Current State of Invasive Species in Columbia County

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iMapInvasives

New York Natural Heritage Program

Water Chestnut (*Trapa natans*)

Presentation Outline

- What are invasive species?
- How invasive species impact our landscape
- What about Climate Change?
- Invasive Species Tiers and The Invasion Curve
- Species Highlights
- Where do I start?
- Questions?

What are Invasive Species?

Invasive species are **non-native** plant, animals, and pathogens that cause **harm** to the environment, the economy, or human health

Non-Native Species in New York State

Plant species:

- ~1,500 (Werier 2017)
- 253 considered high impact (NYNHP 2023)

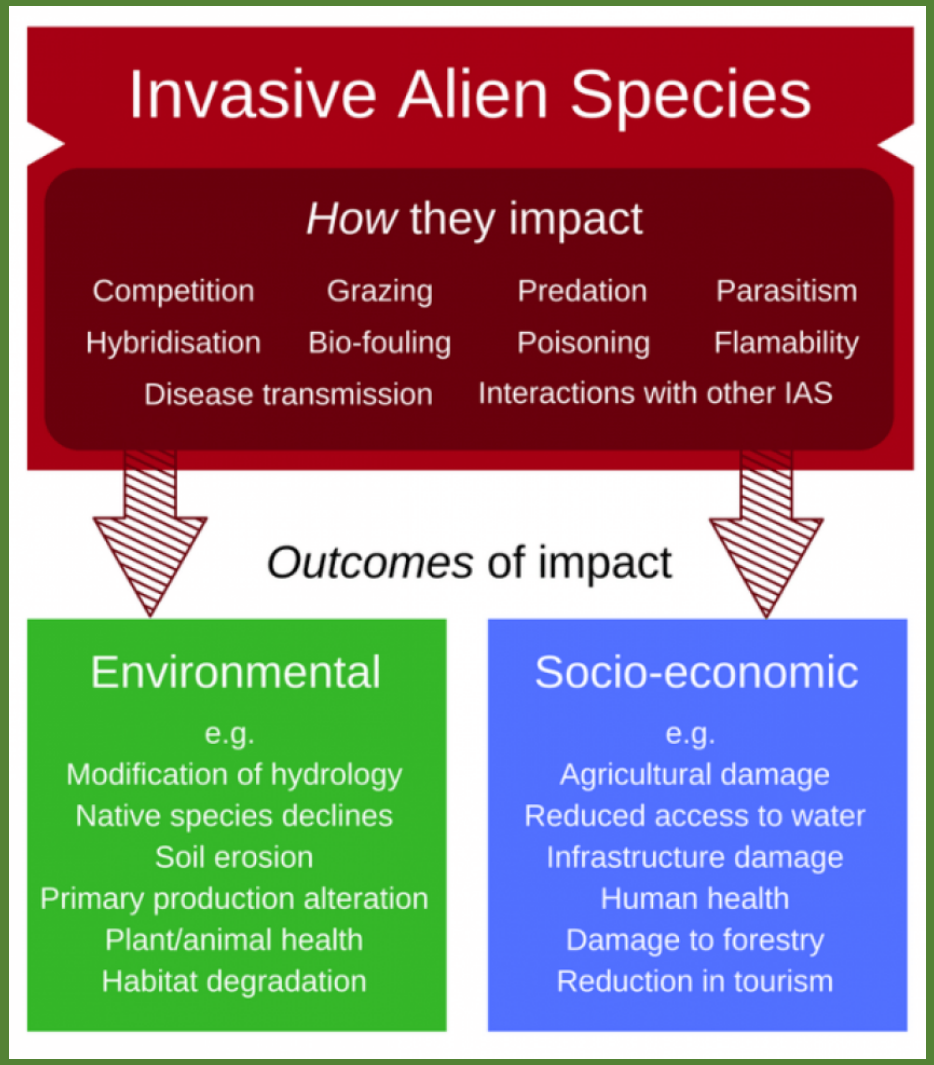
Aquatic Species:

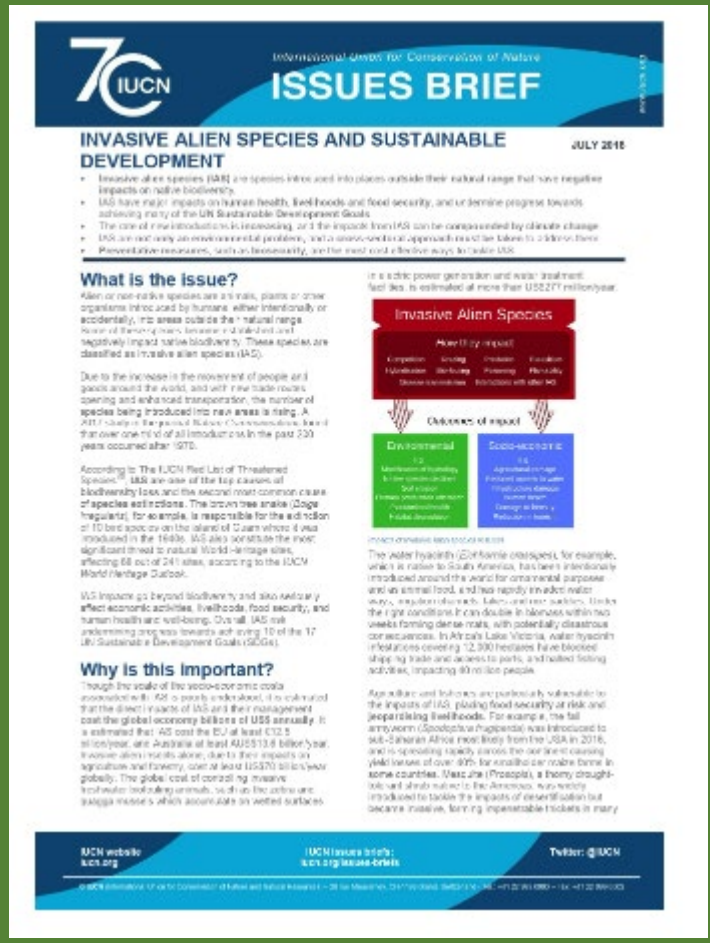
- 243 non-native (USGS NAS 2023)
- 66 considered high impact (NYNHP 2023)

Sooty and white mold grow on honeydew deposited by spotted lanternflies feeding on Ailanthus, Schenley Park, 15 Sep 2023 (photo by Kate St. John)

Cumulative Impacts of Invasive Species

- Ecological
- Economic
- Sociological



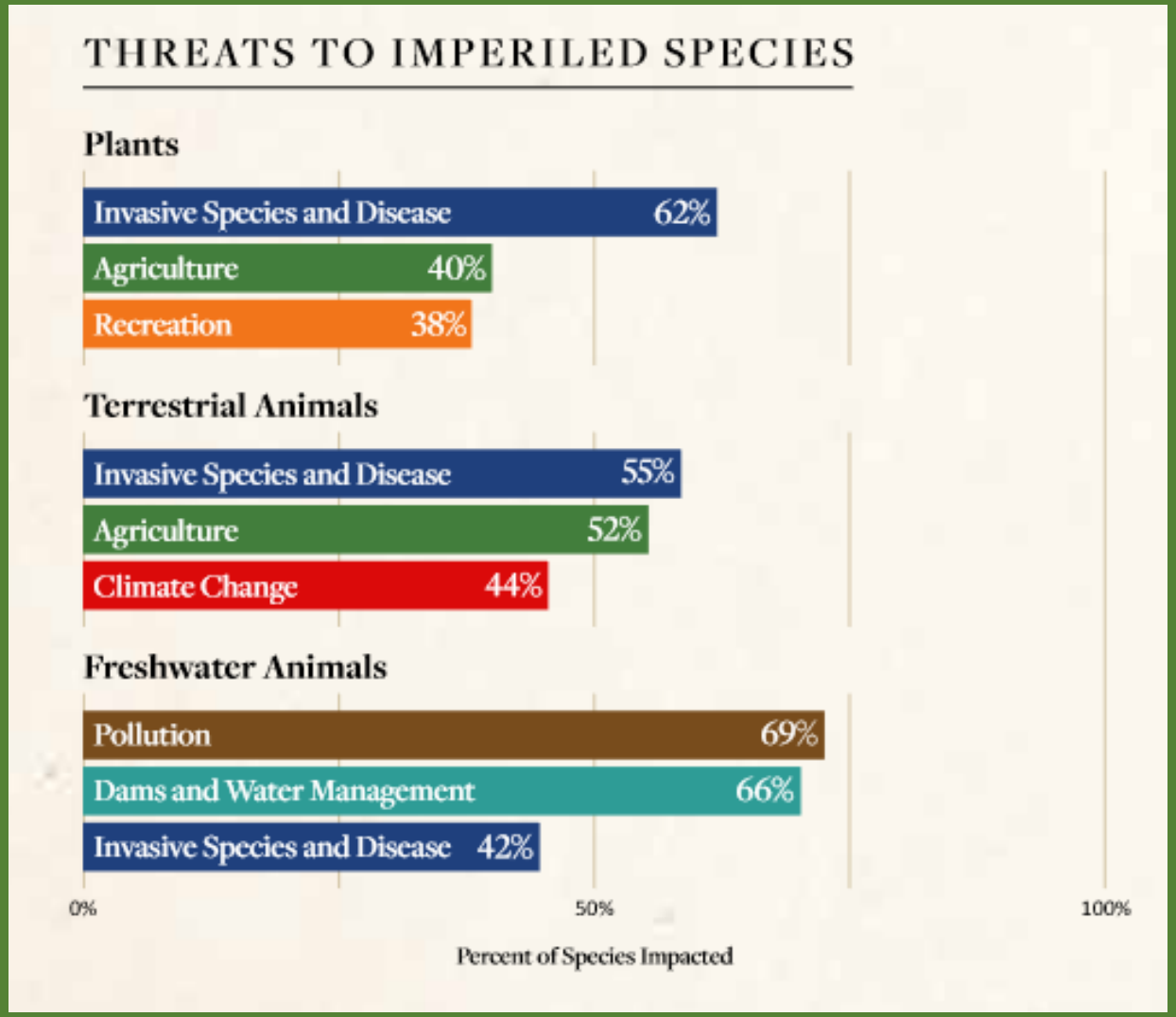


Ecological Impacts of Invasive Species

What are the major threats to biodiversity?

