

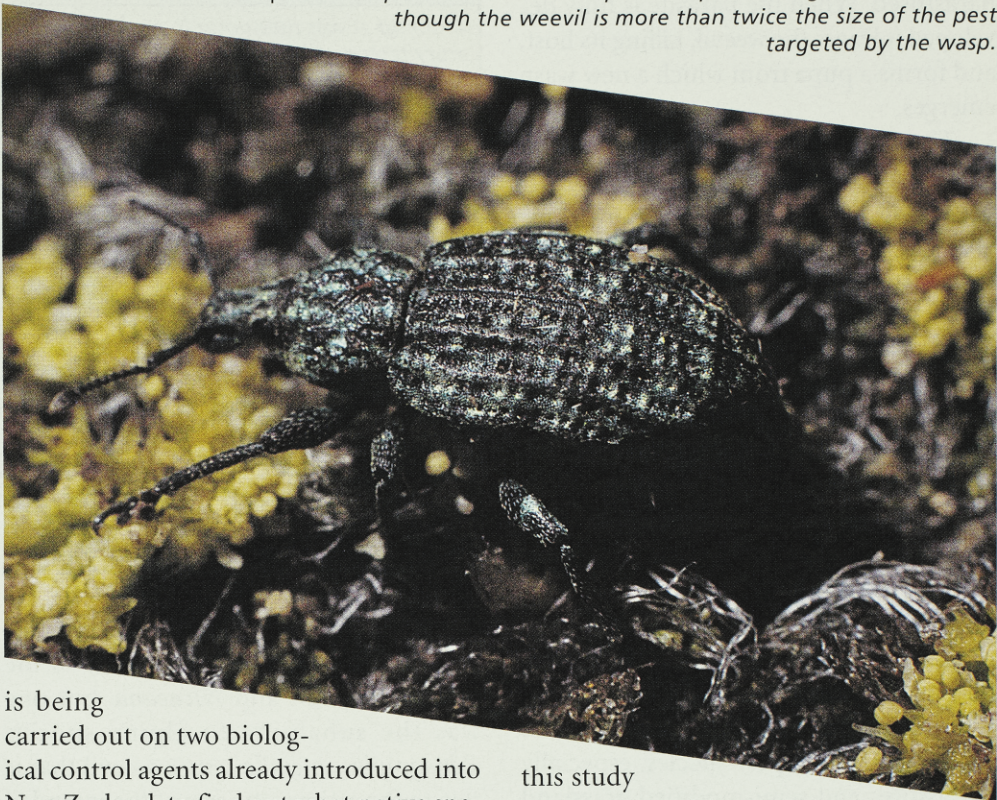
Trigonospila brevifacies was released for control of light brown apple moth, a pest in orchards. It is now found parasitising a number of other moth species, with anecdotal evidence to suggest an associated decline in the numbers of some native leafrollers. A research programme has recently begun to attempt to quantify this impact.

Vanessa Munro working with the Horticultural Research Institute has found that native moths are parasitised in some native habitats, but the range and susceptibility of species are yet to be determined. Also, numbers of the native red admiral butterfly are thought by some entomologists to have been reduced since the introduction of parasites to control the cabbage white butterfly.

AT THE INVERMAY Agricultural Centre in Mosgiel, a Biological Control Group is conducting research aimed at improving the environmental safety of biological control agents introduced into New Zealand.

The plan is to develop guidelines and protocols to test for host specificity – that is to identify the likely host range so that informed decisions on the impact of releases can be made – while the new organisms are still in quarantine. To do this, research

Zenagrapus metallescens (10-12mm long) in the Remarkables Range. This striking native weevil is quite common on many Central Otago ranges. Worryingly, the introduced *M. aethiopoides* wasp was found to be capable of parasitising this weevil even though the weevil is more than twice the size of the pest targeted by the wasp.

