



Cleveland Metroparks

FIND YOUR PATH

Hemlock Conservation at Cleveland Metroparks

January 19, 2023

Josh Philipps– Natural Resources

Importance of Eastern Hemlock at Cleveland Metroparks

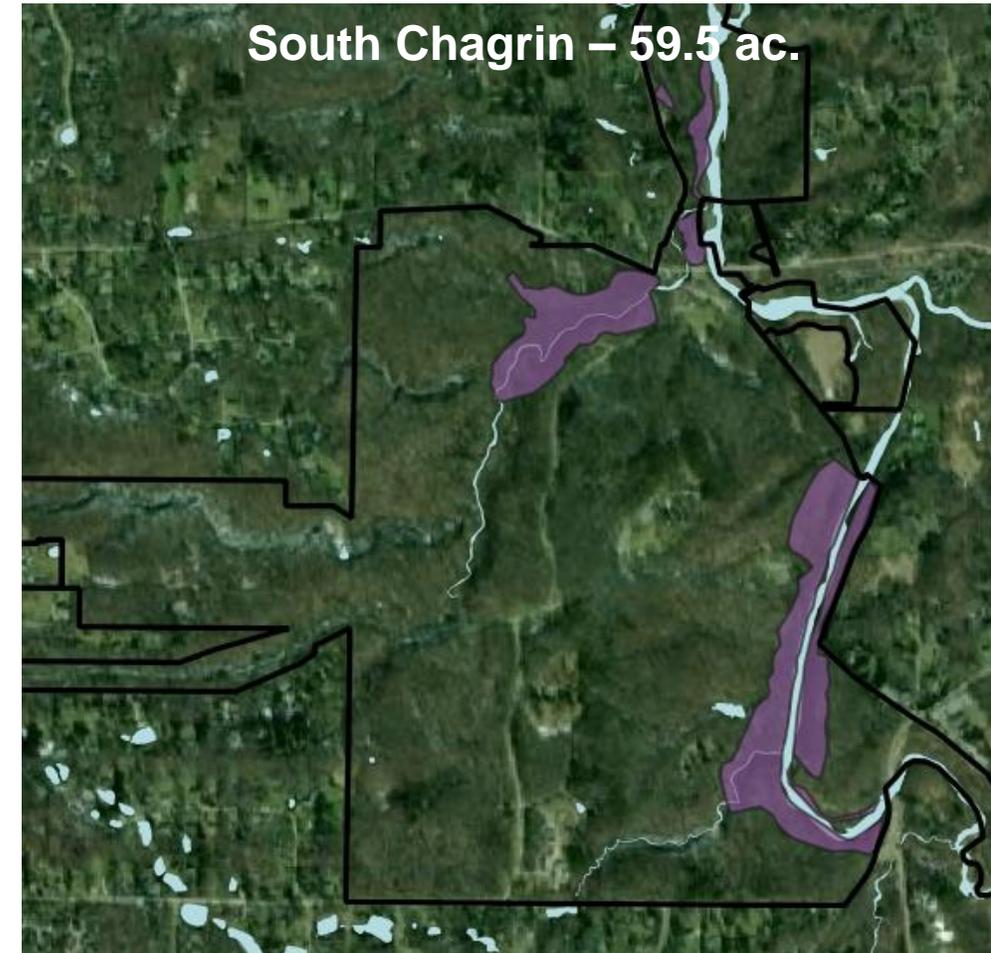
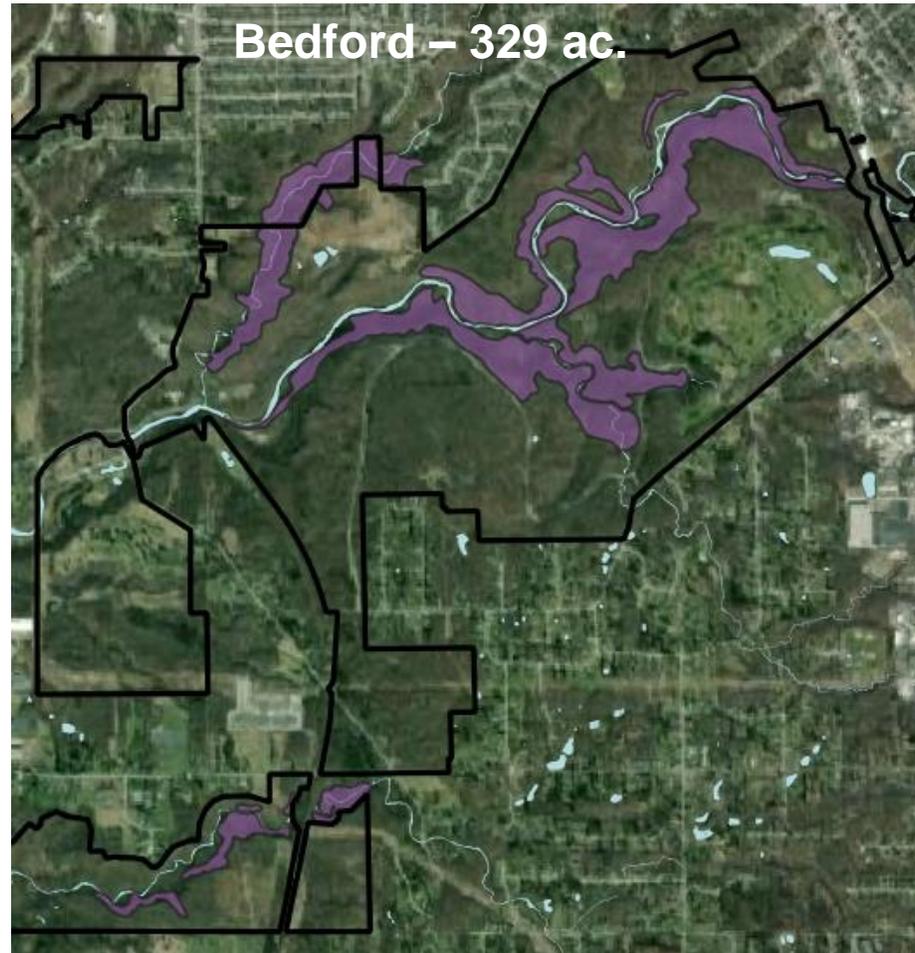
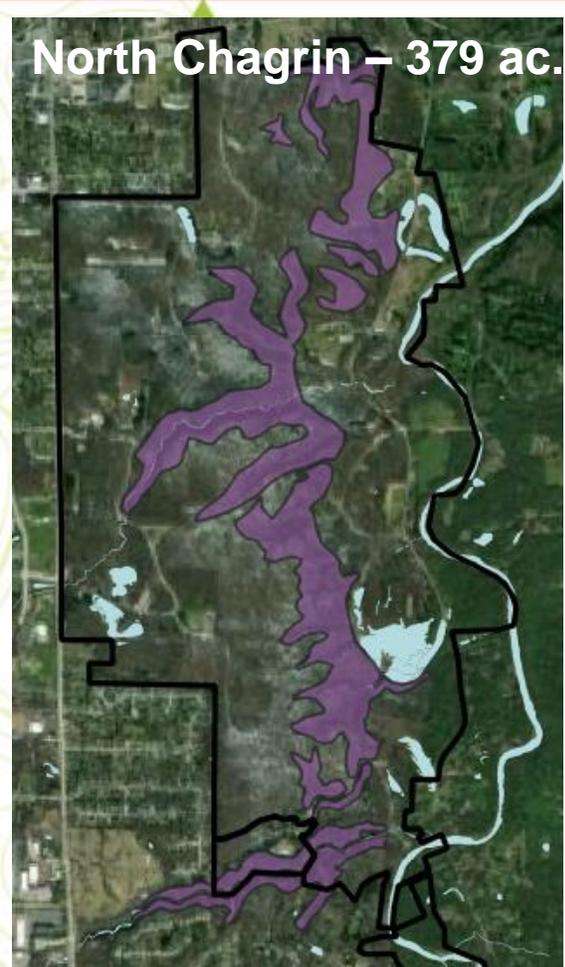
(*Tsuga canadensis*)