Habitat destruction and degradation, invasive species, dams, and climate change are among the primary threats to our nation's biodiversity.

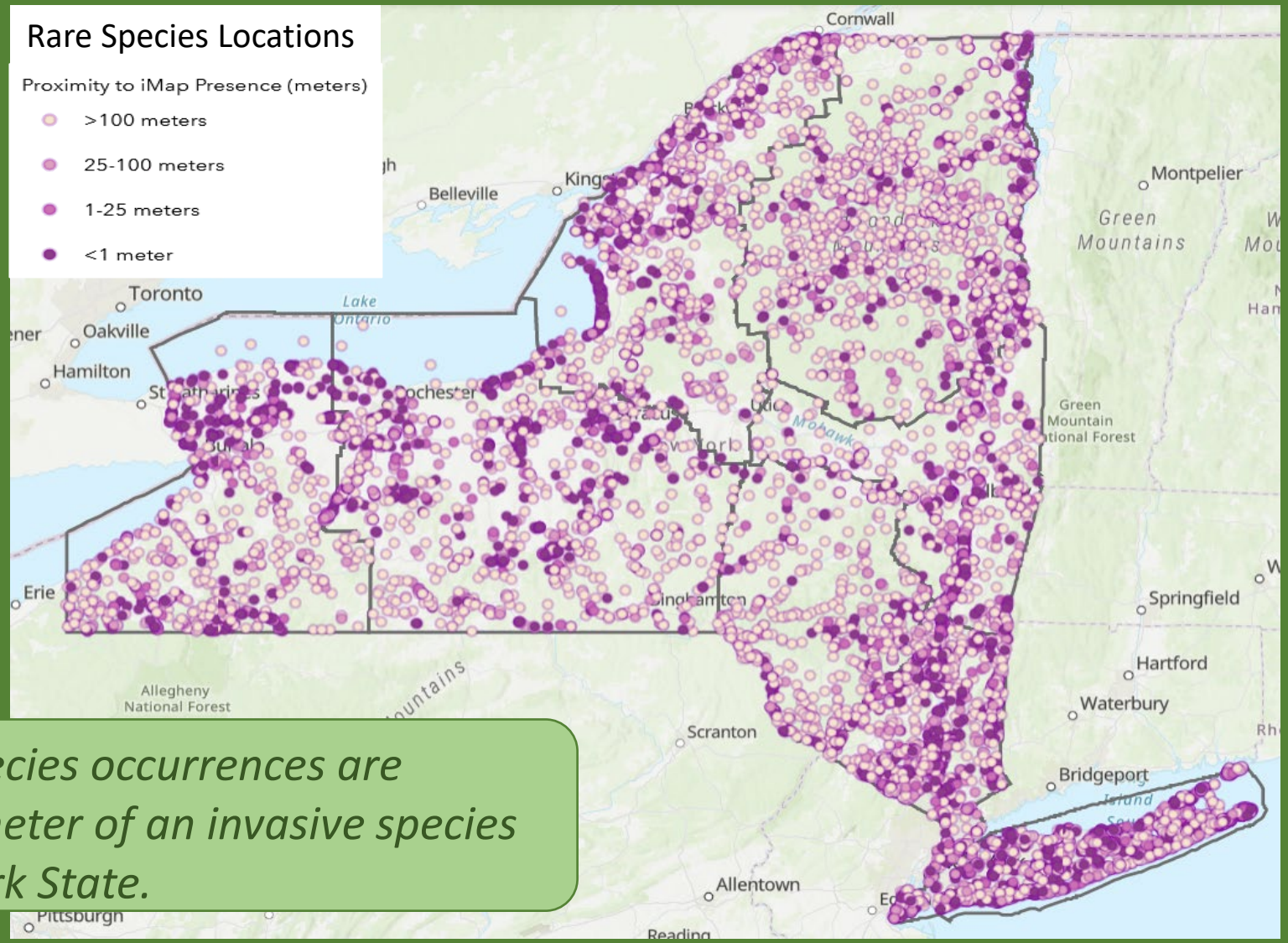
Biodiversity in Focus: United States Edition
2023. NatureServe.



Ecological Impacts of Invasive Species (Cont.)

New York Natural Heritage Program

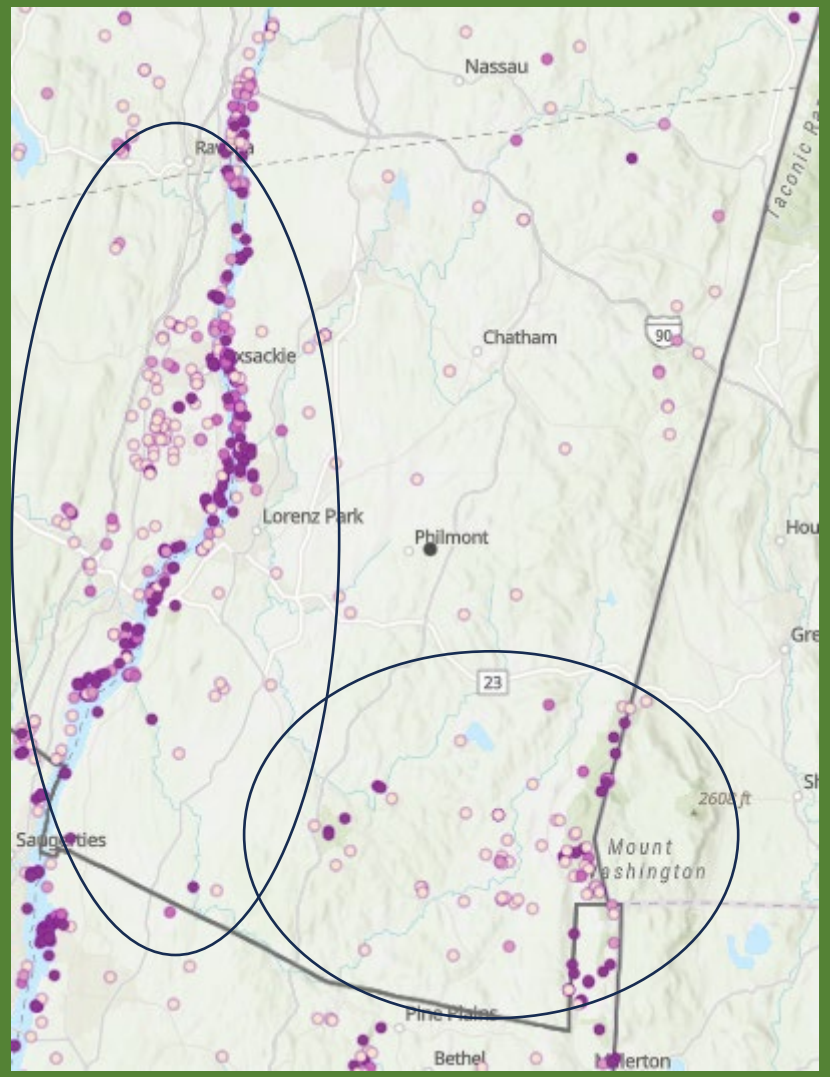
NYNHP has documented over 15,800 locations of **rare, threatened, and endangered species and significant natural communities**



17% *of rare species occurrences are within 1 meter of an invasive species in New York State.*

Ecological Impacts of Invasive Species (Cont.)

Columbia County, NY

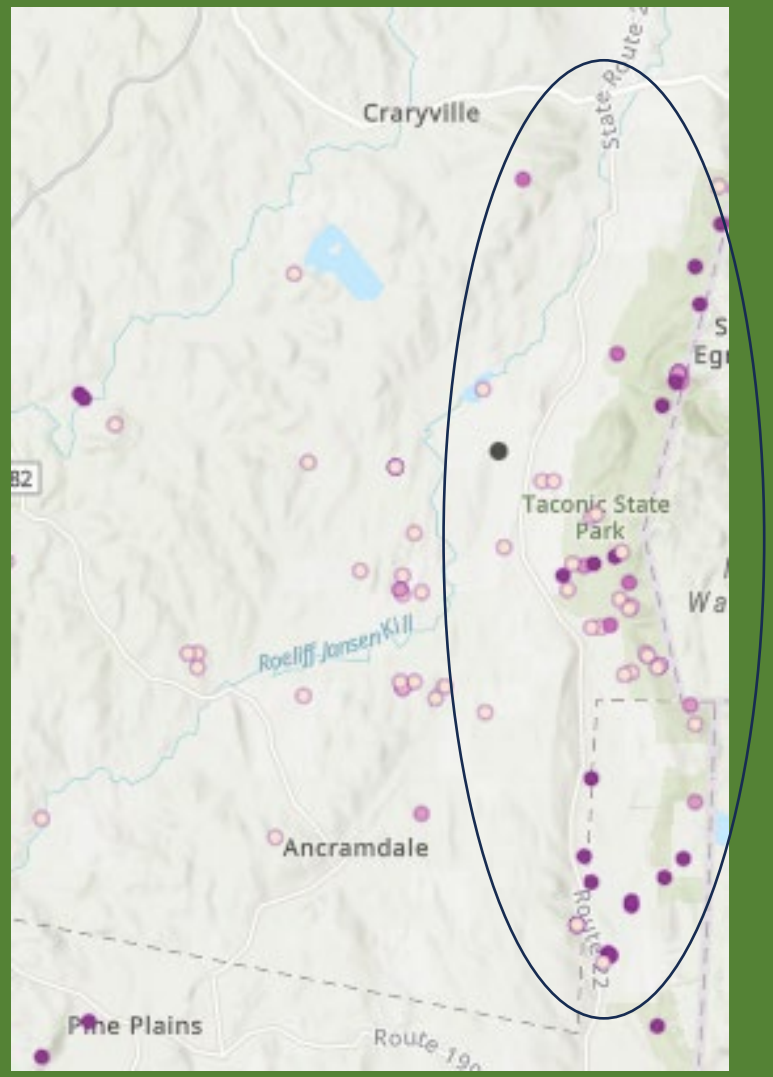


Rare Species Locations

Proximity to iMap Presence (meters)

- >100 meters
- 25-100 meters
- 1-25 meters
- <1 meter

Copake/Ancram, NY



Economic Impacts of Invasive Species

"Thousands of invasive species introduced to new ecosystems around the world are causing more than **$423 billion in estimated losses to the global economy every year** by harming nature, damaging food systems and threatening human health…

The **costs have at least quadrupled every decade since** 1970, according to the report, which was based on 2019 data…

Over the last few centuries, humans have intentionally and unintentionally introduced more than 37,000 species to places outside their natural ranges as the world has become more interconnected, the assessment said. **More than 3,500 of those are considered invasive because they are harmful to their new ecosystems.**"

The New York Times

Invasive Species Are Costing the Global Economy Billions, Study Finds

A new scientific report offers the most exhaustive look yet at how nonnative plants and animals can drive extinctions, disrupt food systems and harm human health.

