
OAK WILT can we keep it small

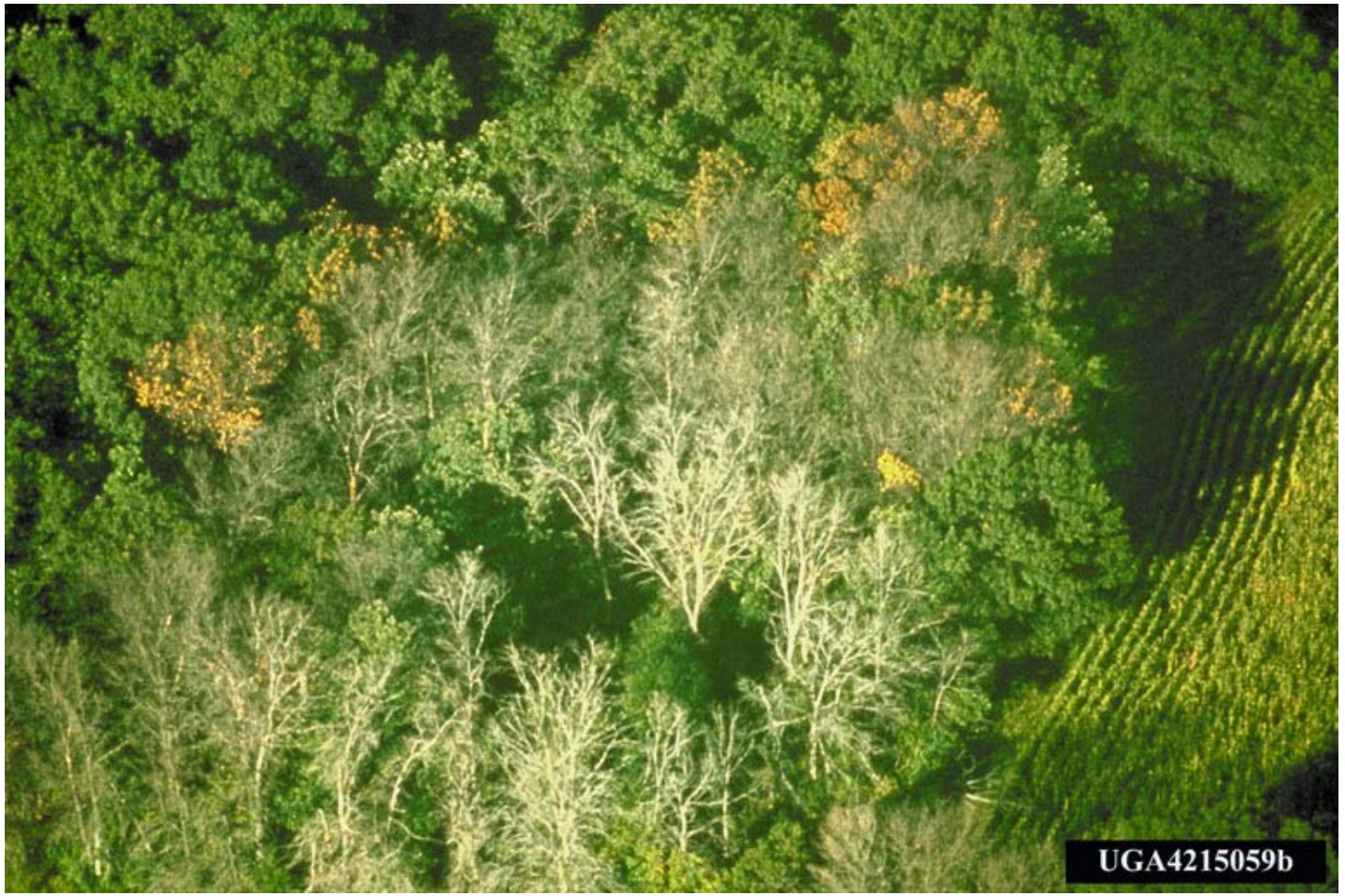
What is it?

One of the most important **tree diseases** in Eastern, U.S.

Kills up to thousands of trees/year

Difficult & costly to manage once established

10 years; WI, damages range from $18 to $60 million per county



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OAKWILT *Bretziella fagacearum*, HUGE ISSUE with limited public understanding

Regulating oak in the four areas - Protective Zones (intervention) – Quarantine districts (prevention)

Cut infected oaks and susceptible oaks
Since 2008, 25 infected oaks and
over 200 susceptible oaks destroyed.

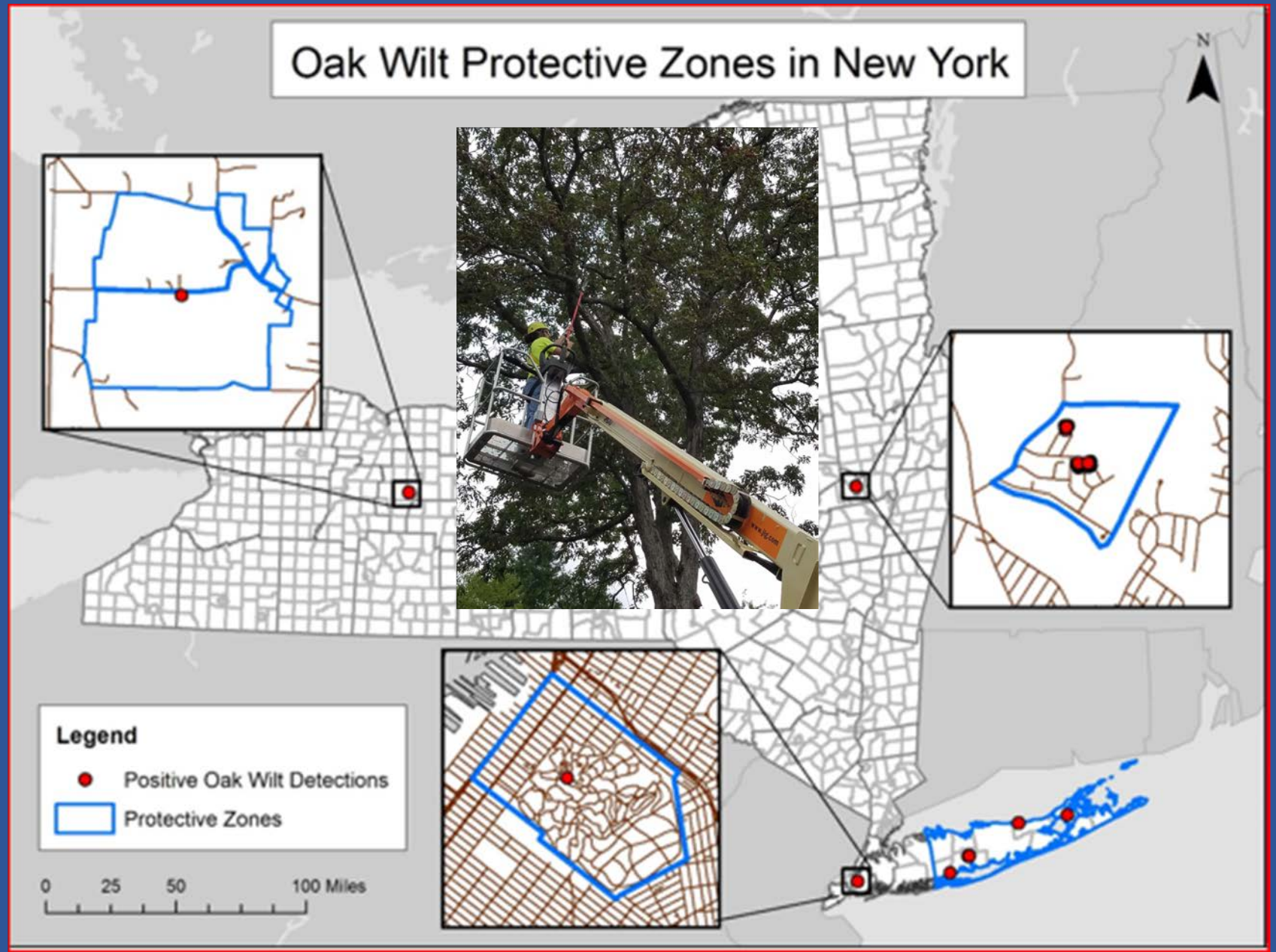
Pruning; serious O&E needed
Avoid pruning oaks March-September