Keystone Species

Edge of natural range



Hemlock extent



Also at Euclid Creek, Brecksville and sporadically elsewhere-Not included in this presentation

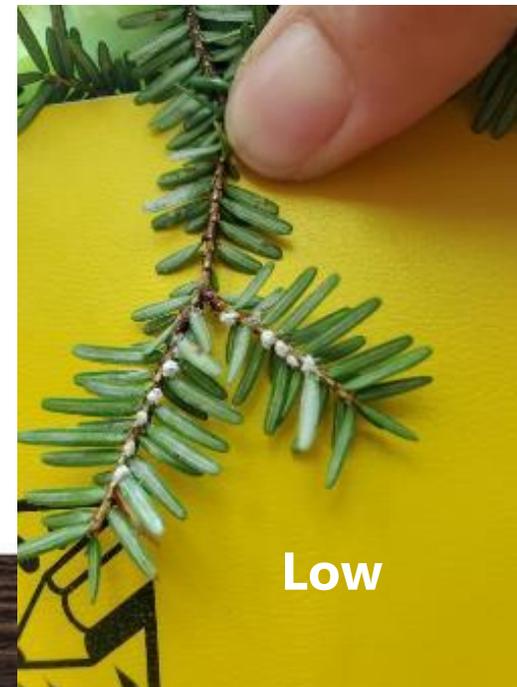
Threats to Hemlock

Elongate Hemlock Scale (EHS)