Share full article

Sept. 4, 2023

Sociological Impacts of Invasive Species

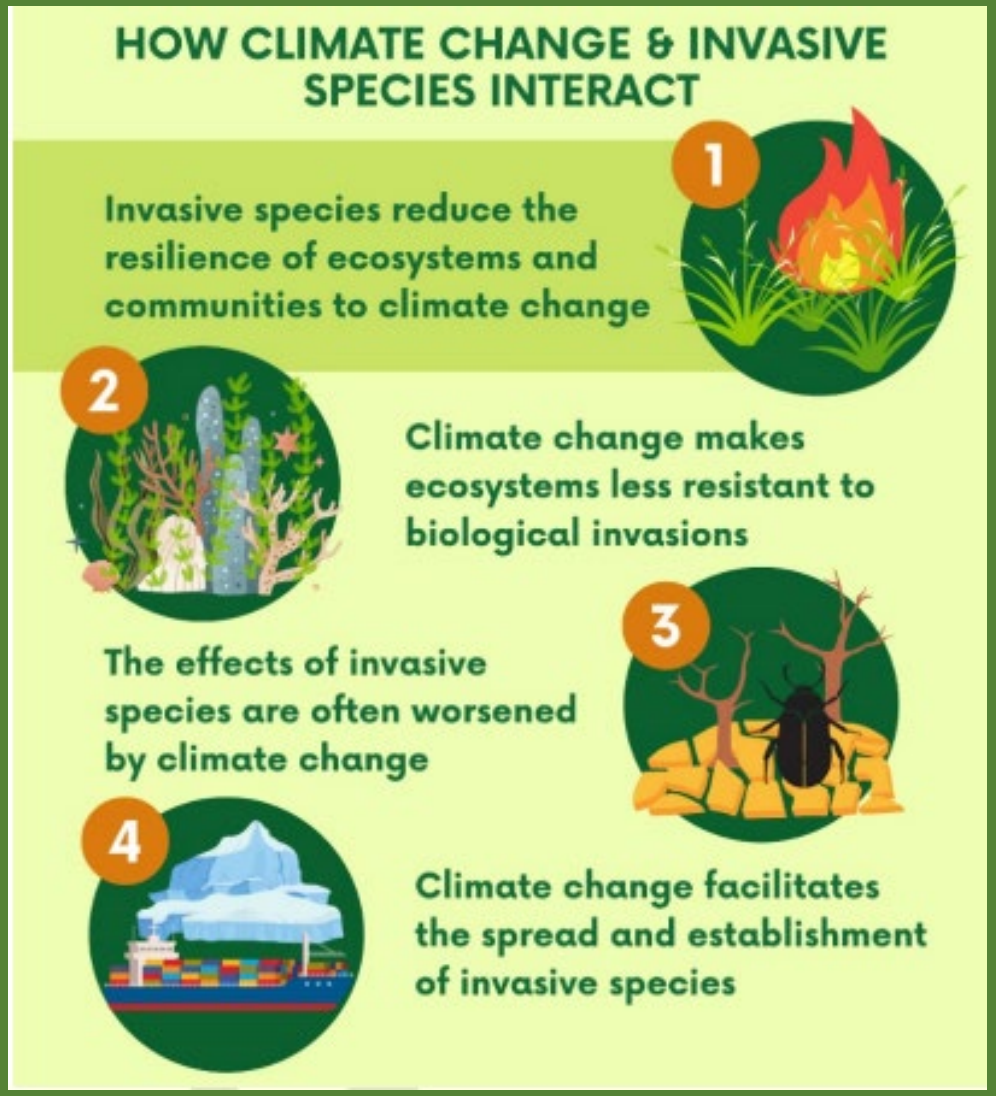
What About Climate Change?

Invasive Species response to climate change

- Increased growth due to increased CO2
- Warmer, earlier spring weather
- Shifts in species ranges

Invasives Species contribution to climate change

- Insect pests are destroying trees
- Creating fire prone areas

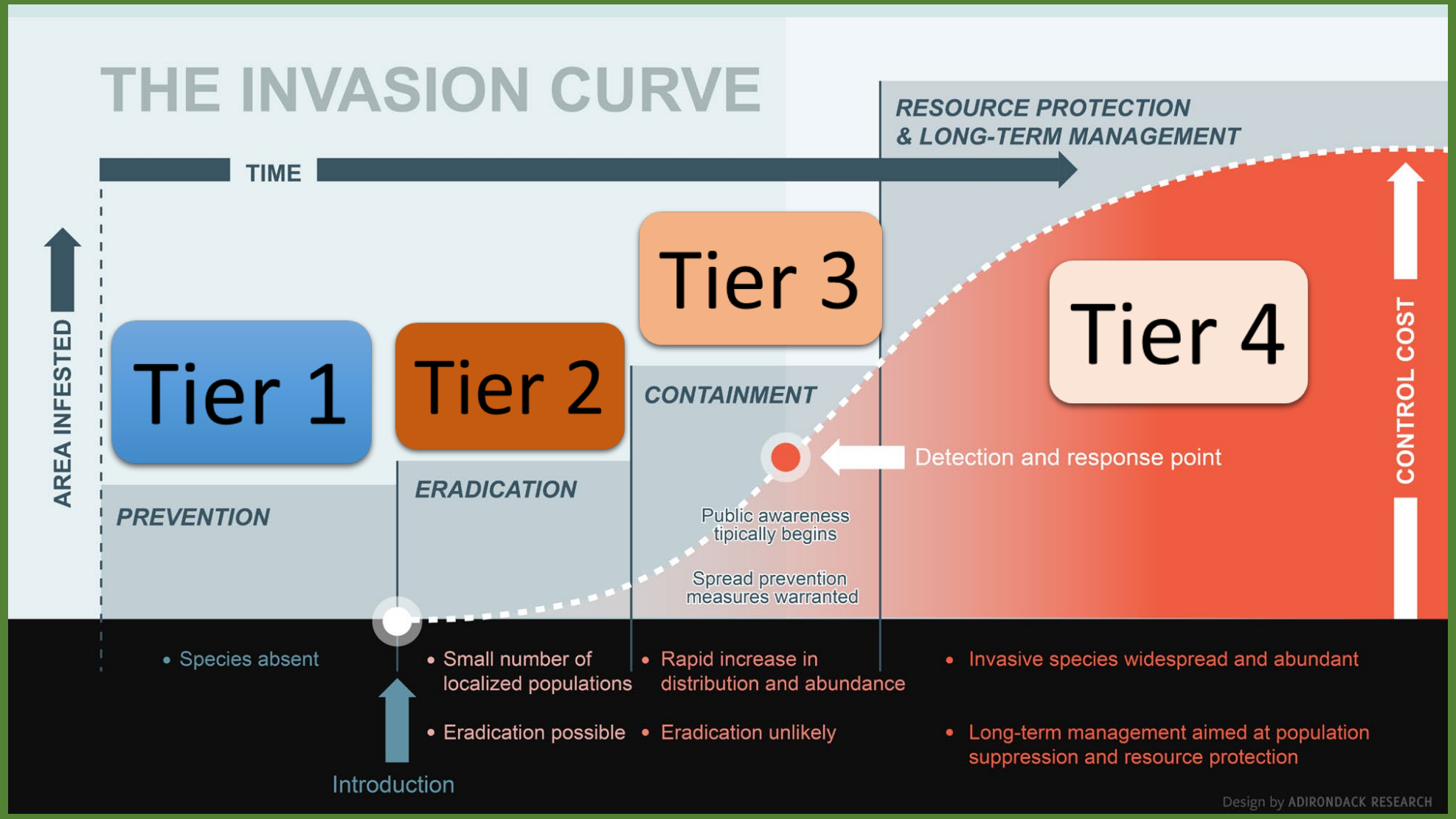


White Paper for Review at Invasive Species Advisory Council in-person meeting to be held 11/13/2023-11/15/2023. This draft completed 11/3/2023

