

Rearing Predators of Hemlock Woolly Adelgid

Predatory Beetle Offers Hope for Saving Eastern Hemlocks

The Challenge

The spread of the nonnative pest hemlock woolly adelgid (HWA) is a major threat to eastern hemlock trees. Chemical treatments exist to combat HWA, but they are effective only on a small scale, such as in ornamental plantings. A biological treatment was needed to protect eastern hemlock stands.

The Solution

Research on biological treatments includes the following:

- Identification of HWA predators
- Laboratory testing of their impact on HWA
- Assessment of the feasibility of rearing natural predators in sufficient quantities for release.

In addition to funding predator rearing, the Northeastern Area coordinates predator releases and monitors release sites. The first viable predator successfully reared and released on infested trees is the ladybird beetle *Pseudoscymnus tsugae*. *P. tsugae* feeds on many adelgids, but seems to prefer HWA.

Resulting Benefits

- The control of HWA offers a potential alternative to harvesting infested or endangered hemlock stands. Trees may be able to remain in the forest without fear of lost revenue through mortality.
- Biological solutions decrease the use of chemical controls, which are sometimes indiscriminate—capable of killing more than the targeted pest.
- Preserving healthy eastern hemlock stands is critical for certain wildlife species. Some native freshwater fish species benefit from the shade hemlocks provide along rivers and streams. Hemlocks help reduce winter mortality in deer populations by offering shelter from heavy snows.

The ladybird beetle is the first viable hemlock woolly adelgid predator reared and released on infested eastern hemlocks.



The predator *Pseudoscymnus tsugae* (top, larva; bottom, adult) feeds on hemlock woolly adelgid eggs. Photo: C. Cheah

Sharing Success

- The Forest Service has developed an HWA Web site (<http://www.fs.fed.us/na/morgantown/fhp/hwa/hwasite.html>) that includes data, maps, newsletters, and links to numerous other sites.
- The Forest Service has hosted two HWA symposiums in the last 3 years to share research and examine control strategies.
- Opportunities exist to extend lessons and technology internationally, should Canadian forests become infested by HWA.
- Technology transfer to land managers is fostering resource prioritization, allowing planned, sustainable management of forests.



USDA Forest Service
Northeastern Area
State and Private Forestry

For more information, contact:

Kathryn P. Maloney, Area Director
11 Campus Blvd., Suite 200
Newtown Square, PA 19073
Phone: 610-557-4103
Email: kmaloney@fs.fed.us

Dennis Souto, Entomologist
271 Mast Road
Durham, NH
Phone: 603-868-7717
Email: dsouto@fs.fed.us