

**Michigan Eyes
on the Forest &
Forest Sentinel
Tree Network**



Eyes on the Forest: Linking Research, Outreach & Communication



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MI Conservation District Foresters Forestry Assistance Program, in association with MDARD & DNR

Funded by the Michigan Invasive Species Grants Program

Eyes on the Forest: Linking Research, Outreach & Communication

Identified 3 target pests: ALB, HWA and TCD

Research: Assess & map relative risks of entry & establishment for each pest

Outreach: Build awareness of 3 target pests & other invasive forest pests across the state

Communication: Facilitate reporting of suspect pests or symptomatic trees

Goals: Increase chance of early detection & successful response if new invasive forest pest becomes established.



Eyes on the Forest: Linking Research, Outreach & Communication



Eyes on the Forest Risk Models

Probability of Entry

Domestic Commercial
Pathways

Int'l Commercial
Pathways

Tourism & Recreation
Pathways

Host Availability

Tree Species

Spatial
Distribution

Species
Abundance

Eyes on the Forest Rapid Response

Risk Models

MISIN

Prioritization

Surveys

Public

Sentinel Tree

Intensive



Rapid
Response
&
Eradication
Success



Eyes on the Forest Outreach & Communication

Public Outreach

- Build awareness of invasive forest pests across MI.
- Increase the chance of early detection of a new pest.

Sentinel Tree Network

- Recruit observers with relevant expertise (trees, forests) who can recognize unusual signs or symptoms.
- Volunteers adopt a Sentinel Tree(s) & periodically monitor the condition of the tree. Can be a host of a target pest or a different tree species.
- Observations submitted to MISIN website.



Midwest Invasive Species
Information Network

Welcome to MISIN, **Amos** ([My Account](#)) | [Logout](#)

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The Midwest Invasive Species Information Network (MISIN) is a regional effort to develop and provide an early detection and rapid response (EDRR) resource for invasive species.

The goal of this regional resource is to assist both experts and citizen scientists in the detection and identification of invasive species in support of the successful management of invasive species.

This effort is being led by researchers with the Michigan State University Department of Entomology [Laboratory for Applied Spatial Ecology and Technical Services](#) in conjunction with a growing consortium of [Supporting Partners](#).

- Register in MISIN - <http://www.misin.msu.edu>
- Click on Citizen Science
- Select Eyes on the Forest Sentinel Tree Network
- Can print off a paper data sheet to take with you
- Enter data on-line each time tree is examined

Eyes on the Forest: Sentinel Tree Network

Facilitates reporting of suspect pests or symptomatic trees using on-line MISIN.

Trained Sentinel Tree observers expands the number of “eyes” looking at forest & urban trees across the state & over time.

“Negative” observations (e.g., healthy trees) are recorded & mapped, along with suspect pest reports.

Value of records increases every year.



Target Pest: Asian Longhorned Beetle



Asian Longhorned Beetle Infestations in North America



Ontario, Canada

First detected in
Mississauga in 2013

First detected in
Vaughan in 2003
Declared eradicated in 2013

Massachusetts

First detected in
Worcester in 2008

Illinois

First detected in
Chicago in 1998
Declared eradicated in 2008

Ohio

First detected in
Tate Township in 2011

New York

First detected in
Brooklyn in 1996

New Jersey

First detected in
Jersey City in 2002
Declared eradicated in 2013

Map Key

- Maple Forests*
- ALB Infestations
- Eradicated ALB Infestations

* Preferred ALB Host. (USFS FHTET, 2012;
USGS, 2002; Yemshanov et al. 2012)



US Forest Service
Northeastern Area State and Private Forestry
Forest Health Protection, Durham, NH
www.na.fs.fed.us/fhp

The US Forest Service is an equal opportunity employer and provider.