USE LOCAL FIREWOOD

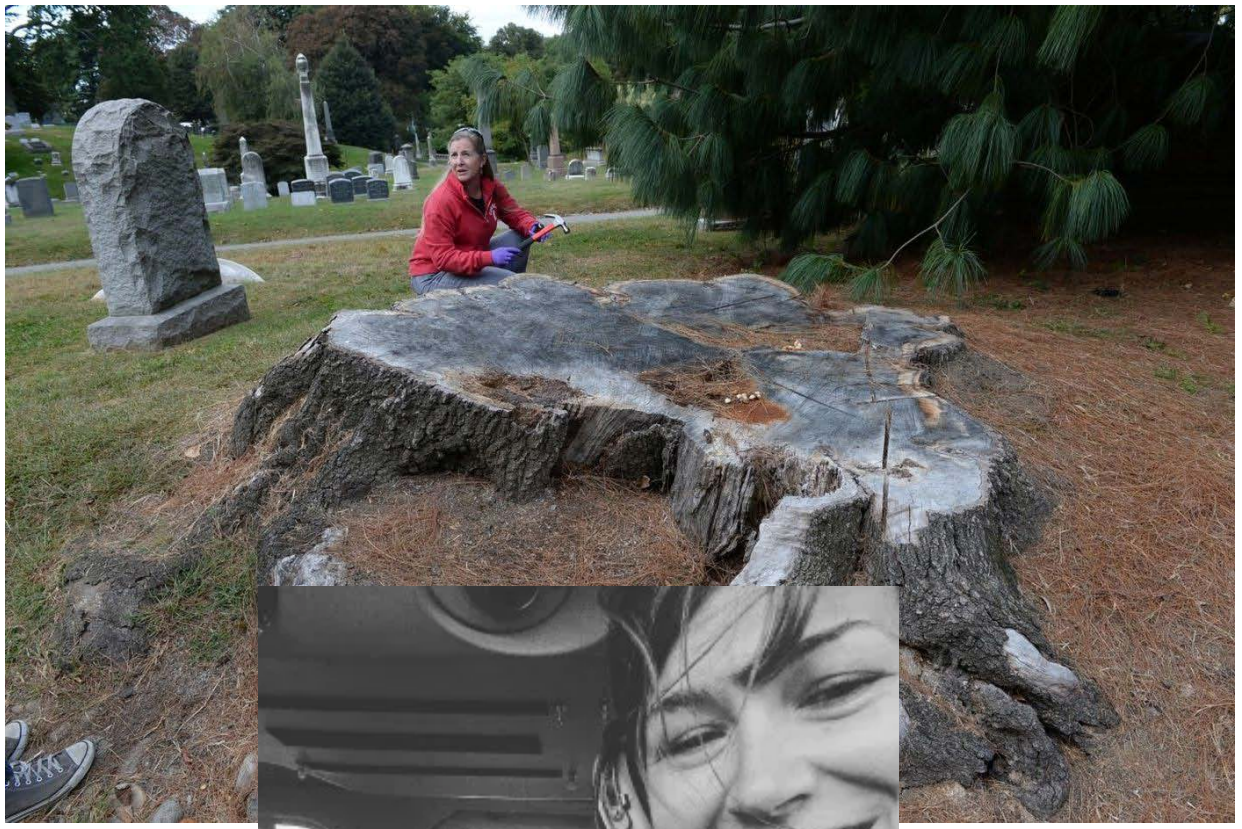
Multiple agency interest?
Ag pest? - Forest pest?

Direction: APHIS? FOREST SERVICE?

RESPONSIBILITIES? intraState?



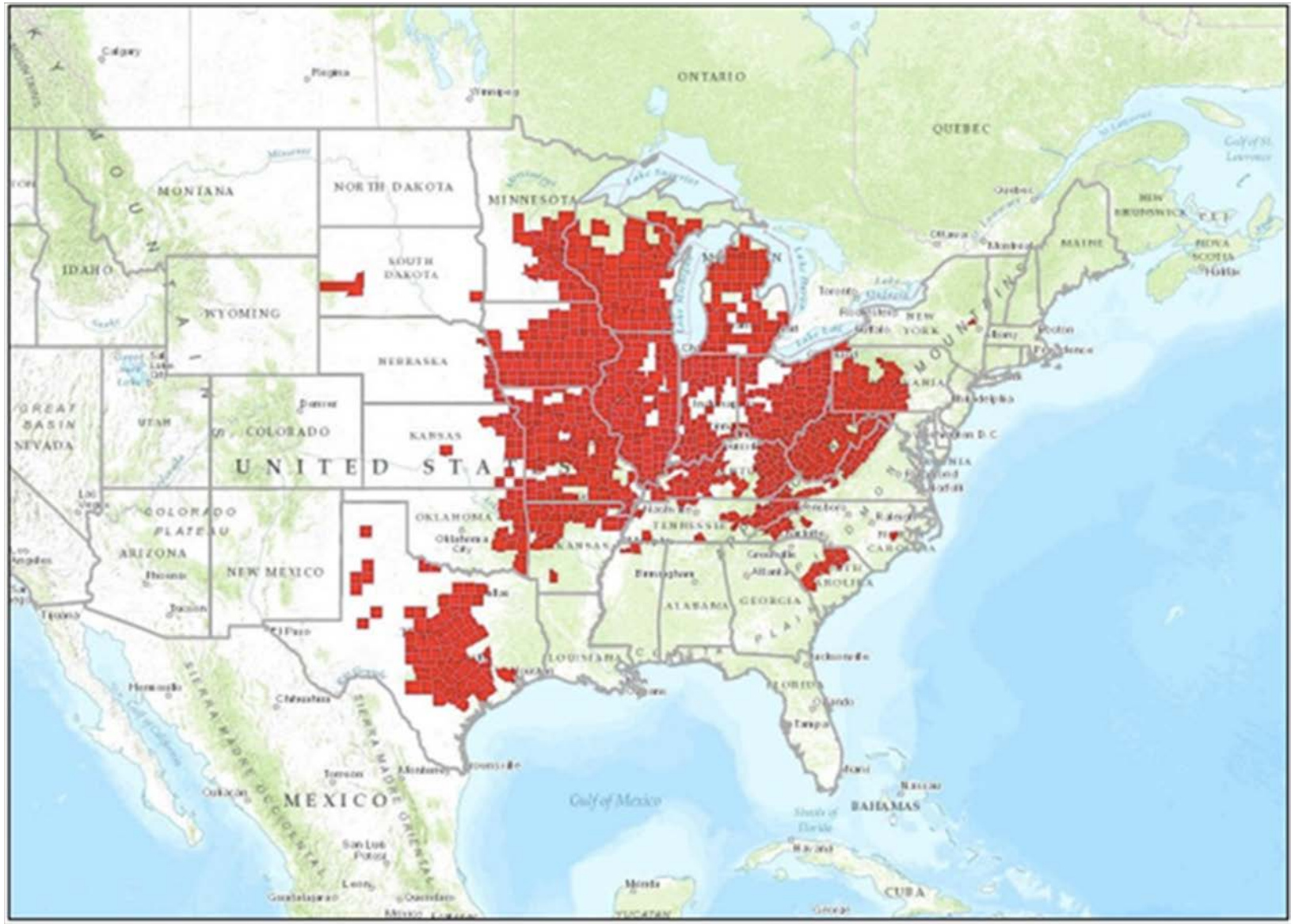

SOPHIA C.
1840—1913
ELLA L.
1850—1912



History of Oak Wilt

- First found → midwest, U.S. 1940s
- Origin = unknown
- Increase due to construction (1980s)

- New York; Eradication in Schenectady County in ‘08 &’13, Islip Infestation ‘16, Canandaigua Infestation ‘16



