MACROSIAGON DIVERSICEPS (COLEOPTERA: RHIPIPHORIDAE) REARED FROM A SPHECID WASP, WITH NOTES ON OTHER SPECIES

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Abstract

Macrosiagon diversiceps (Blackburn) is reported for the first time as a parasite of the sphecid wasp *Pison spinolae* Shuckard in Australia, where the genus is now known to parasitize four families of wasps: Scoliidae, Tiphiidae, Eumenidae and Sphecidae.

Introduction

The Rhipiphoridae are parasitic beetles exhibiting larval heteromorphosis comparable with that in the Meloidae and are well represented in Australia. Biologically the subfamily Rhipiphorinae is the best known with the genus *Rhipiphorus* attacking bees and *Macrosiagon* parasitizing wasps. *Macrosiagon* is worldwide in distribution and in Australia *M. cucullatum* (Macleay) has been recorded from Scoliidae (Jarvis, 1922) and *M. punctulaticeps* (Blackburn) from Tiphiidae (Ridsdill Smith, 1968, 1971).

In *Macrosiagon* large numbers of minute eggs are laid in various situations, probably often in flowers. The first stage larva, known as a triungulin, is an active, free-living planidium and reaches its host by phoresy attached to the adult wasp. The triungulin enters the wasp larva, feeding at first internally, but later emerges and moults to feed on the host as an ectoparasite. In several species adult beetles have been reared from wasp cocoons, so the host larva is not killed until after the cocoon is completed. The life-cycle of the parasite is univoltine and closely correlated with that of its host.

There are records of Rhipiphoridae as parasites of Sphecidae in South Africa (Brauns, 1911), United States (Barber, 1915) and South America (Williams, 1928; Eberhard, 1974). This is the first report of a rhipiphorid parasitizing a sphecid wasp in Australia.

Macrosiagon diversiceps (Blackburn)

This species was originally described in the genus *Emenadia* from SW Australia (Blackburn, 1899), reference being made to its characteristic blue iridescence. As in other Rhipiphoridae, the sexes can be easily distinguished, the male having flabellate and the female serrate antennae. In studying the nesting behaviour of the sphecid wasp *Pison spinolae* Shuckard, I reared a male of *M. diversiceps* from a mud nest of this species built in a disused lawn sprinkler at Canberra, Australian Capital Territory.

P. spinolae belongs to the sphecid subfamily Larrinae, tribe Trypoxylonini, and is known only from Australia and New Zealand. It builds a nest of from one to six or more mud cells typically in protected situations, often in outbuildings. Spiders of the family Argiopidae are stored by the female wasp as food for the developing larva.

In February 1972 I observed a female of *P. spinolae* in process of building a nest in the opening (9.0 mm diameter) of the lawn sprinkler, which was kept

on a shelf in my garage. The space available permitted the construction of only two cells and these were provisioned with spiders, an inner cell being completed on 27 February 1972 and an outer one a few days later. The outer cell was opened soon after it was sealed and contained 7 argiopid spiders with an opaque white egg measuring 2.5 by 0.5 mm attached to the opisthosoma of one of the spiders. The inner cell was not opened and the sprinkler with the intact cell was stored for over 8 months in a plastic container.

On 18 November 1972 the male of *M. diversiceps* emerged from the cell by biting a hole through the mud partition, which had been the base of the outer cell, and remained alive in the container for several days. Adult life in the genus is said to be relatively short.

It was something of a coincidence that on 4 December 1972 I captured a female of *M. diversiceps* on the flowers of asparagus, *Asparagus officinalis* L., in my garden at Canberra. It may well have been laying its eggs in the flowers.

Macrosiagon reared from known hosts

Six species of *Macrosiagon* were described by Blackburn (1899) in the genus *Emenadia,* and a key given to the 12 species then known from Australia. At that time nothing was recorded of their biology and their hosts were unknown.

Three of the 10 named species of *Macrosiagon* in the Australian National Insect Collection, C.S.I.R.O., Canberra were reared from identified hosts. There is a male of *M. capito* (Blackburn) labelled "emerged from nest of *Abispa* sp. 27/2/48 .G. J. S.", but without locality. The identity of the collector is also unknown; Dr G. J. Shanahan and Mr G. J. Snowball of Sydney kindly inform me (1977, *in litt.*) that they cannot recall having collected the specimen. *Abispa* is a genus of large (23-32 mm), stout-bodied, eumenid wasps, which often build their mud cells in houses; three species occur in Australia, all known from Queensland and one reaching southern New South Wales.

M. diversiceps is represented by a male and two females, the male reared from *Pison spinolae* (Sphecidae), Canberra, A.C.T., emerged 18.xi.72 (E. McC. Callan), and one of the females taken on asparagus flowers, Canberra, A.C.T., 4.xii.72 (E. McC. Callan). *M. punctulaticeps* is represented by five specimens, one of which is a male reared from *Hemithynnus hyalinatus* Westwood (Tiphiidae), Tilbuster, N.S.W., 30.ix.65 (T. J. Ridsdill Smith).

Discussion

The host preferences of *Macrosiagon* are restricted and only wasps are parasitized, but little is known of actual host specificity. Ridsdill Smith (1968) recorded *M. punctulaticeps* from the cocoons of several species of thynnine wasps in eastern Australia and it is obviously not host specific. He suggested that this was why the adults varied so much in size.

In Australia species of *Macrosiagon* are now recorded as parasites of wasps of the families Scoliidae, Tiphiidae, Eumenidae and Sphecidae. This is based on published records, on a specimen of *M. capito* in the Australian National Insect Collection, and on the present report of *M. diversiceps* parasitizing *Pison*

spinolae. What we do not know is whether *M. diversiceps* attacks only *Pison* species and *M. punctulaticeps* parasitizes only thynnine wasps. Regrettably, these parasitic beetles are rarely reared from their hosts.

Acknowledgement

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OBSERVATIONS OF THE TAILED EMPEROR *POLYURA PYRRHUS SEMPRONIUS* (LEPIDOPTERA: NYMPHALIDAE) IN SOUTH AUSTRALIA

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Introduction

Since my childhood I had seen the tailed emperor *Polyura pyrrhus sempronius* (F.) in areas of Sydney but was surprised to find it common in Adelaide. It has only recently been recorded from South Australia (Hatch, 1977; Quick, 1974), the species being previously known only from eastern and northern Australia. This paper lists further records for South Australia and records observations on the behaviour of the species.

Sightings and observations

I found this butterfly plentiful in Veale Gardens, an Adelaide park, from 8th February to 25th March 1976. I visited the Gardens regularly during this period and made notes as follows: –

First sighting, 8th February. Two males were sighted and captured. One was netted and the other "plucked" from a branch of a tree by hand. This tree, which was later identified as *Polygala myrtifolia* L., was yielding a frothy, white sap, tasting bitter-sweet and alcoholic, and it was on this that the second butterfly was feeding when it was taken. The sap came from the limbs of the tree, only a few feet from the ground. These insects usually have a very rapid, definite type of flight and are almost impossible to net until they either land