

## Phenology, prey preference, and hybridization of *Leucotaraxis argenticollis* - A biocontrol agent for Hemlock Woolly Adelgid (*Adelges tsugae*)

\*Anita Feng<sup>1</sup>, Lydia Jocius<sup>1</sup>, Sophie Edgar<sup>1</sup>, Neil K. Hillier<sup>1</sup>, Jeff Fidgen<sup>2</sup>, Martin Williams<sup>2</sup>, Lucas Roscoe<sup>2</sup>

<sup>1</sup> Department of Biology, Dalhousie University, Halifax, Nova Scotia

<sup>2</sup> Canadian Forest Service, Atlantic Forest Center, Fredericton

*Adelges tsugae* (Hemlock woolly adelgid) is an invasive pest species introduced to Eastern North America from Japan, first documented in Nova Scotia in 2017. *Tsuga canadensis* (Eastern Hemlock) is a foundation species in Eastern North America vulnerable to HWA invasion due to absence of co-evolution for plant defence adaptations or predator specialization. *Leucotaraxis argenticollis* is a biological control agent for HWA, which has been explored in the United States. The larvae of *Le. argenticollis* is specialized to feed on HWA in the Pacific west regions. However, little is known about the phenology of the eastern biotype *Le. argenticollis* in Nova Scotia. We detected *Le. argenticollis* in Nova Scotia at Greenwood, Kejimikujik National Park, Caledonia, and Upper Clyde River from foliage samples collected in June 2025 to September 2025. Foliage samples with larvae were reared in mesh insect cages until adult flies emerged at Acadia University. Adult flies have emerged from Pine Bark Adelgid (*Pineus strobi*) infested Eastern White Pine foliage (*Pinus strobus*) ranging from June 24 to November 3. In 2026, we aim to study the life cycle, seasonal pattern and abundance of *Le. argenticollis* by performing foliar collections, sticky trap sampling, and eDNA sampling from March to November. We will also examine the preference of *Le. argenticollis* by performing oviposition trials, and study hybridization potential of the native flies with the western (British Columbia) biotype by doing hybridization crosses. The outcome of our study will contribute to the evaluation of *Le. argenticollis* as a biocontrol agent for HWA.

Keywords: Hemlock Woolly Adelgid (HWA), biocontrol predator, *Leucotaraxis argenticollis* (silver flies), Phenology

Poster presentation