

Silver Flies—New Insect on the Hemlock Scene

By Brianna Ross

A promising biological control is joining the frontlines of the fight against hemlock woolly adelgid (HWA). Two species of silver flies native to the Pacific Northwest—*Leucotaraxis piniperda* and *Leucotaraxis argenticollis*—are showing promise as an HWA predator during research efforts conducted through state and university partnerships with the US Forest Service (USFS).

Silver flies are a predatory insect in the Chamaemyiidae family. There are several species of silver fly native to different regions of the United States, including the East Coast. However, the silver flies native to the East Coast do not prey on HWA. These two species from the Northwest have been found to specialize on HWA as prey, contributing to adelgid control within the silver flies' native ranges.

Silver flies will not be replacing the current biological control—the *Laricobius* beetle. Instead, it is hoped these insects will work in tandem by targeting different portions of the HWA life cycle. Adult silver flies are released in spring, when their larvae can prey on the eggs of the HWA throughout its spring-laying season. Adult *Laricobius* beetles are released in the fall when they can prey on developing and adult HWA. Together, these biological controls have the potential to significantly impact adelgid populations.

In 2015, the USFS released batches of silver flies in one Tennessee and two New York locations. Prior to these releases, which were permitted by USDA-APHIS, extensive research was done to ensure there would be no significant ecological ramifications caused by introducing these silver fly species. Sixty-five total releases up and down the East Coast have occurred with believed success since 2015. Ongoing monitoring is still being conducted, but hopes are high even while results remain inconclusive.

One sign of success is the recovery of silver flies in or near their release locations in years following the releases. These recoveries mean the silver flies are reproducing on their own in the wild, making them a viable biological control. Recovery occurred in Virginia in 2022 when silver flies were caught and found to have DNA matching those released in 2020. Early 2023 saw a similar event in a different area of Virginia when silver fly offspring from a 2021 release were recovered.

Currently, the process for rearing and releasing silver flies is extensive. They must be shipped overnight from their native habitat in the Northwest, then quarantined to prevent the spread of unwanted diseases, pests, and fungal spores that may have also been unintentionally shipped. These methods are under further development with the goal of streamlining the process.

Silver fly research in relation to hemlock woolly adelgid and hemlock trees is still ongoing, but there is hope for these insects' future role in the control of HWA. Labs around the country are working to better understand these insects and how we can use them to our advantage.

Sources:

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2. <https://www.fs.usda.gov/research/treearch/66595>
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