Oak Wilt Range

USDA Forest Service

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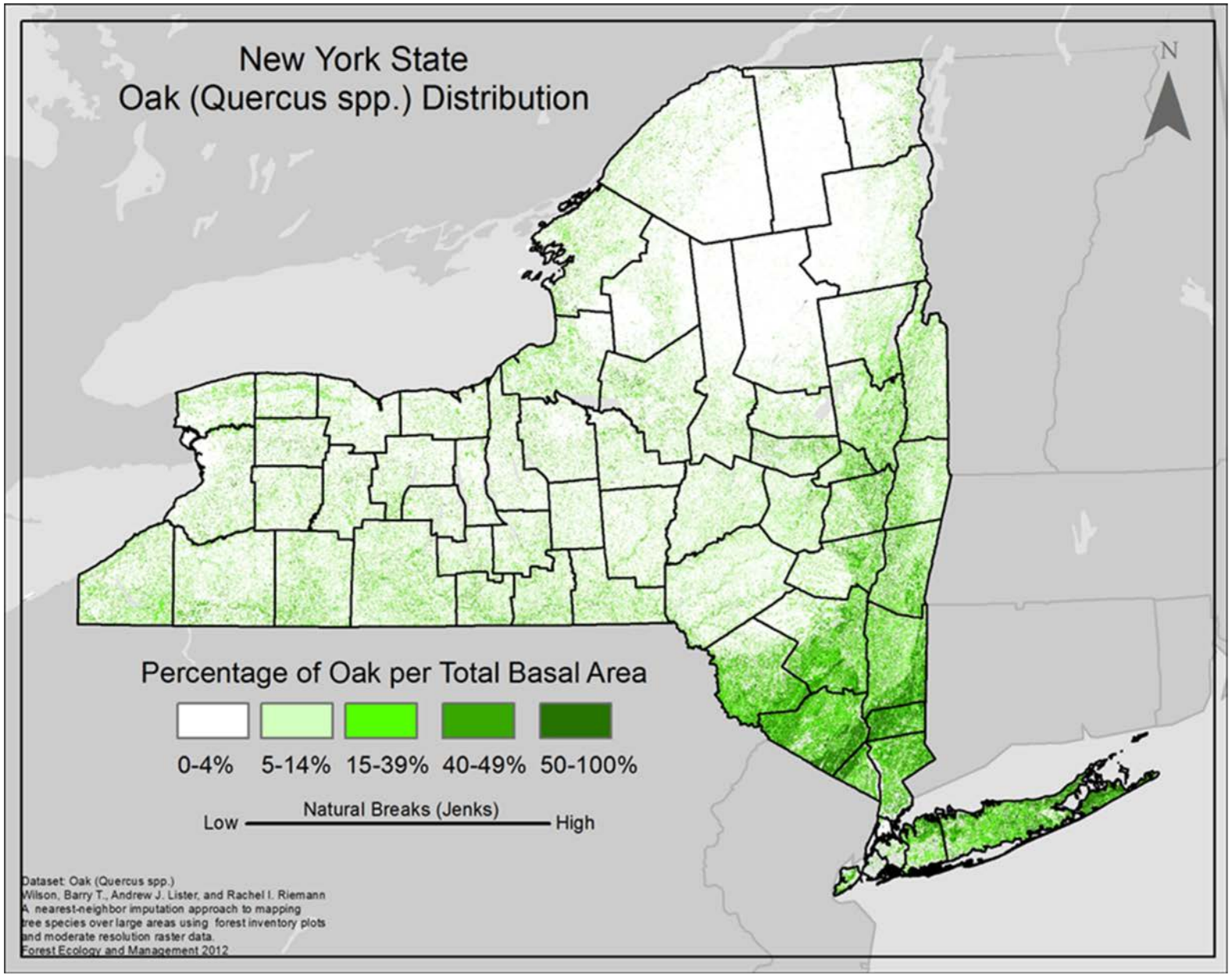

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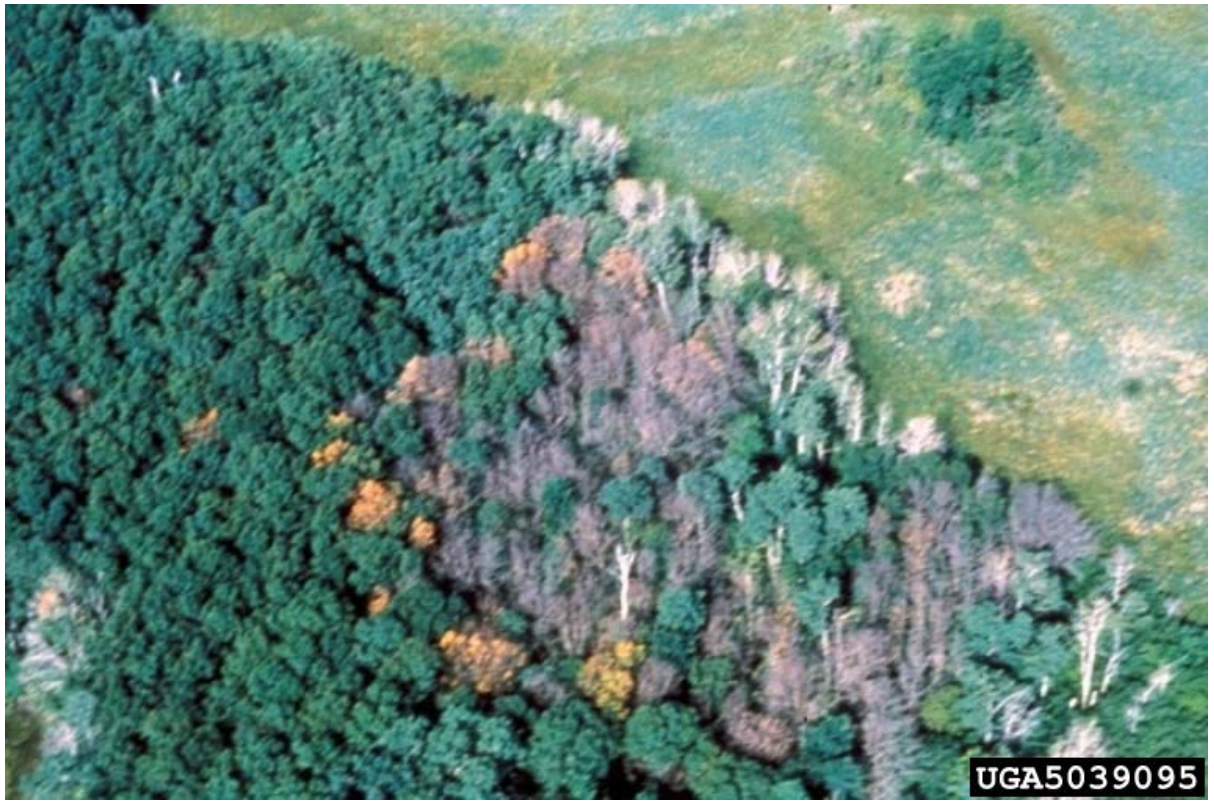
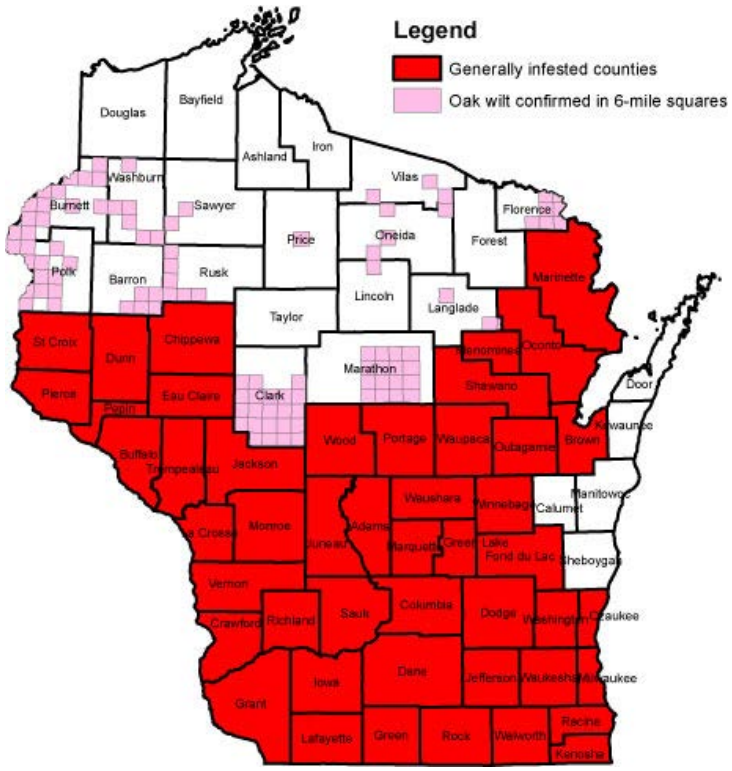
Effect of Oak Wilt

[Joseph OBrien, USDA Forest Service, Bugwood.org]

