

Oak Wilt in Michigan



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Oak Wilt



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Oak wilt is a tree disease that kills thousands of oaks each year in:

WOODED LOTS



Oak Wilt Timeline

- 1881 - Dying oaks are first noticed in Wisconsin
- 1912 - Dying oaks are found dying in Wisconsin & Minnesota
- 1927 – Oak wilt type symptoms are first described
- 1944 – *Causal agent found and* named *Ceratocystis fagacearum*
- 1970's - 2009 – Oak wilt greatly expands its impacts in the Lake States and in Texas

Oak Wilt: Hosts

- Red oaks are most susceptible
- Bur oak is intermediate
- White oaks are resistant/tolerant
- Live oaks in Texas are susceptible

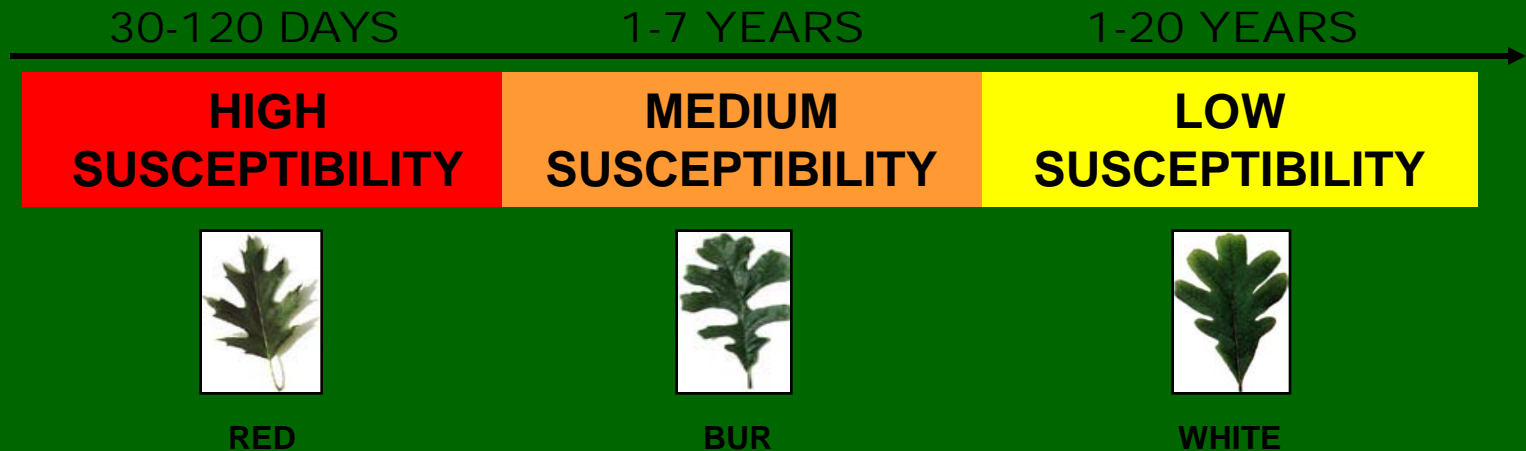


What is the range of susceptibility?



RED OAK GROUP

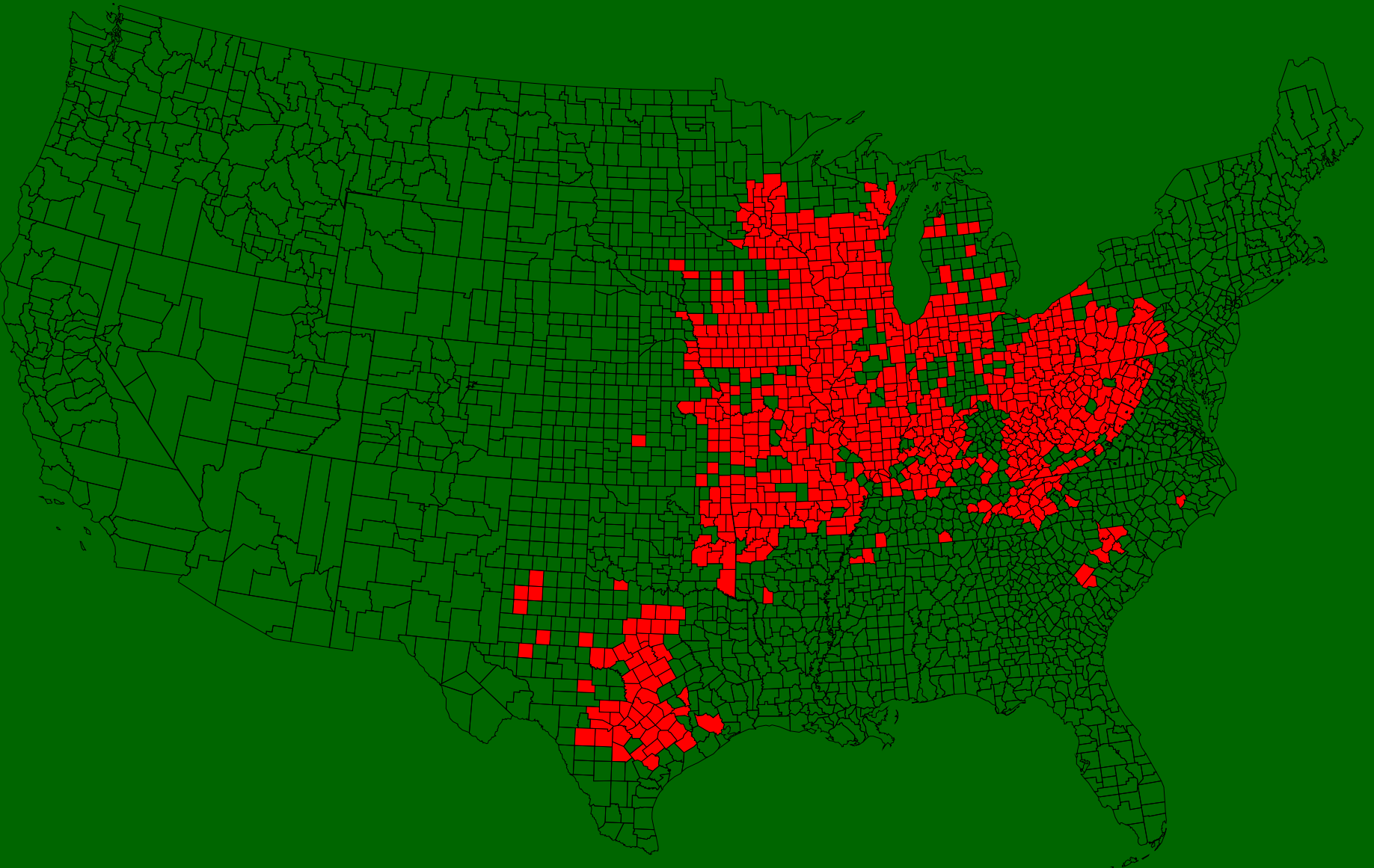
- **Highly susceptible and can be killed very *quickly*.**



