

SOME OBSERVATIONS ON PREDATION AND SCAVENGING BY THE
INTRODUCED WASPS VESPULA GERMANICA AND V. VULGARIS

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The wasp Vespula germanica became established in New Zealand after it was accidentally introduced into the Waikato in 1944. A study undertaken from 1949 to 1952 recorded that it ate a wide variety of foods. These included nectar, honeydew (from many species of scale insects and aphids), damaged fruits (apples, grapes, peaches, strawberries, etc.), meat and invertebrates. However, at no time in the course of that work were wasps seen to sting the insects they preyed upon (Thomas 1960).

During 20 years of working in Nelson beech forests I have been an interested casual observer of the predatory habits of the introduced wasps V. germanica and V. vulgaris. Blowflies (Calliphora spp.) are the most common prey seen taken. Usually a wasp will pounce on a fly, immediately attempt to chew off the wings to stop it escaping, and sometimes chew off legs as well during the violent fracas that ensues. Once immobilised in this way the fly is dismembered and the pieces taken separately to the nest. I never saw the wasps sting flies or other small prey during any of the dozens of times I watched them. Notes from 1976 to 1984 indicated a strong correlation between increasing numbers of wasps and diminishing numbers of blowflies throughout the summer at Mt Misery, Nelson Lakes National Park. Wasps were in greatest numbers in the zones of mixed podocarp/beech and red beech (Nothofagus fusca) on the lower slopes of the mountain, but very occasionally a nest was found above the bushline.

On 21 March 1984 at Mt Misery, M.N. Clout (pers. comm.) saw several wasps attacking a stick insect on a Coprosma shrub

near the shore of Lake Rotoroa. After being stung many times the stick insect fell to the ground where the wasps proceeded to "cut" it up and carry pieces away before the creature was dead. R.H. Taylor (pers. comm.) recently watched a small wasp grappling with a much larger moth on the forest floor in the same general area. Although the moth flapped violently the wasp clung firmly to its posterior and appeared to sting it several times on the abdomen.

On 21 February 1986, in a small beech remnant near Trass Valley (50 km south of Nelson), I investigated some unusual, prolonged calls of a chorus cicada (Amphipsalta zelandica) because they were uncharacteristic of those usually associated with predation by birds. The male cicada was being attacked by a single wasp (V. vulgaris). During the initial, intense struggle, which lasted for 15 minutes, the wasp stung its prey several times between the head and thorax and segments of the abdomen, and also chewed off a leg and a piece from a ventral tympanum. Once the cicada was sufficiently immobilised the wasp flew off and left it lying on its side on the forest floor, weak but still moving.

After an hour, during which time the cicada had almost ceased to move, a wasp (presumably the same one) returned and immediately began to sever the rear segments from the abdomen. It took 12 minutes for the wasp to achieve this and fly off with the morsel, leaving the cicada with legs still moving slightly. A wasp appeared four minutes later and began to chew off another section of abdomen, but at this point I had to leave.

When I returned approximately 2.5 hours later all but the two front legs of the cicada had been chewed off, and wasps were working well inside the body cavity through a hole they had made in the underside of the thorax. Since the departing wasps were flying 25 metres or more before being lost to sight, and the carcass was seldom left for more than 30 seconds without a visit, it seems that several wasps were involved in this operation. However, only once were two wasps seen at the carcass at the same time. After another 30 minutes of observation, and more than four hours since the initial attack, wasps were still dismembering the cicada, but virtually all that remained by then was the shell.

Other invertebrates I have seen being preyed upon by wasps include spiders, bees, beetles and crane flies. Scavenging on a variety of carrion is also commonly seen. On occasions, we have deliberately left deer jaws outside for wasps to clean up. A portion of meat the size of a cricket ball was removed by wasps in a few hours from the hindquarters of a deer left hanging in a tree, and the corpses of two chicks found in a blackbird's nest on the fringe of Big Bush were being devoured by wasps. This leads one to speculate whether wasps ever kill

nestlings, or other animals such as baby lizards, but to my knowledge it has not been documented in New Zealand. However, introduced wasps are obviously very successful predators of invertebrates. In places such as the Nelson area, where there are extremely dense populations, they have undoubtedly had a major impact on native invertebrate populations. This is probably to the detriment of other native fauna such as lizards and insectivorous birds. It is somewhat of a wry twist though, that I found queen wasps in the stomachs of several adult green skinks (Leiopisma lineocellatum) collected in the Nelson Lakes area during the early 1970s.

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Reference

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