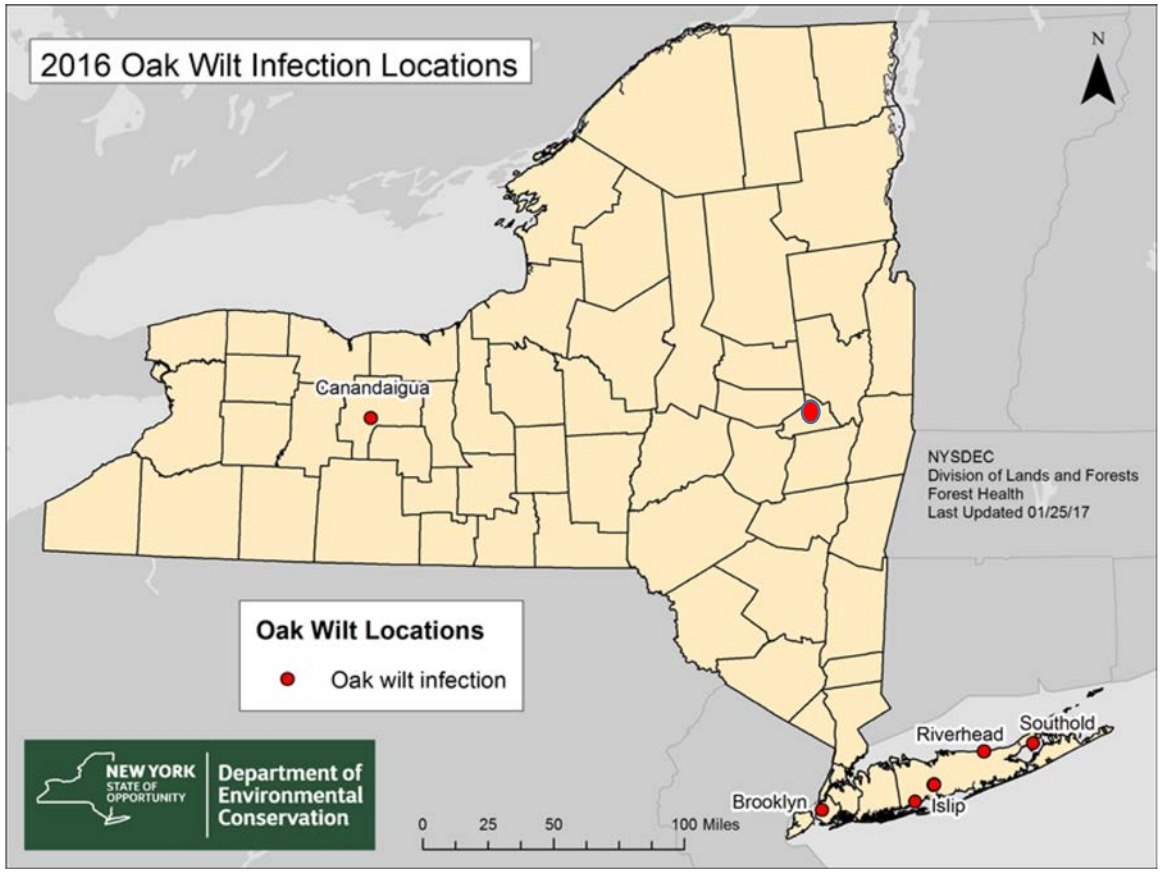


[Joseph OBrien, USDA Forest Service, Bugwood.org]

NYS Oak Wilt Range



Oak Wilt in Wisconsin
2016



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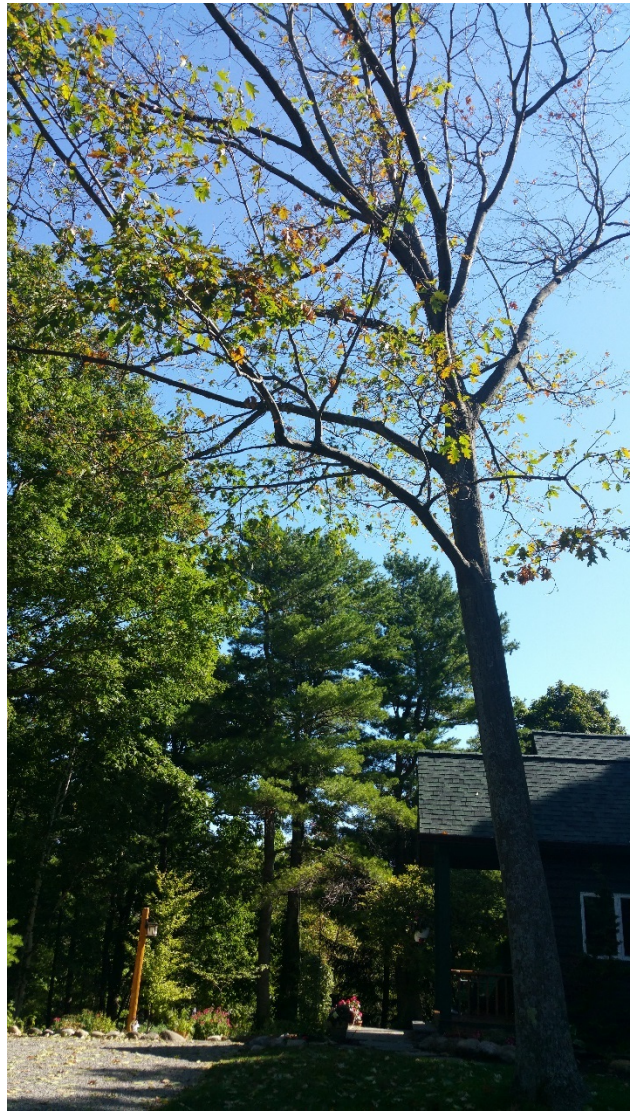
How does it work?

- Caused by a fungus
- Clogs transport vessels
- Causes wilting and death



Spread of Oak Wilt

Insect Spread

Root Grafts

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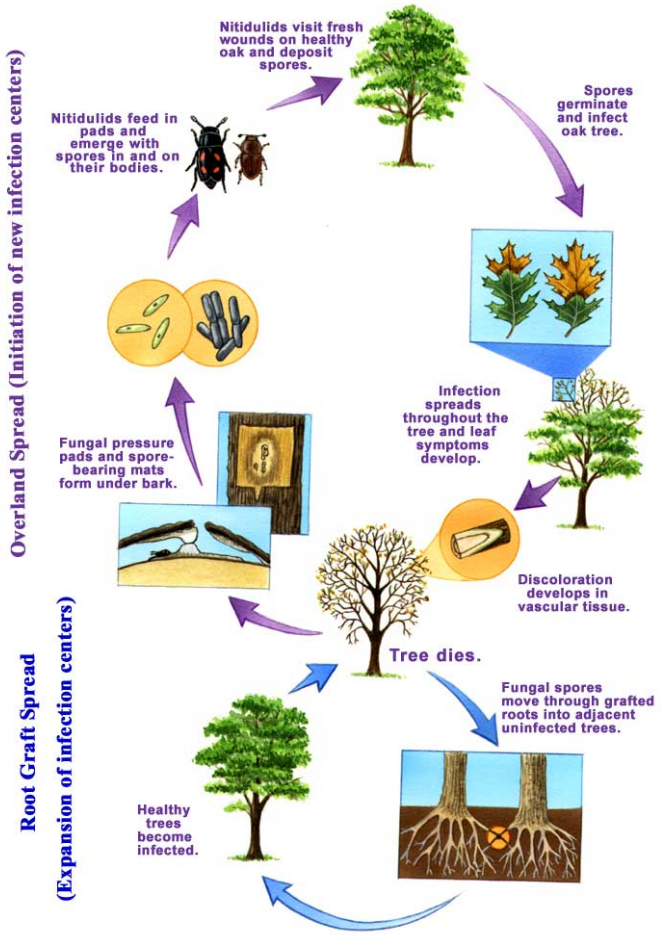

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General Symptoms

- Leaf bronzing
- Loss of crown
- Leaf death from edge to mid vein

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- Early leaf drop in mid July-August from edge of branches inward

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Red Oaks Vs. White Oaks

Red Oak

- Rapid leaf Damage
- Vertical cracks in bark
- Emit fruity odor
- Death within 2-6 weeks
- **Leaf loss from top of the tree down**

White Oak

- Can be a symptomless carrier
- Fungal mats seldom occur
- Death within 1-6 years
- **1-2 Branches can be affected per year**

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Robert F. Bassett, USDA Forest Service, Bugwood.org

