



Afoot in the Field

RESOURCE FOR CONSERVATION LANDOWNERS



HEAVY HWA INFESTATION; JASON GORMAN

White oak. Sycamore. White pine. Eastern hemlock. These are some of my favorite native eastern tree species, especially when I see the big ones. Eastern hemlock is different from others in that not only are there magnificent individuals that inspire awe, but also whole dense stands of trees that give the landscape a deep green beauty, and create a dark wonderland with a soft carpet of needles to be enjoyed by those who venture within.

The scourge of non-native insects and pathogens has not spared the hemlocks. Hemlock woolly adelgid (HWA) is a tiny yet prolific non-native pest that has been slowly working its way through the native range of eastern hemlock since the 1950s and through the Finger Lakes region since about 2008.

HWA can kill trees, but usually only after years of infestation and gradual weakening of the tree. That, and the prospect that an effective biological control (introducing other insects to feed on HWA) can be achieved, gives us hope for the future of the hemlocks.

FLLT and others are treating stands of hemlock trees in priority areas with insecticides to protect them from HWA for the short-term, until biological controls are widespread enough to protect the trees for the long-term. We invite lovers of hemlock trees to support our work on FLLT nature preserves, or consider similar efforts on their own land.

Chris Olney
Director of Stewardship



Hemlock Woolly Adelgid

HEMLOCKS ARE AN ICONIC TREE of the Finger Lakes region.

Eastern Hemlocks can be found along streams, shorelines, wetlands, and lining many of the gorges in the area. In these locations, hemlocks provide important erosion control, help regulate stream temperatures, and provide habitat for

several species of fish and birds that rely on the hemlock ecosystems.



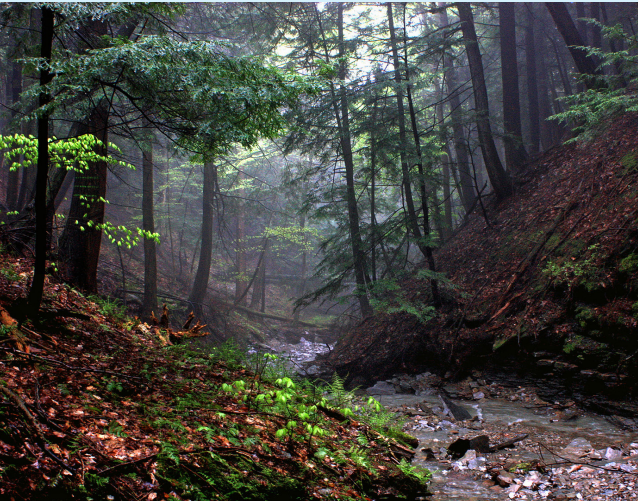
A major threat to the hemlocks is the hemlock woolly adelgid (*Adelges tsugae*) or HWA, which is an aphid-like insect that feeds on the hemlock twigs and slowly kills the trees.

HWA is not native to New York and was first identified in the Finger Lakes region in 2008.

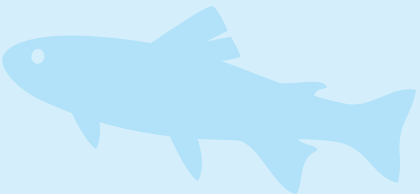
HWA can be found by looking for white woolly masses on the underside of the branch at the base of the needles. The woolly masses are easiest to find during late fall to early spring.

See the New York State Hemlock Initiative website for more information on identifying hemlocks and HWA:

blogs.cornell.edu/nyshemlockinitiative/



From top: Heavy HWA infestation; Hailey Nase. Hemlocks along creek at Wesley Hill preserve; Heidi Spitzig.



Hemlock Management on FLLT Preserves

By: Jason Gorman, FLLT Nature Preserve Manager

FLLT recognizes the threat that HWA poses to the eastern hemlock and local ecosystems, and is committed to hemlock conservation as capacity allows. We have been actively conducting chemical treatments on FLLT nature preserves for over 10 years now. FLLT considers the significance of hemlock stands on each nature preserve and prioritizes them by:

- the quality of the ecological community,
- the dominance of hemlocks in a given area,
- a site's connectedness to other hemlock stands where HWA control work has occurred or is planned.

The overall goal of our approach is to chemically protect hemlocks, while researchers, such as the NY Hemlock Initiative, work on identifying a long-term biological control agent (more information on the next page). These efforts can be expensive and time-consuming, so we must choose appropriate sites that will benefit the most from our efforts.

As an NYS Certified Pesticide Applicator, I can conduct in-house HWA treatments. Our preferred method is applying systemic insecticides with a basal bark spray on individual hemlocks, (more information on the next page). These treatments have helped to protect iconic hemlock stands at the Sweedler, Wesley Hill, and Stevenson Forest Preserves, as well as other sites.



Hemlocks at Wesley Hill Preserve; Noael Bastien.

Please feel free to contact me if you have any specific questions. I am always eager to share my experience doing this important work.

Jason Gorman: jasongorman@flt.org

HEMLOCK WOOLLY ADELGID

BIOLOGICAL CONTROL

The NYS DEC, NYS Hemlock Initiative sponsored by Cornell University, and US Forest Service, have been researching the use of insect predators that feed on the larval and adult stages of the adelgid to control HWA. These insect predators are collected from areas where HWA is native, then introduced to heavily infested areas. They do not feed on dead HWA, so the effect of insecticide is minimal.



