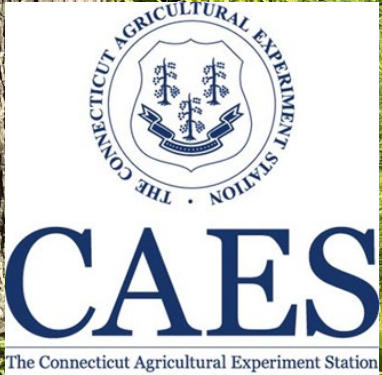


CT Forest Health Program Highlights

2024 Year in Review



Eli Ward
Forest Ecosystem Ecologist
The Connecticut Agricultural Experiment Station

Research Scientist (Forest Ecosystem Ecology)

May 2023-present

CT Forest Health Program Coordinator

March 2024-present

Dept. of Environmental Science and Forestry,
The Connecticut Agricultural Experiment Station



Research Scientist (Forest Ecosystem Ecology)

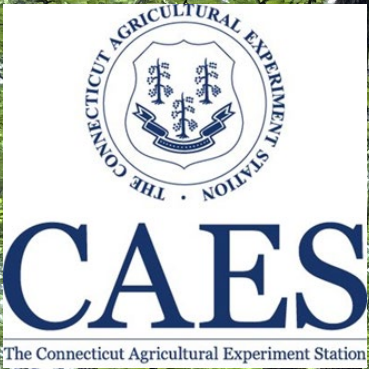
May 2023-present

CT Forest Health Program Coordinator

March 2024-present

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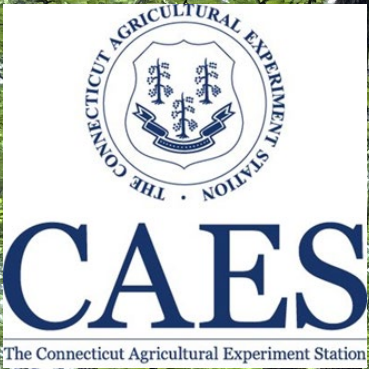




Cooperative Forest Health Program

Primary purpose/requirement:
Survey forested lands for forest health issues



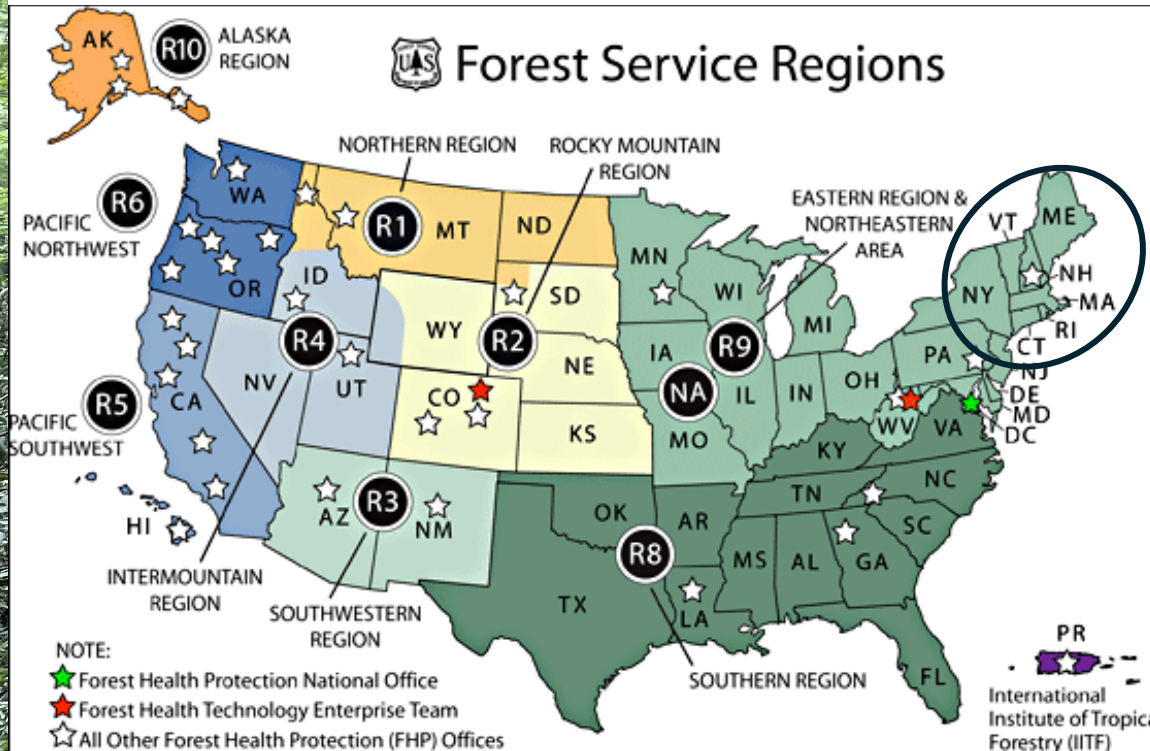


Cooperative Forest Health Program



Primary purpose/requirement:
Survey forested lands for forest health issues

U.S. Forest Service Durham Field Office:
New England + New York



Northeast-Midwest State Foresters Alliance
Forest Health Committee: 20 States + D.C.



Other Cooperative Forestry Programs in CT



**The Connecticut Agricultural
Experiment Station**
Cooperative Forest Health



**Department of Energy and
Environmental Protection –
Forestry Division**

All other Cooperative
Forestry programs
(Urban and Community
Forestry, Forest Stewardship,
Forest Legacy, etc.)

Other Cooperative Forestry Programs in CT



**The Connecticut Agricultural
Experiment Station**
Cooperative Forest Health

Five Departments:

- Forestry and Environmental Science
- Entomology
- Plant Pathology and Ecology
- Analytical Chemistry
- Valley Laboratory (Windsor, CT)



**Department of Energy and
Environmental Protection –
Forestry Division**

All other Cooperative
Forestry programs
(Urban and Community
Forestry, Forest Stewardship,
Forest Legacy, etc.)

The Connecticut Agricultural Experiment Station (CAES)

Office of Forest Health – 17 scientists/staff

Environmental Science and Forestry

- **Dr. Eli Ward**, *Forest Ecologist*
- **Dr. Scott Williams**, *Chief Scientist/Dept. Head*
- **Dr. Susanna Keriö**, *Forest Pathologist*
(Urban tree health, chestnut blight)
- **J.P. Barsky**, *Research Forester*

Valley Laboratory

- **Dr. Carole Cheah**, *Entomologist* (HWA)
- **Dr. Rich Cowles**, *Pathologist/Entomologist*
(BLD management)
- **Dr. Nate Westrick**, *Pathologist* (Oak wilt)
- **Dr. Jatinder Aulakh**, *Invasive Plant Biologist*
- **Jeff Fengler**, *Nursery Inspector*

Plant Pathology and Ecology

- **Dr. Robert Marra**, *Forest Pathologist* (BLD)
- **Dr. Raquel Rocha**, *Nematologist* (BLD)
- **Dr. Yonghao Li and Felicia Millett**,
Plant Disease Information Office

Entomology

- **Dr. Claire Rutledge**, *Entomologist*
(EAB, SPB, SLF)
- **Jake Ricker**, *State Entomologist and Plant
Regulatory Official*
(Spongy moth and elm zigzag sawfly surveys)
- **Tia Blevins**, *Nursery inspector*
- **Ella Nastri**, *CAPS Coordinator*

The Connecticut Agricultural Experiment Station (CAES) *Office of Forest Health*

Goal: Facilitate both internal knowledge sharing and external outreach about CT forest health research and monitoring



2024 Connecticut Forest Health Highlights

2024 Forest Health Highlights

The Connecticut Agricultural Experiment Station

INSIDE

Aerial Survey	2	Hemlock Woolly Adelgid	4
Spongy Moth	2	Southern Pine Beetle	4
Beech Leaf Disease	2	Oak Wilt	5
Emerald Ash Borer	3	Elm Zigzag Sawfly	5
White Pine Needle Disease	4	Sugar Maple Leaf Drop	5
		Forest Fires	6

The Resource

Connecticut's forest resources cover nearly 1.78 million acres, or 57% of the state's land area. In addition, nearly 71% of all forestland in Connecticut, or 1.26 million acres, is privately owned.

Although the dominant forest cover type is oak-hickory, the forest consists of a mixture of hardwood and softwood species, including maple, birch, beech, oak, hickory, tulip-poplar, white pine and eastern hemlock.

Connecticut's maturing woodlands provide essential wildlife habitat, support outdoor recreation, and contribute to the state's economy through timber production and tourism. Further, they play a vital role in water quality management, soil conservation and carbon sequestration and storage, making them an important asset for the state.

Several threats pose a challenge to maintaining the health of Connecticut's forest resource, including environmental stressors, plant pathogens and diseases, and invasive insects and plants.

Summary

This report synthesizes challenges and efforts in maintaining Connecticut's forest health in the face of multiple stressors, including pest and pathogen invasions and environmental changes.

Aerial detection surveys are the primary method for observing statewide damage. Significant issues identified through the aerial survey in 2024 include beech leaf disease (BLD), spongy moth defoliation, and tree mortality from emerald ash borer (EAB) infestations. BLD affects all beech trees statewide, leading to reduced foliage and tree growth. Spongy moth continues to cause oak defoliation in northwestern Connecticut, which was centered around Kent in 2024. EAB has caused significant ash mortality throughout the state although efforts to manage EAB through biological control are promising. Parasitoid wasps that target EAB have spread beyond their initial release sites, and EAB populations

have crashed in the vicinity of the first detection site in New Haven County.