- Native to Japan
- Can kill tree 4-10 years, sooner with other stressors
- First detected in 2018 in North Chagrin

Hemlock Woolly Adelgid (HWA)

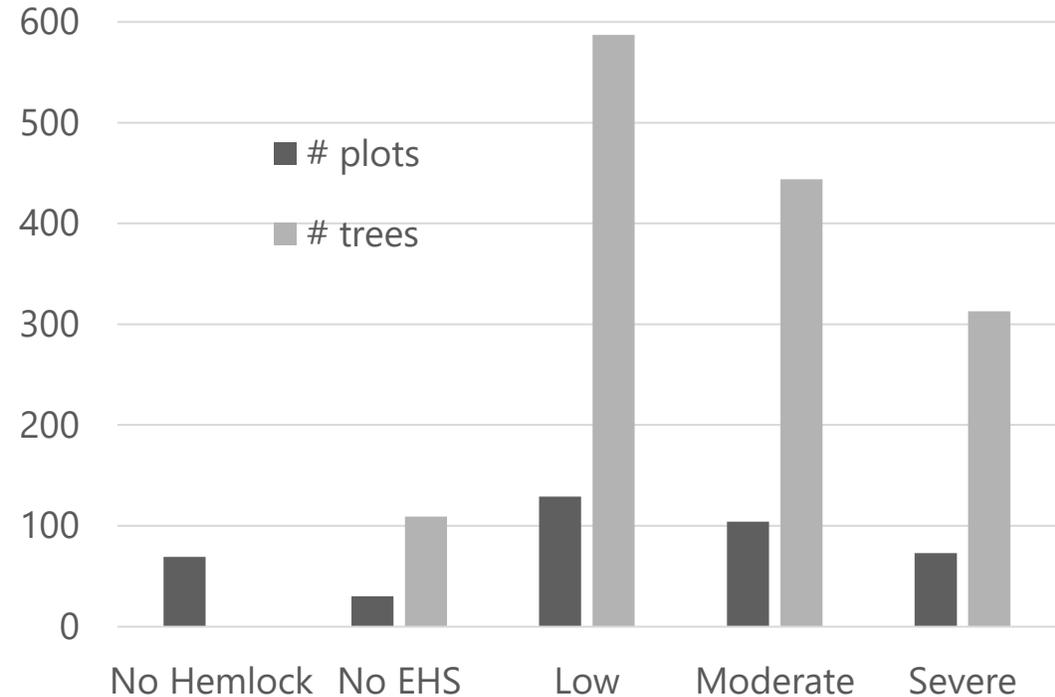
- Native to Asia and Western North America
- Can kill tree 4-15 years, sooner with other stressors
- First detected in 2022 in North Chagrin



Our response to these threats-Survey/Inventory Efforts

- Volunteer surveys started in 2015 park district wide
- Staff & volunteer survey/inventory 2020-2021 focusing on eastern Reservations

North Chagrin Inventories 2020-21



*note that 2020-21 % is inflated because inventories only counted # of trees surveyed and worst severity of plot