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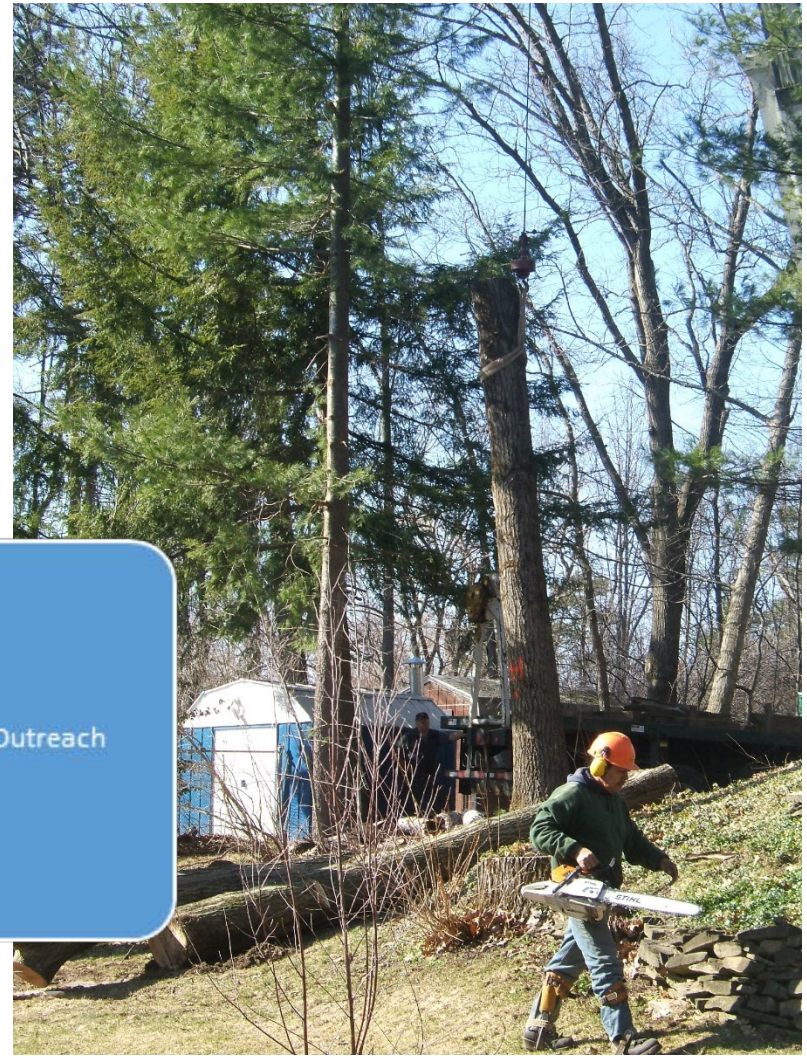
Response

- Aerial Surveys
- Ground Survey & Groundtruthing
- Sampling
- Protective Zone Establishment
- Treatment
- Monitoring
- Outreach



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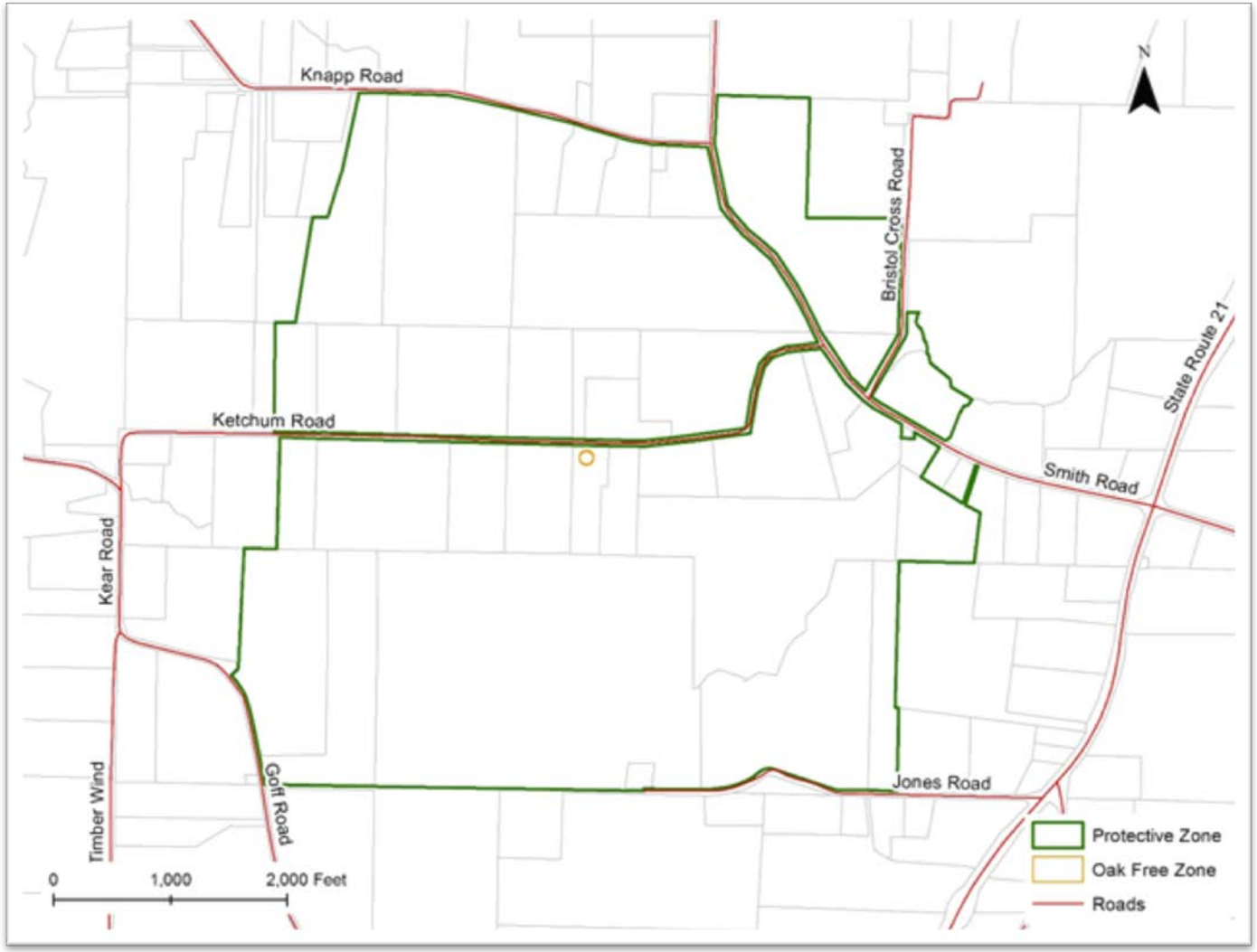
Protective Zone in Canandaigua



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Emergency Order

Makes the NYS DEC an “authorized agent” within **2006 New York Code - Forest Insects And Other Forest Tree Diseases** law

- No oak species of any size out
- Non-oak tree species not bucked = okay to transport out of the zone
- A Permitting Process in place for industry

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Environmental Conservation Law

Emergency order paraphrases paragraph 7

Regulate at county/town level; present resolutions, require certifie practitioners; produce guides, brochures

necessary. Such order shall be effective on and after the tenth day from the filing thereof.

6. The department shall have discretionary authority to poison forest areas in or near sections infested by insect pests or forest tree diseases.

7. The department may take steps to establish barrier or protective zones for the purpose of preventing the spread of forest insect and disease pests, and in so doing shall have the authority and right to enter upon private lands for this purpose, and thereon make such modifications in the composition of the forest growth as it may deem necessary. In such barrier or protective zones trees or other vegetation may be sprayed, cut, destroyed, or otherwise treated when in the judgment of the department, the same may be necessary, but the owner of the property shall be entitled to a just compensation for damage done through the acts of such agents, except that no compensation shall be paid for the destruction of infested trees.

8. The department shall have power to ascertain the amount of damage done upon lands of private owners by the acts of the agents of the department in establishing and maintaining barrier zones, by having an agent of the department appraise the same. If the owner is not satisfied with the amount of damage as fixed by such appraisal, he may, within six months after service upon him of a copy of such appraisal, take an