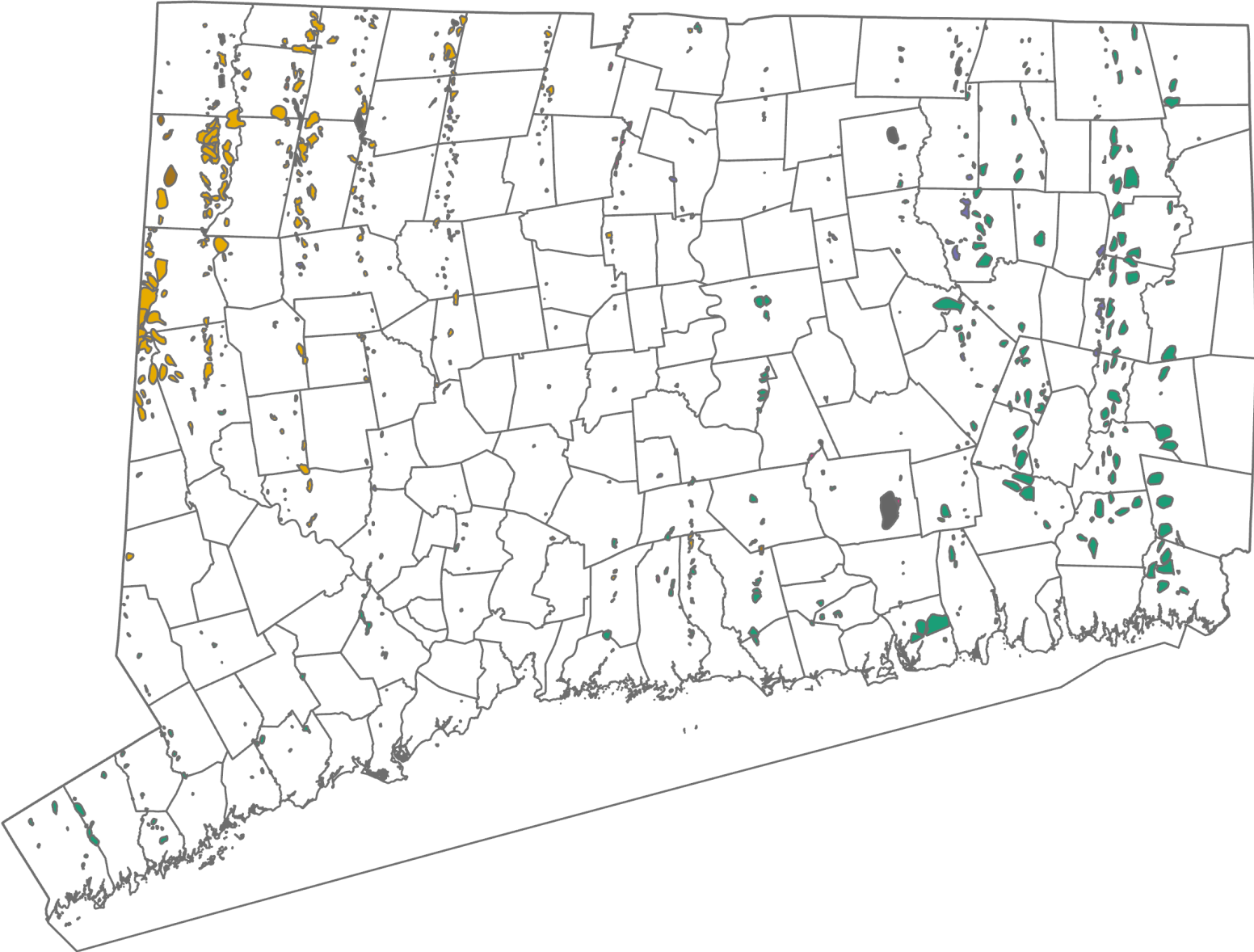
Other forest health concerns include hemlock woolly adelgid (HWA) and white pine needle disease (WPND). Elm zigzag sawfly (EZZ) is a newly identified pest in Connecticut that has caused local defoliation to individual elm trees. Southern pine beetle (SPB) remains at endemic levels, potentially due to the small remaining pitch pine population in Connecticut. Monitoring and preparation efforts continue for oak wilt although it is not currently known to be present in the state. Sugar maples exhibited premature leaf drop for the second year in a row, likely due to wetter, warmer conditions in late summer.

A severe fall drought and elevated temperatures led to a dramatic increase in wildfires in October and November 2024, prompting a state of emergency and fire bans. Connecticut experienced 154 wildfires in October and 177 in November, exceeding historical averages.

2024 Connecticut Forest Health Highlights

Aerial Detection Survey

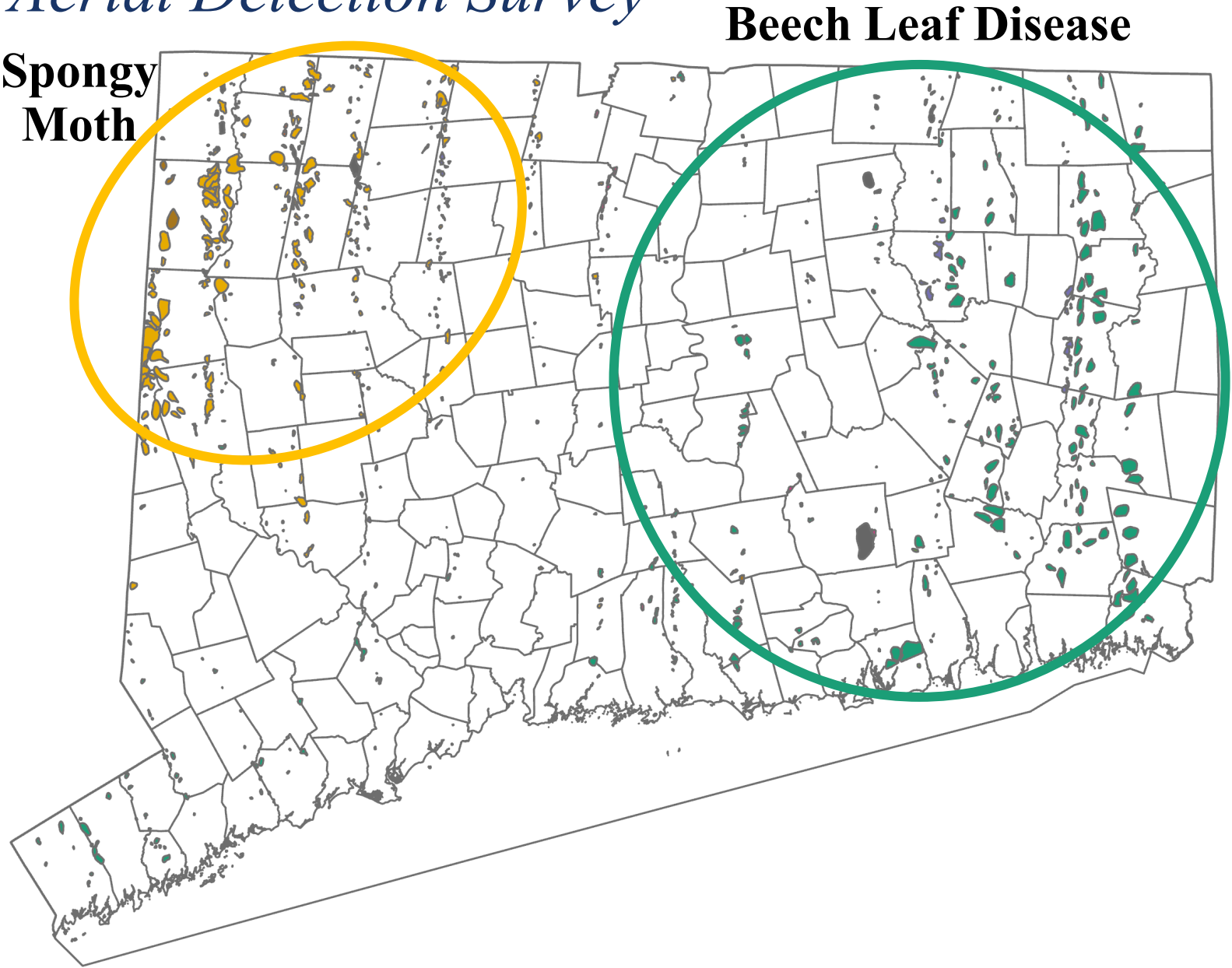
Damage causing agent	Acres
Beech leaf disease	37,829
Spongy moth	32,229
White pine needle disease	5,792
Emerald ash borer	3,236
Hemlock woolly adelgid	730
Elongate hemlock scale	259
Unknown	1,727
TOTAL	82,214



2024 Connecticut Forest Health Highlights

Aerial Detection Survey

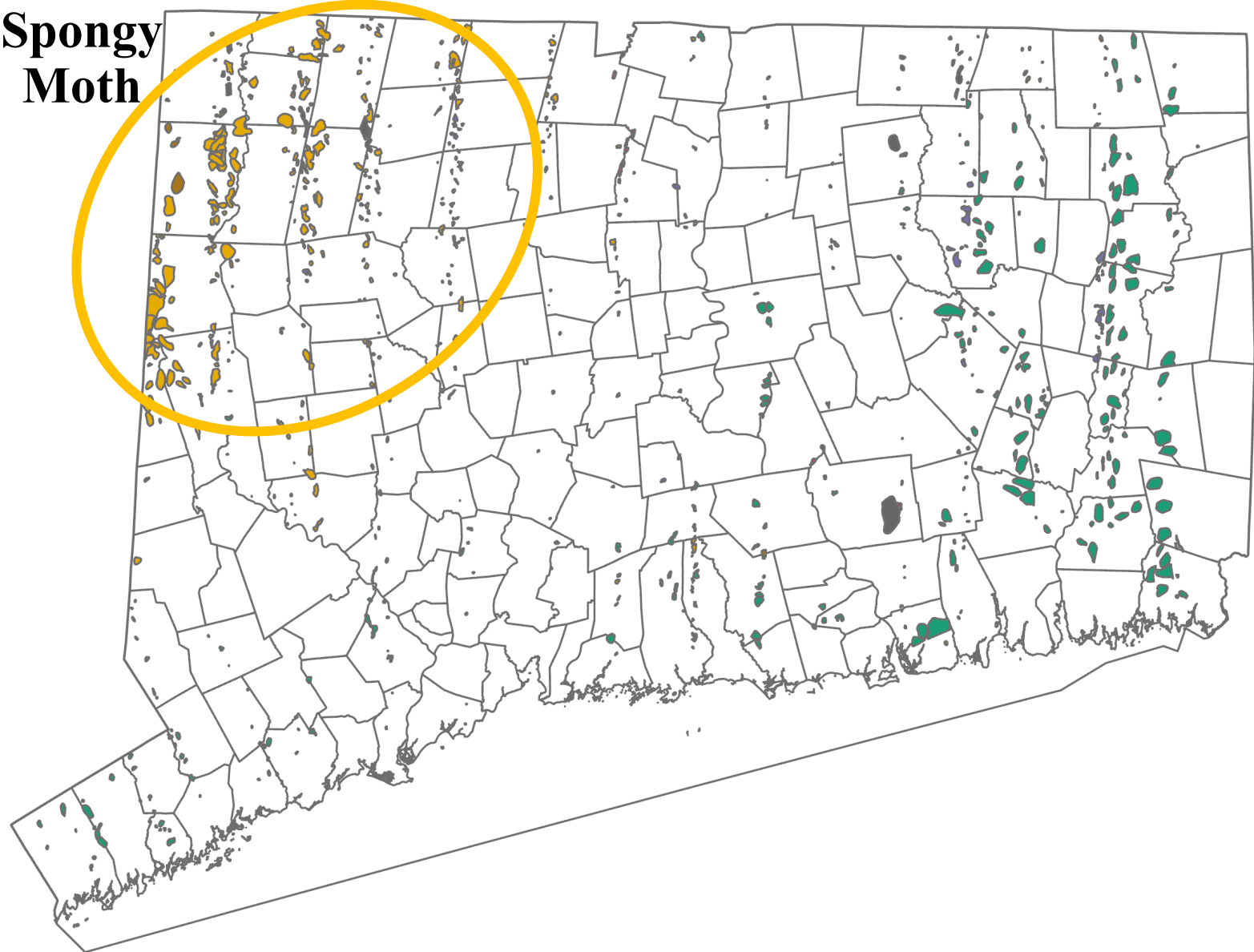
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2024 Connecticut Forest Health Highlights