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Target Pest: Hemlock Woolly Adelgid

- More than 170 million hemlocks in Michigan forests
- Hemlock is an important forest & wildlife resource
- Deer browse has limited hemlock regeneration
- Most trees are mature or overmature & vulnerable
- Thousands of hemlocks planted in landscapes



Adelges tsugae
(wax removed)

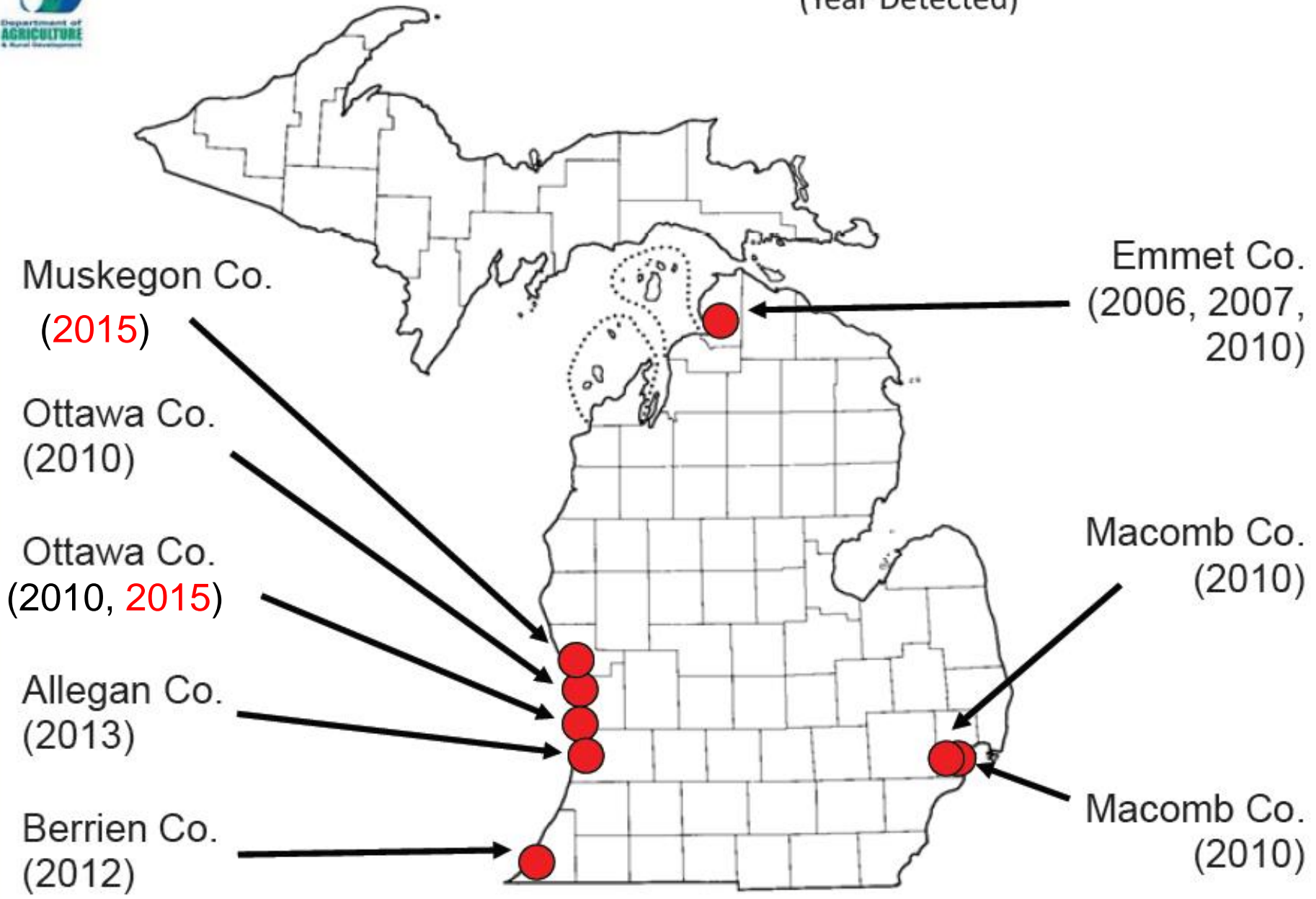


Infested shoot



Smoky Mtn Nat. Park

Hemlock Woolly Adelgid Infestation History in Michigan (Year Detected)