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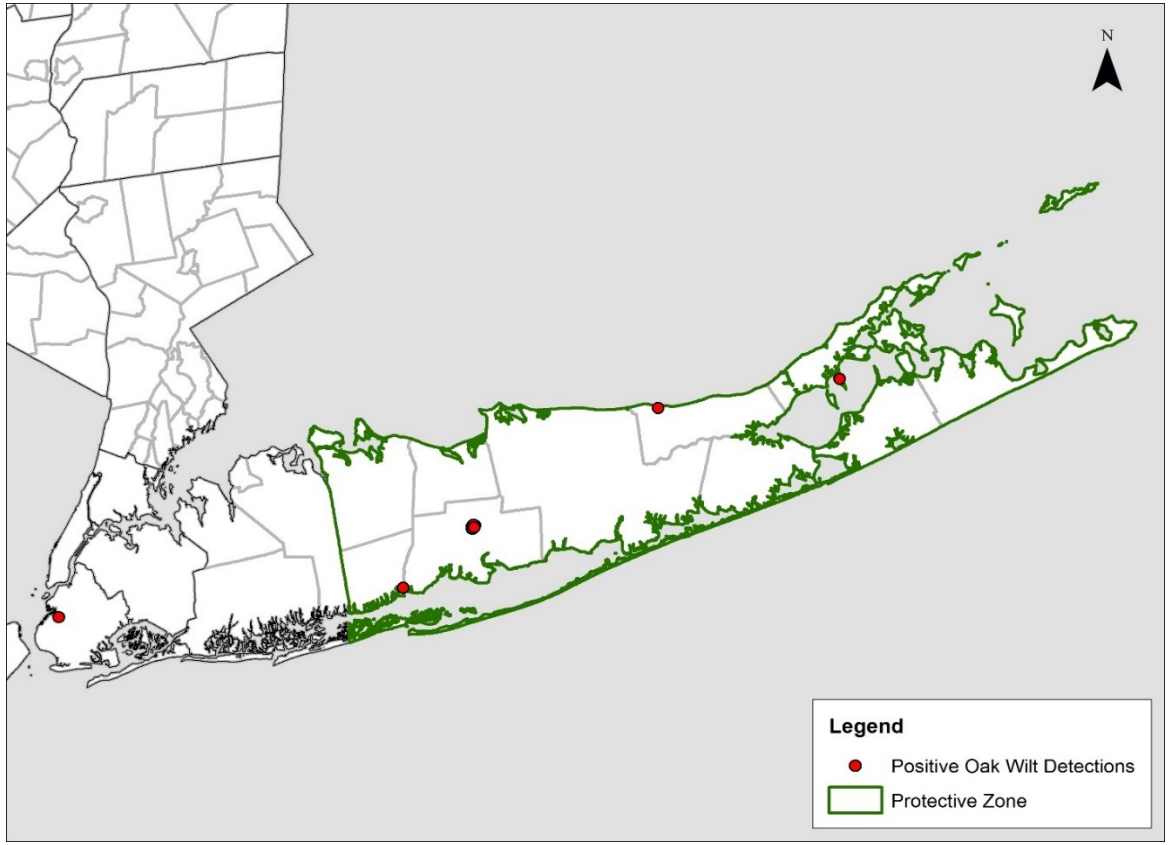
Permitting Process- Sections 1A – 1B

- 1A – limited permit for nursery stock under compliance agreement
  -AG and MKTs

- 1B- limited permit for firewood
  -NYSDEC Division of Lands and Forests
  -starts Aug 2017



Protective Zone Emergency Orders

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Firewood Regulation

[NY Firewood Regulation]

[NYS DEC Firewood and Invasive Insects]

Don’t move firewood more than 50 miles

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Public Involvement

Report suspect trees to NYS DEC

Call: 866-640-0652

Email: foresthealth@dec.ny.gov

No Movement Out of Protective Zone:

Firewood (all species)

Oak Wood

Oak wood waste collected and incinerated or chipped by the municipality before leaving zone

No pruning March - Sept

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PREVENT
OAK WILT
DON'T
PRUNE
March-Sept
NEW YORK STATE
Department of Environmental Conservation
USE LOCAL FIREWOOD
PROTECT TREES
Don't Spread Pests & Disease
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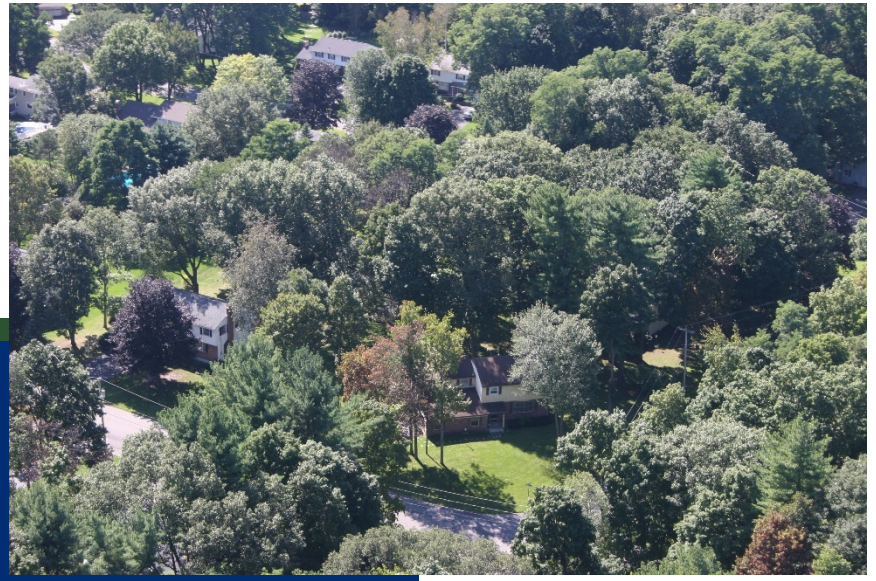
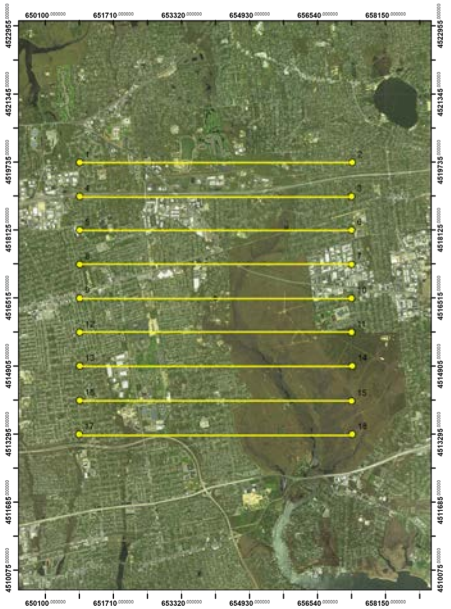
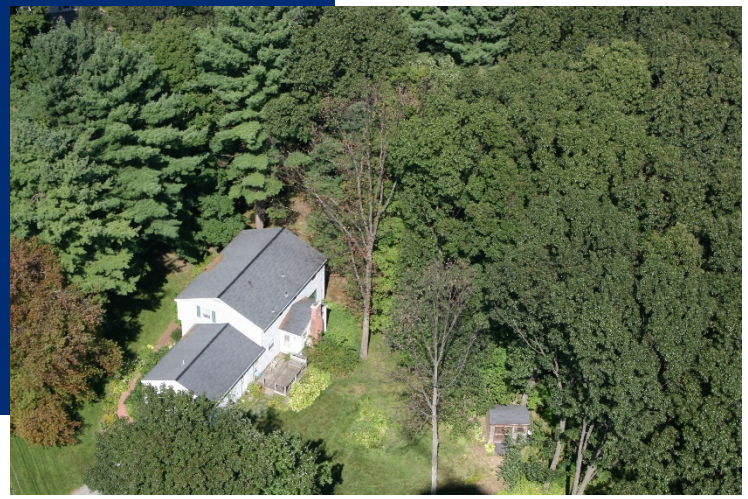
Department of Environmental Conservation
1-844-DEC-ECOS

Aerial Survey

Detection

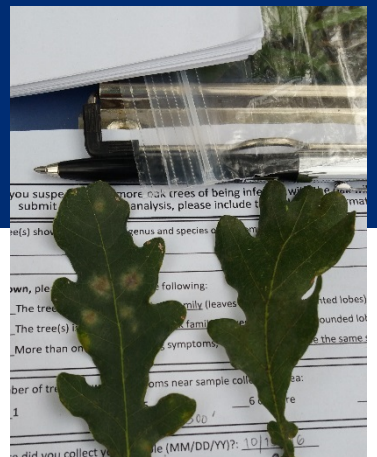


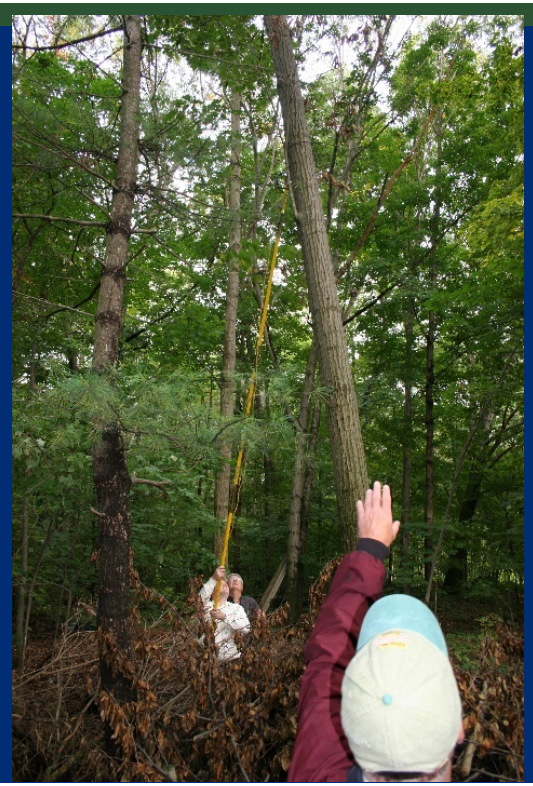




Sampling

Confirmation





- Low Impact to property and tree
- Ground survey/truthing, public call-ins

Processing Agency

- Takes about 1 month to process

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Oak Wilt Detection Tools Update