Bedford Reservation Hemlock monitoring 2017-2022

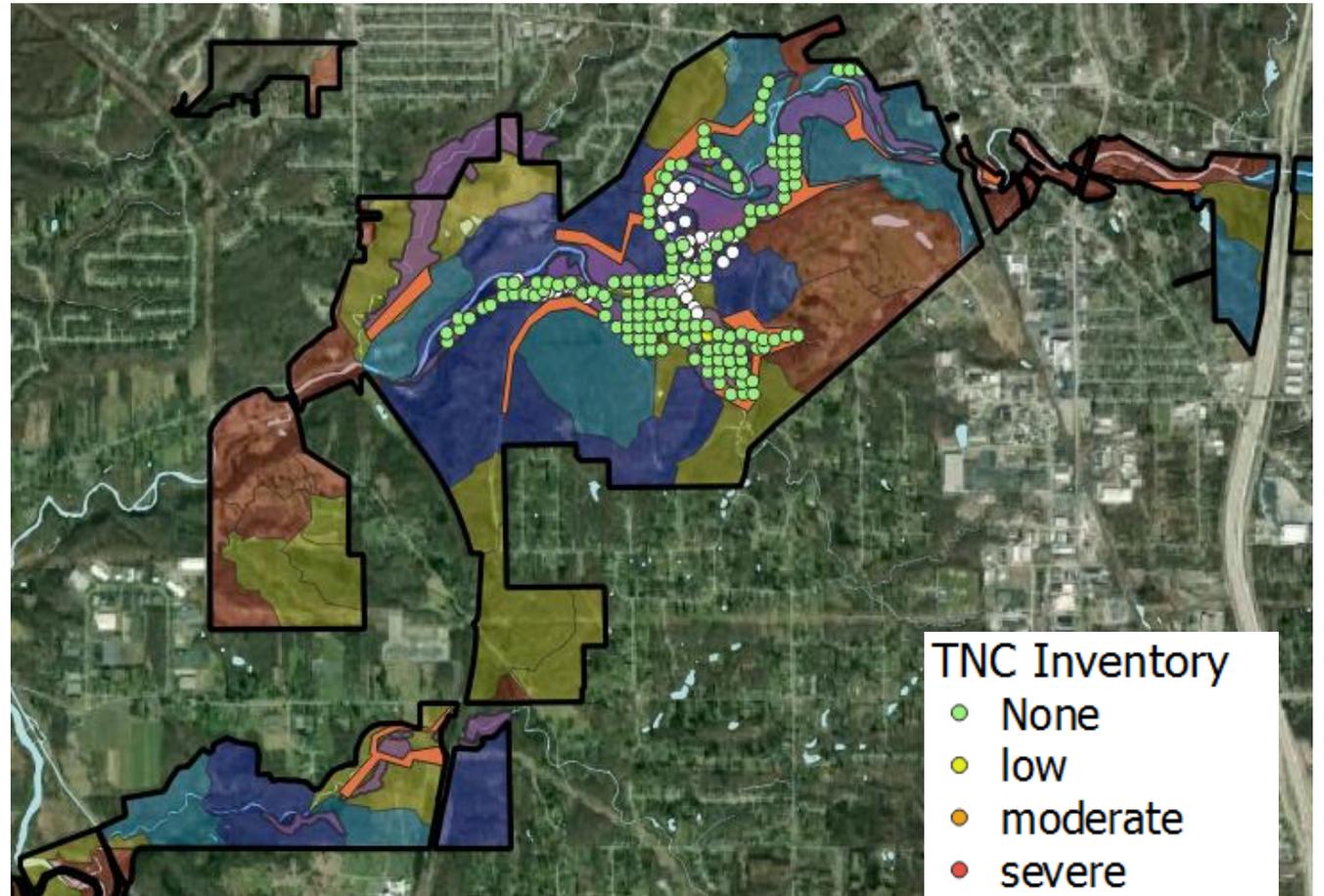
Volunteer/Staff Surveys 2022

- 12 surveys
- 335 trees surveyed
- 32 trees with EHS (majority low)