Target Pest: Thousand Cankers Disease



Walnut twig beetle
Pityophthorus juglandis



Fungal pathogen
Geosmithia morbida

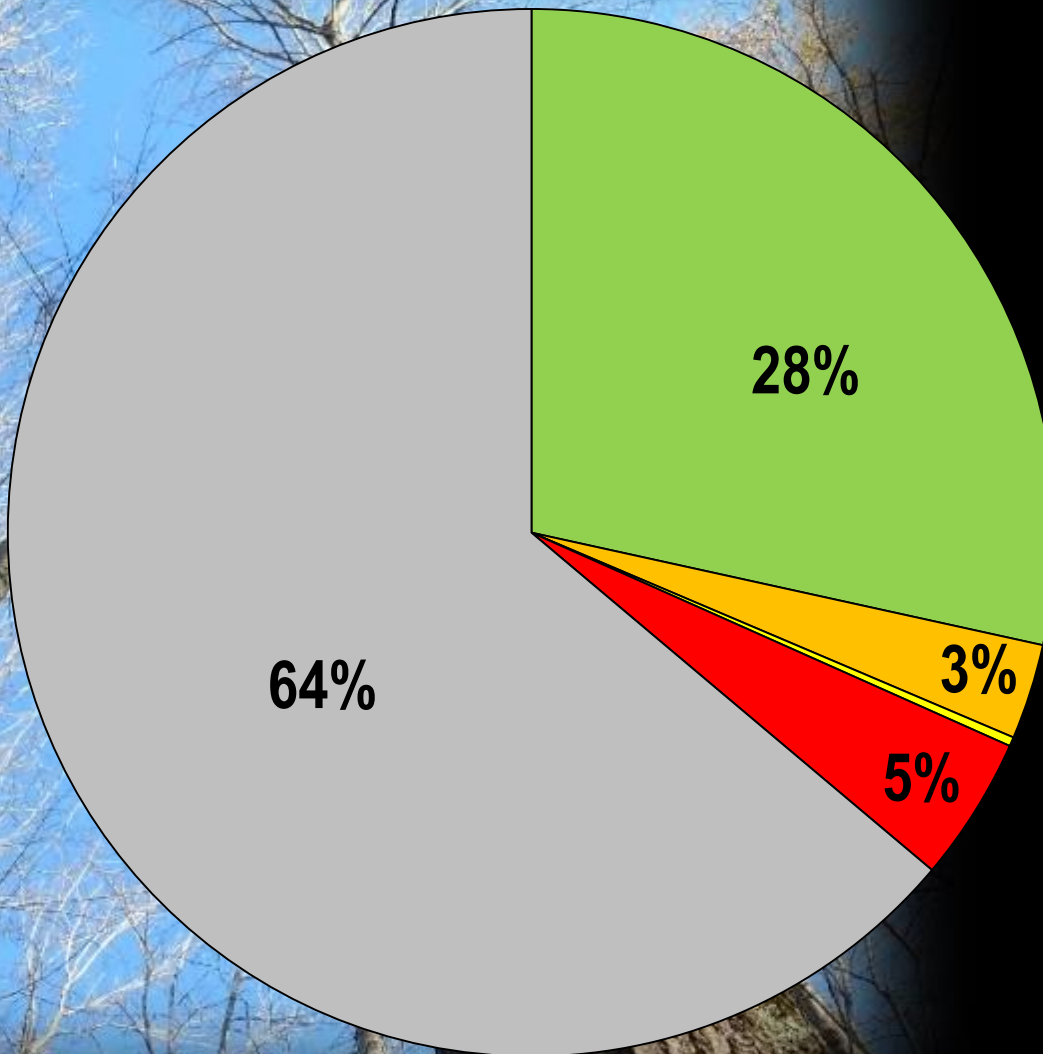


Forest Cover in Michigan & Wisconsin



Image courtesy of Danielle Shannon, Michigan Tech University and USDA NIACS