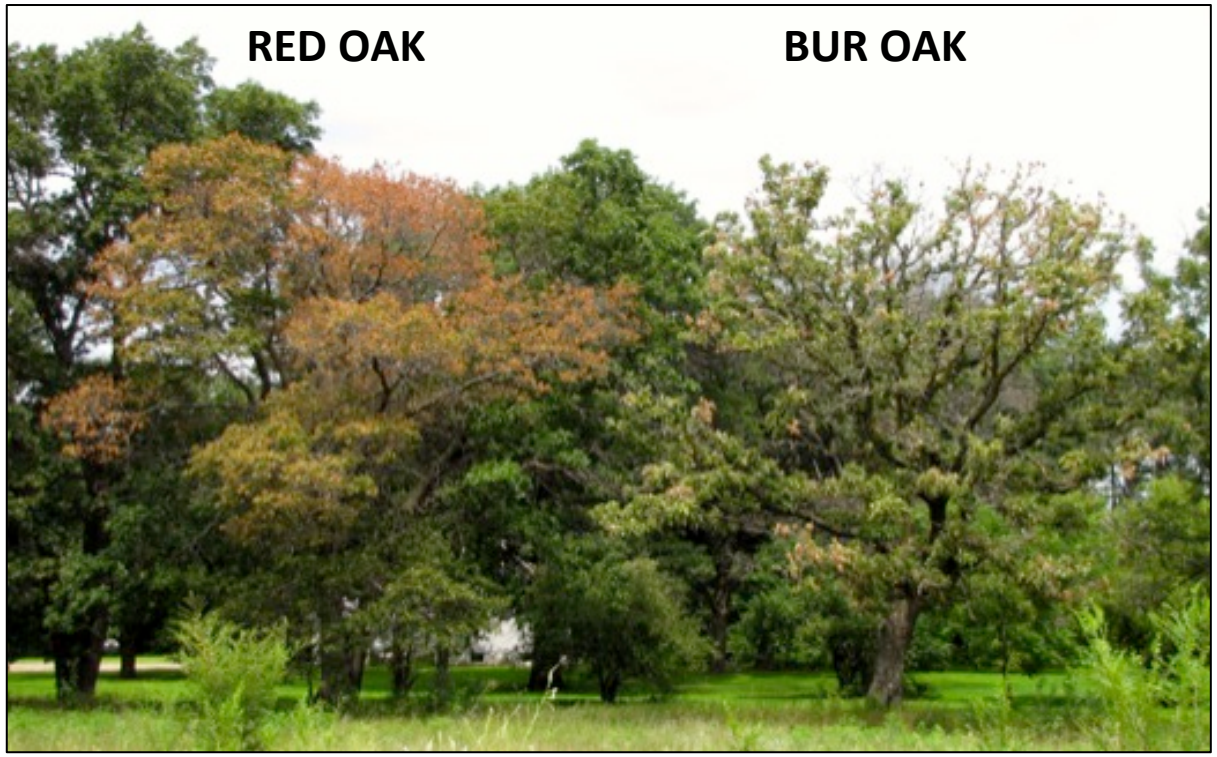
Jennifer Juzwik, NRS, U.S. Forest Service
NAASF Forest Health Committee Meeting
March 30, 2017

- Use of nested and real-time PCR for detection of *Ceratocystis fagacearum* in oak sapwood

Published: *Yang, A.; Juzwik, J. 2017. Plant Disease 101: 480-486.*

- Chemiluminescence-based DNA detection of *C. fagacearum*

Current study: *Abbas, A.; Singh, R.; Juzwik, J.; Arenz, B.; Feltmeyer, A.*



Ground Survey

- Survey = **checking every oak tree on each property**
- Opportunity for outreach

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Follow-Up

- NYS DEC- Forest Health once/year for 5 years
- 2 Aerial Surveys
- Ground Survey

Treatment

- Trenching
- Tree removal, buffer
- Stump treatment
- Sanitation of PSPTs

Trenching

Wooded/rural areas

Create disease barriers

Root graft distance prediction

Tree Removal

Removal before spring (before spore pads can form)

Leaf-off cutting

Stump Treatment

- Herbicide
- Stump grinding

Sanitation of PSPTs

Potential spore-producing trees

Chipped/Incinerated

Prevention

Plan to prune oaks Oct – Feb

Wound dressing

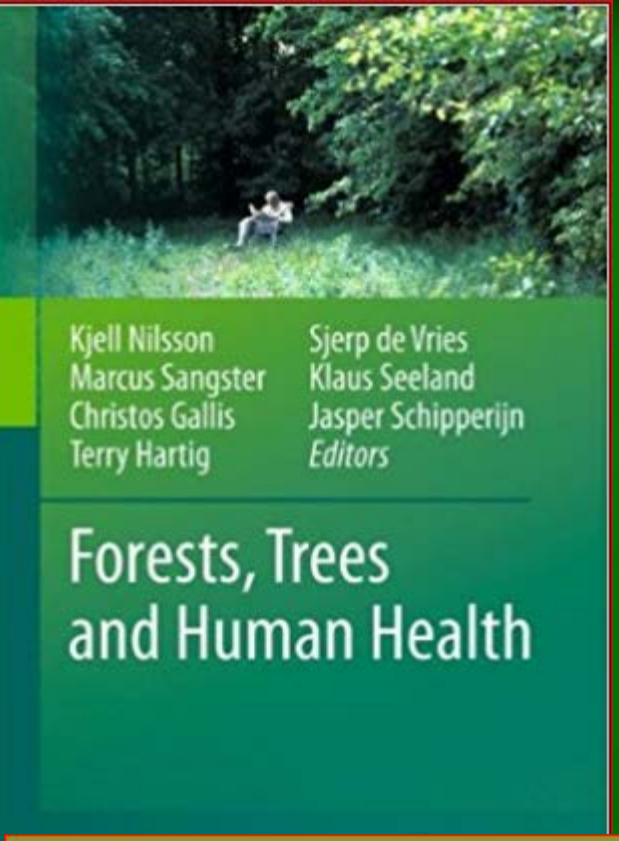
Limit oak movement in protective zones

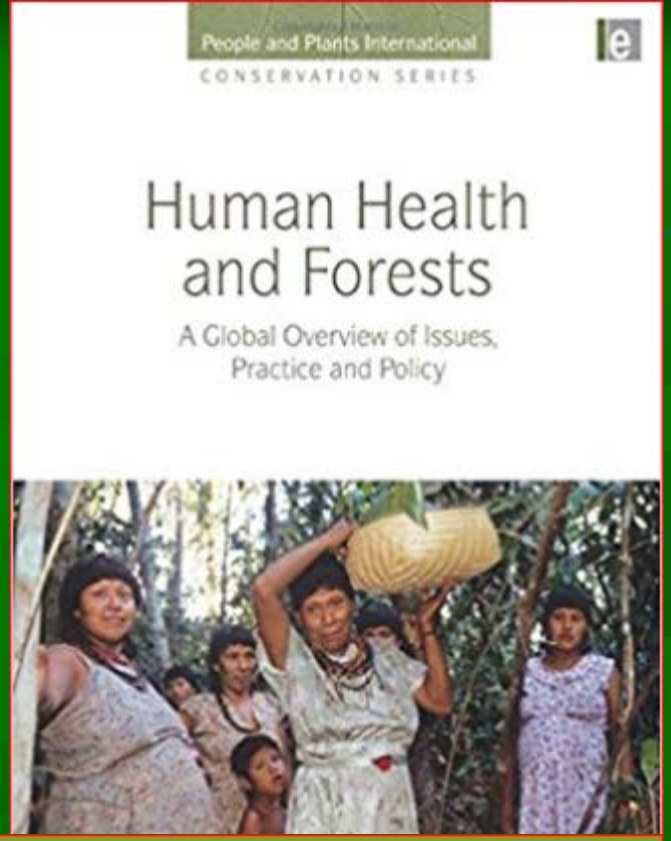
The Menace of Climate Change and Invasive Species

Wakes up the imagination

More obvious impact

More back yards damaged





Immerse Yourself in a Forest

taking a walk in a forest is good for us,
a prescription with no negative side effects
that's also free.

