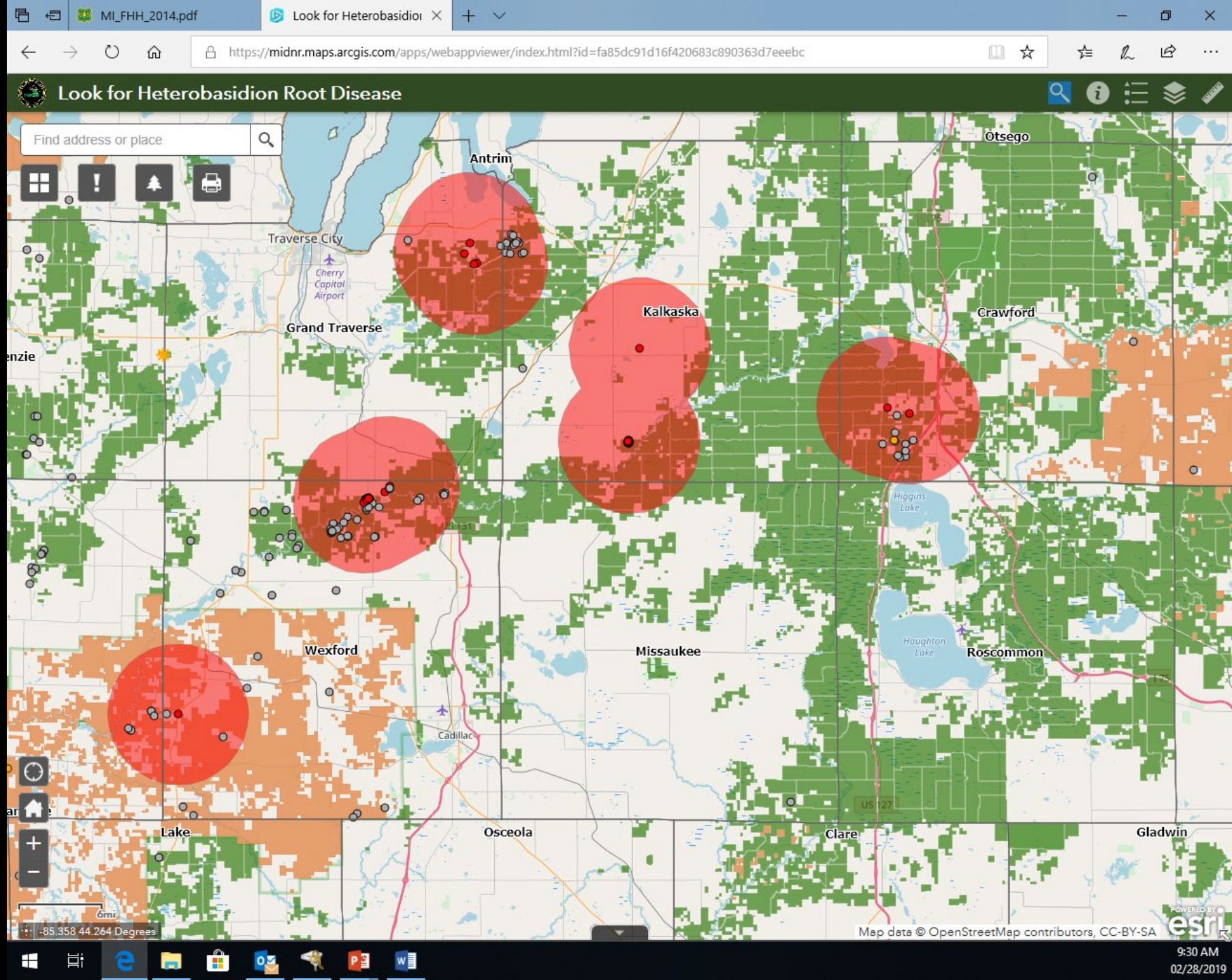
    January 1-March 30

    OR

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

State Land:

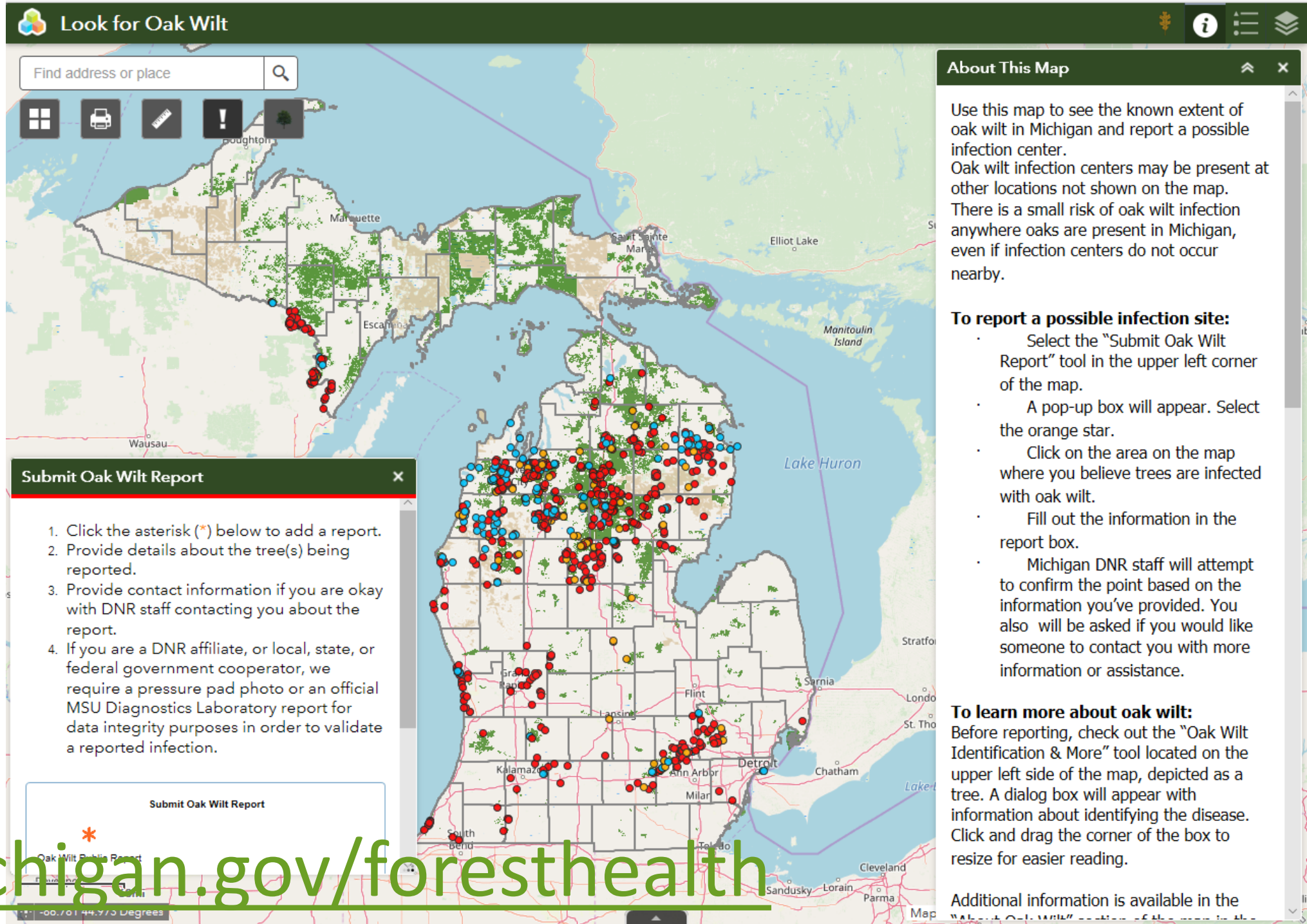
- Within advisory zone:
- Survey stands slated for harvest