Sugar Maple - #1
Red Maple - #2
Hemlock - #9



- Maples
- Hemlock
- Walnuts
- Ashes
- Other Species

Maple Volume Distribution

7,242,657,557 cuft



5-7%

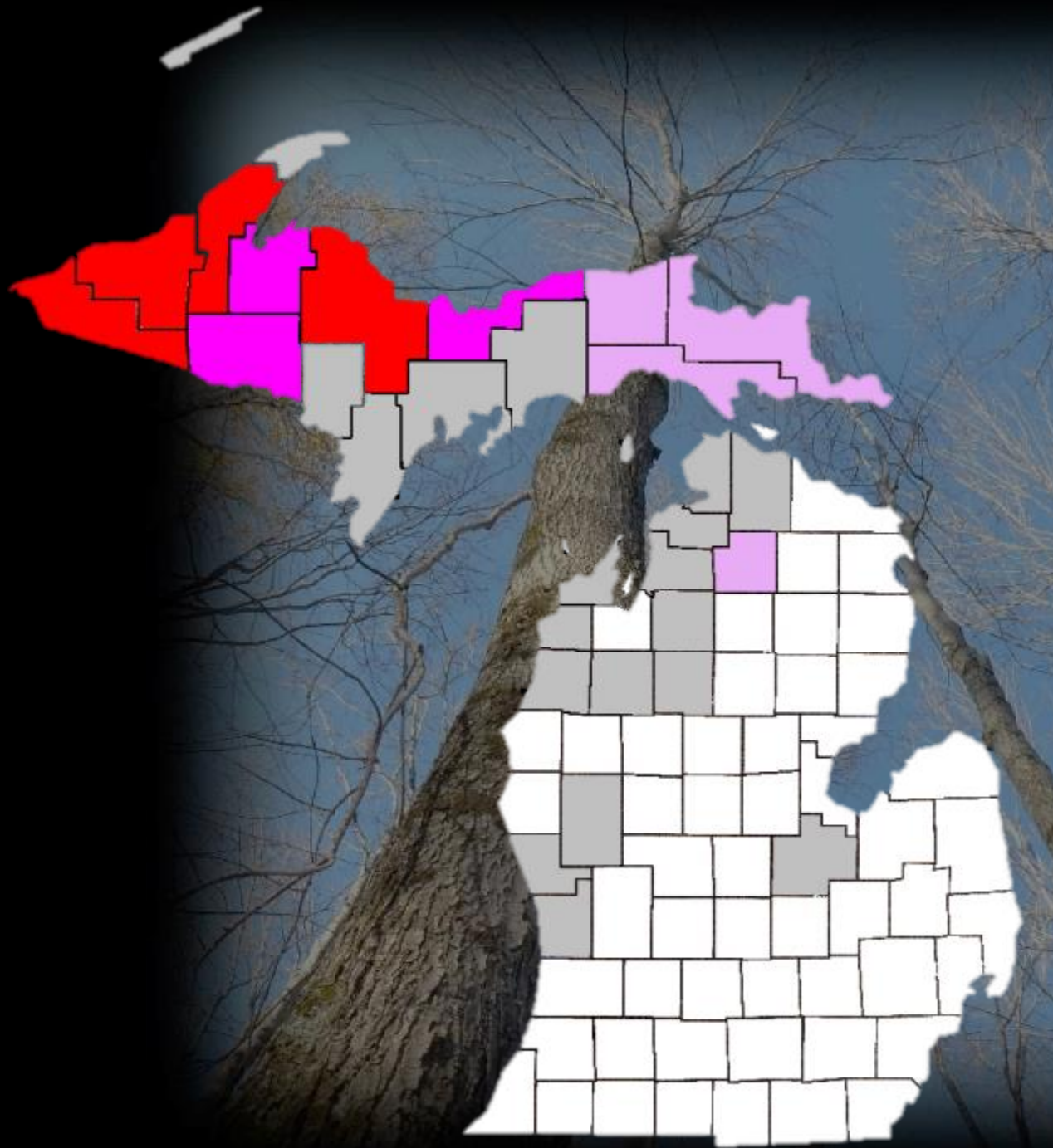
4-5%

2-4%

1-2%

Total

73%



Hemlock Volume Distribution

931,647,268 cuft



