

THE GERMAN WASP: SUPER PREDATOR!

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In most non-marine ecosystems insects play a series of important roles depending basically upon what they eat. Herbivorous insects feed on living, green plant material - stick insects; decomposers feed on dead botanical matter, such as fallen dead leaves - cockroaches; carnivores obtain the required proteins, fats and carbohydrates by devouring other insects. One of the more frequently seen carnivorous insects is the praying mantis Orthodera ministralis, which is common both here and in Australia.

The biology of the mantis is not well known, though Sharell (1982) has recorded his observations, and Forster and Forster (1976) diagramatically illustrated the predator status of the praying mantis in manuka (Leptospermum scoparium Forst) community. Hutchin (1972) states that the mantis need not be hungry to kill and devour other insects, but that feeding reactions are triggered by the mere presence of food.

A mantis is capable of overpowering insects of its own size or larger as evidenced by the capture of a Katydid, Caedicia simplex observed at Titirangi, Auckland, in March 1983 (G.W. Ramsay, pers. comm.). In this case only the head was devoured.

The mantis does have its own natural enemies, for it is preyed upon by various solitary wasps. Sharell found that a small wasp, probably of the genus Podagrion parasitises the eggs of the mantis by laying its own eggs within the viscid mass of the mantis' egg capsule before it hardens. Hutchin found that in America the adult mantis is the prey of a solitary wasp, Tachytes, which when it locates its prey "...hovers about it, darting at it now and then. In time the mantis tires or perhaps becomes careless. In any case, the wasp eventually darts down

and grabs the mantid's neck-like prothorax with her legs. Then with lightning-like speed, she plunges her sting into the body of the mantis, which at once becomes unconscious. The wasp's next act is that of dragging the body of the mantis into her burrow where it will serve as food for her young."

It is not known whether the adult mantis is predated by solitary wasps in New Zealand. However, it is prey of the German wasp, Vespula germanica.

The German wasp is cosmopolitan in its choice of food, being omnivorous; it shows no preference between either botanical or invertebrate food and will often be seen eating honey dew. Observations by both Gibbs (1980) and Kleinpaste (1980) have added to the list of invertebrate prey taken by this wasp.

In this latest incident, which occurred midday on 20 March 1983, the attack sequence was not observed and whether the wasp initiated the attack on the praying mantis or vice versa is not known. The observation started with the mantis lying prostrate, ventral side up, on the ground. The wasp was standing over the mantis in a head-to-head position, biting through each of the mantis' formidable grasping forelegs in turn at the coxa-femur joint. The dismembered legs were not eaten and at no time did the wasp attempt to sting the mantis. With the legs removed the wasp then severed the head from the thorax at the joint and proceeded to devour it. At this point the wasp was disturbed and took flight carrying with it the remains of the head.

The headless body of the mantis when placed on its legs continued to move and sway in the manner so characteristic of this insect. Such movement was observed for some 15 to 20 minutes prior to the mantis being placed in alcohol for preservation.

The slayer of the formidable mantis must indeed be a 'super' predator.

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