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



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Oak Wilt: Management

Private Land Treatments

- Contact your local NRCS office

USDA United States Department of Agriculture

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,

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

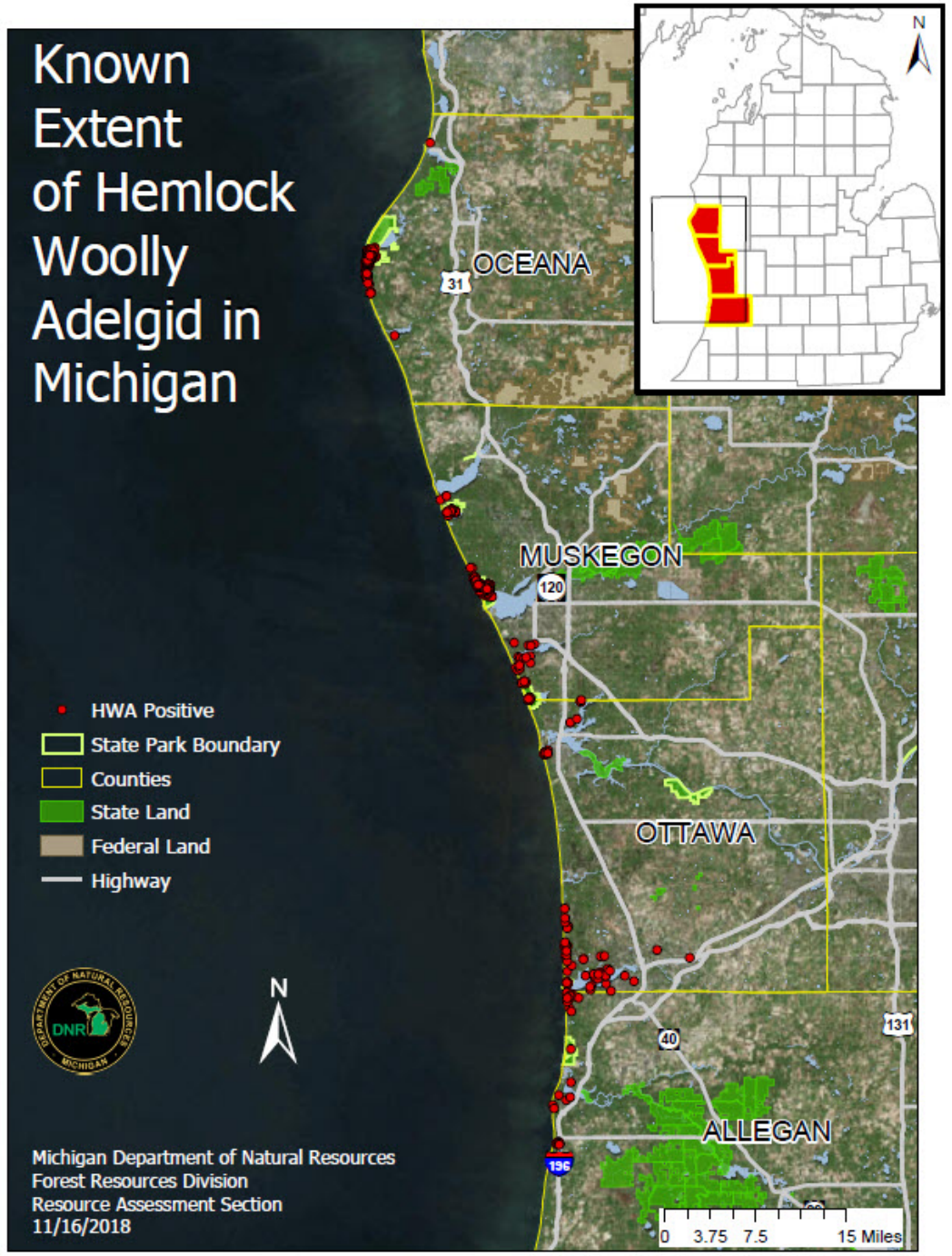
Attacks eastern hemlock by sucking moisture and nutrients from the tree

