

FRCC Hemlock Proposal Annual Report 2024

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Project Title: Continuation of expanded biological control releases to protect eastern hemlocks from HWA invasions in the upper Farmington River watershed

Progress Report:

In 2024, the Upper Farmington River watershed experienced one of the warmest winters on record, in stark contrast to the winter of 2023, when there was widespread winter kill (average 90%) of hemlock woolly adelgid (HWA). However, the absence of sub-zero daily winter temperatures in 2024 in the riparian and adjoining forests allowed HWA surviving the winter kill of 2023, to flourish, especially in the riparian hemlock corridors of the Upper Farmington and its tributaries. There were also fresh new invasions of HWA in untreated sections of the watershed. In general, the hemlocks in the Upper Farmington watershed were showing recovery with new growth flush in spring 2024 after summer drought stress in 2022. However, a severe drought occurred in fall 2024, which may complicate continued recovery. Hemlock woolly adelgid has rebounded in some areas and new invasions were also discovered along waterways and around lakes and ponds in summer 2024 and were the target for HWA biological control releases in 2024. Assessments of hemlock crown conditions in release areas are ongoing.

The upper west branch of the Farmington River has several tributaries which have a heavy component of eastern hemlock: 1) Sandy Brook, in Colebrook, flanked by Algonquin State Forest and the Kitchell Wildlife Sanctuary; 2) Howells and Thorne Brooks, draining western portions of Tunxis State Forest; 3) Beaver Brook and Beaver Brook Meadow, and other minor feeder brooks in the Peoples State Forest which drain into Lake McDonough, MDC; 4) American Legion State Forest brooks which drain into the Farmington River; 5) feeder brooks draining into the Farmington River within the Nepaug State Forest, 6) East Mountain Brook, draining and proximal to New Hartford land trust properties, 7) Cherry Brook which drains the Pratt Preserve and other properties of the Canton Land Conservation Trust, and 8) Jim Brook by the Roaring Brook Nature Center in Canton. Warm winters of 2021 and 2022 had facilitated new widespread invasions of HWA in the Upper Farmington watershed, including along the West Branch of the Farmington River in the American Legion, Peoples and Nepaug State Forests. The specialist HWA predator *Sasajiscymnus tsugae* is key to the non-chemical suppression of new and resurgent HWA which continues to threaten the health of the hemlock component of the Upper Farmington watershed forest. It is important to continue to preserve and maintain hemlock cover for critical thermoregulation of the cold water streams and tributaries which eventually feed into the Upper Farmington River. Riparian hemlocks with new and resurgent HWA in untreated areas were targeted for beetle suppression in spring 2024.

Through 2024 funding from the Farmington River Coordinating Committee, 5,000 *S. tsugae* were purchased from Tree Savers, PA, for strategic releases on rebounding HWA infestations along the Upper Farmington, with expansion of releases to more tributaries to control HWA and mitigate spread and damage to riparian hemlocks. The beetles were hand-delivered by Tree Savers to Dr. Cheah's laboratory in Windsor and fed and maintained at cool temperatures in an incubator until the time of scheduled releases. Dr. Cheah applied for and obtained permission and permits for releases on state lands and land trust properties.

Releases were distributed along some of the tributaries outlined above, concentrating on 4 new sites along East Mountain Brook in New Hartford Land Trust properties, augmenting along Cherry Brook in Canton Land Conservation Trust's Pratt Preserve and establishing new releases along Jim Brook also on CLCT property on Onion Mountain and in Nepaug State Forest surrounding the Roaring Brook Nature Center, The Childrens' Musuem, in Canton. In all these new areas, some HWA had survived the winter of 2023 and was spreading at high densities along the stream corridors. Releases were coordinated with New Hartford Land trust volunteers and 900 *S. tsugae* were distributed at 3 NHLT properties along East Mountain Brook and its tributaries at the Jones Sawmill, Bilanin, and Oliva preserves. A small release of 100 *S. tsugae* was also implemented at Winding Brook, a tributary of Tarringford Brook, which drains into the Nepaug River:



The Bilanin property along East Mountain Brook (New Hartford Land Trust) with HWA in May 2024



Beetle releases at Jones Sawmill; May 23, 2024



Releases at Bilanin, Oliva, and Winding Brook preserves, New Hartford Land Trust; May 23 2024

A staff reporter from Connecticut Insider came out to observe and participate in expanded releases on HWA along Jim Brook at the Roaring Brook Nature Center, Canton. Together with staff, beetles were released into the surrounding Werner Woods, Nepaug State Forest on May 20. Her article can be read here: <https://www.ctinsider.com/farmingtonvalley/article/japanese-lady-beetles-eastern-hemlock-trees-ct-19467717.php>



A reporter and staff from Roaring Brook Nature Center released ladybugs along Jim Brook trails, May 20, 2024.

Volunteers, together with NPS and CT DEEP staff, also participated in releases at Mathies Grove, the main recreational area for Peoples State Forest, on May 24. Darcy Dennett of Firefly Filmworks, filmed more releases at Mathies Grove on May 25, 2024:



Beetle releases at Mathies Grove, Peoples State Forest in May 2024

Another new area of releases targeted HWA along the Nepaug River, in the Cedar Swamp Wildlife Management Area. Upland areas of the American Legion State Forest also had heavy resurgence of HWA along streams. The Henry Buck Trail is a spectacular native wildflower trail under hemlocks along streams which flow directly into the Upper Farmington and 600 S. *tsugae* were released along the trail:



Releases of *S. tsugae* () along the Henry Buck Trail, American Legion State Forest, May 24, 2024

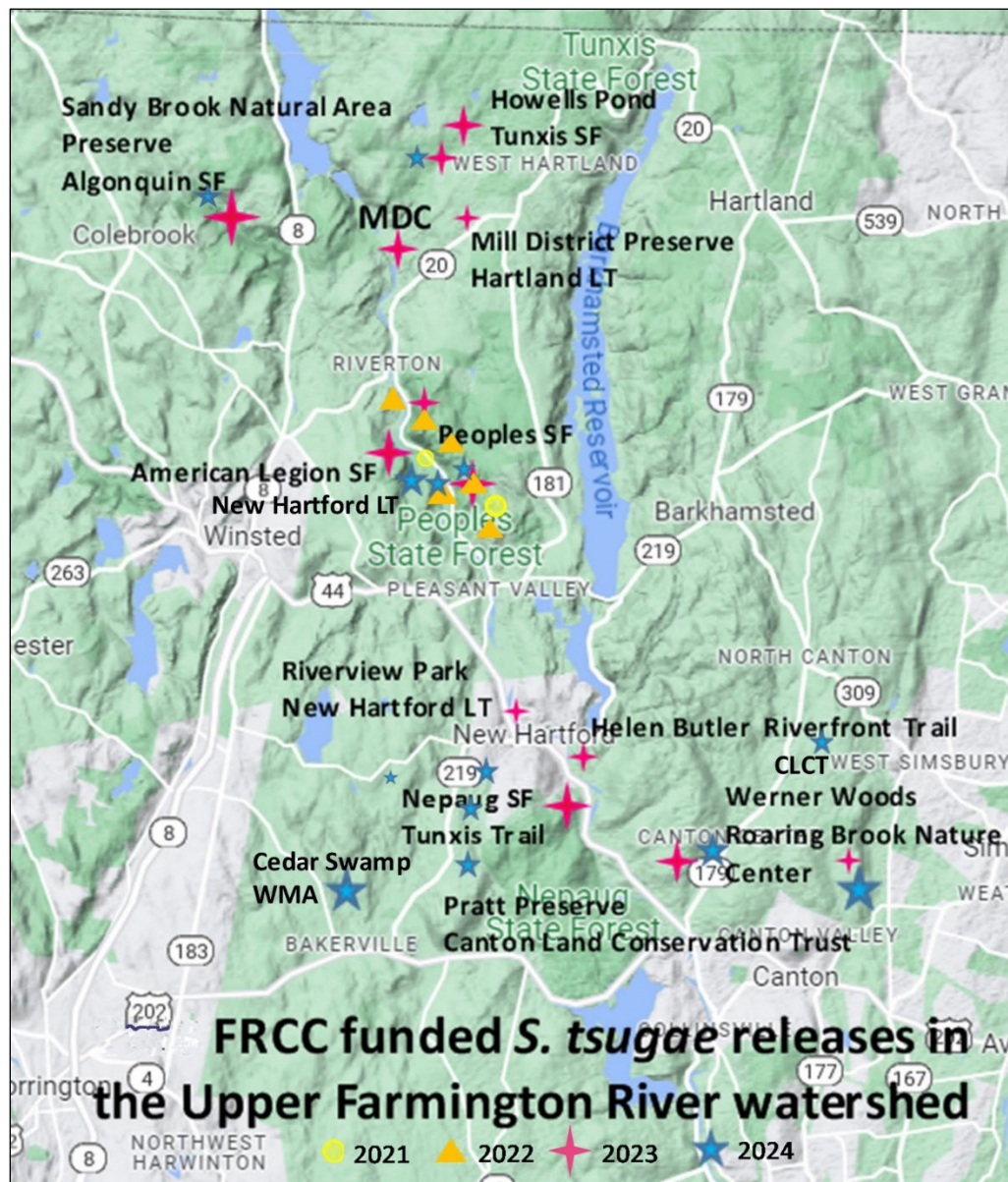
The 2024 FRCC HWA biological control program released 5,000 *S. tsugae* at 15 sites in all 5 member towns of the Wild and Scenic Upper Farmington River, summarized in Table 1, below:

Table 1. FRCC Wild + Scenic 2024 Releases of 5,000 *Sasajiscymnus tsugae* in the Upper Farmington River watershed

Species	No.	Date Released	Location	Town
<i>Sasajiscymnus tsugae</i>	300	May 20	Pratt Onion Mountain Preserve on headwaters of Jim Brook (Canton LCT)	Canton
	500	May 20	Werner Woods, Nepaug SF , Roaring Brook Nature Center on Jim Brook	Canton
	300	May 21	Sandy Brook Natural Preserve Algonquin SF	Colebrook
	500	May 22	Pratt Preserve on Cherry Brook Blue Trail; Canton Conservation LT	Canton
	250 300 350 100	May 23	New Hartford LT properties along East Mountain Brook Jones Sawmill Bilanin Oliva Winding Brook	New Hartford
“	400	May 24	Mathies Grove, Peoples SF Opp Squire’s Tavern/ E River Rd	Barkhamsted
	600 300	May 24	American Legion SF Upper Henry Buck Tr. along stream By Pleasant Valley office by ruins and up woods road	Barkhamsted
	300 100	May 24	Tunxis SF by Thorne Brook near Pond Hill Rd junction Opposite marsh on Old Forge Rd	Hartland
“	300	May 25	Mathies Grove, Peoples SF towards FR	Barkhamsted
“	400	May 25	Cedar Swamp WMA	New Hartford
TOTAL	5,000		15 sites	5 Towns

Hemlock woolly adelgid resurgence was also observed along tributaries in the Tunxis State Forest in Hartland and small releases were either initiated in new sites or added to 2023 release areas. In 2024, small releases were also continued along Sandy Brook in Algonquin State Forest in Colebrook to protect the Sandy Brook Natural Area Preserve and the Kitchel Wilderness Natural Area Preserve, which are preserves of special recognition in Connecticut. The FRCC Wild and Scenic funded HWA biological control program to protect riparian hemlocks of the Upper Farmington was also highlighted by several talks, displays, posters and information at the Connecticut Agricultural Experiment Station's annual Plant Science Day in August and at the 100th Anniversary of Peoples State Forest in October 2024 .

Fig. 1. Map showing FRCC-funded 2021-2024 *S. tsugae* releases. To date, FRCC has funded the release of 16,250 *S. tsugae* from 2021-2024 in the Upper Farmington River hemlock watershed forest.



Report prepared by Carole Cheah, January 7, 2025.