Aerial Detection Survey

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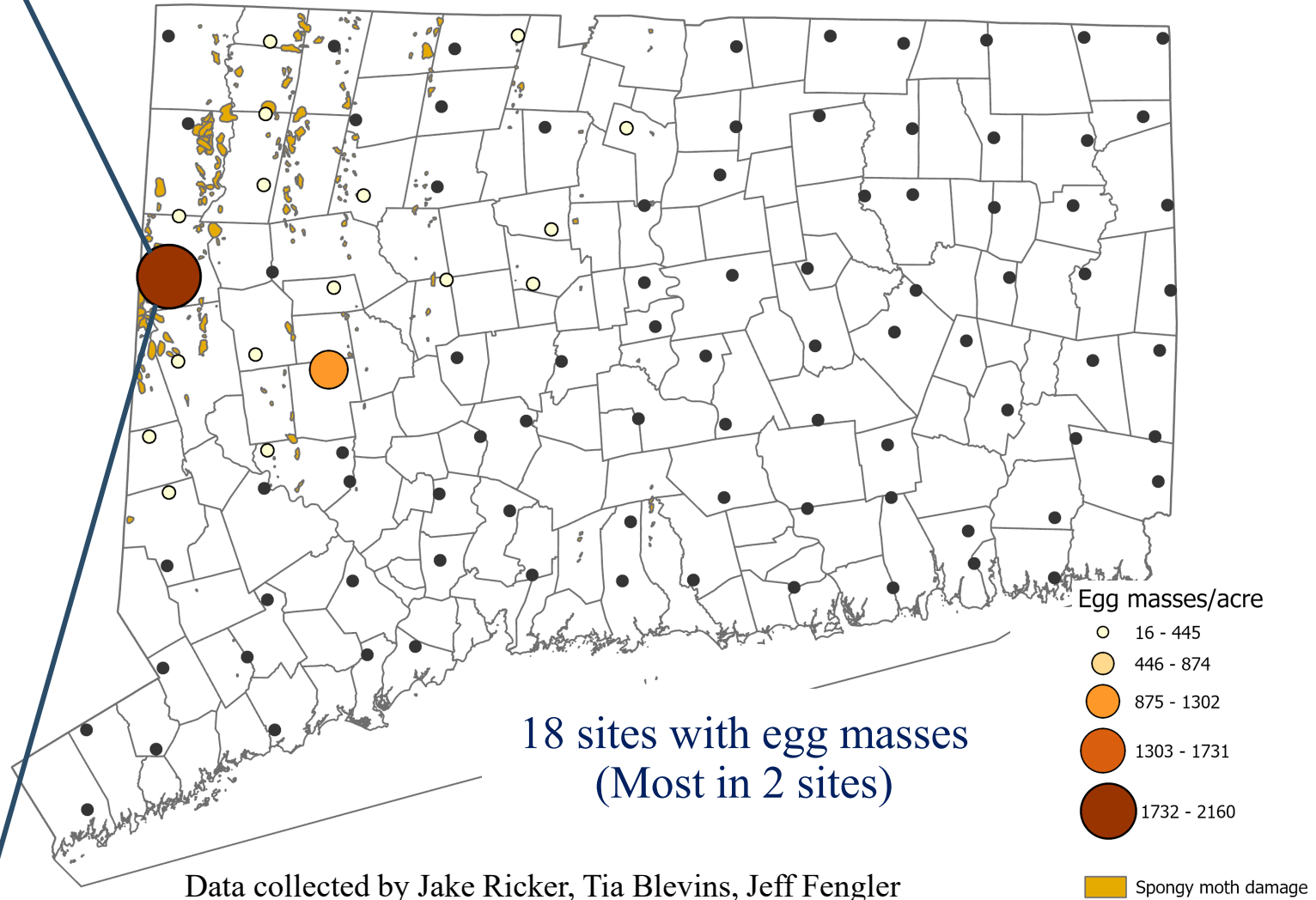


2024 Connecticut Forest Health Highlights

Spongy Moth



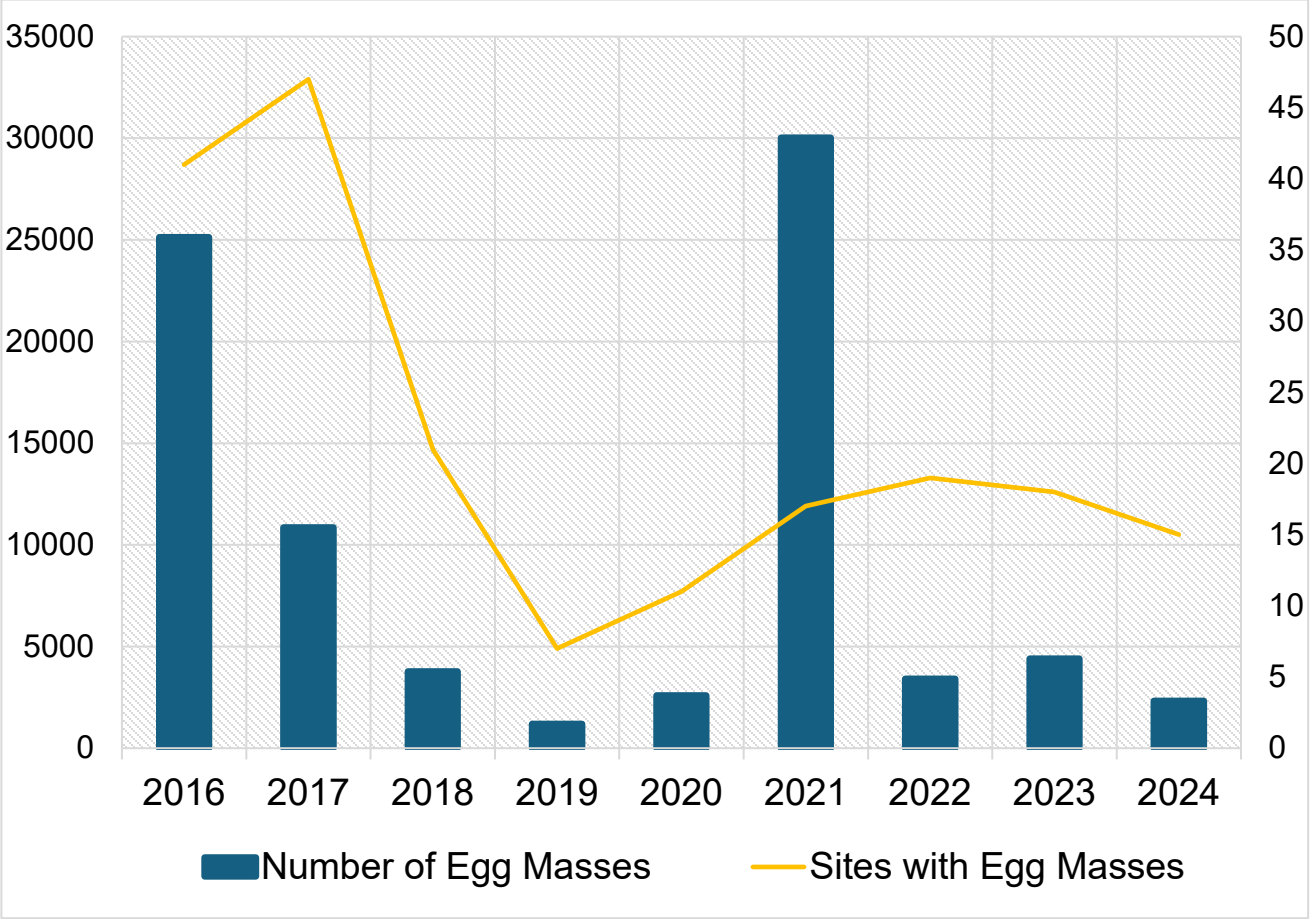
Egg Mass Data (Winter 2023-2024)



2024 Connecticut Forest Health Highlights

Spongy moth - 2024-2025 surveys

Winter Egg Mass Data (2016-2024)