WHITE OAK GROUP

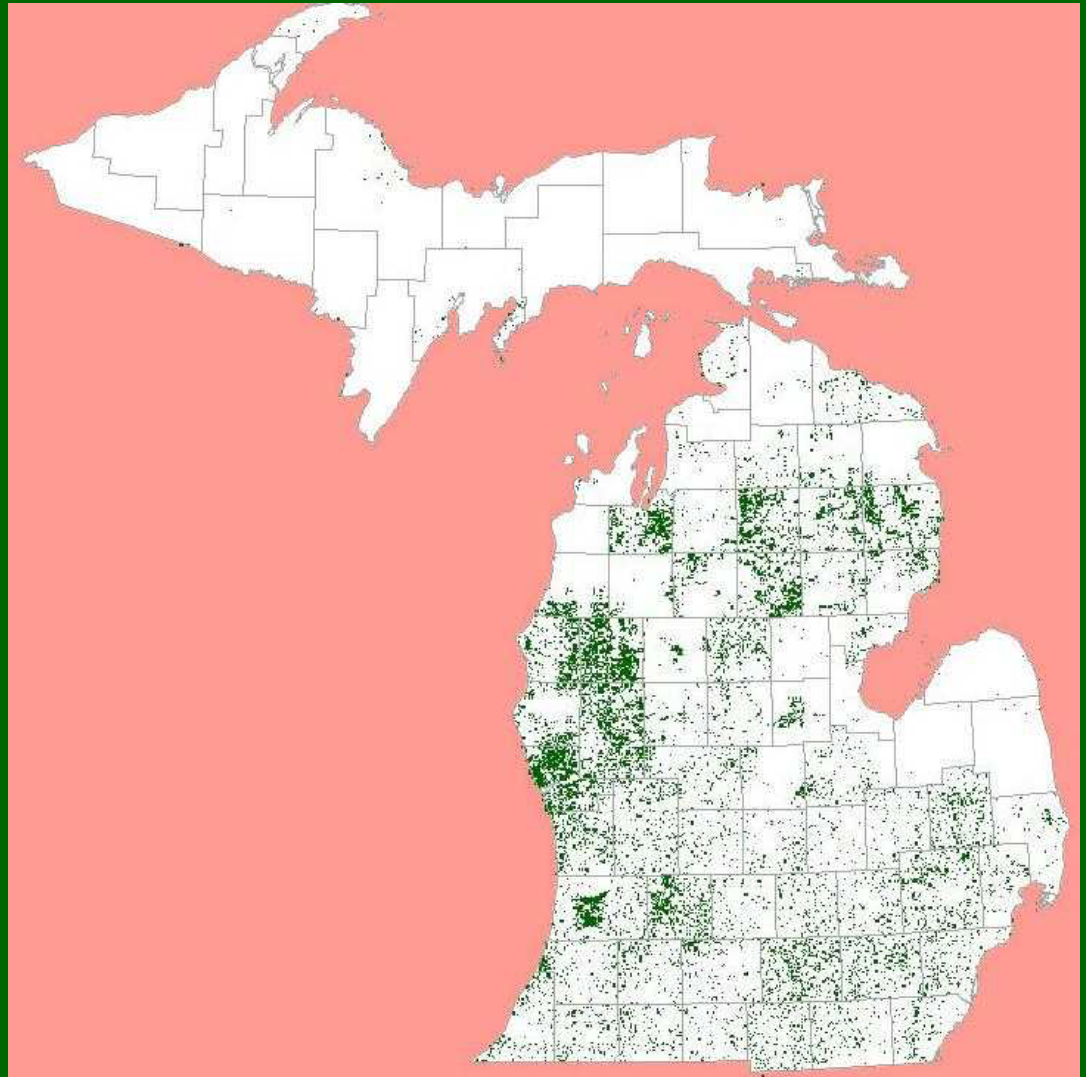
- **Varies greatly in susceptibility; can take years to die.**

