

Treating Hemlock Woolly Adelgid in Vermont

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Choosing the data set

Data.gov → Vermont Center for Geographic Information (VCGI)

Invasive Species in Vermont (2007-2023)

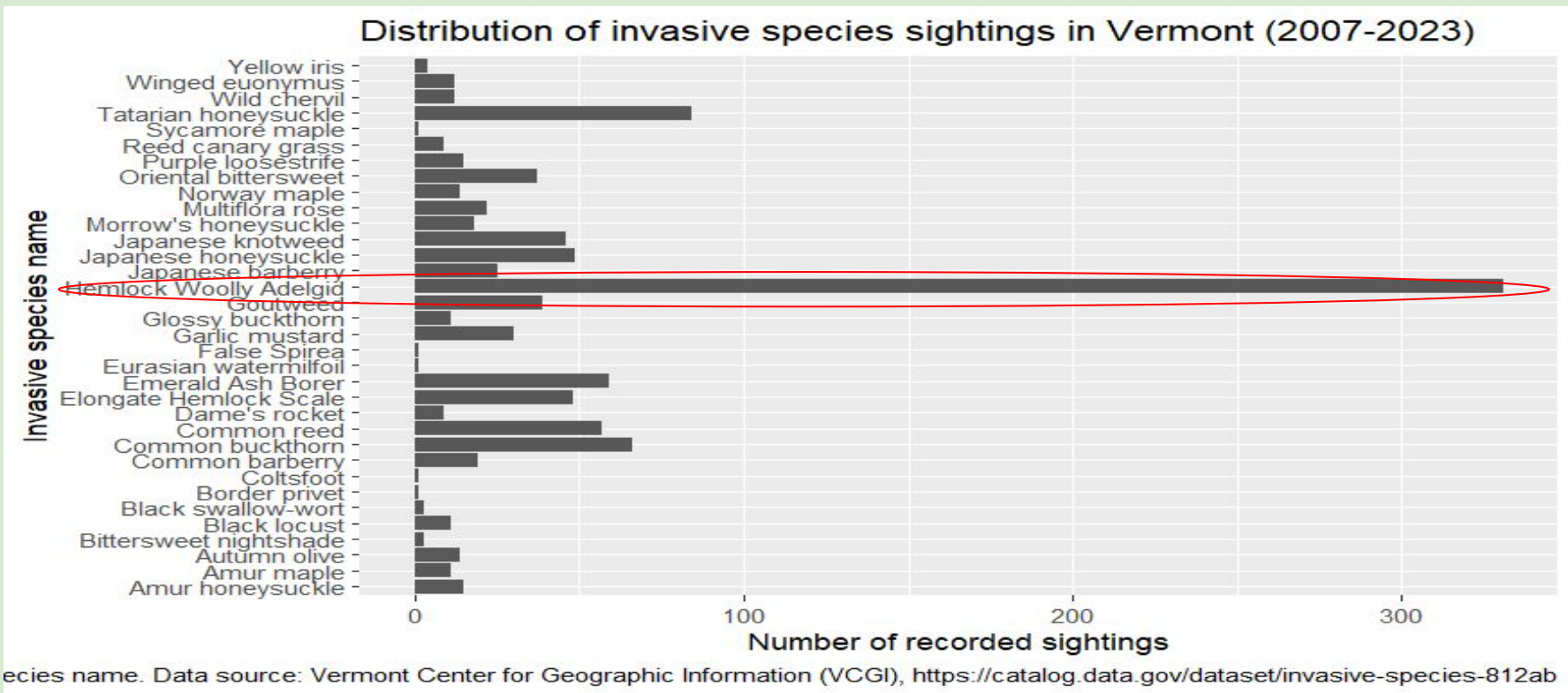
- Layer of Vermont Agency of Natural Resources dataset
- <https://catalog.data.gov/dataset/invasive-species-812ab>



Motivations

- Ecological impact
- Governmental response across time and space
- Tracking waves of invasive species