Data collected by Jake Ricker, Tia Blevins, Jeff Fengler

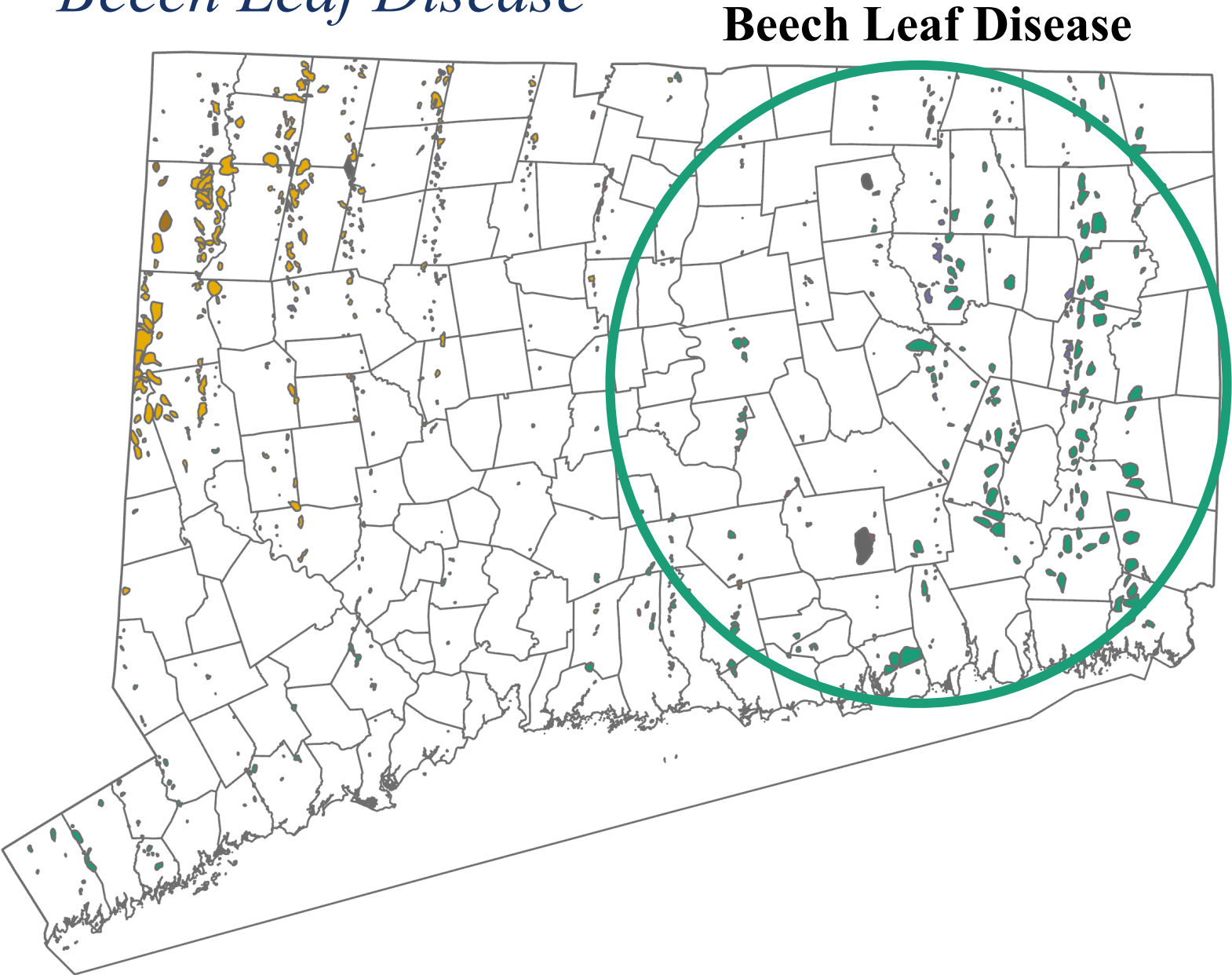
Winter Egg Mass Data (2016-2024)

County	Egg Masses/Acre		Positive sites	
	2023	2024	2023	2024
Fairfield	352	992	2	3
Hartford	160	0	4	0
Litchfield	3888	1200	12	10
New Haven	0	128	0	2
New London	0	0	0	0
Tolland	0	0	0	0
Windham	0	0	0	0
Middlesex	0	0	0	0
TOTAL	4400	2320	18	15

2024 Connecticut Forest Health Highlights

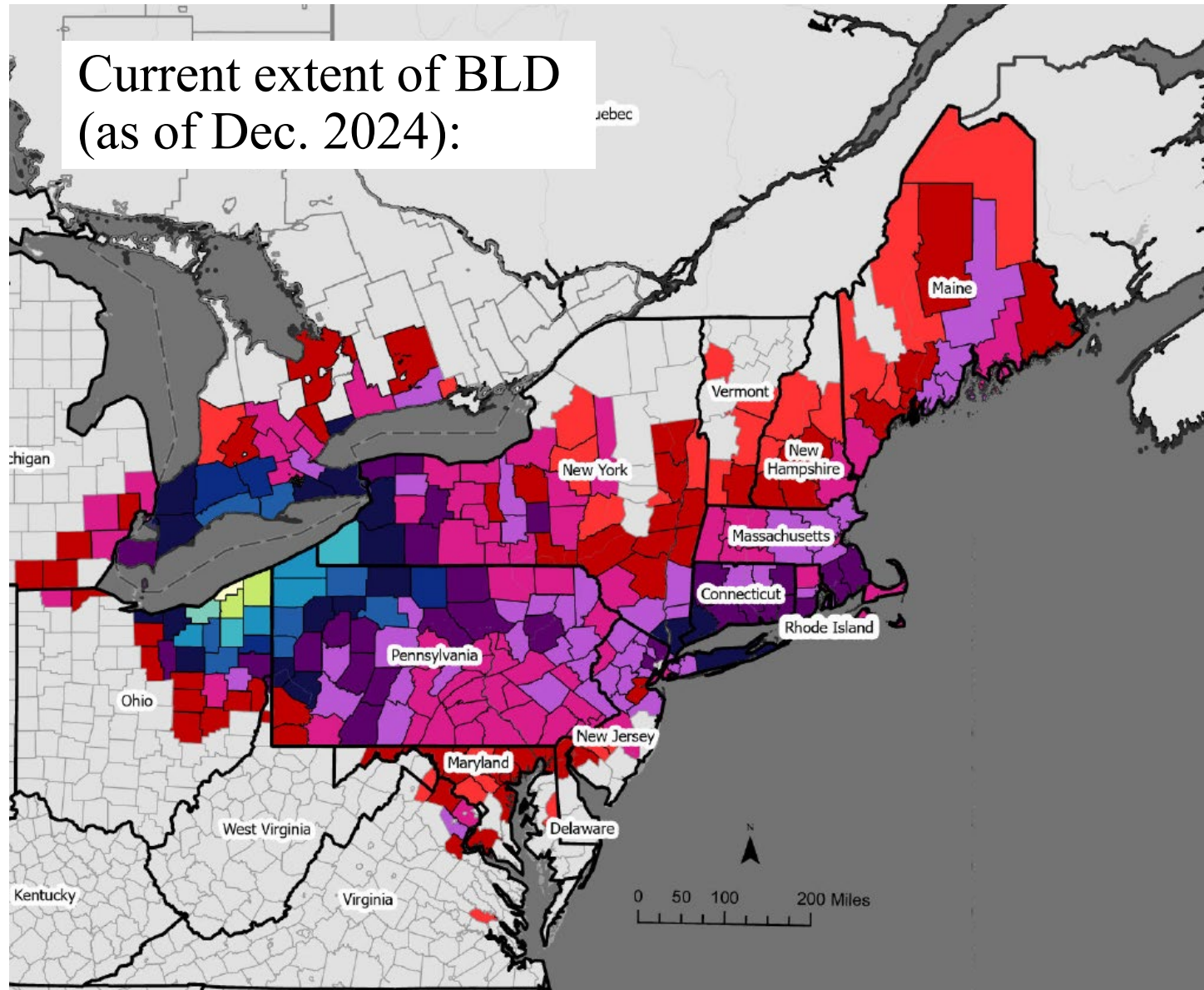
Beech Leaf Disease

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2024 Connecticut Forest Health Highlights

