

First Canadian record of *Aphrophora salicina* (Goeze, 1778) (Hemiptera: Aphrophoridae)

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Introduction

The genus *Aphrophora* (Aphrophoridae: Aphrophorinae) contains 77 species in the Palaearctic and Nearctic regions (Soulier–Perkins 2021). Of these, 13 are known from Canada (Maw *et al.* 2000; Wheeler & Hoebeke 2004). One of these species, *Aphrophora alni* (Fallén, 1805), is adventive in North America (Moore 1956), while the rest are native. Members of this genus are typically monophagous, feeding on deciduous (e.g. *Salix*, *Populus*, *Tilia*, *Betula*, *Artemisia*, *Angelica*) or coniferous (e.g. *Abies*, *Larix*, *Pinus*, *Picea*) trees or shrubs depending on the species (Komatsu, 1997). The willow spittlebug, *Aphrophora salicina* (Goeze, 1778), originates from Eurasia, where it is recognized as a common pest of willows (*Salix* sp.; Liang 2007). Larvae and adults feed on twigs and produce large spittle masses (Metcalf & Barber 1929). This species is reported for the first time in Canada based on eight specimens collected in Pintendre (Lévis, QC) by the author. These findings not only reveal a distribution gap in our understanding of Hemiptera fauna in Quebec and Canada but also contribute significantly to enhancing our comprehension of this taxonomic group.

Results and Discussion

Aphrophora salicina is distinguished from other species in this genus by its unicolorous wings, pointed head, and distinctive male genitalia (Fig. 1; Tishechkin 2023). First introduced in North America before 1921 (Metcalf & Barber 1929), this spittlebug has since exhibited limited dispersal in North America (Hamilton 1982). It remained primarily confined to Massachusetts (USA) based on open-source and validated citizen science observations (BugGuide 2024; iNaturalist 2024) and collection data (GBIF.org 2024; Harvard University 2024). This distribution pattern contrasts with the rapid spread of *A. alni* across eastern North America from the middle 20th Century onwards (Moore 1956). Six *A. salicina* individuals were collected in an exploited gravel area in Pintendre, south of the city of Lévis (QC, Canada). All Canadian specimens were obtained by beating live branches of *Salix interior* Rowlee growing at the base of a sandy-gravelly hill. This seems to support the species' preference for willow trees in North America.

This discovery highlights a significant distribution gap in *A. salicina* distribution in North America, as it is nearly 450 km northeast in a straight line of its most northern distribution in Massachusetts (Fig. 2). This gap likely results from limited surveying of this insect group in Quebec and Canada. Hamilton (1982) anticipated the potential expansion of this aphrophorid species into southern Quebec and the Maritime Provinces. Moreover, the host plants of this species, black willow (*Salix nigra* Marshall) and meadow willow (*Salix petiolaris* Smith), identified by Metcalf & Barber (1929) in North America, are both present in Quebec. The introduction of this spittlebug in Canada might also be attributed to human-assisted transportation, considering the species' historically low dispersal (Moore 1956). Further surveys focused on host plants in the vicinity of large cities may also clarify whether the species is widespread in southern Canada or exists as an isolated population in the country.

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Material

https://data.canadensys.net/micropublications/resource?r=specimen_24

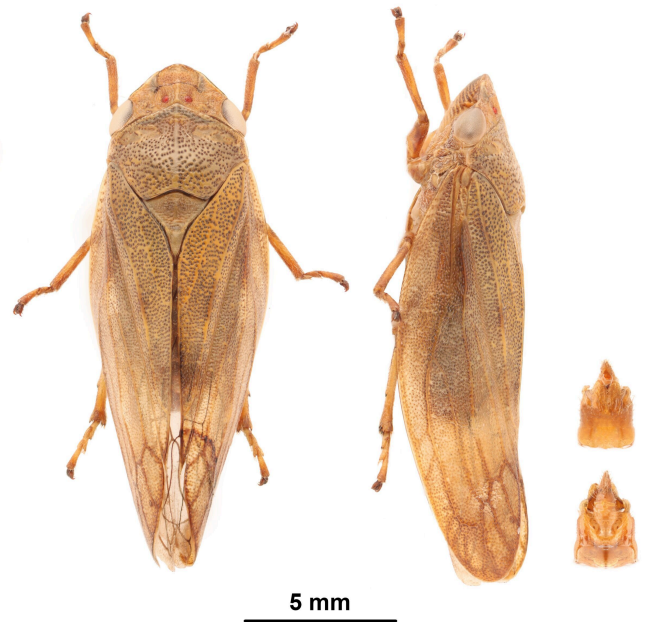


Figure 1. Dorsal, lateral habitus and aedeagus of *Aphrophora salicina*, specimen LLC23AC03.

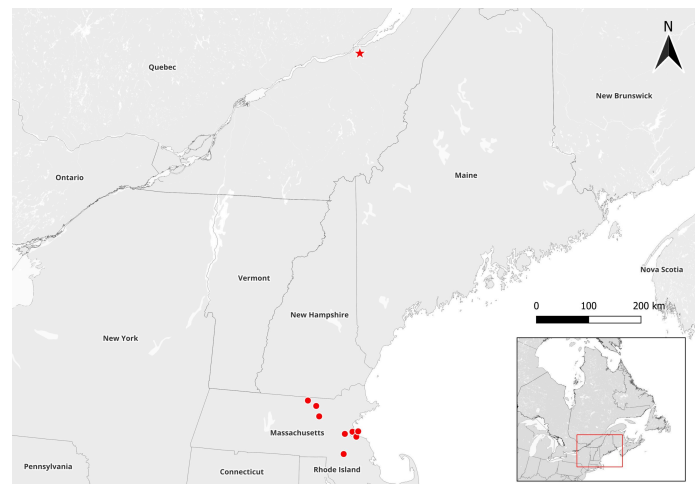


Figure 2. Geographical distribution of *Aphrophora salicina* in North America. The star represents first Canadian record and points the other North American records.