Oak Wilt Distribution



Michigan's Oak Resource

- 2 million acres
- 500 million trees
- 9.7 billion bd ft



OAK WILT: An Exotic Pathogen

*“The origin of Ceratocystis fagacearum,
the oak wilt fungus”*

Juzwik, Jennifer; Harrington, Thomas C.;
MacDonald, William L.; Appel, David N.
2008

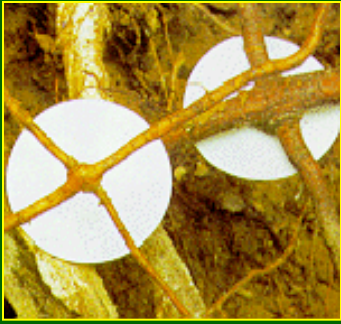
Annual Review of Phytopathology. 46: 13-26.
JRNL-NRS-46

“The weight of evidence indicates that C. fagacearum is an introduced pathogen, with possible origins in Central or South America, or Mexico.”



National Oak Wilt Database

- DNR in Michigan, Wisconsin & Minnesota
- Texas Forest Service
- USDA Forest Service
 - Northern Research Station, St. Paul, MN
 - Forest Health Technology Enterprise Team, Fort Collins, CO.
- Oak wilt database will provide:
 - An impact analysis needed to project expected short and long-term resource losses
 - Operational guidance for prevention and suppression efforts



National Oak Wilt Database

- National Risk Mapping is an integral part of the detection and evaluation protocol.
- Oak wilt risk maps
 - prioritize survey efforts
 - database will be used to improve risk mapping processes.
- \$50,000 Evaluation Monitoring grant to begin populating and testing the national database.

Oak wilt spore mats



Oak Decline



- Over 150,000 acres since 1990
- Northern pin oak on glacial outwash sands
- Even-aged
- Armillaria root rot
- Drought and frost events
- Forest tent caterpillar
- Gypsy moth
- Two-lined chestnut borer



Oak Wilt Field Survey And Laboratory Diagnostic

Requested under the authority of the Michigan Department of Natural Resources

Internal Use Only

Sample ID #

Survey Date

Observer

Name			Agency	
Address			Telephone Number	
City	State	ZIP	E-Mail Address	

Site Location (include plat map showing location of dead or wilted Oak)

County	Town	Range	Section	Management Unit
Compartment	Stand	GPS (dd.dddd) Latitude: .	Longitude: .	

Landowner Mailing Address

Name			Agency or Company Name (if applicable)	
Address			Telephone Number	
City	State	ZIP	E-Mail Address	

Property Address (if different from above)

Address				
City	State	ZIP	Telephone Number	

Site And Diagnostic Data (mark entry that applies)

Land Use/ Ownership

Stand Size

Stand Type

- PR – Primary residential
- SR – Secondary residential
- PC – Park or campground
- PN – Private, non-industrial
- HC – Hunting Club
- I – Industrial
- F – Federal
- ST – State
- OP – Other Public

- ST – Single Tree
- SS – Small Stand (< 0.5 acres)
- MS – Medium Stand (0.5 – 5.0 acres)
- LS – Large Stand (<5.0 acres)

- MS – Mixed Oak and other tree species
- RW – Predominately mixed Red and White Oak
- RO – Predominately Red Oak

Diagnostic Questions

<p>Number of trees that died in this patch</p> <p>None 2-10 11-20 Over 20</p>	<p>Number of trees that wilted in this patch</p> <p>None 2-10 11-20 Over 20</p>
<p>1. Was an oak wilt pressure pad found?</p> <p>Yes No – Continue answering Questions 2 through 5</p>	
<p>2. Were there pad-shaped silhouettes on dead trees with loose bark?</p> <p>Yes No</p>	<p>3. Did recently killed trees drop most of their leaves?</p> <p>Yes No</p>
<p>4. Leaves have green and bronze tissue separated by distinct margins?</p> <p>Yes No</p>	<p>5. Were there gray-blue streaks in light-colored wood below the bark?</p> <p>Yes No</p>







MDNR Oak Wilt Management

Oak Wilt Timber Sale Clause:

No cutting will be allowed between April 15 and July 15 in cutting units where the residual oak stocking equals or exceeds 10 square feet basal area.

No Firewood permits in oak wilt areas

April 15 to July 15

Oak Wilt Control Prevention



Thank you



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