Beech Leaf Disease



Initial BLD Observations by
County

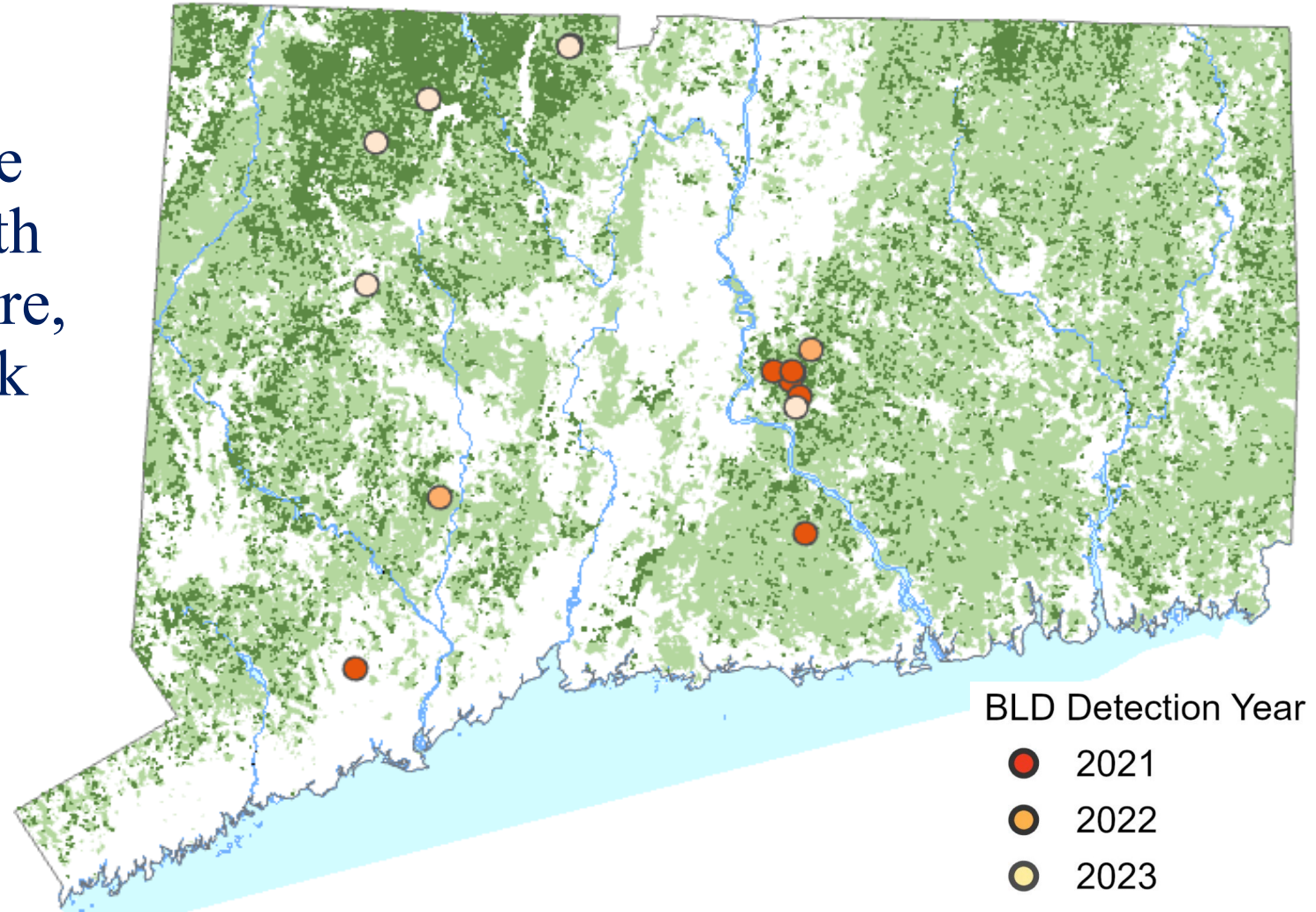


2024 Connecticut Forest Health Highlights

Beech Leaf Disease

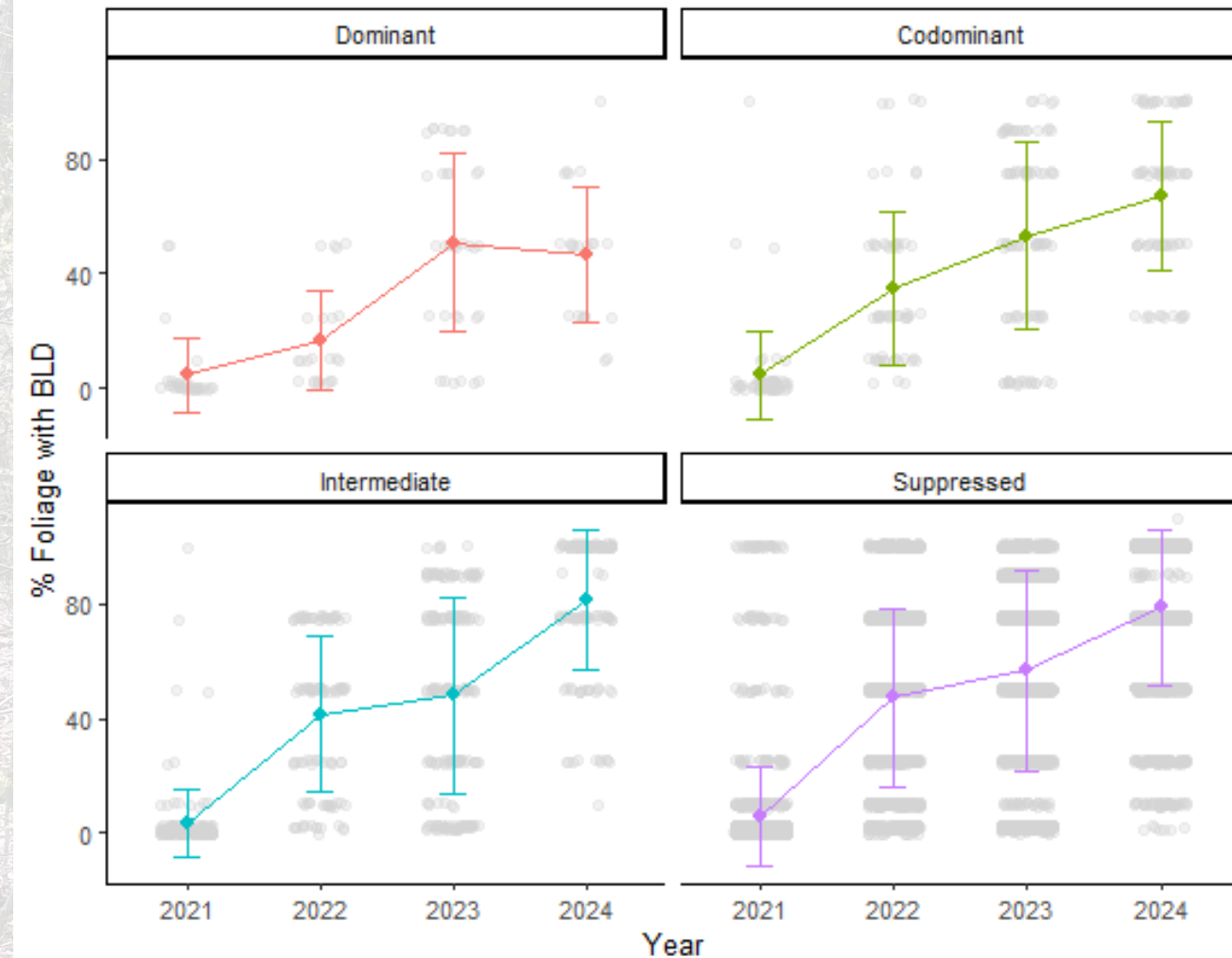
Annual monitoring of >2000 beech trees at 16 sites from 5 long-term CAES studies

- Assessing how changes in tree growth and mortality vary with tree size, canopy light exposure, co-occurrence with beech bark disease, management history, and other factors

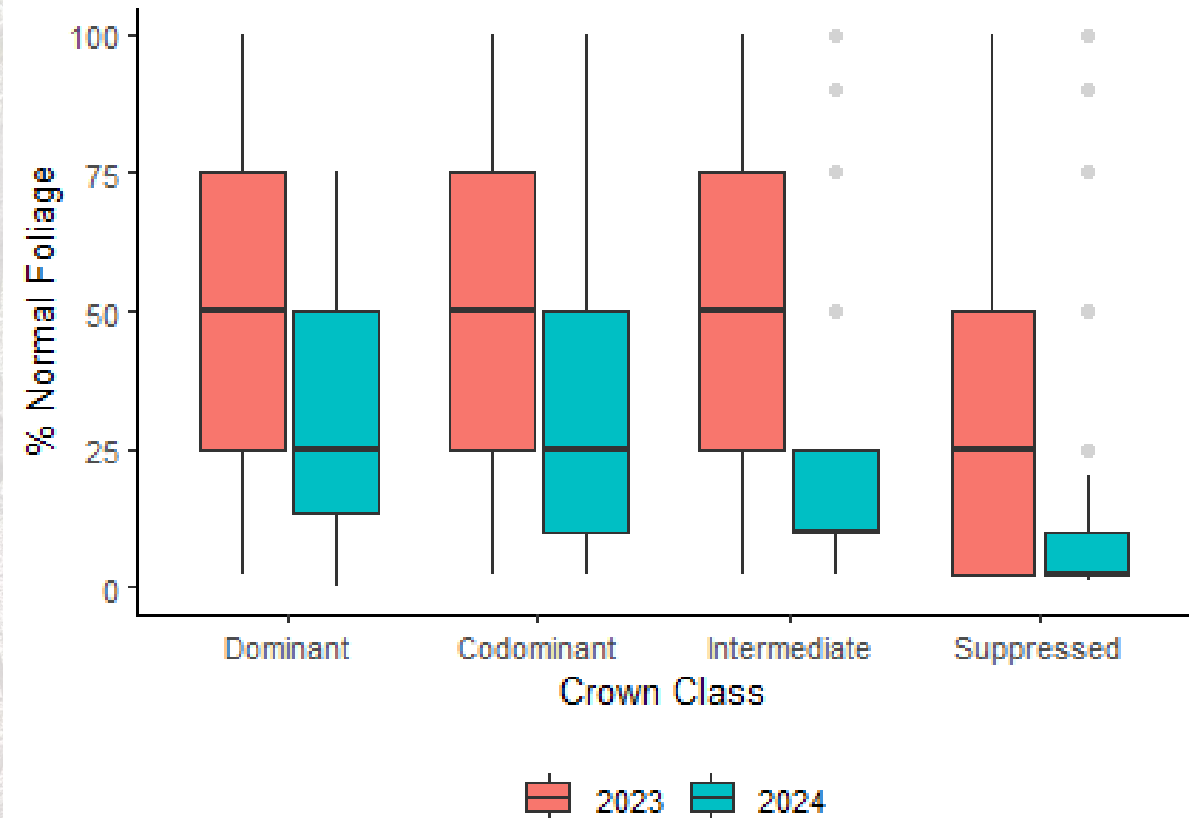


BLD severity has increased dramatically over time in all crown classes

Symptomatic foliage (2021-2024)

