

## **GUM LEAF SKELETONISER BIOLOGICAL CONTROL AGENT TAKES A SHINE TO NAPIER**

With the eucalypt pest gum leaf skeletoniser (GLS), *Uraba lugens*, continuing to spread slowly southwards (FH News 251) it's timely to provide an update on the distribution of its biological control agent, the parasitoid *Cotesia urabae*. While formal surveillance has not been done this year we know that GLS is distributed from Northland to Taupo, and there are populations in Napier and Nelson. Originally from Australia, *Cotesia urabae* was first introduced to New Zealand as a biological control agent for GLS in early 2011. Populations established following releases in Auckland in 2011, Whangarei in 2012, and Tauranga in 2012. We believe self-introduced populations appeared in Hamilton and Rotorua prior to additional small releases in those areas in 2015. We had no information on whether *C. urabae* has established in Napier where releases occurred in 2014 and 2015, or in Kerikeri where a very small release was made in 2015.

About 500 GLS larvae were collected from five sites in Auckland in winter 2014 by Gonzalo Avila, while he was a PhD student, to monitor establishment of *C. urabae*. Parasitoids were recovered from all five sites and 40% of GLS larvae collected produced parasitoid cocoons, indicating the *C. urabae* is well established in Auckland. To continue to improve our understanding of its distribution, Scion visiting intern student Luca Ehrminger made collections of GLS larvae in Napier, Hamilton and Rotorua last spring (October 2015) and summer (January 2016). The spring collections failed to find any parasitism by *C. urabae*, and it is likely that all parasitoids may have already emerged from that generation of GLS larvae. The summer collection was much more successful, to our relief! *Cotesia urabae* was recovered from GLS larvae collected from 3 out of 5 release sites in Napier and was found to be parasitising up to 46% of larvae at one site, and in the release site in Hamilton was parasitising up to 3% of larvae. No parasitoids were collected from the Rotorua site, and with GLS populations low in both Rotorua and Nelson it may be that the parasitoid is either not established or present at very low levels there. Over time, as *C. urabae* establishes and numbers increase it should begin to exert some control over GLS populations and spread naturally into new areas.



**The news that *C. urabae* is thriving in Napier will be particularly welcomed by Hawke's Bay residents. Some people have observed the full effects of GLS outbreaks this summer, with caterpillars climbing fences or clothing lines (see below for an explanation).**

The main drivers behind wanting a successful biological control programme against GLS, was not only because high numbers of caterpillars can reduce growth of eucalypts, but also because they are a significant public health risk. If they come in contact with exposed human skin the larvae can cause a significant skin reaction from their urticating hairs. This can result from both live larvae and the dead shed skins left behind from moulting. Hence washing lines beneath infested eucalypts could inadvertently lead to bedding and clothing becoming contaminated with reaction-inducing hairs. If a reaction is suspected from the appearance of raised itchy welts, topical antihistamine crème should alleviate the condition. The introduction and establishment of *C. urabae* into more sites should reduce *U. lugens* populations and bring social and economic benefits.

*Gonzalo Avila (Plant and Food Research), Luca Ehrminger, Belinda Gresham, Andrew Pugh and Toni Withers (Scion)*

**COTESIA URABAE ASSISTS GONZALO AVILA OBTAIN A DOCTORATE**

Not only important as a biological control agent for gum leaf skeletoniser, *Cotesia urabae* now has another claim to fame. This parasitoid has been the study subject of Chilean Government scholar Gonzalo Avila at the University of Auckland’s School of Biological Sciences under the supervision of Dr Greg Holwell. Firstly Gonzalo studied the mass-rearing, releases, dispersal and establishment of *C. urabae* for his Masterate in Science which he completed in early 2012 co-supervised by Dr Lisa Berndt at Scion.



Jarrah forest in Western Australia before and after an outbreak of *Uraba lugens*. Similar levels of defoliation have been observed this summer in the street and garden trees of the Bluff Hill area in Napier. Picture: Janet Farr.

During this time Gonzalo was responsible for perfecting the mass-rearing of parasitoids, and releasing hundreds into Auckland from where they have established and spread. Gonzalo then enrolled for a PhD with the support of Scion and the Better Border Biosecurity collaboration co-supervised by Dr Toni Withers. Gonzalo studied

between 2013 and 2016 the mating behaviour and the non-target search and attack behaviour of the parasitoid in the laboratory.

With two articles published during his Masterate, another four publications resulting from his Doctorate thesis, and two more already submitted to international Journals (currently ‘in Review’) we now have a wealth of literature to call upon to improve the way we undertake mass-rearing and host specificity testing to predict the host range of parasitoids within containment.

Gonzalo successfully defended his doctorate on 3 June at Auckland University and promptly began his professional career as an insect biocontrol scientist with Plant and Food Research. Congratulations Gonzalo!

*Toni Withers*



**Gonzalo Avila**

**NEW STAFF MEMBER IN PEST MANAGEMENT RESEARCH**

Ben Morrow has joined the Pest Management research group. Ben comes to Scion from Christchurch, holds a Bachelor of Forestry Science (Hons) degree and has three years of practical experience working in the horticulture industry.

Ben is very interested in assisting the team to further work in spray application improving forest biosecurity. Ben’s his main research focus in his first few months will be assisting with various planned spray trials.

*Lisa Stanbra*



**Ben Morrow**