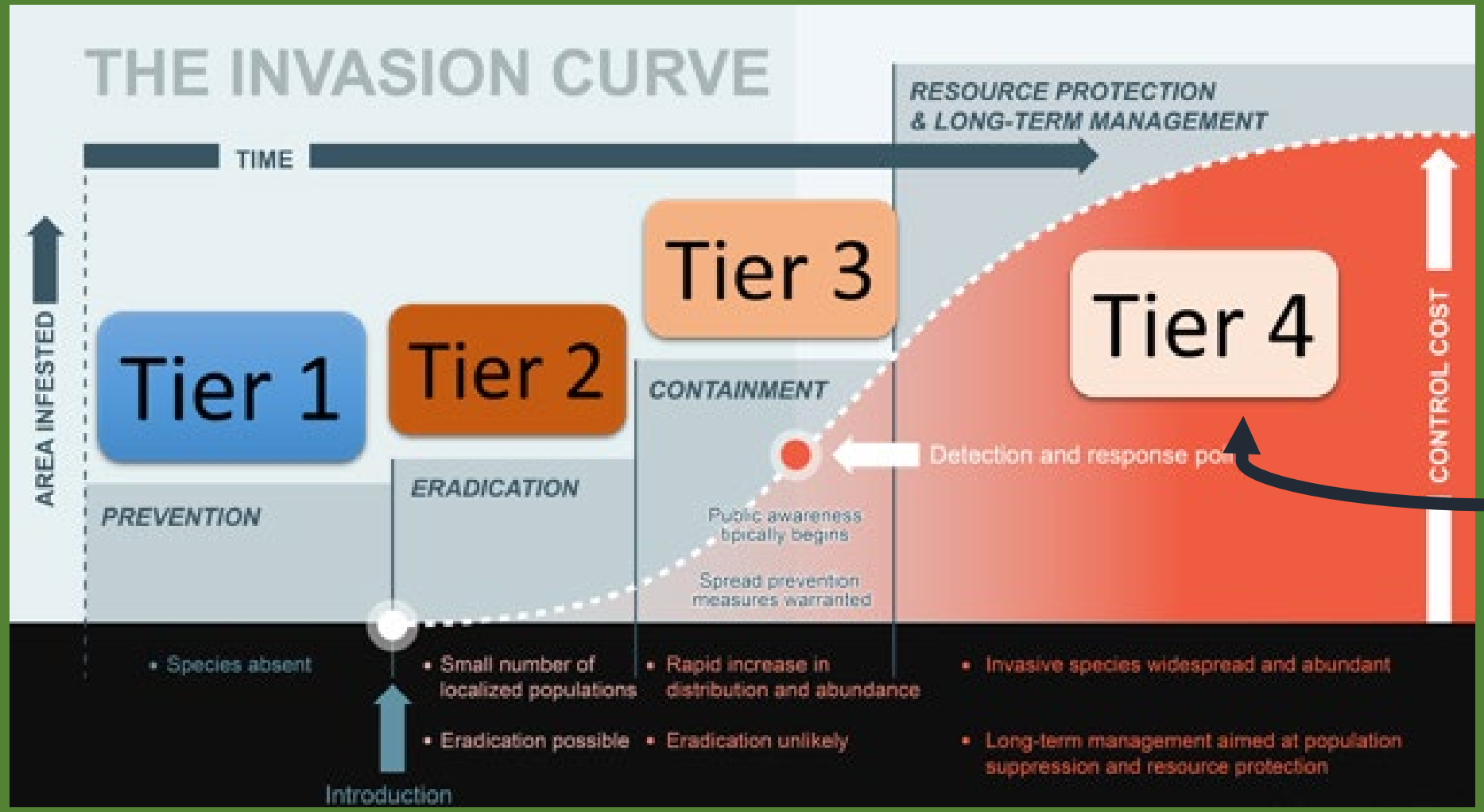
Species Tiers

		Difficulty of Eradication / Cost of Control Abundance (in PRISM plus Buffer)			
		None in PRISM	**Low**	**Medium**	**High**
Impact (current and future)	**Very High or High**	**TIER 1** *Early Detection/Prevention* Highest level of early detection survey efforts. Should conduct delineation surveys and assign to appropriate Tier if detected.	**TIER 2** *Eradication* Eradication / Full containment may be feasible	**TIER 3** *Containment* Strategic management to contain infestations and slow spread in PRISMs	**TIER 4** *Local Control* Established / Widespread in PRISM; only strategic, localized management.
	Medium	***Evaluate*** *Further evaluate impacts and PRISM resources to see if the species should be assigned to one of the other lists.*			
	Unknown	**X**	**TIER 5** *Monitor* Species that need more research, mapping, and monitoring to understand their invasiveness.		

Species Tiers and the Invasion Curve



Species Highlights-Terrestrial Plants



Tier 4

Japanese Barberry
Oriental Bittersweet
Tree-of-Heaven
Autumn Olive
Multiflora Rose

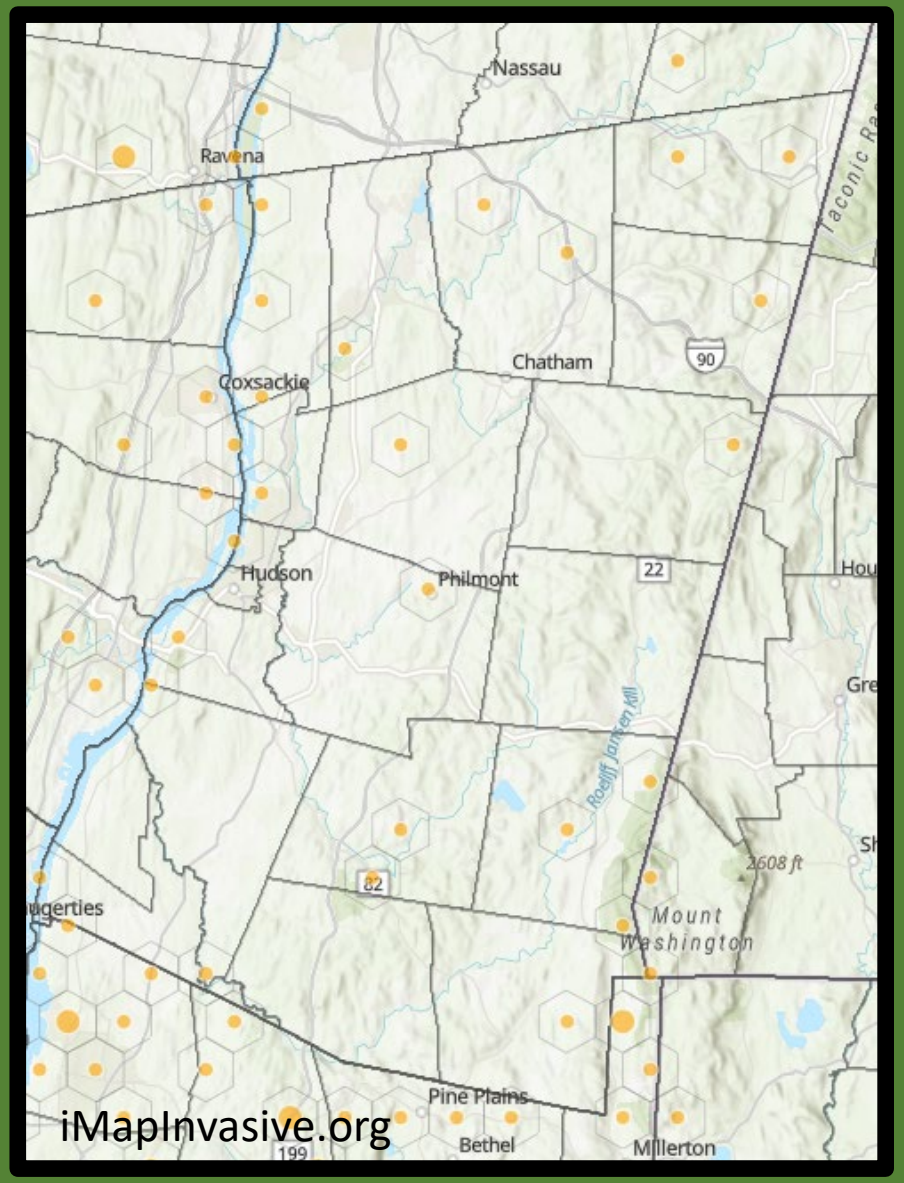
Species Highlights- Japanese barberry, *Berberis thunbergii DC.*

Plant

Leaves

Flowers

Berries



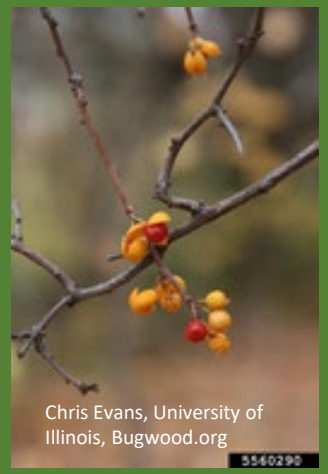
Species Highlights- Oriental Bittersweet, *Celastrus, orbiculatus*