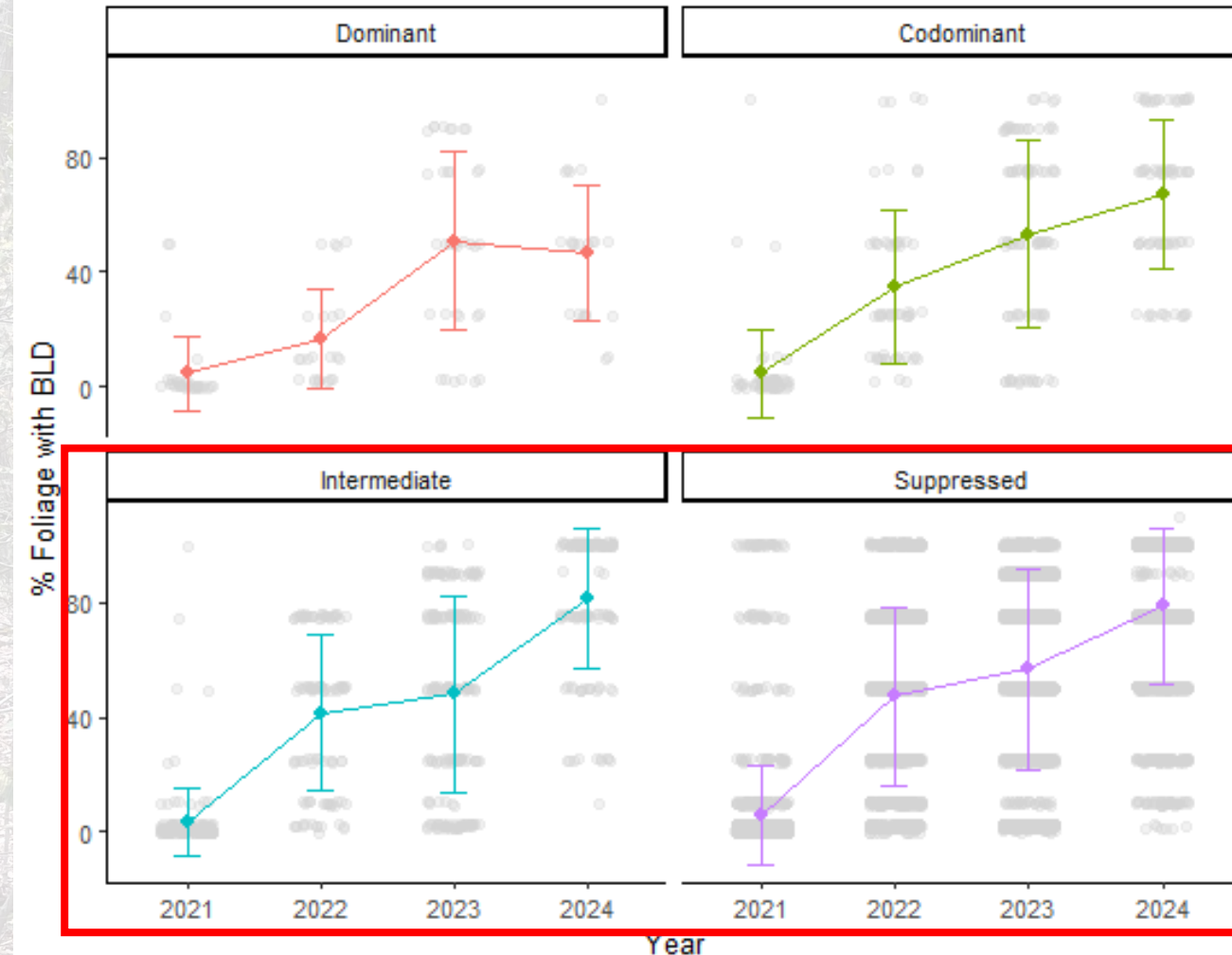


% Normal foliage (2023-2024)

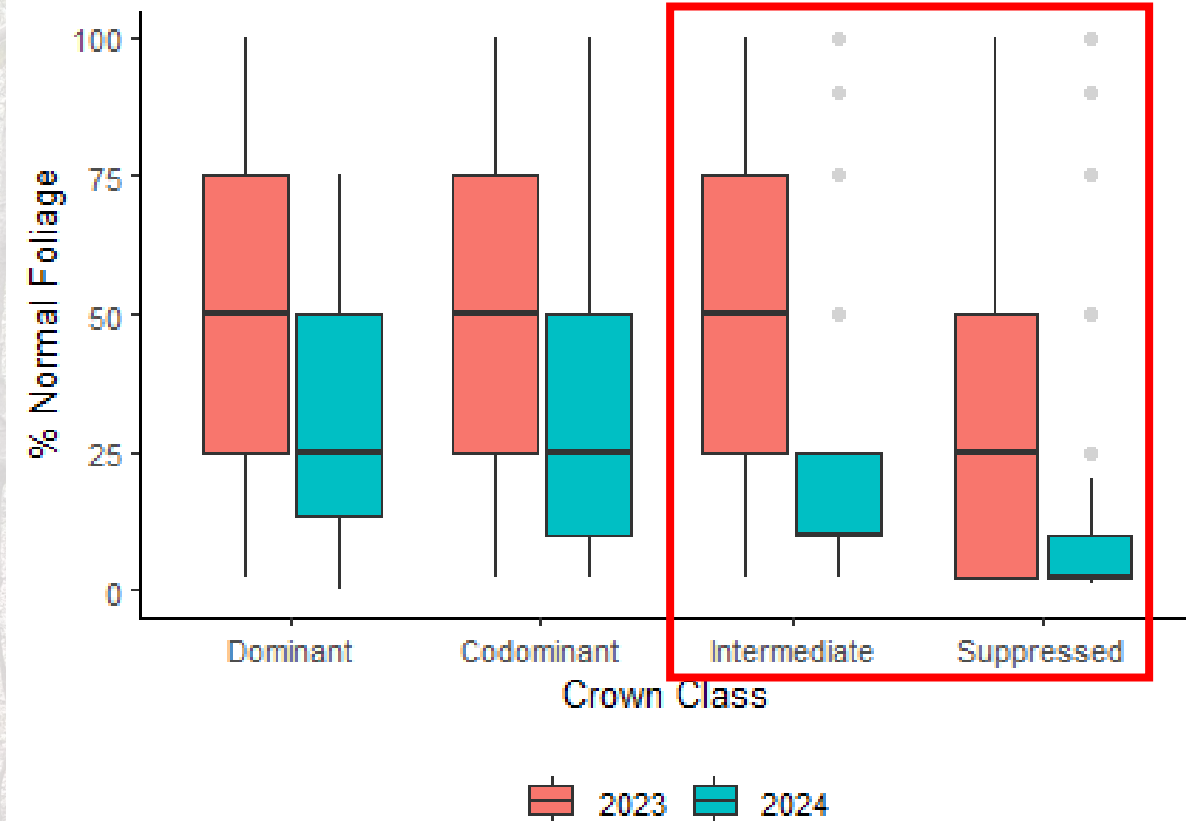


BLD symptoms appear to be more pronounced in subcanopy trees than in the upper canopy

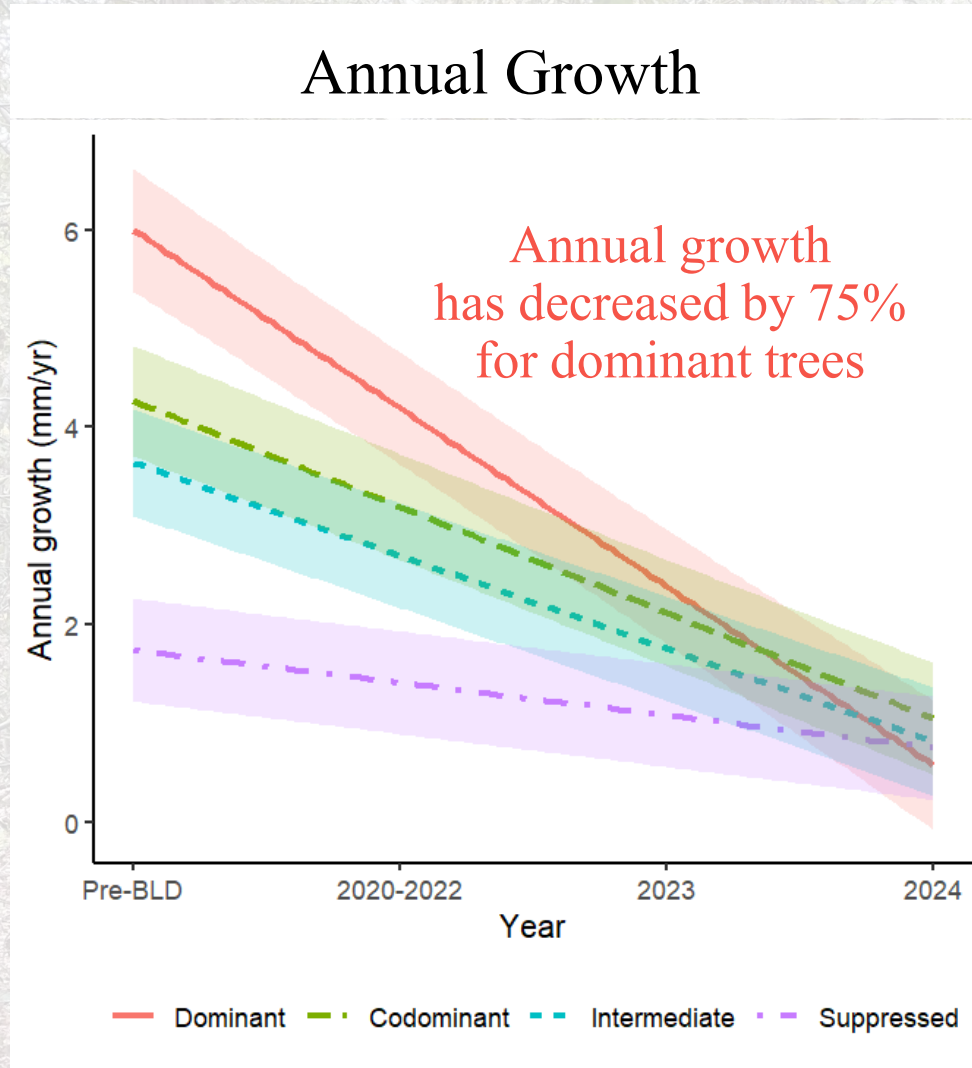
Symptomatic foliage (2021-2024)



% Normal foliage (2023-2024)