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

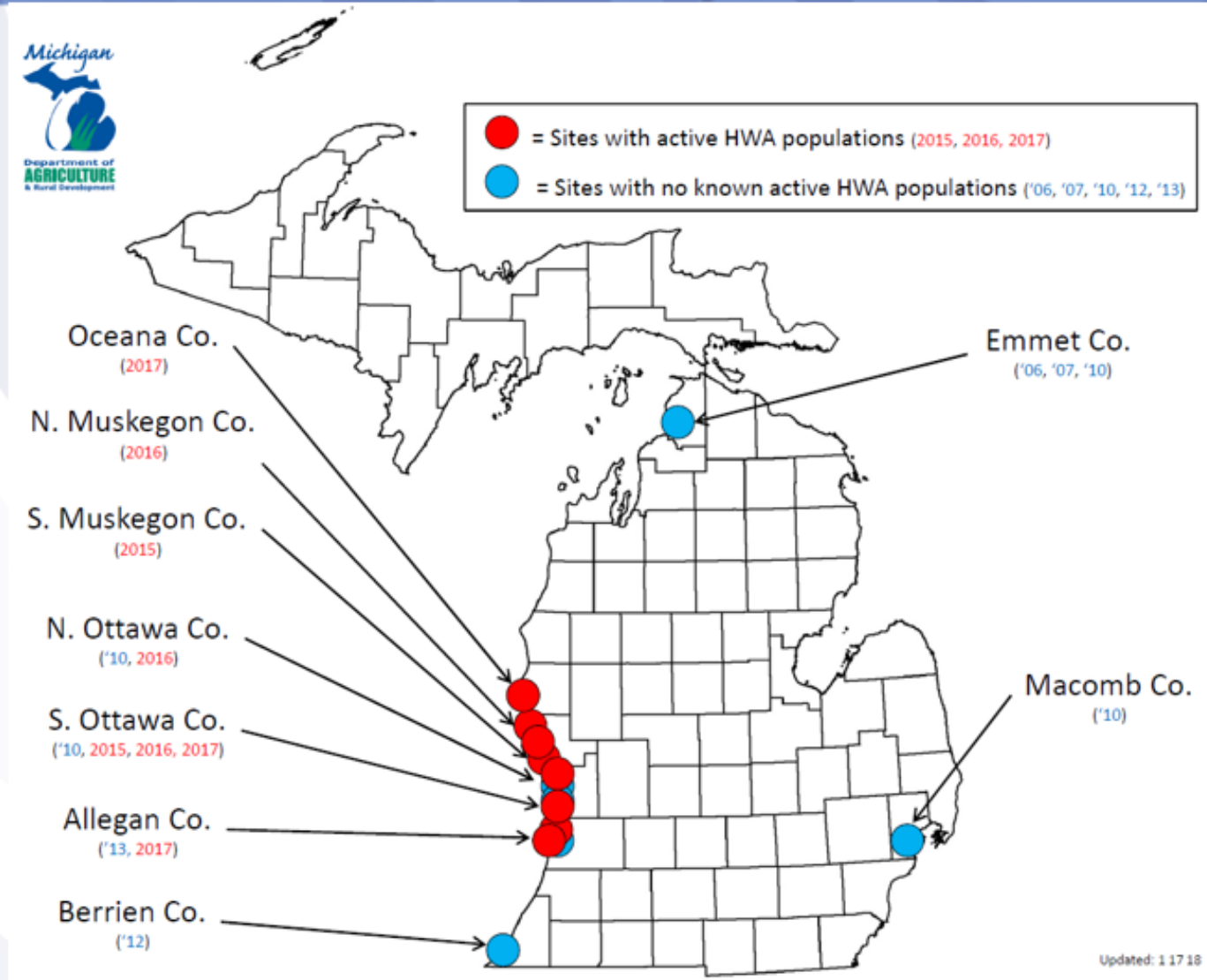


HWA Survey Efforts:

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

Treatments: All hemlock within 800 ft of infested tree

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

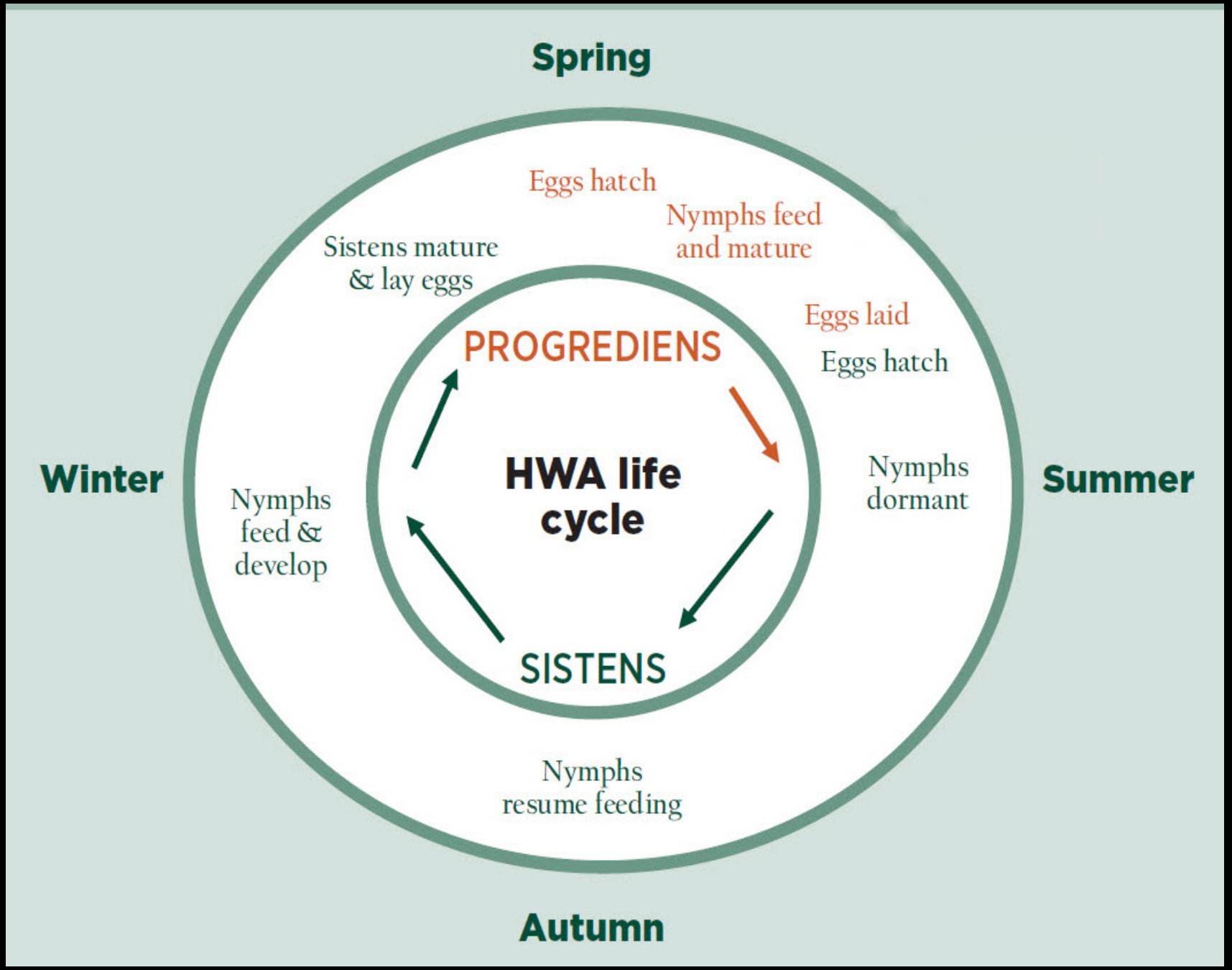
What to look for?