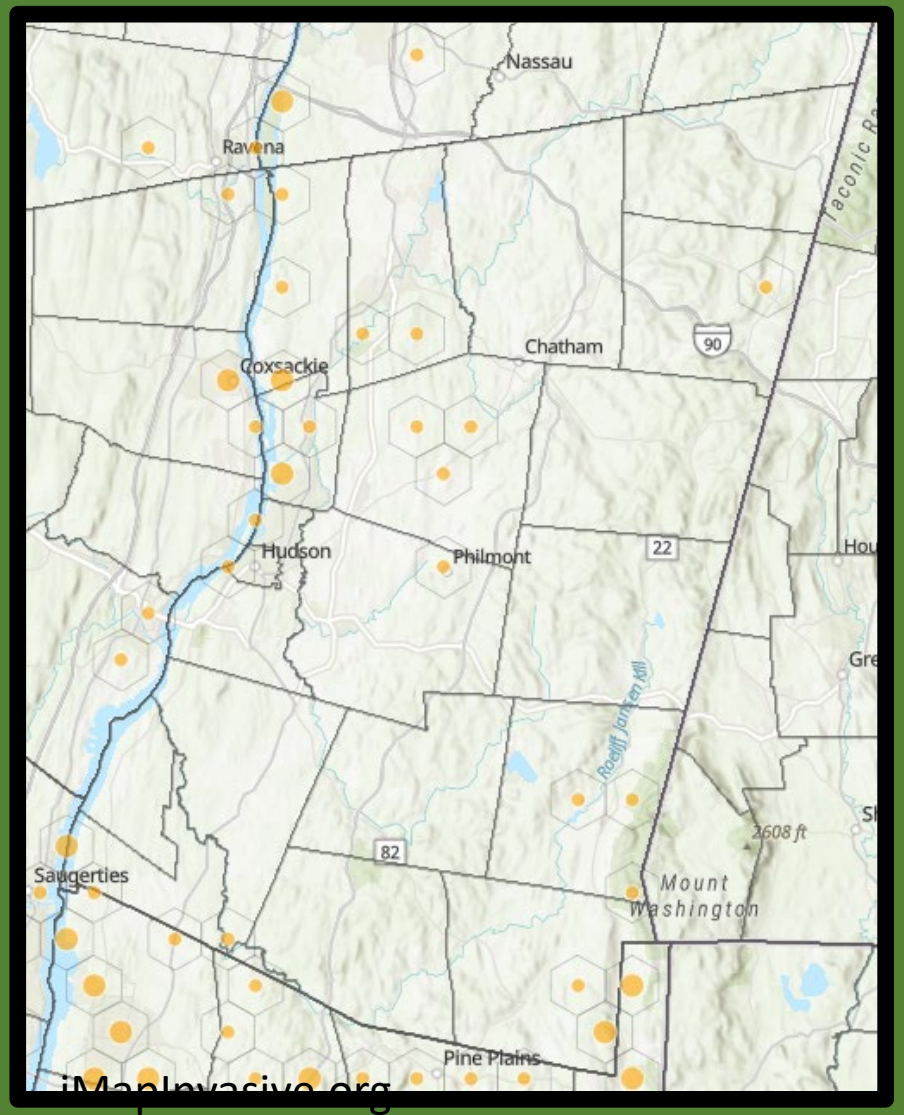
Plant

Leaves

Flowers

Berries





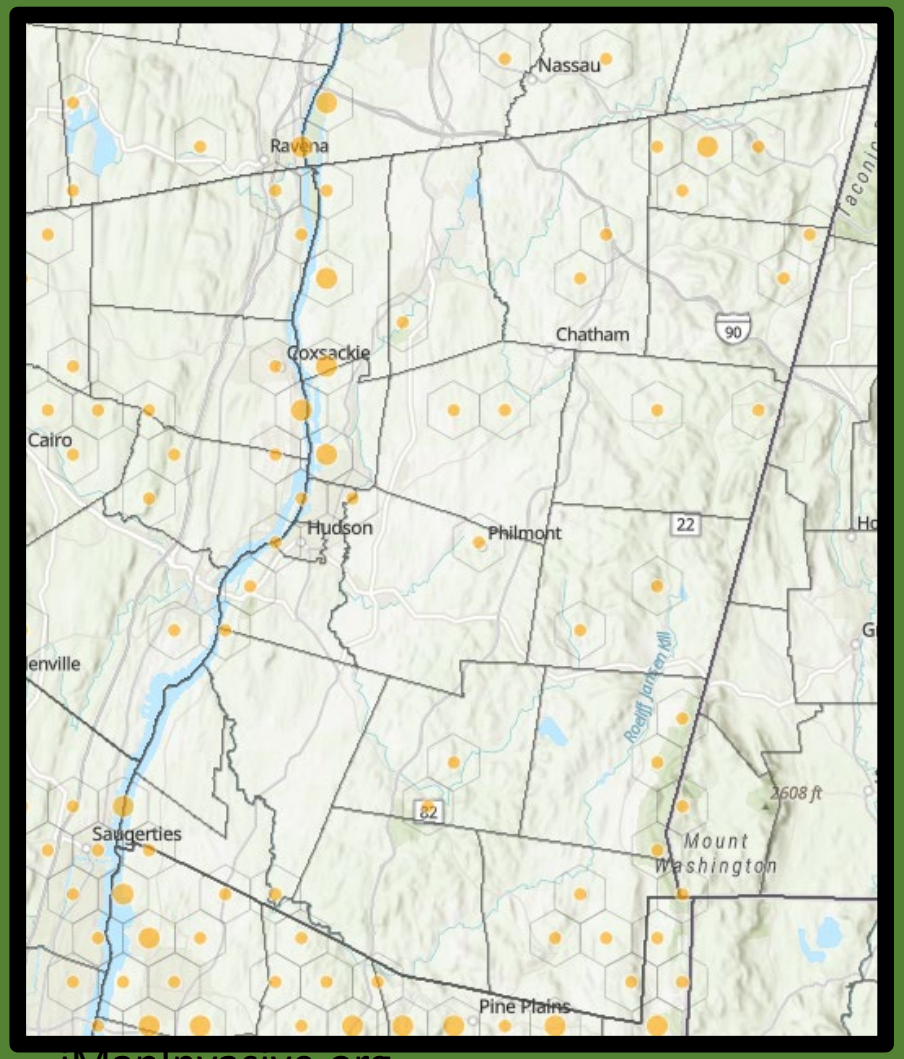
Species Highlights- Multiflora Rose, *Rosa multiflora*

Plant

Leaves

Flowers

Berries



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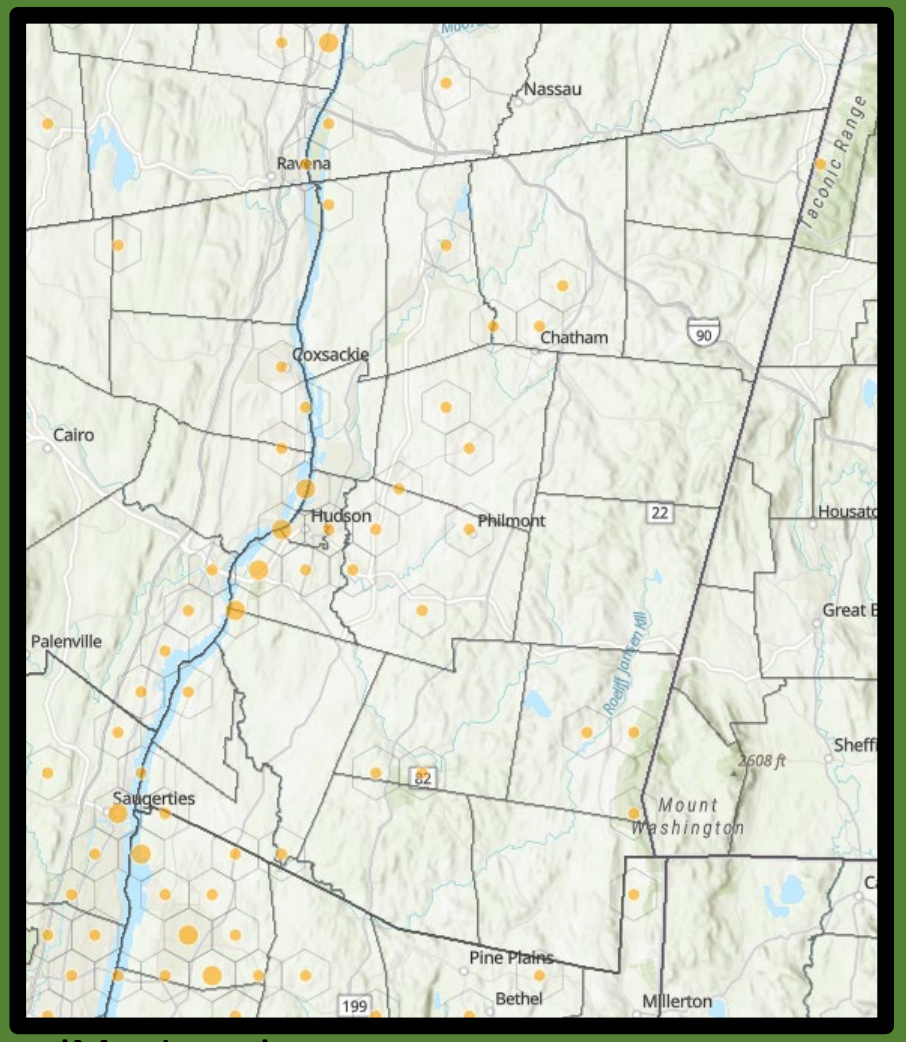
Species Highlights- Tree-Of-Heaven, *Ailanthus, altissima*

Plant

Leaves

Flowers

Bark



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Species Highlights- Autumn Olive, *Elaeagnus umbellata*