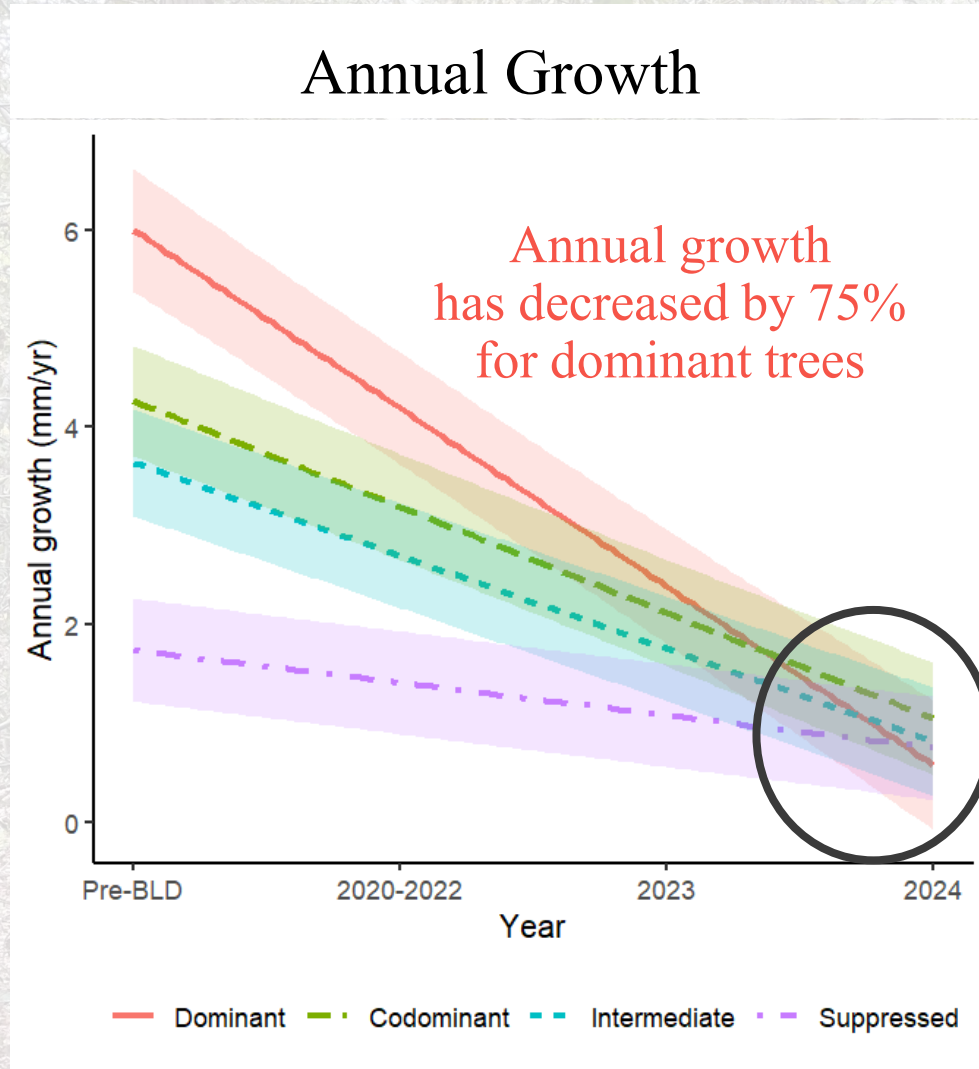


Decline in annual growth in all crown classes



More pronounced effects in upper canopy trees than in subcanopy trees

Decline in annual growth in all crown classes



More pronounced effects in upper canopy trees than in subcanopy trees

Very low growth for all trees in 2024:

- Average of 1.5 mm/yr in dominant trees and 0.4 mm/yr in suppressed trees

Despite dramatic rise in BLD severity and stagnation in tree growth, no major increases in beech mortality in our plots (yet)

Mortality Rate

Year	Crown Class			
	Dominant/ Codominant	Intermediate	Suppressed	Total
2022- 2023	6.1% <i>n</i> = 131	2.1% <i>n</i> = 193	3.0% <i>n</i> = 1627	3.1% <i>n</i> = 1951
2023- 2024	6.5% <i>n</i> = 92	1.5% <i>n</i> = 132	1.9% <i>n</i> = 1374	2.1% <i>n</i> = 1598

Initiating new projects testing forest management treatments to diversify beech stands severely affected by BLD

Urban forest restoration treatments in beech stands in New Haven parks:

- No action
- Deer fence only
- Deer fence + beech removal
- Deer fence + beech removal + enrichment planting

Beech silviculture on state and private land in CT and RI*:

- No action
- Low thinning
- Group selection
- Shelterwood/seed tree

**Pending funding*

2024 Connecticut Forest Health Highlights

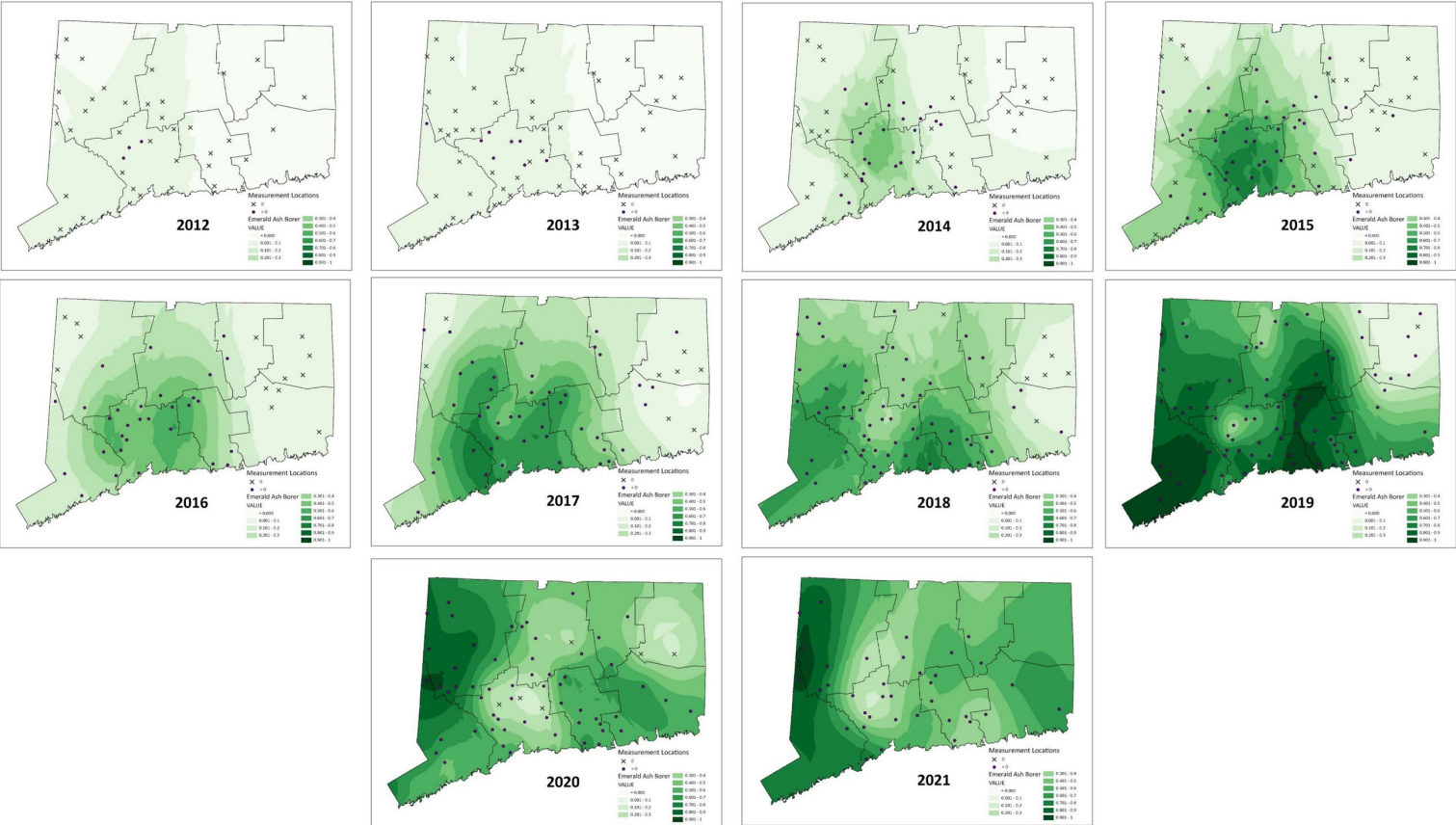
Emerald Ash Borer



Dr. Claire Rutledge
Department of Entomology

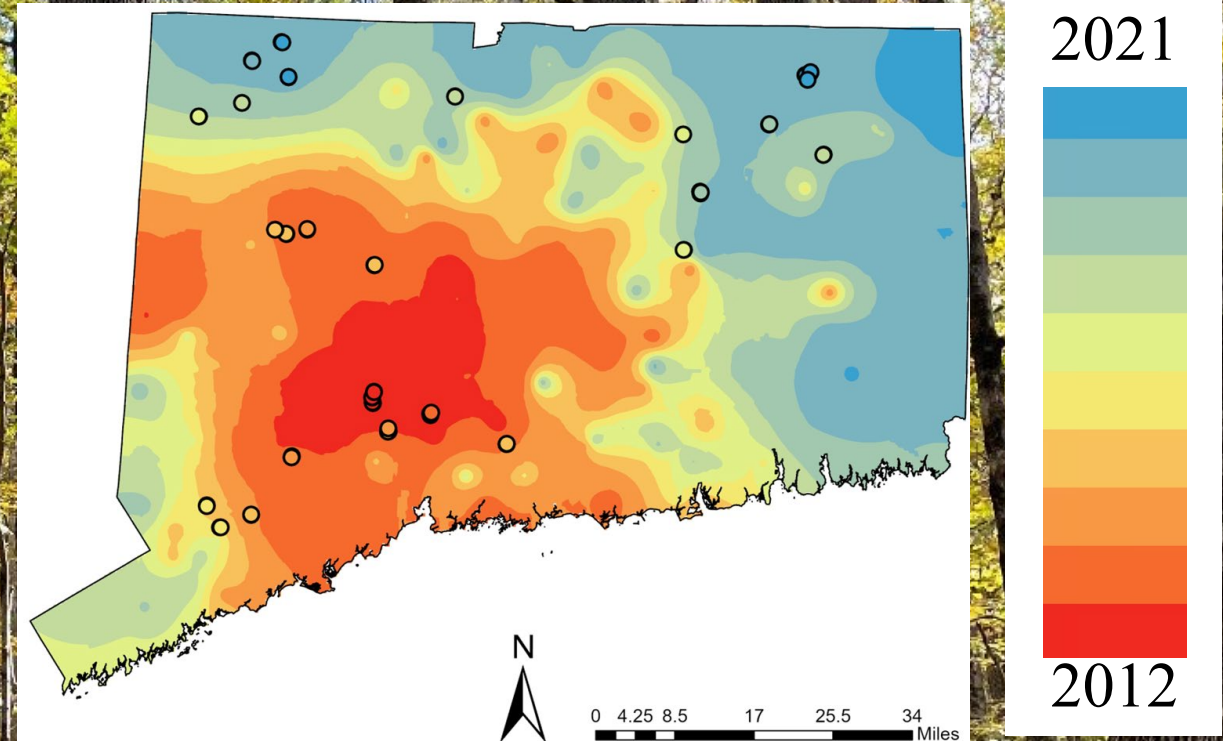
Present in Connecticut since 2012

Damage causing agent	Acres
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How is the composition of Connecticut's forests changing in response to ash tree mortality from Emerald Ash Borer?