CORNELL UNIVERSITY



CHRIS RAY

LARICOBIUS BEETLES

Laricobius nigrinus

Color: Black

Size: 2.5 mm

Origin: Pacific Northwest

- Reared in the lab in the spring and released in the fall
- Feeds on the developing and adult HWA through the fall and winter
- First released in New York in 2008
- 21 release locations across New York
- Some establishment of the beetle population has been reported
- Confirming the establishment in the field has been challenging because of their small size

SILVERFLIES

Leucopis argenticollis & *Leucopis piniperda*

Color: Silver/Gray

Size: 1.5 mm

Origin: West Coast

- Flies collected from hemlock foliage in the northwest and then released in New York
- Feeds on HWA eggs in the spring
- Enhancing lab-rearing techniques
- First released in New York in 2015
- Establishing techniques to identify the different species has been challenging but research has improved
- Releasing flies of the same species has improved mating success

MANAGEMENT

CHEMICAL CONTROL

The use of insecticides* should not be taken lightly as these chemicals can have negative impacts on native insects that are not the intended target. To help the hemlocks as we wait for insect predators to be established, insecticides (imidacloprid and dinotefuran) can be used. Techniques such as soil drenches or tablets are available but have a greater risk of impacting other species.



CHRIS OLNEY

Applying insecticides with a basal bark spray on specific hemlocks is the least likely to unintentionally affect other nearby trees. Hemlocks are not a known pollen or food source for insects, therefore the basal bark spray limits exposure to pollinators. The basal bark spray is also the most cost-effective mode of applying these insecticides. They can be mixed with water and placed in a backpack

sprayer. It is best to complete treatment in the spring or fall when the soil is wet, and the hemlocks are growing and have better absorption.

The treatment plan is dependent on the infestation level:

Light to Moderate Infestation:

- Use only imidacloprid
 - Imidacloprid takes longer to move into the tree canopy but protects the tree from HWA for approximately 5-7 years.

Heavily infested:

- A mix of imidacloprid and dinotefuran.
 - Dinotefuran is a fast acting insecticide and can provide protection within a few months.
 - Dinotefuran does not last more than a year or two, whereas imidacloprid will act more slowly but provides longer protection.

**These chemicals are restricted-use only, and you must be a certified applicator to purchase and apply them. All insecticides must be applied at a rate defined by NYS and Federal laws.*

Landowner Profile

JOHN & ROBIN MOSS HINCHCLIFF

HOMER, NY • 30.5 ACRES conserved • SKANEATELES LAKE watershed

John and Robin donated a conservation easement to FLLT in 2012. The property contains numerous hemlock trees on a steep bank of a gorge. The creek at the bottom of the gorge flows into Skaneateles Lake. With financial support from the Skaneateles Lake Association, 22 hemlock trees were treated with insecticide to protect them from HWA in the Fall of 2021.



Why did you choose to conserve your land?

John: I grew up spending summers on Skaneateles Lake at my grandparents' summer cottage. The property we own today is just next door to the cottage. I have very fond memories as a kid, walking through the woods, along the gorges, and seeing views of the property.

Robin: I feel like the land and trees almost serve as my own personal lungs, as a source of clean air. It felt like a natural fit to preserve land as we have a great working relationship with FLLT.



From top: Robin and John Hinchcliff; Tom Reimers. Gorge at the Hinchcliff CE property; FLLT.

When did you first spot HWA on your property?

About five years ago on a snowy day, some HWA experts came to the property. They taught us how to hook the branches to pull them down and spot and identify the HWA. We luckily did not have a seriously infested forest.

What made you want to pursue HWA treatment?

We saw the negative effect around the lake and how it can cause havoc and wanted to help the hemlocks on our property. It is heart-wrenching to see the trees chewed alive. Treatment can be expensive, so we were grateful to get support from the Skaneateles Lake Association.

Have you seen an impact since HWA treatment?

During our inspections in the last couple of years, the treated trees seem to be doing well and we haven't seen a significant increase in HWA.

What tips do you have for landowners interested in treating HWA?

Do your research. Talk to the FLLT, your lake's association, or a licensed professional, to find the best treatment options. Learn about HWA so you can identify and inventory your property.



From top: John Hinchcliff on his CE property; Sandra Bonanno. View of Skaneateles Lake from the CE property; Bill Hecht.

When Should I Call FLLT?

Contact us anytime with questions about your conservation easement property. Some activities will require the FLLT's input or approval. It is always better to ask before starting your project! Specifically, please contact us...



Before **selling** your property



Before **building** on your property



Before **cutting trees** or harvesting timber



Anytime you have a **question** or are unsure what your conservation easement allows

You can call the FLLT office at (607) 275-9487, or email us:

Chris Olney, Director of Stewardship, chrisolney@flt.org

Hailey Nase, Conservation Easement Stewardship Manager, haileynase@flt.org

Margaret Royall, Conservation Easement Steward, margaretroyall@flt.org

Afoot in the Field is provided for landowners in the Finger Lakes region who own conservation easement properties or who are otherwise committed to land conservation and wildlife habitat protection.

The Finger Lakes Land Trust is a member supported non-profit conservation organization that works cooperatively with landowners and local communities to "conserve forever the lands and waters of the Finger Lakes region, ensuring scenic vistas, local foods, clean water, and wild places for everyone."



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