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## GALL FORMING WILLOW SAWFLY NEW TO NEW ZEALAND

In September of 2009, Scion's Forest Health Reference Laboratory received a sample of *Salix babylonica* foliage collected in Auckland by John Goodenough (SPS Biosecurity) as part of MAF's High Risk Site Surveillance programme. The sample contained sawfly larvae sheltering inside chambers made of the newly expanding leaves. Although we could not identify this insect from the larvae, we recognised it as being new to New Zealand and tentatively identified it as *Phyllocolpa* sp. (Hymenoptera: Tenthredinidae) based on the host species and the structure of the leaf fold galls.

We initially deemed it likely to be a relatively new introduction, especially since it was collected only 7 km from the Auckland International Airport. However, less than a week later by chance we found another population on the same host along the Tukituki River in Havelock North suggesting it has been in the country for some time. A survey later in 2009 in Manukau by SPS Biosecurity and MAF's Investigation and Diagnostics Centre detected the sawfly at additional sites in the Manukau area. Specimens were also found in Pakuranga, East Auckland, indicating wide establishment across the Auckland isthmus.

Molecular analysis of the mitochondrial cytochrome oxidase I gene determined that the Auckland and Havelock North populations were genetically identical, but we did not find a specific match for identification among published sequences. Nonetheless, it was a very close match to a sequence for *Brachycoluma* sp. collected in Finland, leading us to believe that this might be the correct genus. MAF's Investigation and Diagnostics Centre also undertook molecular analysis of specimens and concurred with these results.

In the meantime larvae from both populations were placed under controlled conditions in Scion's quarantine facility for rearing in the hope of acquiring some adults for morphological identification. The larvae readily spun cocoons, but then entered into diapause and remained unchanged for over a year. This was not surprising as some sawflies are known to prolong diapause for up to several seasons, emerging when conditions and food quality are optimal. We were finally able to obtain some adults in December of 2010, after imposing a cold

treatment for several weeks followed by a return to warmer temperatures.

Using keys for Tenthredinidae known to be present in Australia, including introduced species, the sawfly adults were identified as *Amauronematus viduatus*. This identification was validated in 2011 after sending specimens overseas to David Smith (Smithsonian Institution, USA). Our molecular identification to genus was in fact also correct, as *Brachycoluma* is now considered a subgenus of *Amauronematus* according to the recently published World Catalog of Symphyta.

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Larva of *Amauronematus viduatus* on *Salix babylonica*



***Salix babylonica* leaf fold gall caused by *Amauronematus viduatus***

*Amauronematus viduatus* is widely distributed from northwestern Europe to central Asia and Siberia. Specimens are also known from Alaska, central Canada, some northwestern United States and more recently, Australia. It was first found in New South Wales in 1992 on *Salix babylonica*, although an unidentified record of tenthrredinid larvae on the same host in Tasmania in 1978 may well have been *A. viduatus*.

In Europe *A. viduatus* completes one generation per year, and in Australia this also seems to be the case. In New South Wales mature larvae were found to leave the host tree in September and spin cocoons among plant debris, with adults not emerging until early the following spring. We would expect this to also be the case in New Zealand.

Adults of *A. viduatus* are small wasps 5-7 mm in length, lacking a constriction between the thorax and abdomen. The colour can be quite variable from specimens with light orange areas on the body to those that are almost black (D. Smith, pers. comm.). The individuals we have seen so far in New Zealand are of the latter form.

The leaf fold galls caused by *A. viduatus* (shown above) are superficially similar to the shelters made by some caterpillars (e.g. Tortricidae) by tying leaves together with silk. However, the structures created by these sawflies are technically galls because plant growth is modified. While ovipositing, the females inject an unknown substance into the willow tissues resulting in the

development of soft and sticky leaves which become tightly glued together. Larvae of *A. viduatus* (pictured over page) first live in these developing buds and leaves and are later free living.

Although larvae are defoliators, this insect is generally not regarded as a pest in the Northern Hemisphere. The extent of damage that may be caused in New Zealand remains uncertain, but sawflies are often relatively host specific and *A. viduatus* is most likely to be confined to *Salix* spp. Some other species in this genus are also known from *Betula* spp.

To our knowledge no further collections of *A. viduatus* have been made in New Zealand. Additional samples would be appreciated to assist in defining its distribution here, and this is the time of

year when the damage and the insect are most noticeable.

Other tenthrredinids known to be established in New Zealand are *Priophorus brullei* (raspberry sawfly), *Caliroa cerasi* (pear and cherry slug), *Pontania proxima* (willow gall sawfly) and *Nematus oligospilus* (willow sawfly). All are accidental introductions and all are also present in Australia. New Zealand has no native tenthrredinids.

*Stephanie Sopow*

## NEW STAFF

Liam Wright recently moved to Rotorua from Tauranga to begin work with Scion as a field work coordinator and technical assistant in our group. Liam completed a Diploma in Environmental Management at Bay of Plenty Polytechnic in 2010 and is working towards an AUT Bachelor of Applied Science, with an Environmental Studies major (which he is frantically trying to finish before November!). Part of this year's studies includes a research project and Liam has been investigating a retro-fitted method for facilitating freshwater fish passage through culvert pipes, utilising a simulated culvert setup in the university's aquaculture facility. He is using redfin bullies (*Gobiomorphus huttoni*) for these trials but hopefully the method will be applicable to a number of species (native or otherwise). Outside of work Liam enjoys activities such as surfing and kayak fishing.

*Editor*

## NEW RECORDS

We are no longer publishing details of new records. For further information on results of MAF funded programmes see MAF's Biosecurity magazine (<http://www.biosecurity.govt.nz/publications/biosecurity-magazine/index.htm>) where information on new biosecurity identifications is regularly published.

*John Bain*