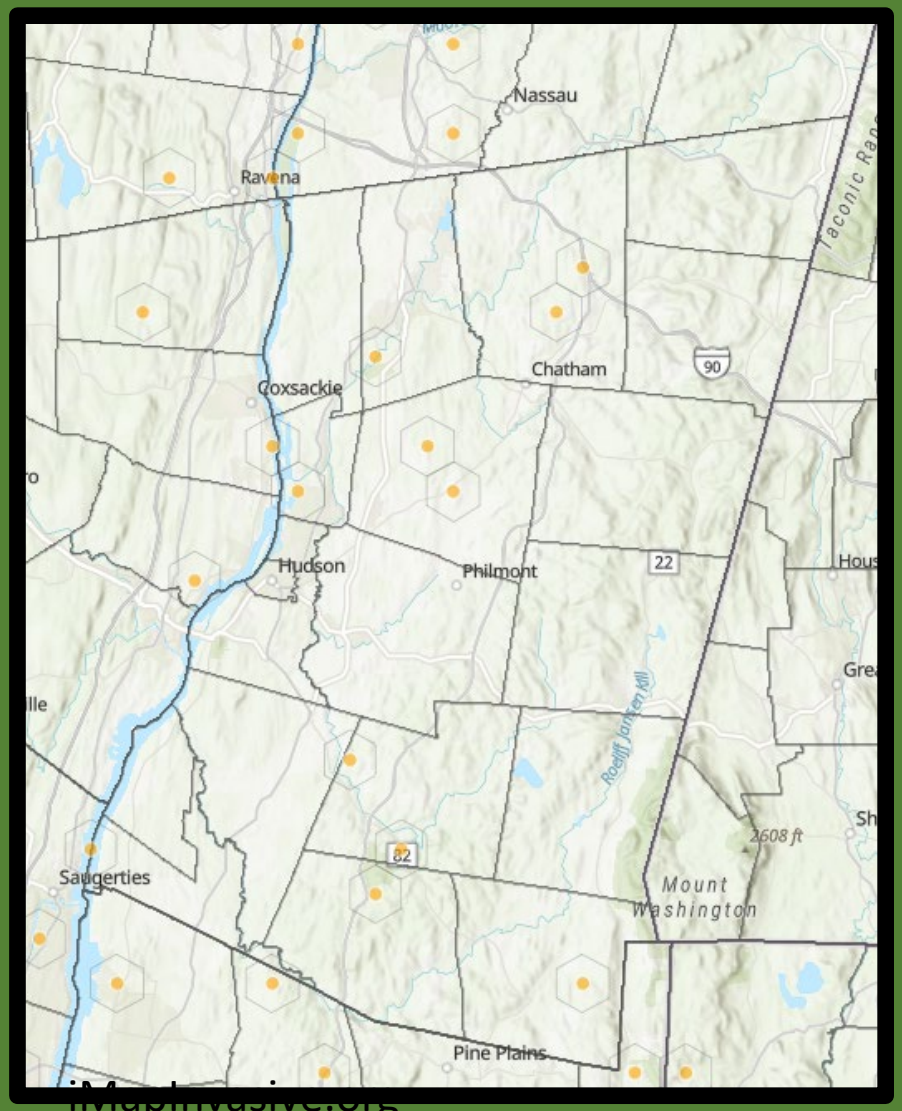
Plant

Richard Gardner, Bugwood.org

Leaves

Flowers

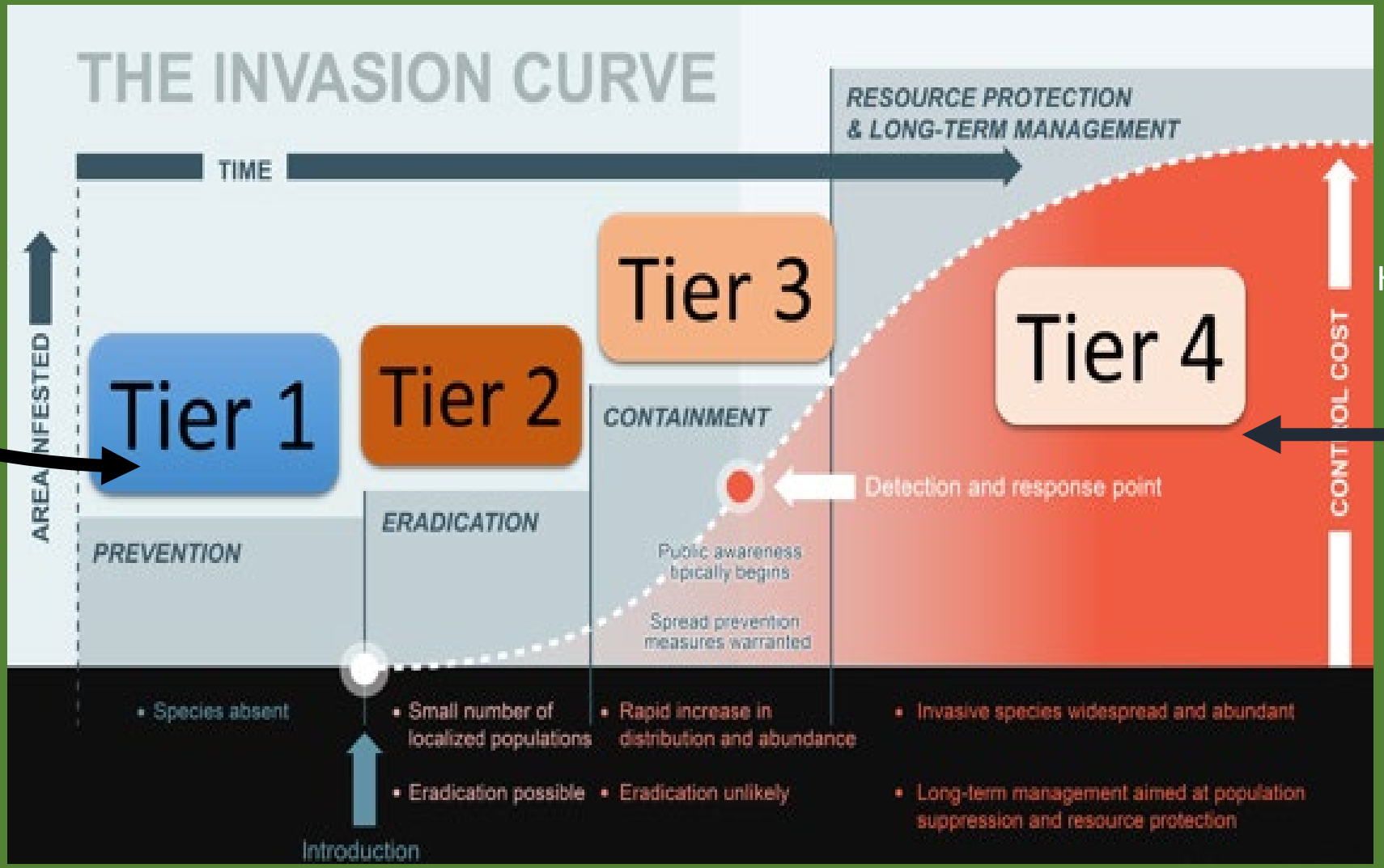
Berries



Species Highlights-Insects

Tier 1

Spotted Lanternfly



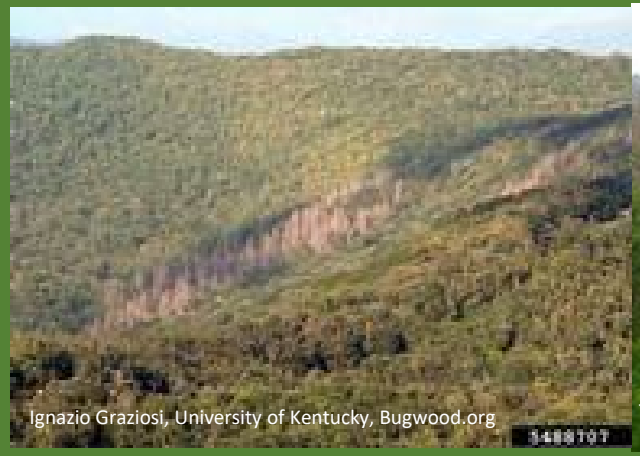
Tier 4

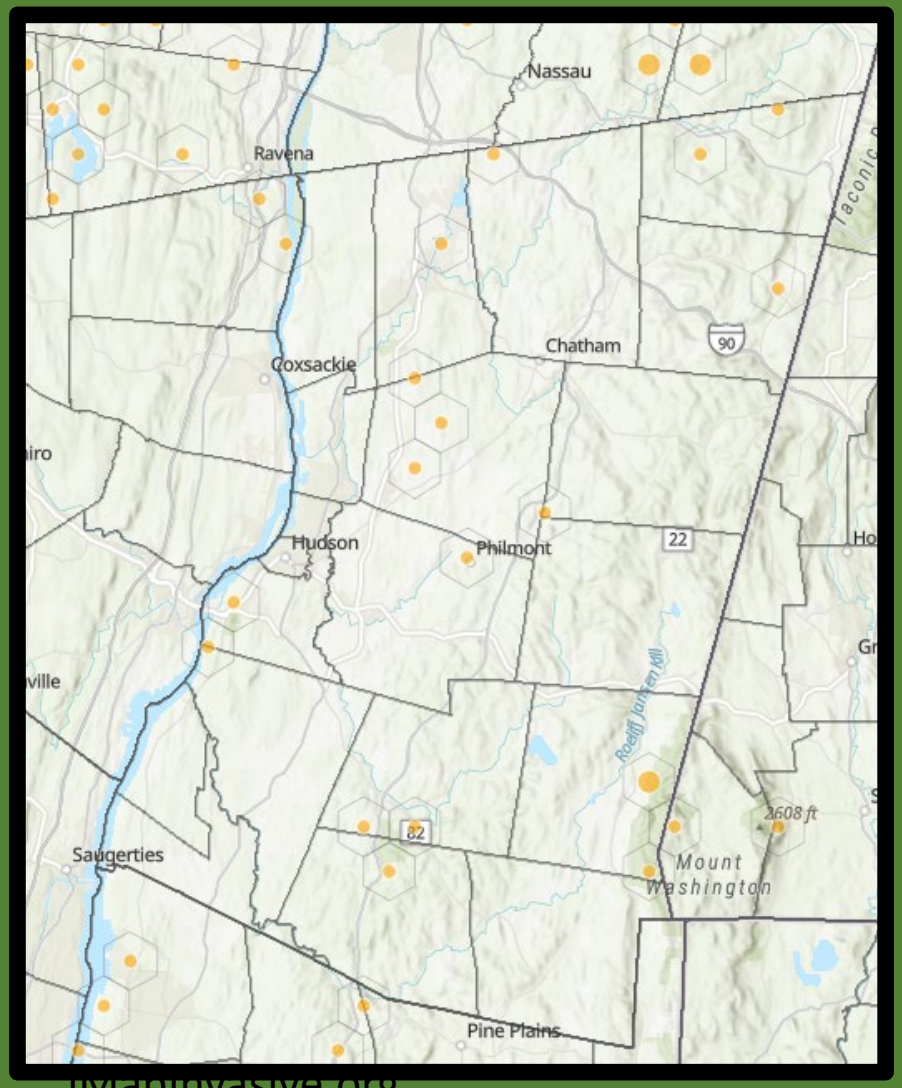
Emerald Ash Borer
Hemlock Woolly Adelgid
Spongy Moth
Jumping Worm