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

Not to be confused with:

HWA Life Cycle

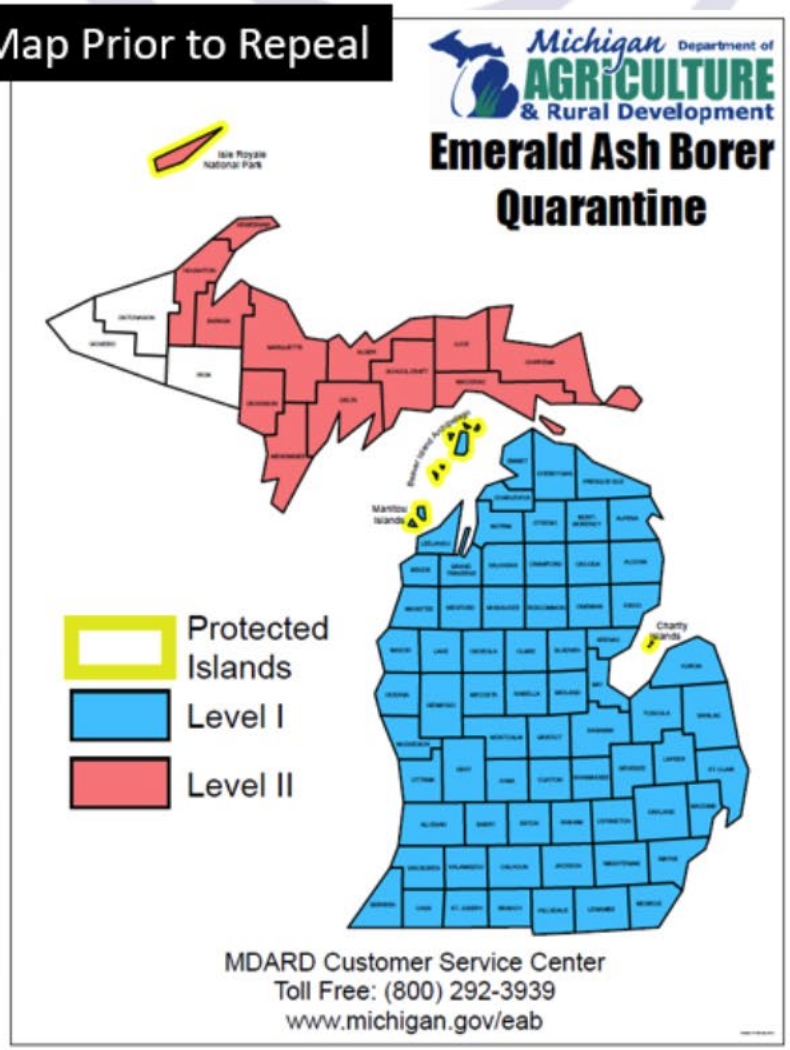
- Crawlers:
  - Spring and summer:
    - Mobile, blow in wind
    - Transport by wildlife
  - Search for feeding sites on twigs