Early findings



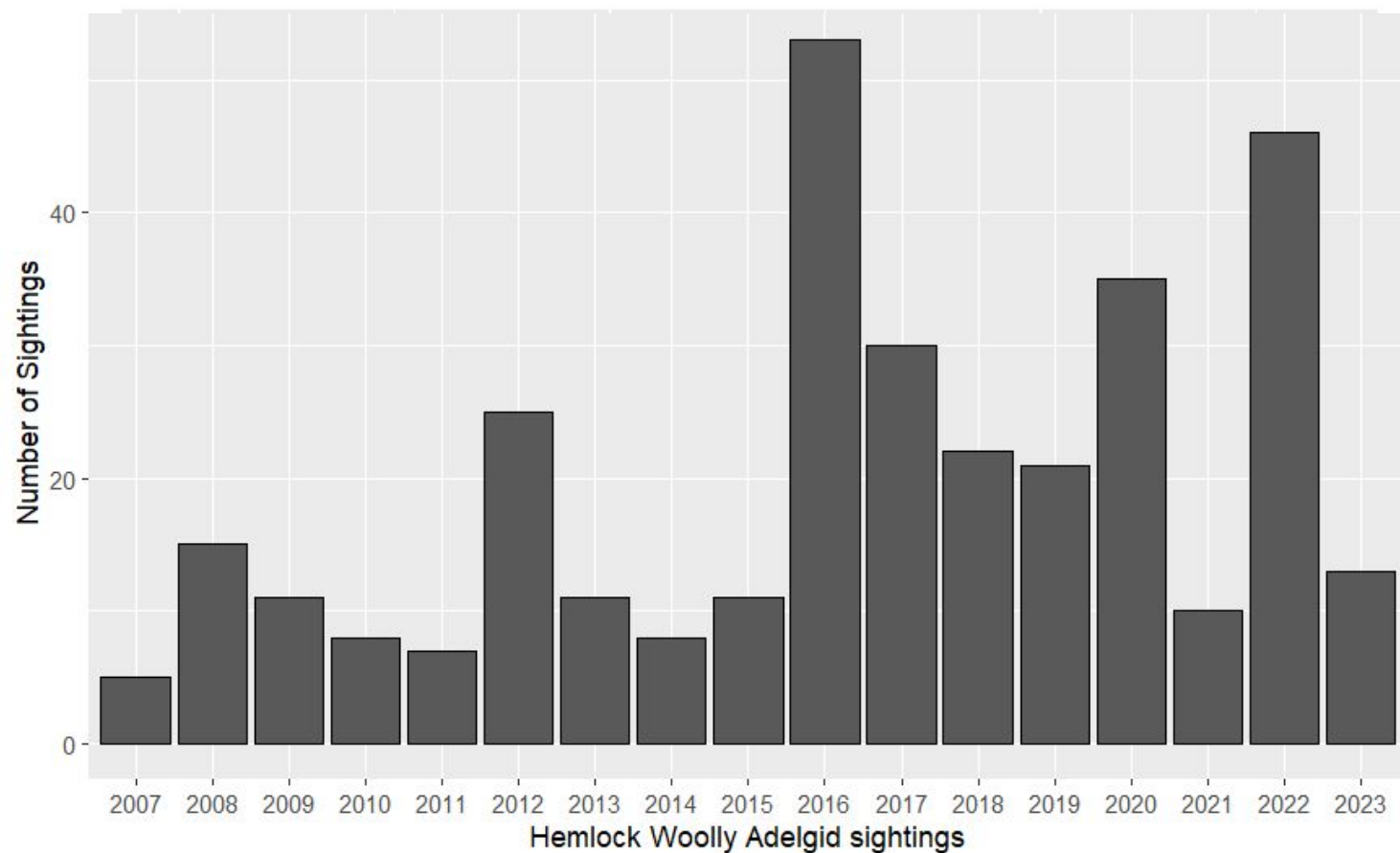
What is HWA?

- Small, aphid-like insect
- Native to East Asia
- Feeds on Hemlock trees
 - Sucking sap from branches
 - In this case, Eastern Hemlock
- First introduced to United States in 1920s
 - Accidentally arrived from Japan
- First eastern US sighting: Virginia, 1951



<https://dec.ny.gov/nature/animals-fish-plants/insects-and-other-species/hemlock-woolly-adelgid>

Hemlock Woolly Adelgid Sightings in Vermont from 2007-2023



Why are Hemlock trees important?

Eastern Hemlock plays a crucial role in Vermont's ecosystem, by...