Species Highlights- Hemlock Woolly Adelgid, *Adelges tsugae*

Woolly Masses

Insect





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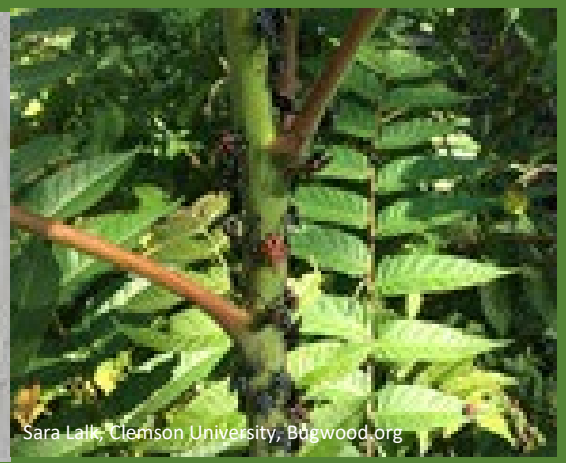
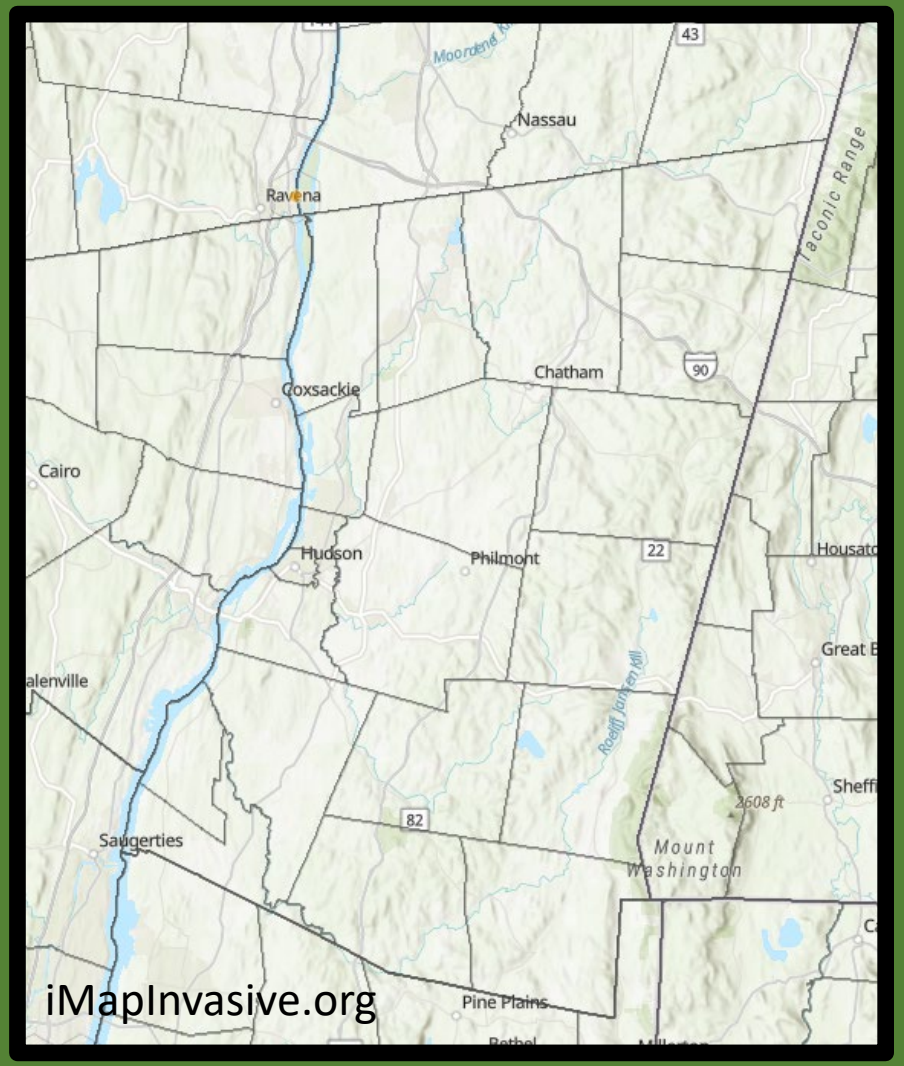
Species Highlights- Spotted Lanternfly, *Lycorma delicatula*

