

**Parasites of the leaf miner *Acrocercops alysidota*  
(Lepidoptera: Gracillariidae)**

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The larvae of the leaf miner *Acrocercops alysidota* (Lepidoptera: Gracillariidae) attacks the young developing phyllodes of *Acacia melanoxylon* Tasmanian blackwood. As the larva reaches third instar, it mines into the leaf palisade, and at this stage of development, can mine into the plant stem. Invasion of the stem results in shoot die back, abortion and subsequent multi-leadering of the tree. Extensive multi-leadering of trees in forest plantations significantly reduces tree value for timber purposes, for this very reason, the leaf miner is considered a pest. However, in March 1997, parasitised leaf miner larvae were found in an experimental plot of blackwood seedlings at the New Zealand Forest Research Institute, Rotorua nursery. Parasitised larvae were collected and emerged adult wasps were sent to Jo Berry (Landcare) for identification. They were found to be two species of eulophid wasp, one from the genus *Dialomorpha* (blue-black in colour), the other from *Cirrospilus* (orange-yellow in colour). In fact the *Cirrospilus* sp. is a new genus record for New

Zealand (J. Berry, personal communications). These wasps are probably of Australian origin, as associated Australian species in these genera are known to parasitise leaf miners.

In an attempt to determine the level of leaf miner parasitism, fresh leaf mines were collected randomly from 120 trees in the nursery experimental plot. Mines were sectioned and larvae examined and the number found dead, un-parasitised, parasitised (larvae paralised or larvae present) were recorded. Parasitised larvae can be easily located, for the mine wall covering them senesces and turns brown, whereas healthy larvae exit the mine to pupate, before the mine wall senesces. During examination it is not possible to determine which parasitoid species is present. Of the 121 larvae examined, 15.7% were dead, 40.5% un-parasitised and 43.8% parasitised.

In comparison with other leaf miner populations studied elsewhere in New Zealand, the leaf miner population in this experimental site was assessed and found to well below damaging levels (Appleton et al. 1997). This indicates that these parasites are successfully controlling leaf miner populations below damaging levels.

Although leaf miner larvae have been collected from several locations in both the North and South Islands, parasites have only been found in North Island samples. However, the exact location of each wasp species is currently unknown as some samples contained dead wasps or pupal remains.

The following confirmed locations are:

16.1.97; N.Z.F.R.I. Rotorua. Coll: C. Appleton. Larvae and pupae of both species.

22.1.97; Gillespies Rd, Hunua. Coll: C. Kay; K. Hutchison. 1 pupa species unknown.

2.2.98; Mangaporo, Sth Ruatoria. Coll. Colin Barr. 1 grub, remains of 1 pupa, *Cirrospilus*.

3.2.98; Kaiti hill, Gisborne. Coll. Colin Barr. remains of 2 pupae, species unknown.

9.2.98; Mangaporo. Coll. C. Appleton, K. Hutchison. 2 adult wasps, *Diaulomorpha*.

27.2.98; Dannevirke, Coll. C. Appleton, 1 adult wasp, *Cirrospilus*.

From the known locations, it is evident that these wasps have probably been present in the North Island for several years. However, if the wasps are not present in the South Island, then it may be useful to introduce the parasites to control leaf miner populations, in order to reduce the level of multi-leadering in plantation trees. However, before doing so, the biology of both the eulophid species needs to be comprehensively studied. The interspecific interactions between both species and their individual effectiveness at parasitising leaf miner larvae would need to be assessed.

## Reference

Appleton, C.; Walsh, P.J.; Wratten, S.D. (1997). The influence of insect infestation on the growth of Tasmanian blackwood *Acacia melanoxylon*. *New Zealand Entomologist* 20: 73-77.