Boosts immune system
Lowers blood pressure
Reduces stress
Improves mood
Increases ability to focus, even in children with ADHD
Accelerates surgery recovery
Increases energy level
Improves sleep

https://www.dec.ny.gov/lands/90720.html

1920's American Chestnut, NY City to Buffalo 60% of the forest

1960's American Elms: most valued lifestyle trees in city

1990's Hemlock: most valued habitat regulator for water quality

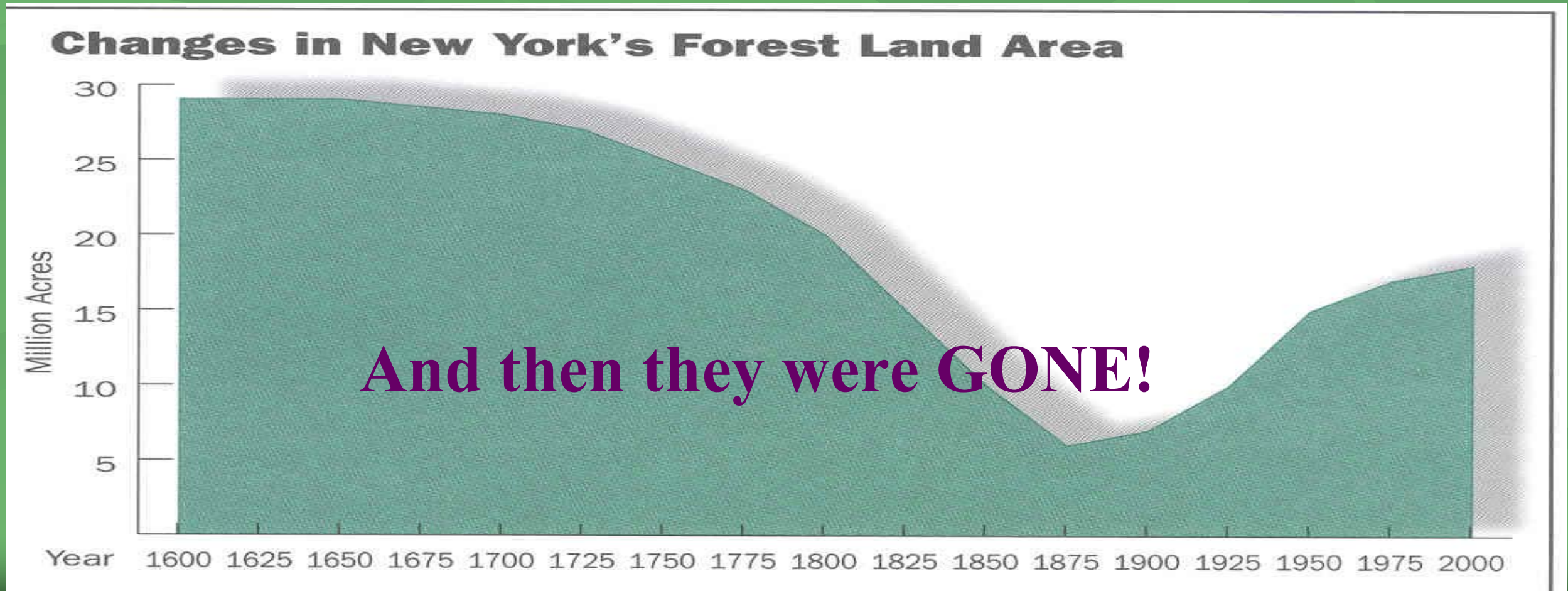
2000's American Beech

Green Ash?

Maples?

Butternut

Red Oak



What is acceptable?
Most influential?; winners and losers

everyone equally dismayed?

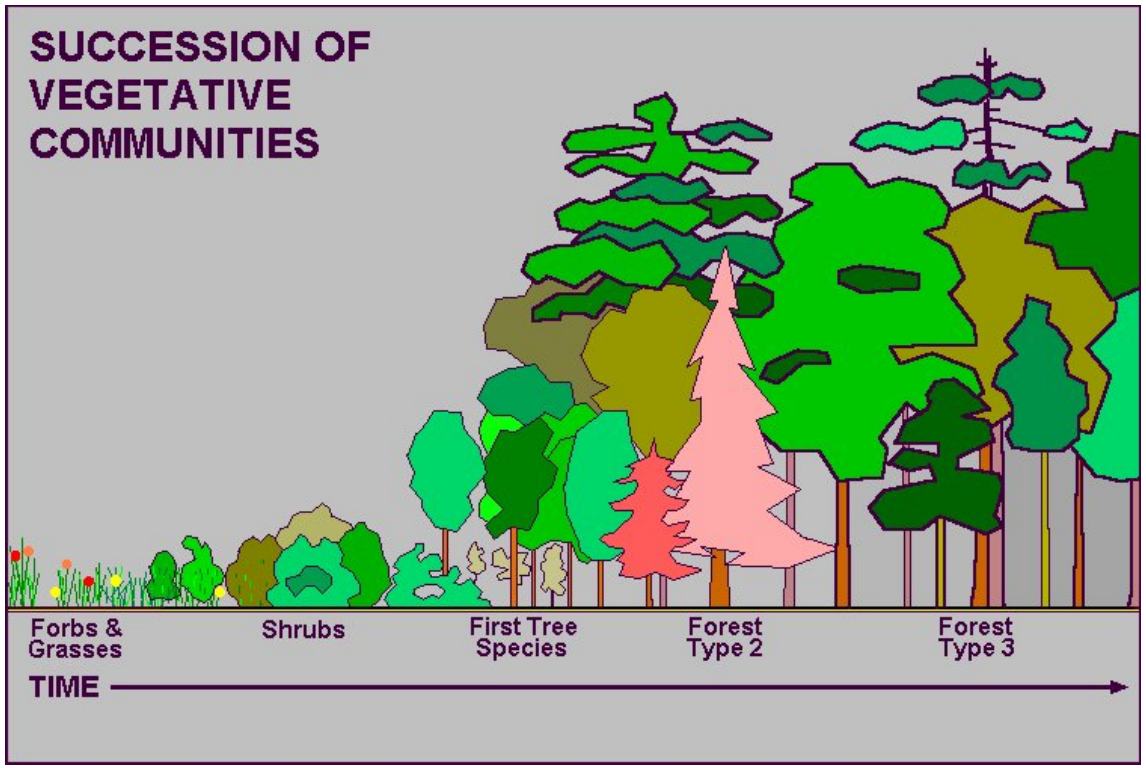
This is Democracy;

Acceptable for us is more a continuing question than an interpretation of progress.

Consensus changes
and Acceptance changes.

A dying tree is not necessarily a bad thing

- Succession
- Competition
  - Between individuals
  - Between species
- These are both short- and long-term processes



What's known?; how forest ecosystems may respond to changes in climate, disturbance, and management, what to do? How to act?

Early Detection Rapid Response

FIND IT SMALL

- Finding new infestations at low population densities allows rapid decision making, lower costs, less political persuasion, more success

Why were these pine trees cut down?

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They were cut to help save the Pine Barrens from the southern pine beetle. Thousands of beetles bore into a pine tree, creating tunnels that disrupt the flow of nutrients. Affected trees die in just 2-4 months.

Cutting infested pine trees is a proven management strategy. After trees are cut, the bark along the length of the tree is scored. The dried out bark falls off, exposing beetles to weather and predators. This reduces beetle populations, saving other trees.

These pictures show a managed forest and an unmanaged forest. Yellow lines show infested areas soon after discovery. Red lines show the spread of infestation in one year. The infestation increased by only a small fraction in the managed forest and increased by more than 10 times in the unmanaged forest.

For more information, visit:
www.dec.ny.gov/animals/99331.html

www.dec.ny.gov

SOUTHERN PINE BEETLE, Demonstration forest, fire disturbed ecosystem
Pitchpine-oak versus oak-hickory.

Try to plan for what we want over the years we want it for.

Aim for democratic consensus with high level of knowledge

Decide what to protect
See more clearly
what we want and what we have.

Technology acceptance and adoption

To Act we have to PAY!

The highest costs may be the dead we Can't ignore! Must react

Local governments - $1.7 billion/year for cleanup from invasive spp.

Homeowners -$1 billion to remove and replace trees and $1.5 billion per year in lost property value.