Saving New York's Hemlocks

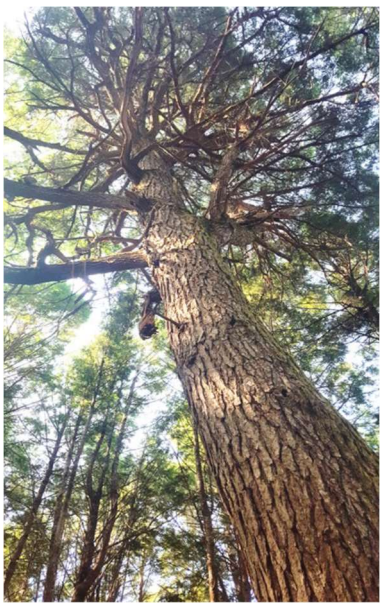
conserve New York's hemlock forests threatened by the hemlock woolly adelgid (HWA).

NYSHI Hemlock Conservation Efforts

New York's eastern hemlock (*Tsuga canadensis*) trees are threatened by the continued spread of the hemlock woolly adelgid (*Adelges tsugae,* HWA), an invasive insect that has caused widespread hemlock mortality along the east coast of North America. HWA has been present in New York since the 1980s and reached northward to the southern Adirondacks in the summer of 2017.

NYSHI accomplishes its mission by:

- Conducting and disseminating research on HWA and predator insects to implement long-term management of HWA with biological control;
- Collaborating with New York state agencies and partners to investigate and implement HWA management strategies, notably in the coordinated response to the recent Lake George HWA infestation;
- Collaborating with statewide partners to increase public awareness of HWA and train volunteers to support HWA projects;
- Developing HWA integrated pest management strategies to support conservation efforts of public and private organizations.



Our Biocontrol Lab

The goal of the Hemlock Woolly Adelgid Biocontrol Research Laboratory is long-term management of HWA populations through integrated pest management. Located at Cornell University, we research methods for growing HWA predators for biological control research. We are currently working with four promising predators: the beetles *Laricobius nigrinus* and *L. osakensis*, and two species of *Leucotaraxis* silver flies. Moreover, we are developing cutting edge environmental DNA technology to detect HWA in leading edge forests, and to determine establishment and spread of predators released for biological control.

Key Accomplishments

- ✓ Since 2017 we have released **46,032** *Leucotaraxis* silver flies at **44** sites, and since 2009 we have release **54,490** *Laricobius* beetles at **42** sites statewide. We have determined that there are at least **10** established breeding populations of *Laricobius* in the state.
- ✓ Our research suggests that *Leucotaraxis* spp. can overwinter throughout the east coast, which will be necessary to compliment predation by *Laricobius* beetles.
- ✓ Through our year-round outreach activities, we have engaged public and private groups to conserve hemlocks through community science, grants and fund raising.

Future Directions

- → Fine tune research and development of sensitive eDNA methods for use in HWA early detection and monitoring biocontrol establishment and spread.
- → Refine rearing techniques for HWA predators to maximize production.
- → Continue to develop IPM guidance for landowners and managers.

For More Information Visit Us At: www.nyshemlockinitiative.info

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