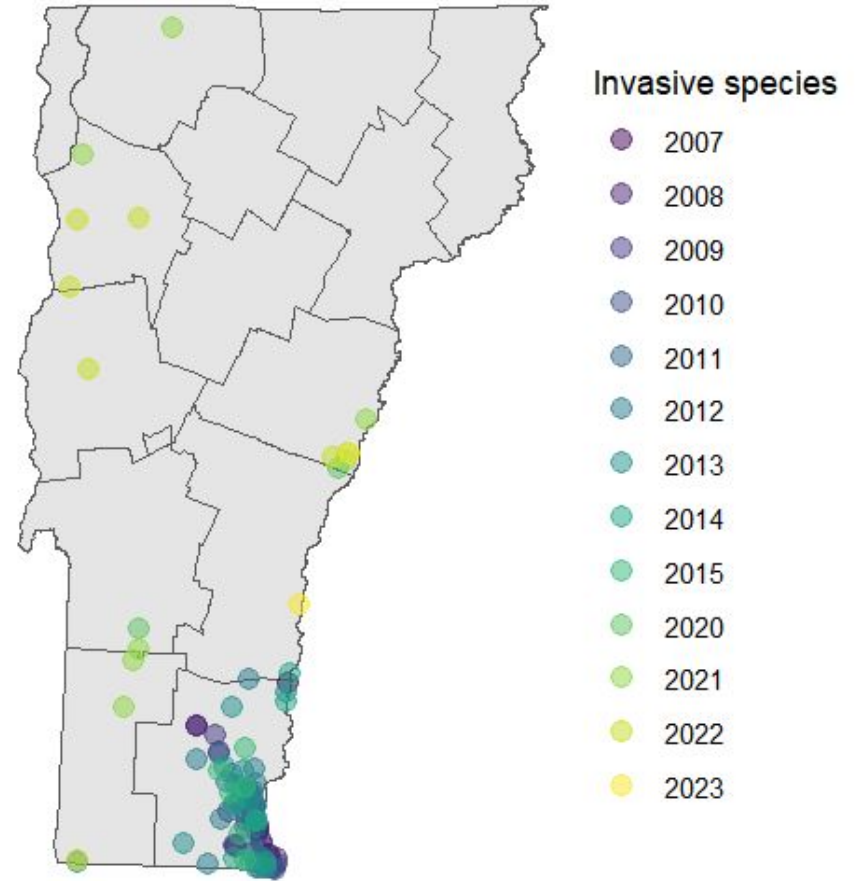
- Regulating ground temperatures
- Providing habitats for a variety of species
 - Lichens on forest floor
 - Warblers, owls, and other birds in canopy
- Acting as a year-round source of nutrition for deer and other herbivores
 - Needles contain nutrients