Adults

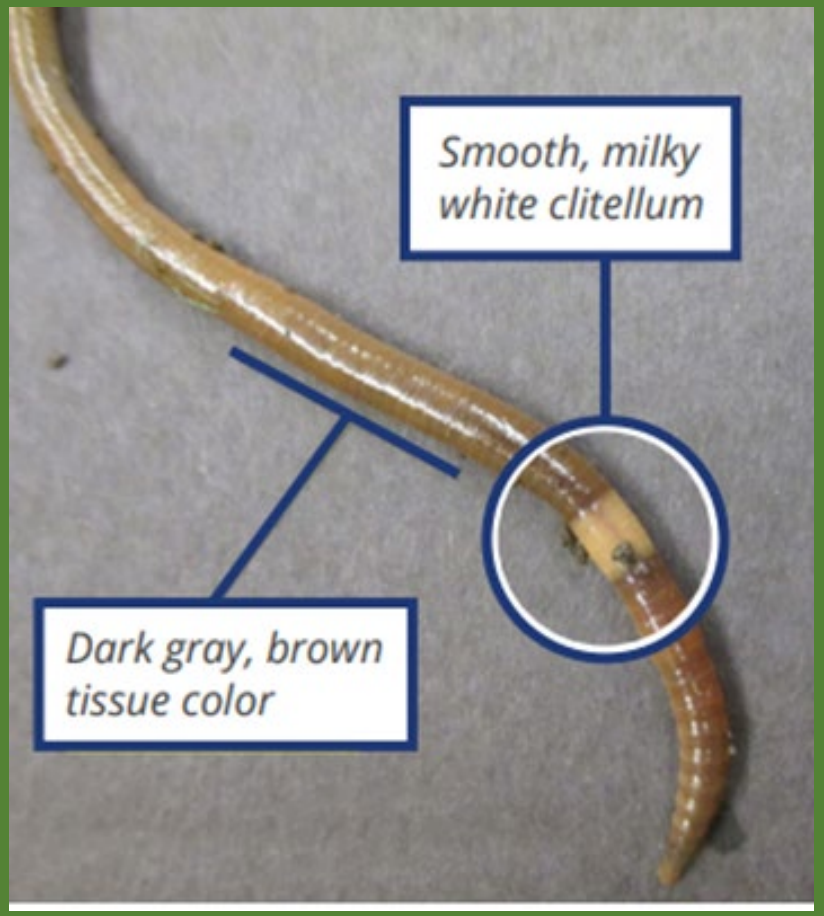
Nymphs

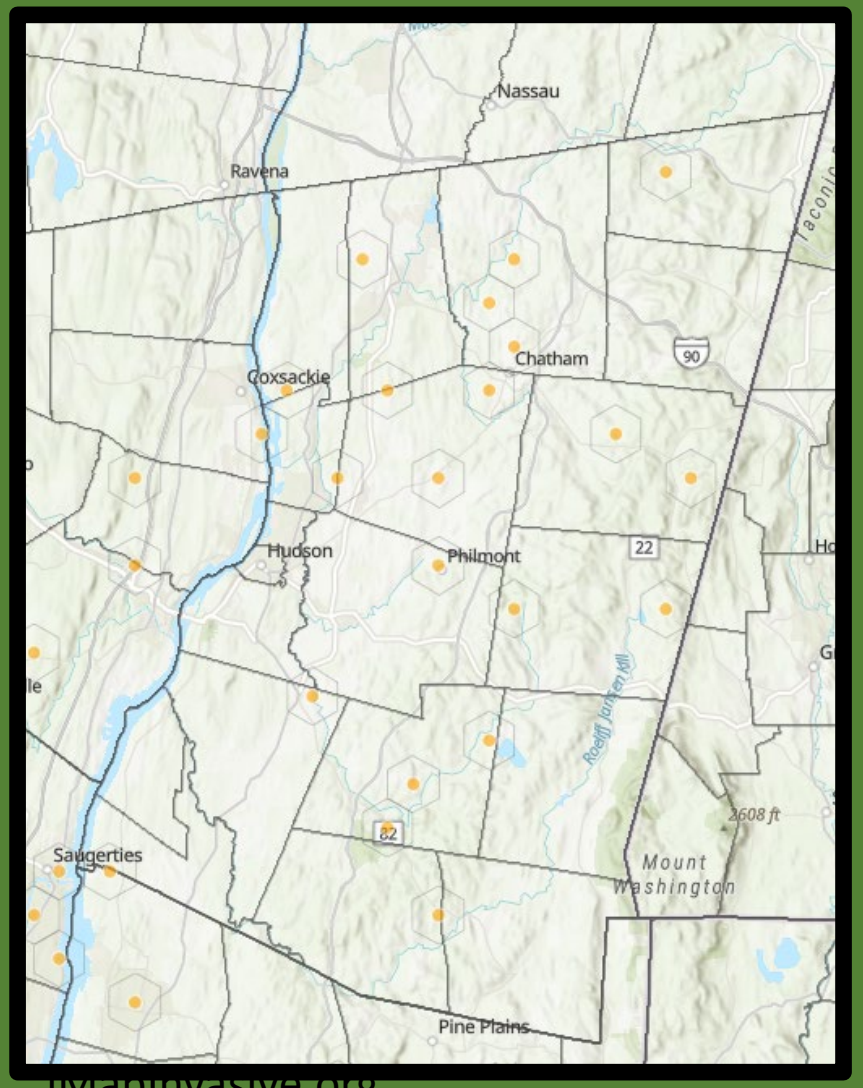


Egg Masses



Species Highlights- Jumping Worm, *Amynthas or Metaphire sp.*





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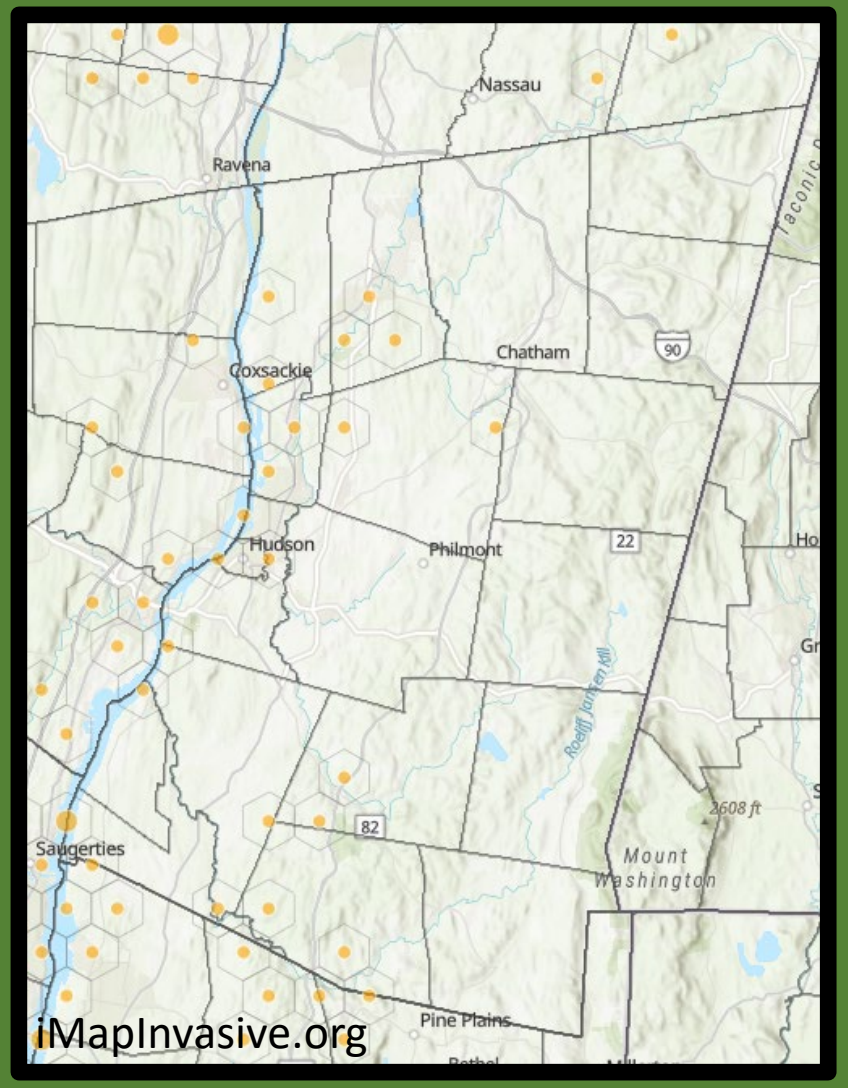
Species Highlights- Emerald Ash Borer, *Agrilus planipennis*

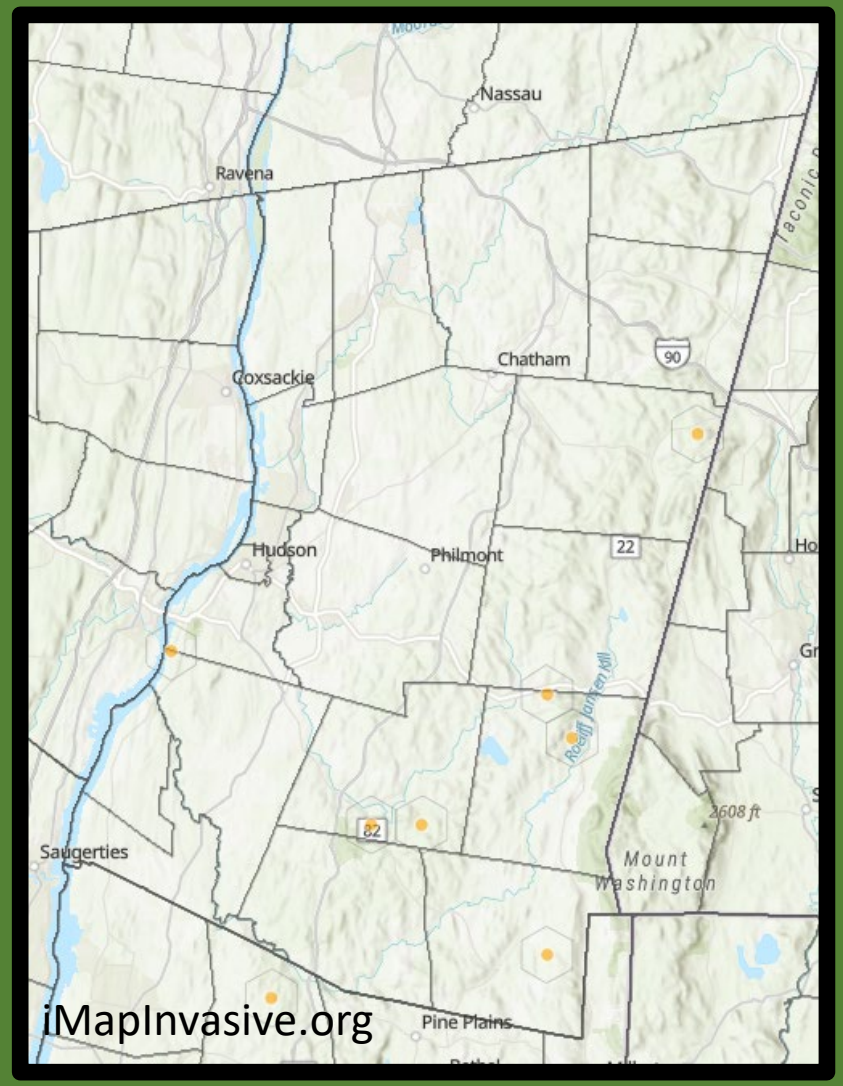
Insect



Species Highlights- Spongy Moth, *Lymantra dispar*

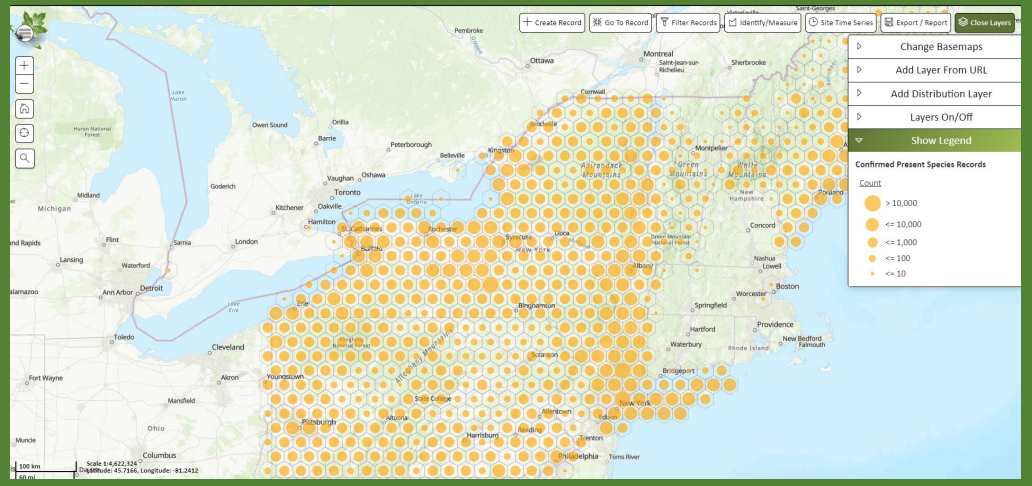
Caterpillar

Adult

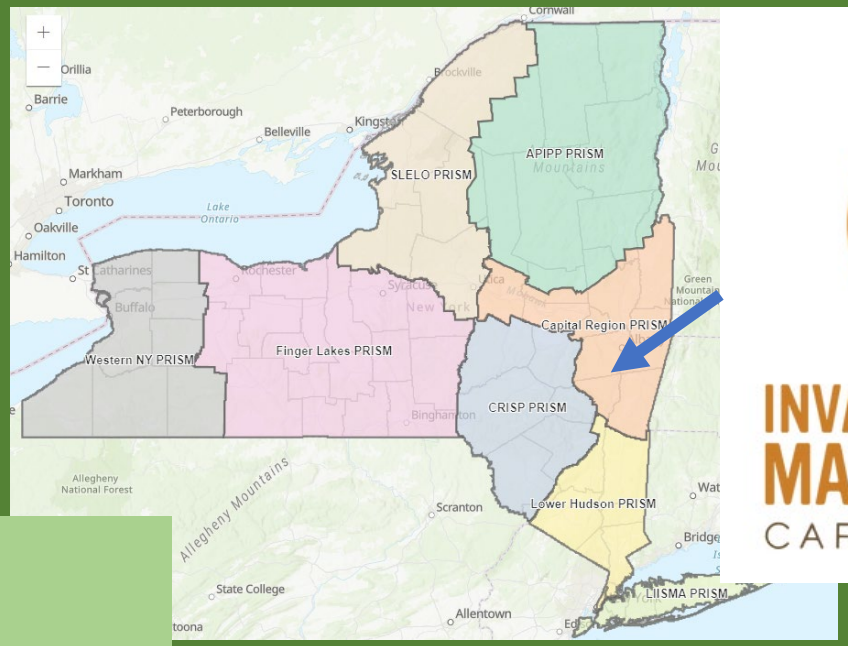


Where do I start?

Join the iMapInvasives network!



Connect with the PRISM !



INVASIVE SPECIES MANAGEMENT
CAPITAL REGION

Questions?
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