Percent of Trees with EHS

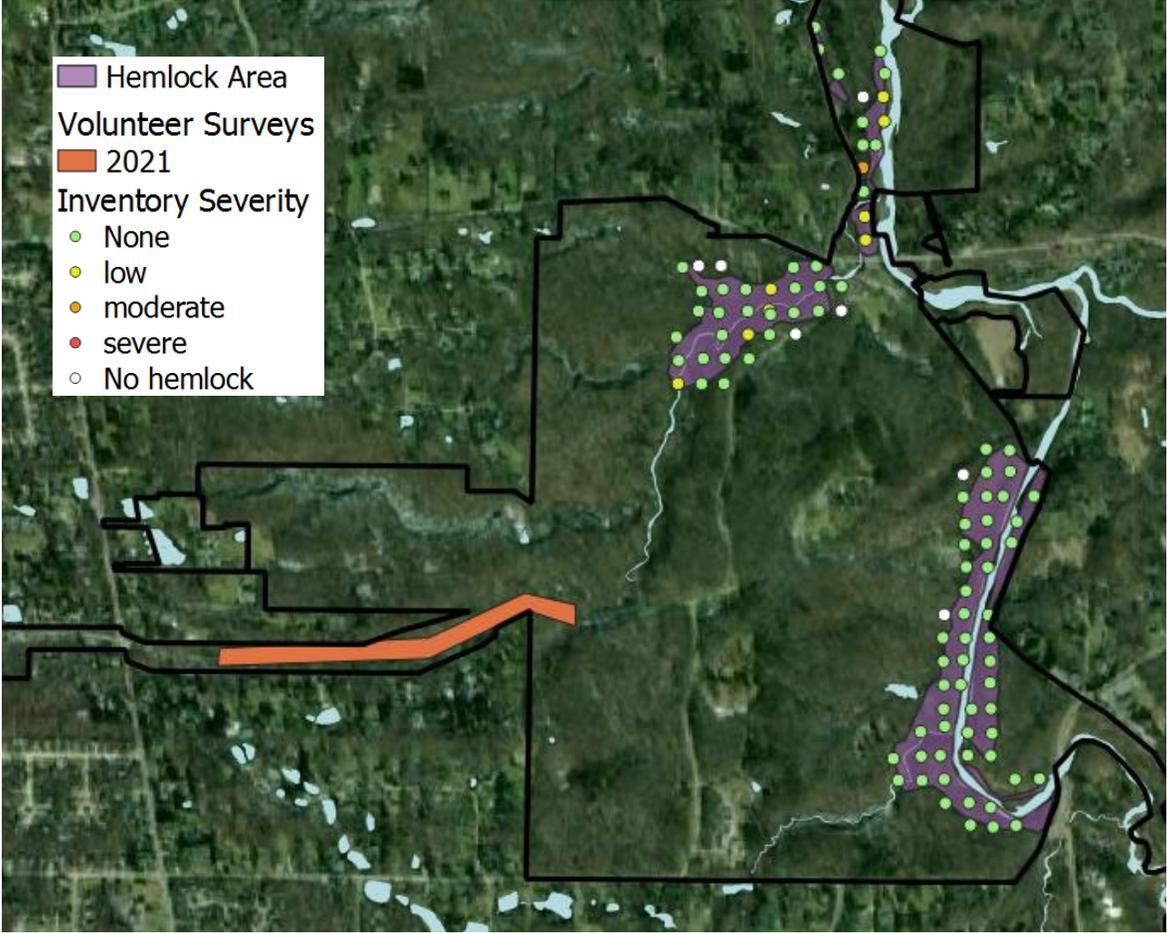
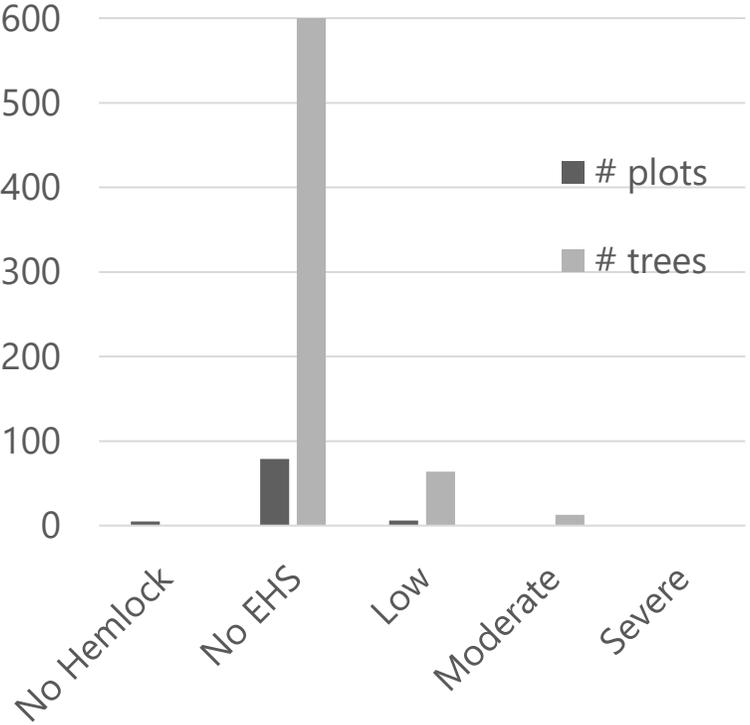
2017	2%* (not verified)
2019	0%
2020	1% Initial detection
2021	1%
2022	9%

