

## The Associates of *Pison spinolae* Shuckard (Hymenoptera: Sphecidae)

By D. R. COWLEY,  
Department of Zoology, University of Auckland.

During the course of field work, several animals found in association with the nests of *Pison spinolae* are mentioned below.

1. *Melittobia clavicornis*, the most common animal found in mason wasp nests, is a small Hymenopterous insect of the family Eulophidae. Found in cocoons of *P. spinolae* which contain prepupae or pupae, it was first discovered in New Zealand by Cumber (1953).

The parasite appears to have two ways of securing entrance to a cocoon: (a) If it enters a nest in which the larvae have already spun cocoons it bores its way through and enters the cocoon by the hole so formed. Specimens of *P. spinolae* were attacked in this way until the very late pupal stage.

(b) Many cocoons which contained parasites had no small holes in them. I can only assume in such cases that the *Melittobia* adult laid its eggs on the larva before cocoon construction, or that the parasite was enclosed in the cocoon as it was constructed. As eggs were never found on larvae at any time, the second suggestion seems the more feasible.

Three cocoons infested with *M. clavicornis* contained 477, 466 and 634 parasites respectively, almost all of which matured into adults. In all nests which were found to be infested, 46.9% of the host prepupae and pupae, had been destroyed. (241 cocoons examined.)

The only other mention of true parasitism of *Pison* was of *P. decipiens* Smith by a small Chrysid wasp, *Chrysis transversus*—Froggatt (1894).

2. Cocoons collected in the field during winter often contained mites:—

*Pyemotes ventriculosis* (Newport), 1850.

*Tyrophagus castellanii* Hirst, 1912.

Both had apparently gained entrance through the holes made by *M. clavicornis*.

3. In several old nests larvae of Dermestid beetles were found. These were probably only scavengers on the remains of spiders, as they were not found in cells containing live *P. spinolae* young.

4. During the dry summer period when food is scarce, ants often invade the nest. Three different species were collected.

- (a) *Monomorium orientale* Mayr.
- (b) *Iridomyrmex glaber* (Mayr).
- (c) *Techromyrmex albipes* (Fr. Smith).

These ants attack all stages of *P. spinolae* except adults, eating everything except the cuticle of late pupae.

5. During adverse weather when *P. spinolae* females must cease nest construction before completion of the cells, these cells are sometimes infested with Dipterous eggs. When work is resumed, the cells are sealed off leaving the maggots to devour the contents. Several different species of flies were found to have attacked nests in this manner, but only one group was able to be brought through to the adult state and identified. This particular one was a Phorid known as *Megaselia comparabilis* Schmitz.

Of the animals mentioned only *Melittobia clavicornis* is a true parasite of *Pison spinolae*, all the others being facultative in their association. As there is no record of *M. clavicornis* being found on other Hymenoptera in New Zealand, there is the possibility that it is host specific.

#### REFERENCES

- CUMBER, R. A., 1953. *Melittobia clavicornis* (Cameron). (Eulophidae) Parasite of the Mason Wasp *Pison spinolae* Shuckard (Hym. Trypoxylonidae). *N.Z. Entomologist* 1, 16.
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