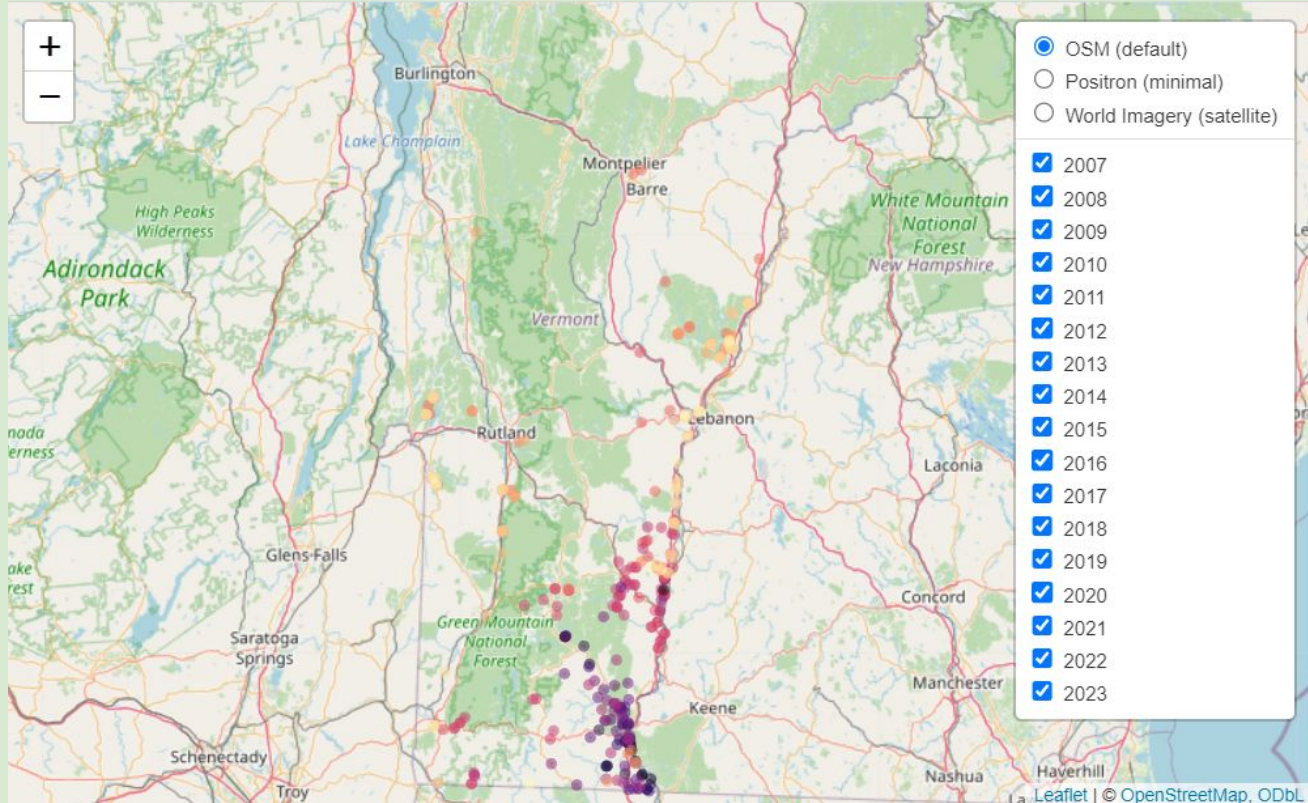
Mapping HWA

- Most sightings concentrated in Southeastern Vermont
- Likely spread from northern Massachusetts
- Recent movement to other parts of the state

Hemlock Woolly Adelgid sightings in Vermont

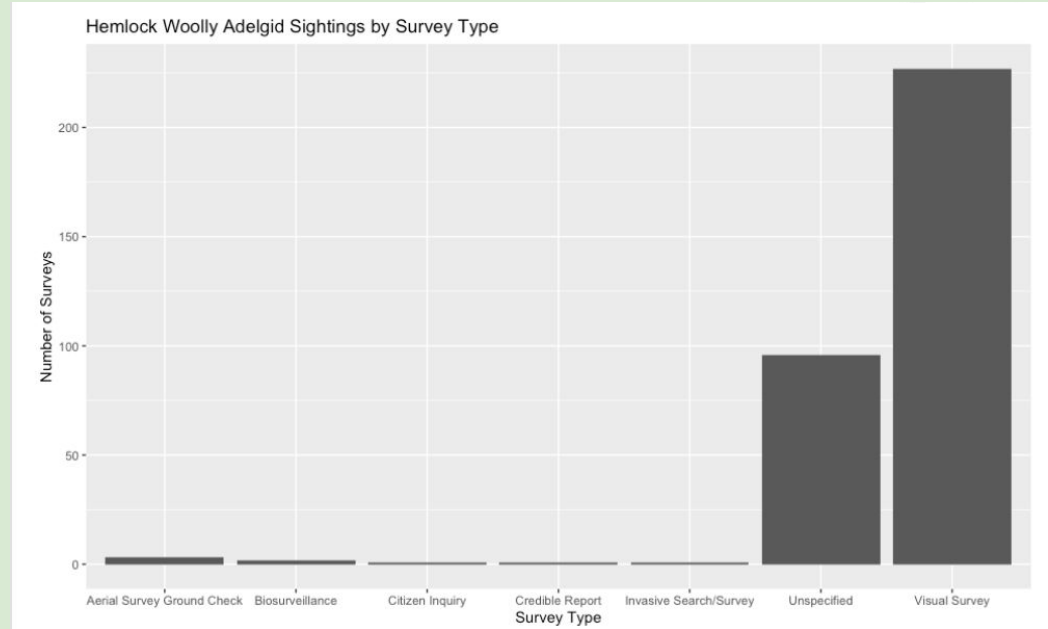


Interactive Map



How should we find HWA?

- Visual survey and Aerial Survey seem most effective
- Data limitations mean we don't know success rate
- Visual survey is still overwhelmingly effective



How should we treat HWA?

- Insecticides (including trunk injection)
 - This is recommended mostly for recreational forested areas rather than widespread use due to cost and maintenance.
- Removing infested trees
- Covering infested trees (in warm weather)
- Harvesting from trees between August and March when HWA is immobile
- Theme seems to be that slowing the spread is better than saving already infested trees