Bedford Inventory 2021: 140 acres



Inventory results at South Chagrin

South Chagrin Inventory 2020-2021

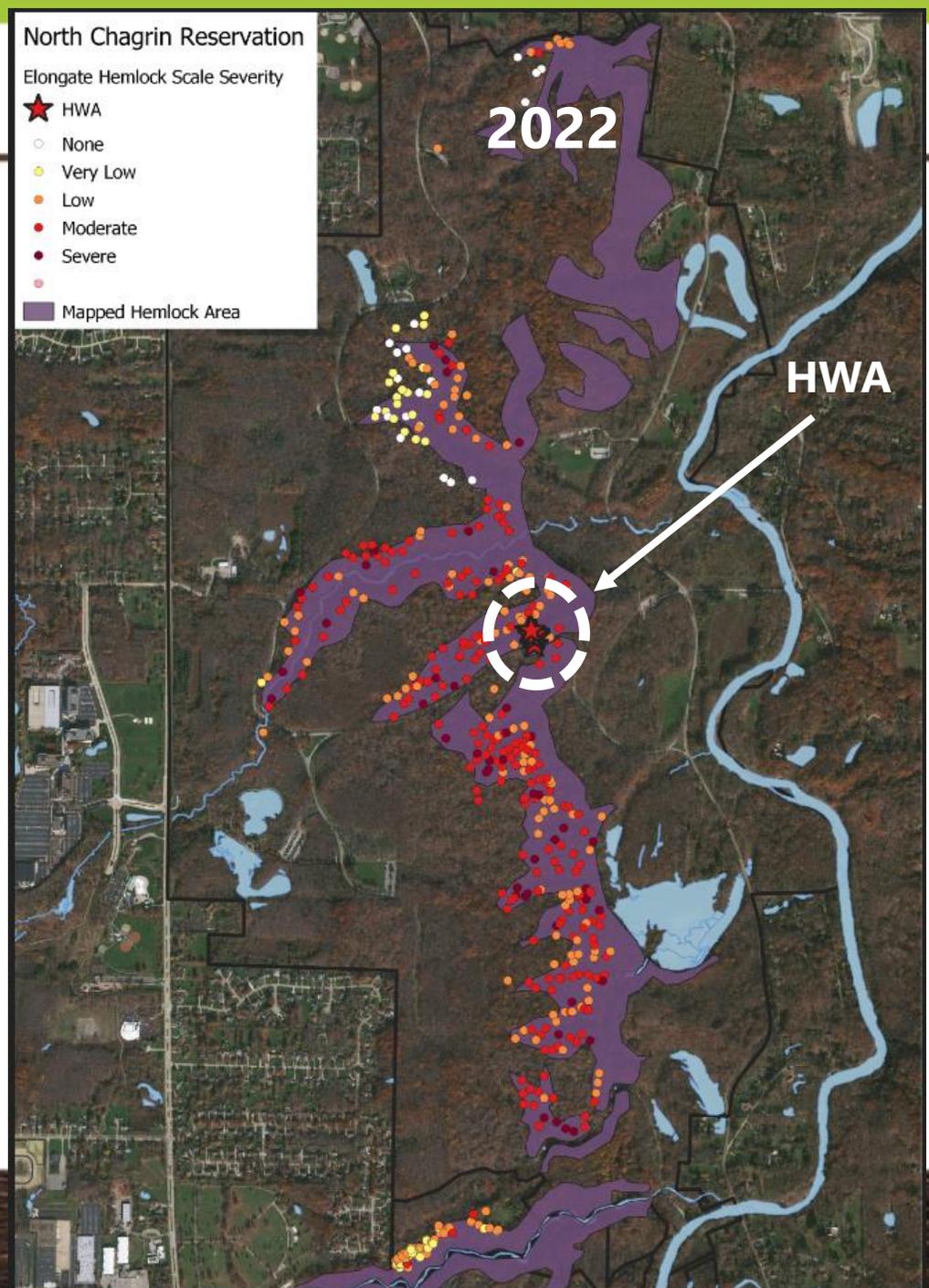


Our response to these threats- Survey/Inventory Efforts

North Chagrin Reservation

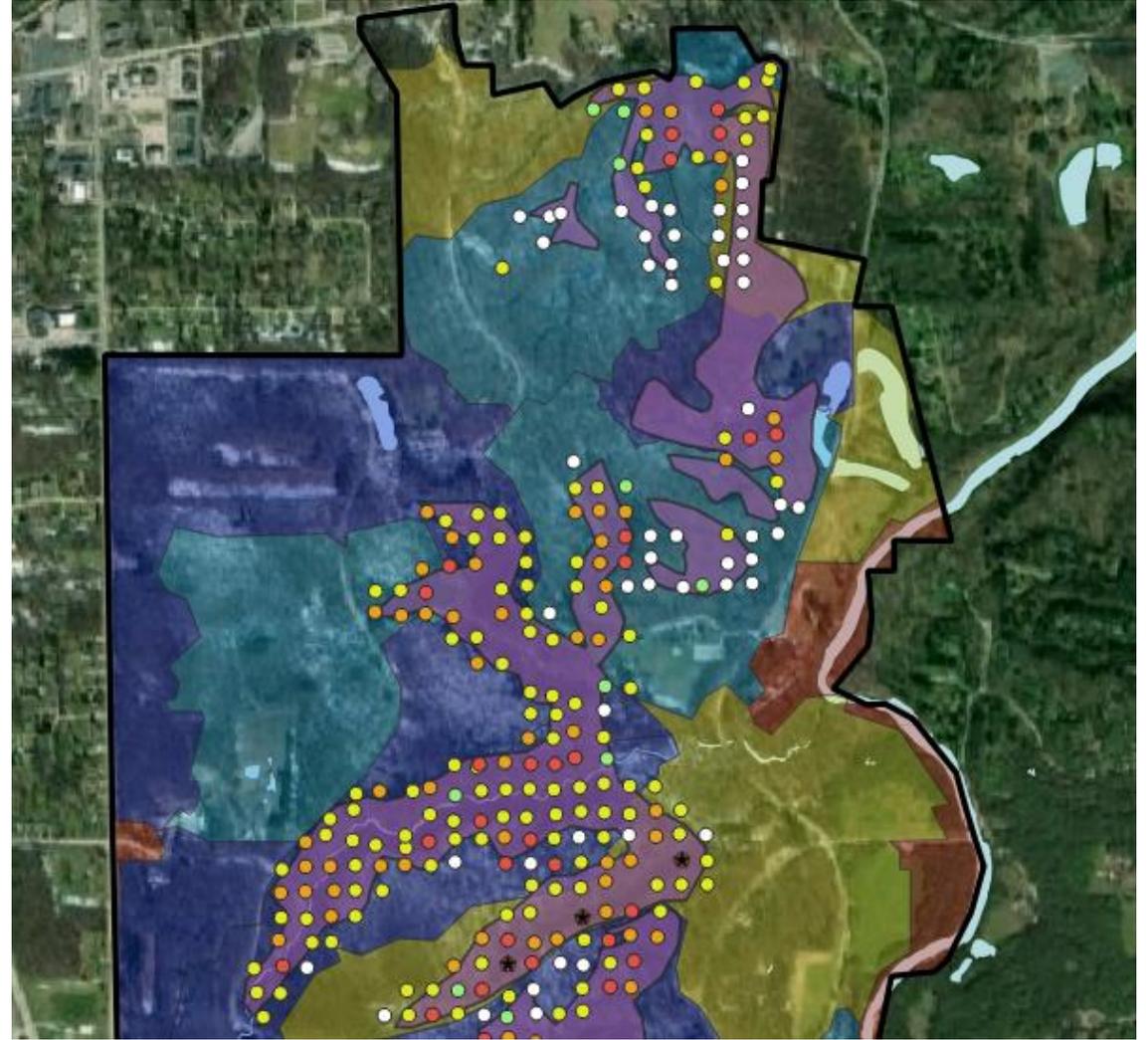
Elongate Hemlock Scale Severity

- ★ HWA
- None
- Very Low
- Low
- Moderate
- Severe
- Severe
- Mapped Hemlock Area



Hemlock Stand Management

