

## Cold snap gives hemlocks a fighting chance

By [John Burgeson](#) Published 4:49 pm, Friday, January 26, 2018



Photo: Lori Van Buren / Albany Times Union

### **IMAGE 1 OF 5**

*Hemlocks throughout the Northeast have been devastated for decades by the hemlock woolly adelgid an invasive, tiny insect that feeds on its sap. The early January cold snap seems to have killed off about 90 percent of the population in the state, scientists say.*

The cold snap that kept faces hidden under scarves for two weeks was a relief for one species of living things: the hemlock. Scientists at the Connecticut Agricultural Experiment Station say that an invasive insect species that wiped out untold thousands of hemlocks in the state in the past five decades seems to have met its match in the form of frigid weather.

Carole Cheah, a research entomologist with the [Connecticut Agricultural Experiment Station](#), said that she is seeing mortality rates of more than 90 percent of Hemlock woolly adelgid, or *Adelges tsugae*, in northwestern Connecticut and she suspects that much of the rest of the state had experienced similar die-offs.



Photo: Mark Conrad / ST

**IMAGE 2 OF 5**

Stamford\_052501\_ 'Alpine the Care of Trees' Arborist Rob Saunders holds up a branch of an Eastern Hemlock which is infested with the woolly adelgid insect. The early January cold snap seems to have killed off about 90 percent of the population in the state, scientists say.

"I'm still doing the counts, but it looks like the cold weather was pretty devastating to the adelgid," Cheah said. "And in this case, devastation is a good thing. We just got through looking at Thomaston, where there was over 95 percent mortality."

She said that the die-off episode won't mean that hemlocks will no longer experience the scourge of the adelgid.

"The adelgid will bounce back at some point," she said. "But this at least will give the trees some time to recover. If we get some rain this summer, we should see a good recovery."

Experts say that hemlocks have been already under stress from a string of abnormally dry summers, particularly the summer of 2016 in which almost no rain fell in Connecticut. The tree prefers damp conditions. The summer of 2017 also had long stretches with little rain.

"There's another tiny invasive insect, the elongate hemlock scale, that also attacks hemlocks and that doesn't mind cold winters at all," she said. "The difference is that the scale insect overwinters in a dormant state while the adelgid has to keep feeding. Between the drought and the pests, it's a complicated picture."

Experts say that DNA studies have confirmed that HWA — the species that has infested the Northeast — originated in southern Japan. It's an insect with a body that's less than a millimeter long,

"It wasn't discovered until the early 1950s, but it was likely brought here around the turn of the 20th century," said Virginia Tech entomologist Scott Salom, who's been researching the HWA for most of his career. That first shipment of HWA-infested hemlocks arrived in Virginia, it's believed.

"No question about it, when we see cold snaps, the HWA population suffers," Salom said.

At the time, and also during the 1960s, Japanese gardens and art were all the rage in the U.S., creating vectors for the HWA to gain a foothold. Today the range of the HWA extends from Georgia to Nova Scotia.

"We have had Japanese gardens in Richmond that date to the early 20th century, so they're the likely suspects," Salom said. "But the adelgid wasn't definitively discovered until the 1950s."

The pest belongs to a vast order of insects known as the hemiptera, also called the "true bugs" by entomologists. Most of the six-legged animals that people call "bugs" aren't really bugs. The hemiptera,



Photo: Carole Cheah / Hearst Media Services

**IMAGE 3 OF 5**

A larval Asian lady beetle, *Sasajiscymnus tsugae*, is seen here as the tiny, brown organisms to the left feeding, on the Hemlock woolly adelgid, seen here.

which include cicadas, thrips and lice, all have mouth parts specialized for sucking fluids out of their host plants or animals.



Cheah, who works at the Experiment Station's Valley Laboratory in Windsor, has been experimenting since 1994 with a lady beetle from Japan, *Sasajiscymnus tsugae*, one of the HWA's natural predators in Asia.

"We hope to use the lady beetle to wipe out the surviving adelgid individuals," she said. But she added that the lady beetle research has been exacting work: "They have to be reared by hand," she said.

As for two other invasive pests, the emerald ash borer and the southern pine beetle, the temperatures weren't low enough to make much of a difference, experts say.

Poison hemlock, *Conium maculatum*, is a roadside weed, not related to the tree. It's found throughout North America and Europe.

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*Photo: Carole Cheah / Hearst Media Services*

**IMAGE 4**

*An adult Asian lady beetle, *Sasajiscymnus tsugae*, is seen here as the tiny, brown organisms at the top of the photo, feeding on Hemlock woolly adelgid, seen here. The beetle has been experimentally introduced as a biological control of the adelgid.*