- Established 81 forest inventory plots across a time since EAB detection gradient in CT
 - 3 sites/year (2012-2021)
 - 3 plots/site that ranged in relative overstory ash abundance



Data from Dr. Claire Rutledge; Figure created by Jack Hatajik

What factors influence the competitive dynamics between native and invasive plants following overstory ash tree decline and mortality?

Understory plant invasions

Tree regeneration and forest development



Will regenerating ash seedlings and saplings persist and rebound in Connecticut's forests following the collapse of EAB?

Understory plant invasions

Tree regeneration and forest development



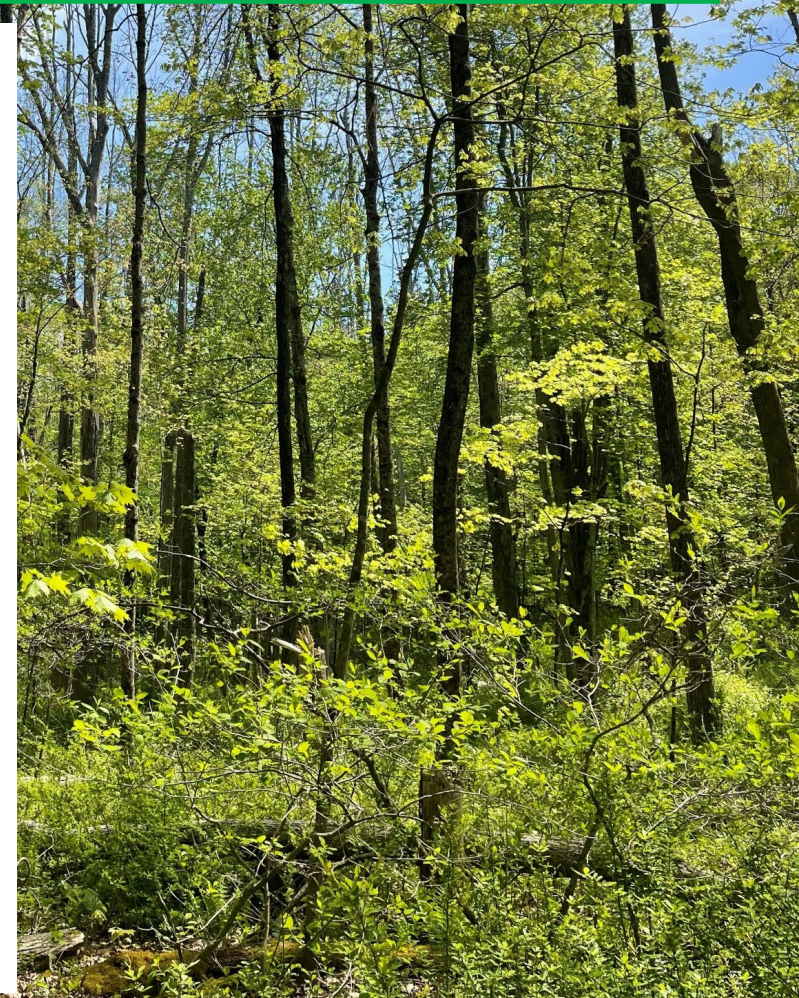
How do different forest management practices alter these dynamics?

Understory plant invasions

Tree regeneration and forest development

Invasive
plant
control

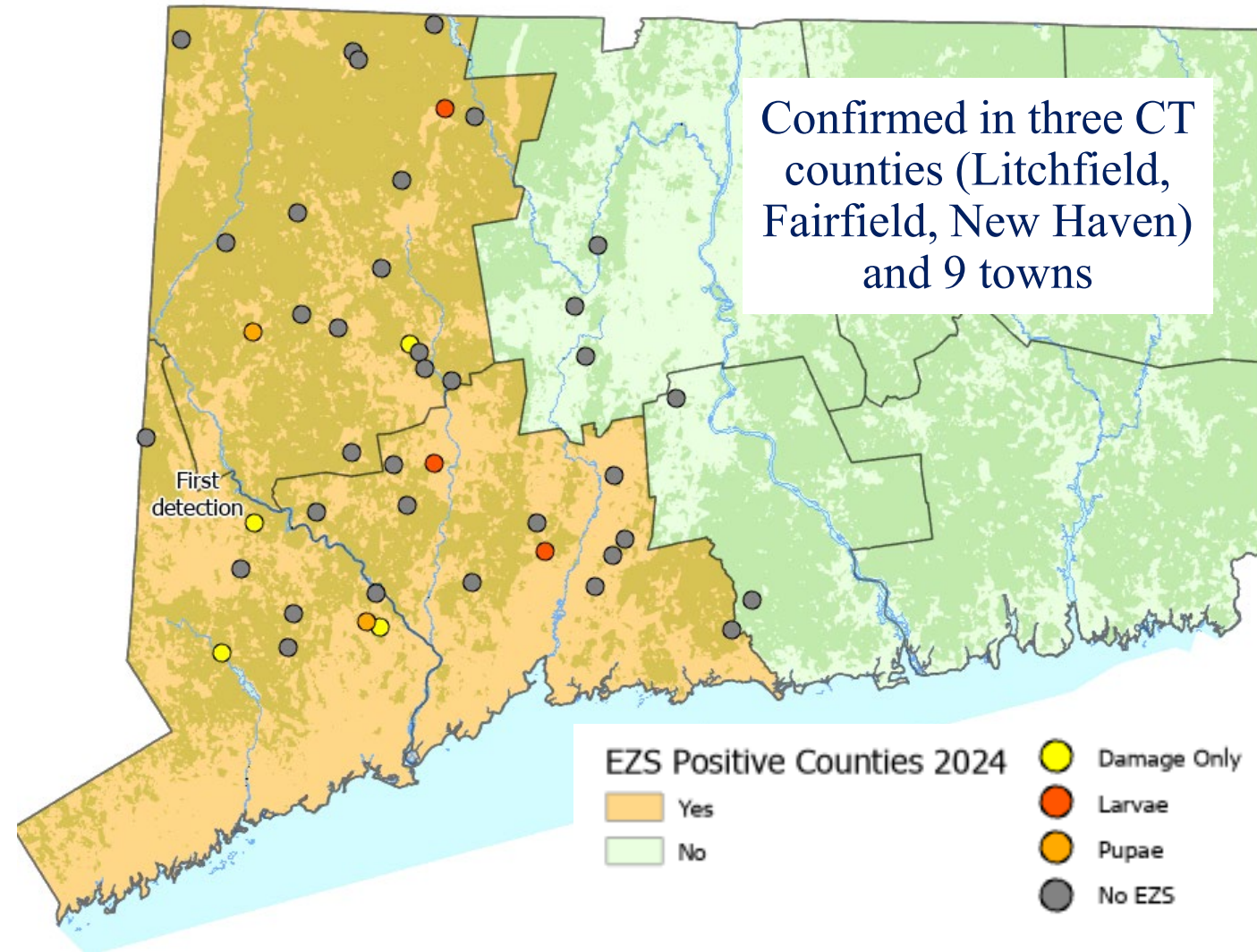
Ash
salvaging



2024 Connecticut Forest Health Highlights

First CT detection of elm zigzag sawfly

- Invasive, defoliating insect native to East Asia that was first detected in North America in 2020 and in the U.S in 2021
- Affects native and non-native elm species
- Mortality has not been observed



Data collected by Jake Ricker, Tia Blevins, Jeff Fengler

2024 Connecticut Forest Health Highlights

Other issues:

White pine
needle disease



Nick Brazee,UMass Amherst

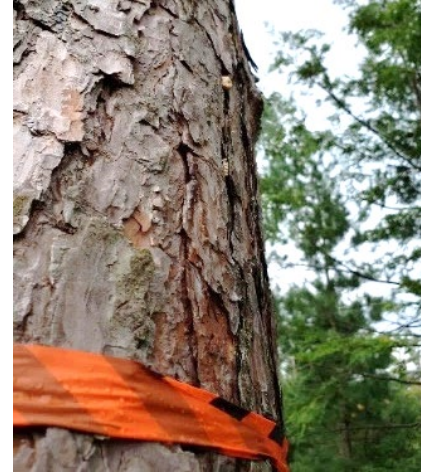
Premature sugar
maple browning



Emery Gluck

Continued monitoring:

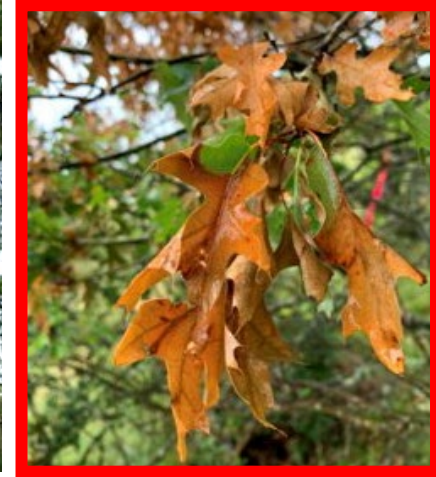
Southern pine
beetle



Claire Rutledge

Oak wilt

*Not currently known in CT



Wildfires and drought



Quiet Corner Alerts

Hemlock woolly adelgid





Thank you! Questions?

Eli Ward

Email: elisabeth.ward@ct.gov

Website: <https://portal.ct.gov/CAES-WardE>