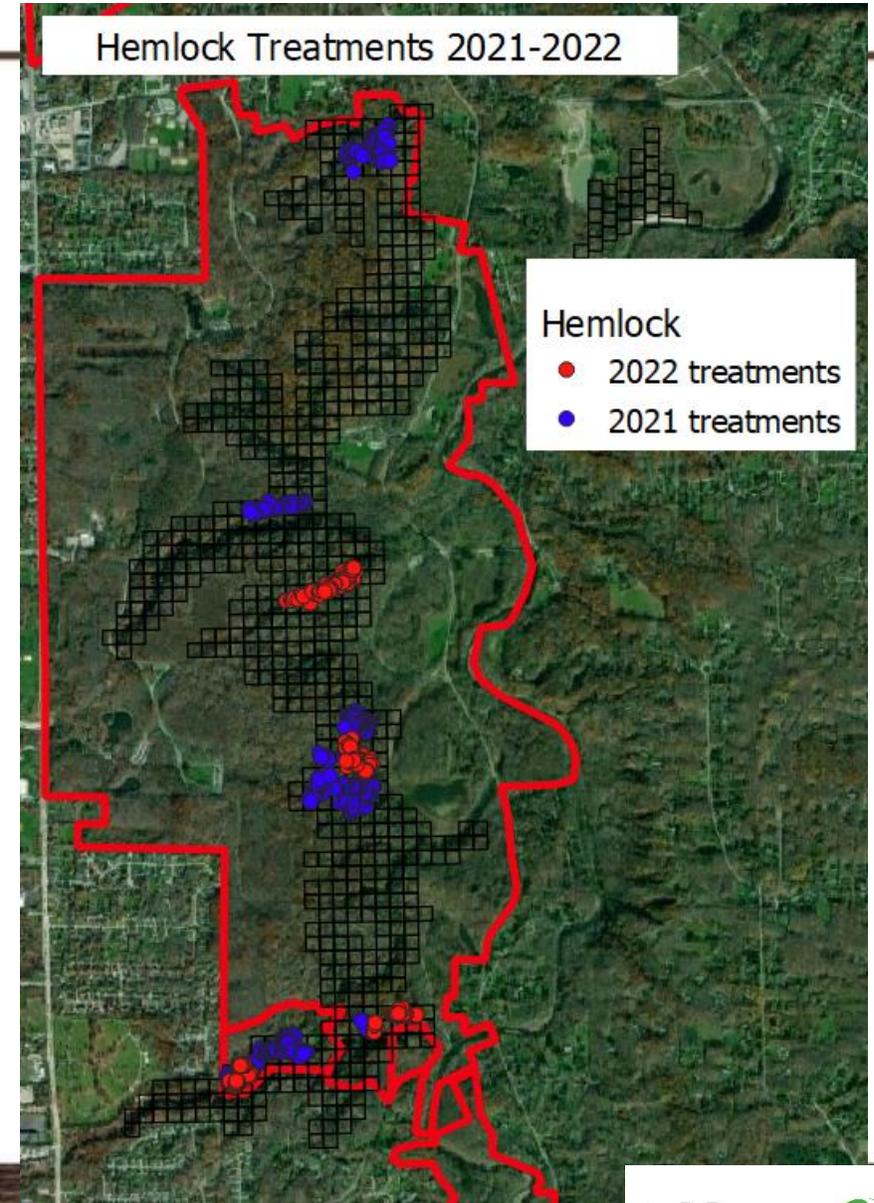
- **Priority Stand Identification:**
 - Natural Resource Value Index overlay to identify high quality areas
- **Strategic Opportunity for Treatment:**
 - Partnership with TNC - leveraged grant funding to facilitate treating priority zones.
- Effectiveness Monitoring: (2022)
- Seed Collection: (2021, 2022)
 - Cones and seed were collected and submitted to the National Seed Lab



