



Hemlock Woolly Adelgid: Forest Management Learnings, July 2019

PLP's Roster of HWA Forest Management & Research Resources:

John Lyman, PE, Project Manager

Mark Banker, Forester

The Harvard Forest

- Dr. David Orwig

US Forest Service, Northeast Research Station

- Dr. Melodie Keena

Penn State Dept. of Entomology

- Dr. Kelli Hoover
- David Long
- Hoping Liu

Penn State Cooperative Extension Service

- Vincent Catrone

PA Bureau of Forestry

- Tim Marasco

PA DCNR

- Garrett Beers

Monroe County Conservation District

- Adam Schellhammer
- Matt Giambria

Hanover Engineering

- Jason Smith

The Board and Management focused our attention on the Hemlock Woolly Adelgid (HWA) and its impacts on our forest for the last 2 years. We have completed our study and would like to share our summary findings.

Early Warnings / First Steps

Dick Cary reported signs of HWA reaching the Pocono Plateau and ultimately PLP as early as the 1990's. Its northward expansion from North Carolina has been advancing ever since. As signs of infestation increased at PLP in the 2010's, the board began a multi-year, comprehensive review of our Forest Management Program and shifted its Forest Management priorities to HWA. In 2016, Dick was defined the scope and extent of decline of our Hemlock Forest which was both disturbing and alarming. Consequently, we expanded our research and understanding of this environmental threat to include a broad network of experts, the development of a long-term, data-driven monitoring program, and an emphasis on silvicultural practices (vs chemical or biological).

Where We Are Now

It became clear during our study that there are no solutions for Hemlock Woolly Adelgid. At this time, the best we can do is manage our hemlocks for their sustained health where possible and our forest for regeneration as the Hemlocks die off. We confirmed this with a visit to The Harvard Forest in Massachusetts and at a meeting at PLP with leading experts in the field from Penn State, the US Forest Service and others. The Harvard Forest and its scientists are leaders in HWA research. They note they are experiencing Hemlock mortality at far greater rates than PLP. They suspect this is due to our colder winters, but the prognosis for our hemlocks remains ominous.

Our Plan

We reviewed our thoughts on managing our Hemlock Forest with the experts at Harvard including Dr. David Orwig and they agreed with our forest management approach for PLP's Hemlocks.

The highlights:

No broad use of pesticides. Pesticide spraying for healthy, culturally important trees in managed areas by licensed applicators only. The broad use of pesticides has potentially significant damaging ecological impacts, especially for our lake and streams.

No use of biological controls for now. This includes any type of predator beetle or bug. The risk of having some other side effect is too great.

Glossary:

Biological Controls

- Predator insect species, primarily several types of beetles

Managed Areas

- The Center
- The Cove
- Experimental Plots
- Leaseholds, if desired

Silvicultural Management

- Accomplished through a mix of treatments such as thinning, harvesting, planting, pruning, and site preparation to control the establishment, growth, composition, health, and quality of forests to meet the needs and values of the landowners.

Working with the Shop:

If you would like to protect healthy, attractive or otherwise important trees on your leasehold contact the Shop to arrange a spraying program. This spring, we were able to arrange for significantly reduced rates through a group discount.

If selecting to treat, it's important the Shop identify which trees are treated so they can be tracked and analyzed in our central GIS record.

Cultivate native replacement trees like Spruce and White Pine.

In any managed area, leave some of the healthiest Hemlocks as a seed bank.

Use pesticides on these healthy seed trees to maintain their health. Don't use pesticides on any tree that is severely impacted or worse.

Monitoring is important. Without monitoring, PLP will not know if things are getting better or worse. Harvard Forest supplied a simplified monitoring plan that PLP will use in the winter months.

The Harvard Forest removes the trunks of cut trees in managed areas. They only leave the entire downed tree on experimental sites. This is the same approach we plan to use at PLP.

As Hemlock die, we may have to consider the risks of falling trees which may result in cutting dead Hemlocks that are in walking areas / trails / campsites.

Like Harvard Forest, PLP has an issue with both Hemlock Woolly Adelgid and Elongate Hemlock Scale. The observations at Harvard conclude that they often attack at the same time. It is not known why but it appears to be related to the diminished immunity of the tree when it must deal with two invaders.

Going Forward

In addition to our new monitoring program, we will engage in 2 main areas of HWA management activity:

Focus on Silvicultural Management

We are developing a test silvicultural program for HWA forest management in two locations experiencing visible decline in Hemlock health: The Cove and near the White Trail. This will involve thinning to open the forest canopy to provide for more light and replanting of native Spruce and White Pine. There is evidence that added light will help the remaining, healthy Hemlocks survive longer and allow for growth of other trees. As Dr. David Orwig told us, "with soil and sunlight something will grow - but you have no idea what."

Leasehold Efforts Welcome

On individual leaseholds (i.e. managed areas), Members are permitted to use pesticide treatment on important specimen trees that are otherwise healthy. The Board discourages spraying large numbers of trees in concentrated areas for two reasons: the pesticides used have per acre application rate restrictions and secondly the risk to our watershed and aquatic life in our lake and streams.

Contact the Shop to arrange for treatments, if desired. (see sidebar)

Thank you, PLP Board of Directors