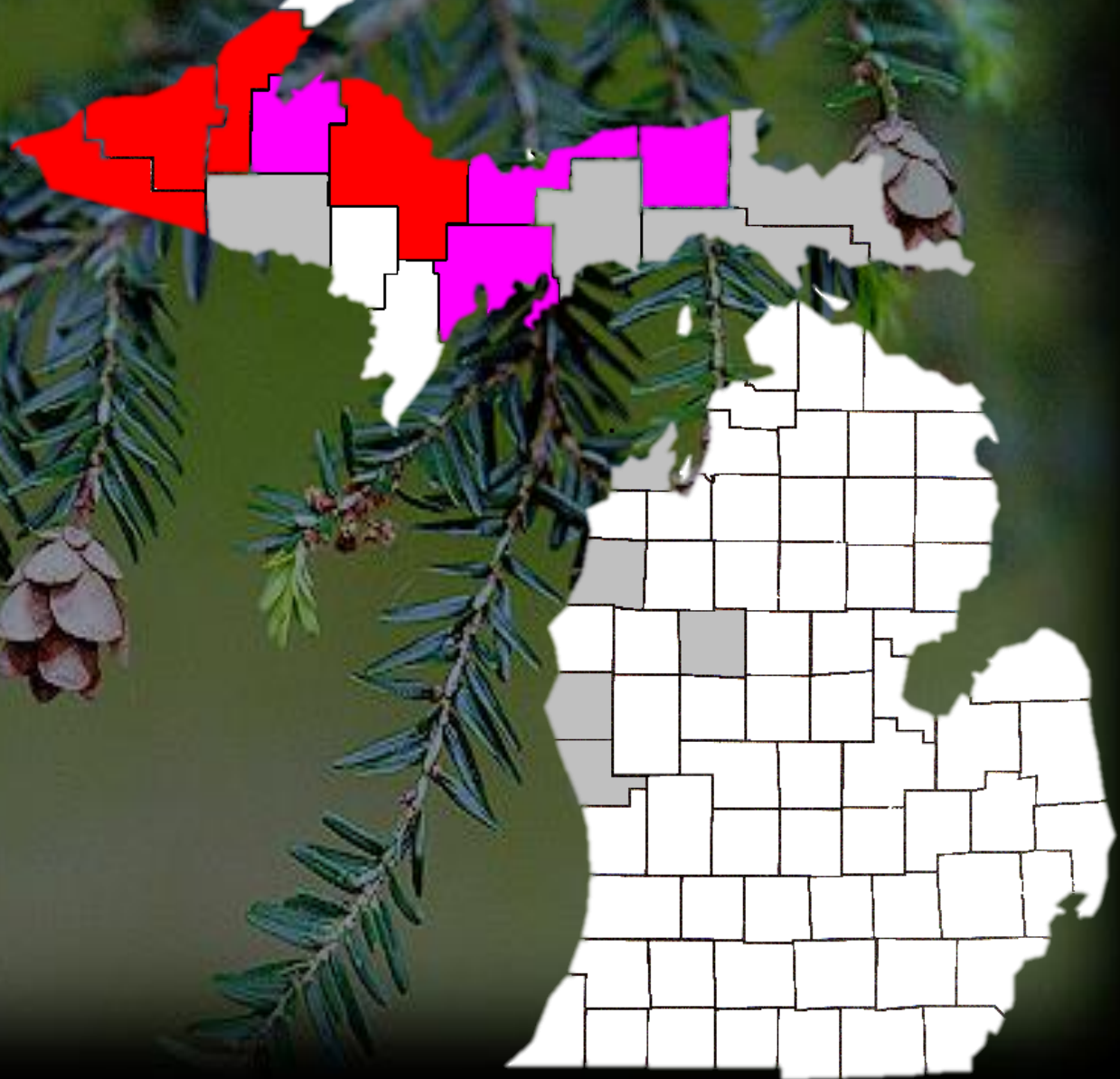
10-13%

7-10%

1-7%

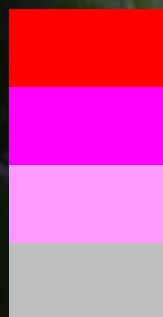
Total

96%



Walnut Volume Distribution

94,790,607 cuft



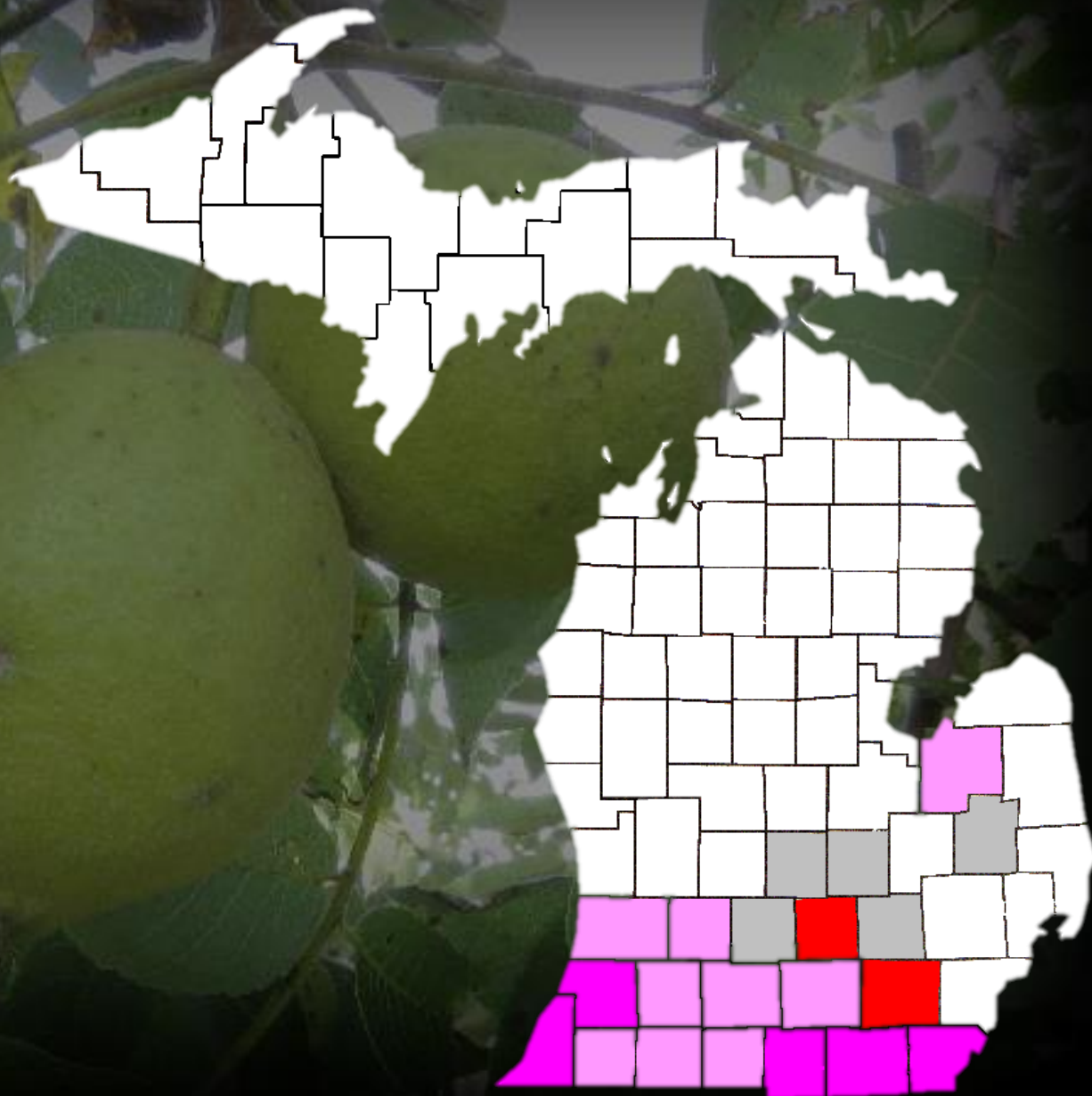
5-7%

4-5%

2-4%

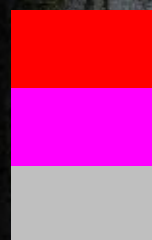
1-2%

96%