Partnership with TNC

403 trees treated in 2021

237 trees treated in 2022

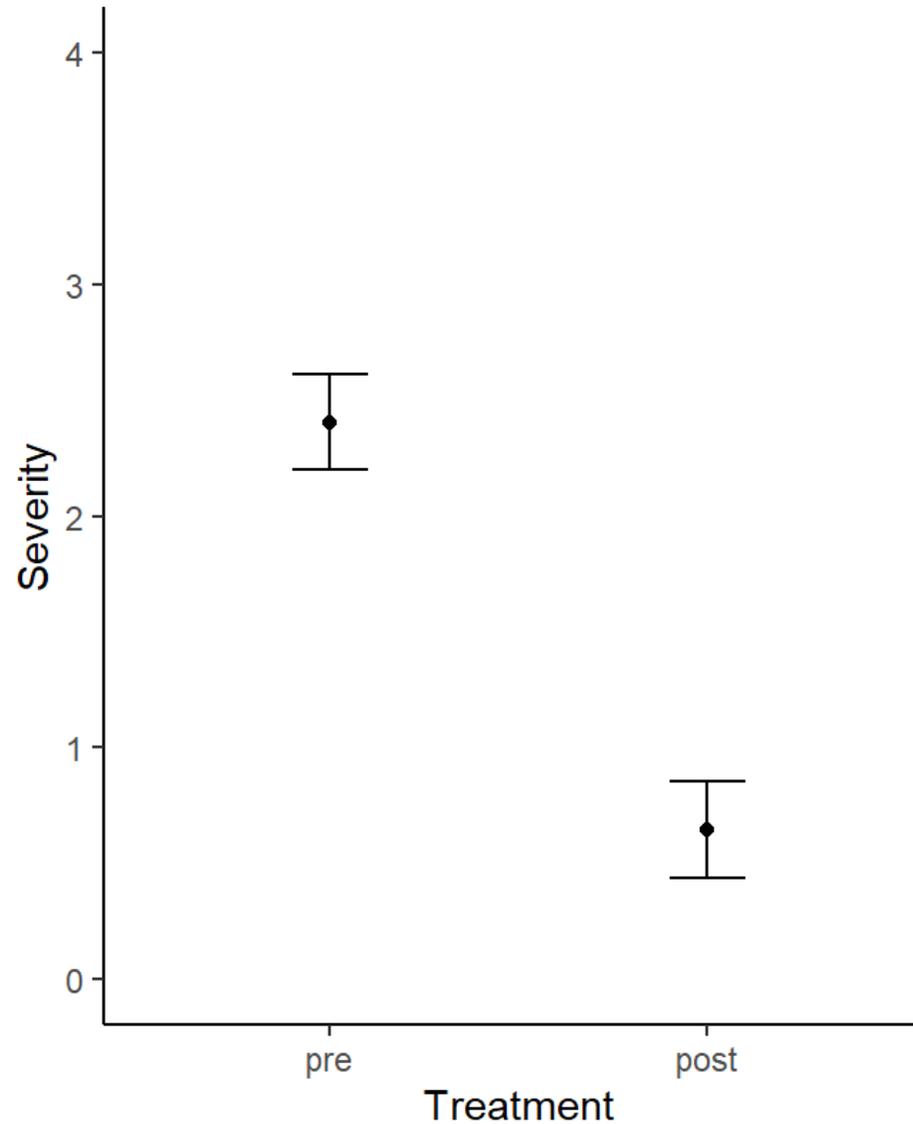


Treatment Effectiveness Monitoring:

Hemlock tree with severe EHS infestation prior to treatment

New growth – NO EHS detected!

Pre- vs Post-Treatment EHS Severity



Same segment of new growth