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 know 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”

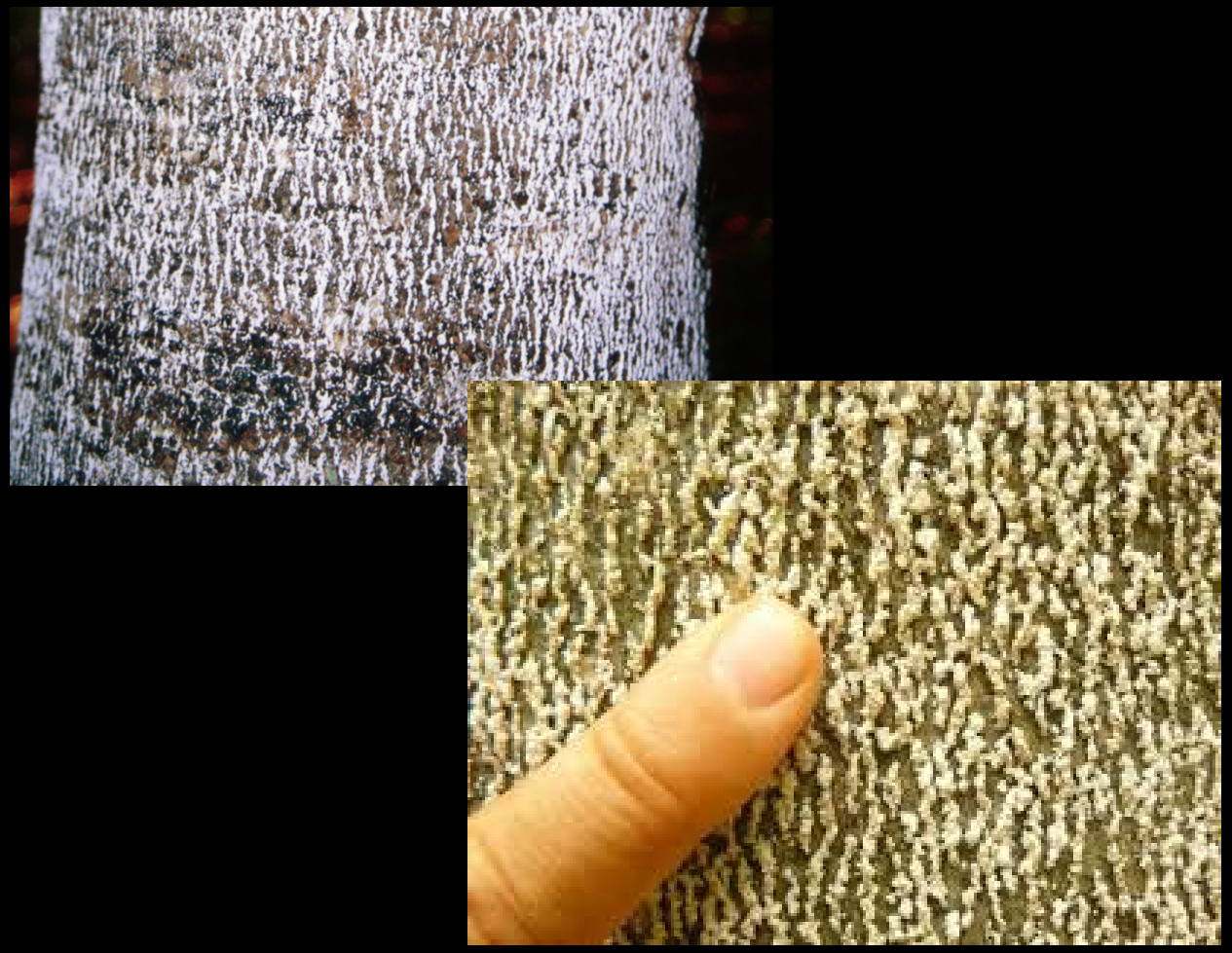
- Surviving ash where EAB has been present for several years
- May or may not indicate EAB tolerance/resistance
- Propagate and utilize in breeding

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?

rs Jim Sillery and Mary Ann Reiner plant disease-resistant beech trees
gton 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

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