Ash Volume Distribution

1,250,661,562 cuft



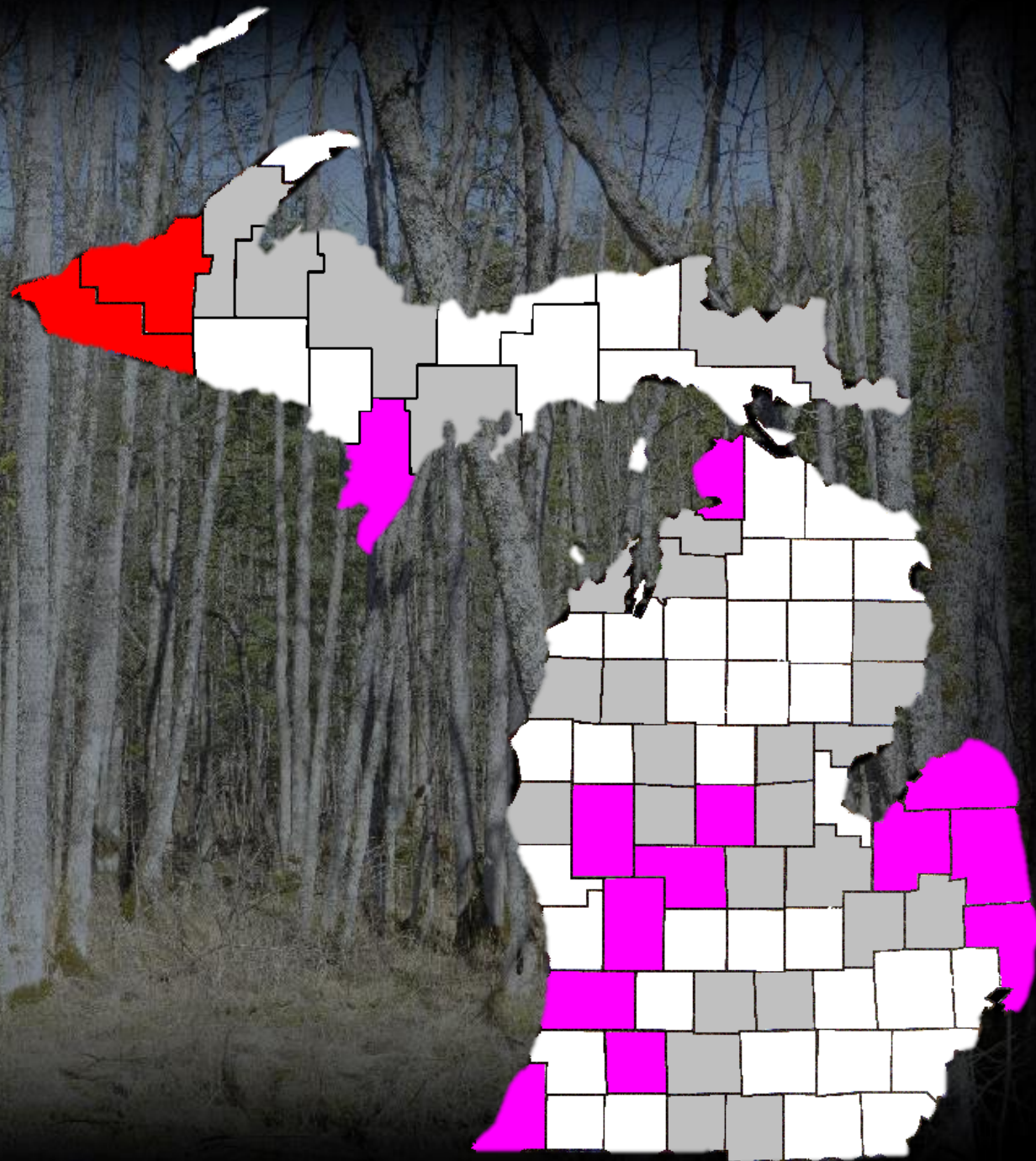
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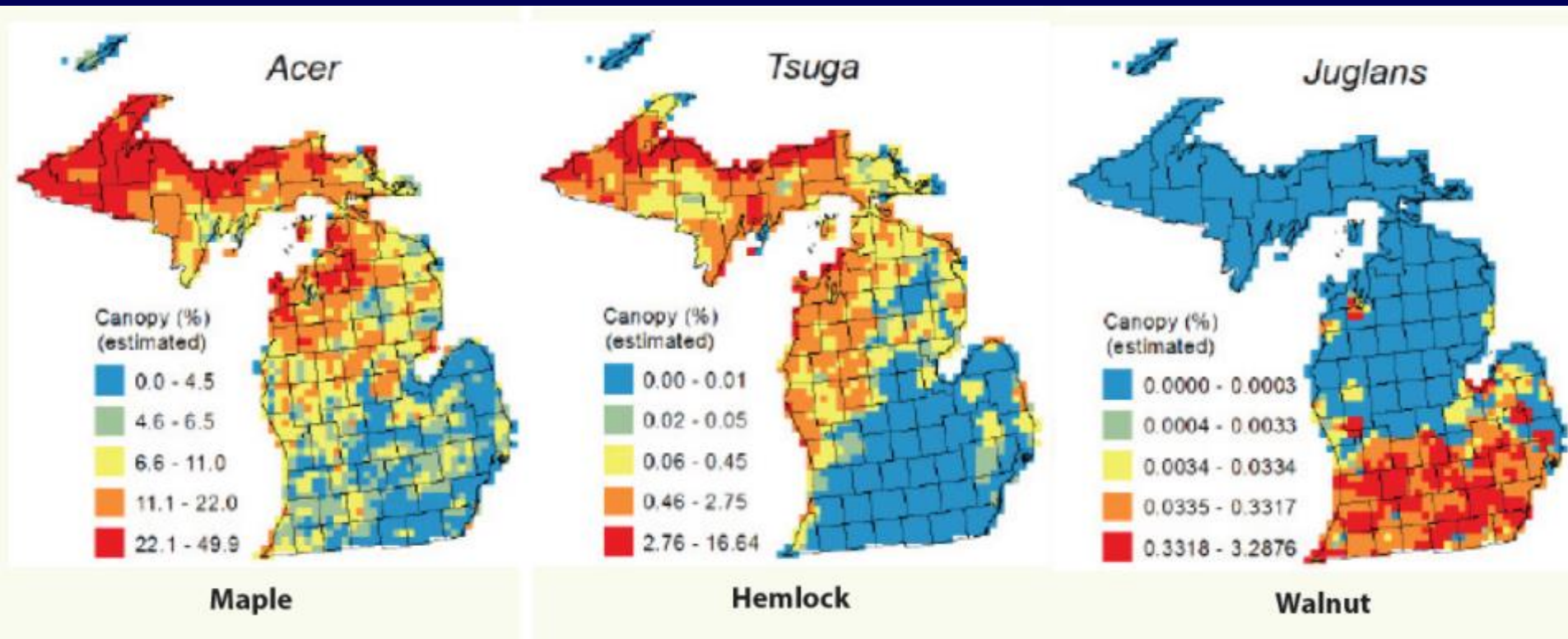
1-2%


Total

80%



Another Way to Look at Species Distribution



A woman with blonde hair and blue eyes has a shocked expression, with her mouth wide open. She is looking at a collage of images related to forest diseases. The collage includes a blue background with white text, a close-up of a tree trunk with a large, green, fuzzy growth (likely a canker or similar disease), and a close-up of a tree trunk with a large, brown, textured growth (likely a canker or similar disease).

Other Exotic Concerns
Oak Wilt
Beech Bark Disease
Balsam Woolly Adelgid
Heterobasidion Root Disease

Questions?

Comments?

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