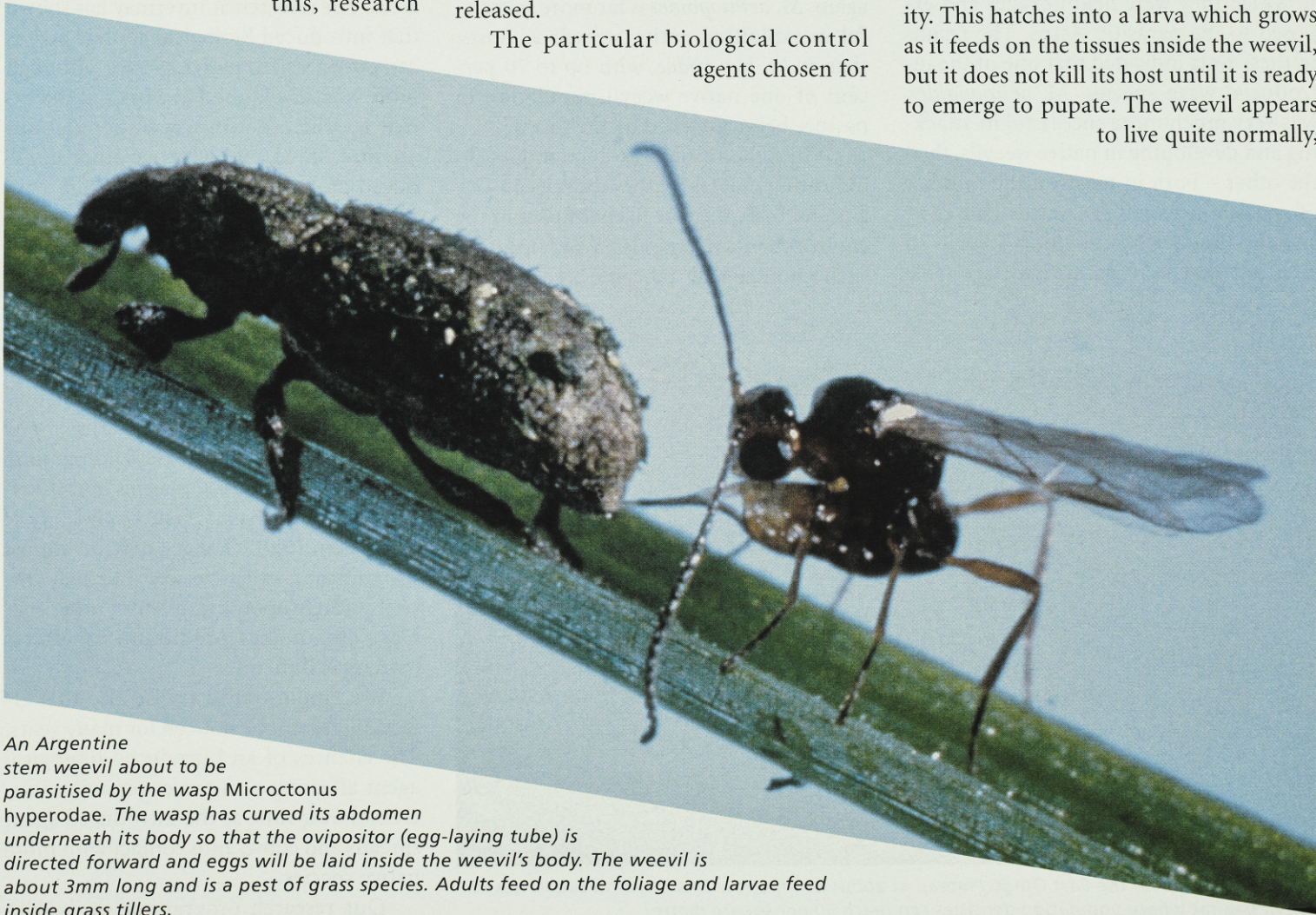


BRIAN PATRICK

is being carried out on two biological control agents already introduced into New Zealand, to find out what native species they attack in the laboratory, and compare this with what is happening in the environment. The study is therefore mimicking what could be done in quarantine, while at the same time verifying the results by finding out what has actually happened in the field since they were released.

The particular biological control agents chosen for

this study are two parasitic wasps. *Microctonus aethiopoides* was released in 1982 to control the exotic sitona weevil, a pest of lucerne, while *M. hyperodae* was introduced more recently, in 1991, to control the ryegrass pest, Argentine stem weevil. The wasps attack the adult stage of the weevils, laying an egg inside the body cavity. This hatches into a larva which grows as it feeds on the tissues inside the weevil, but it does not kill its host until it is ready to emerge to pupate. The weevil appears to live quite normally,



TONY MANDER

An Argentine stem weevil about to be parasitised by the wasp *Microctonus hyperodae*. The wasp has curved its abdomen underneath its body so that the ovipositor (egg-laying tube) is directed forward and eggs will be laid inside the weevil's body. The weevil is about 3mm long and is a pest of grass species. Adults feed on the foliage and larvae feed inside grass tillers.