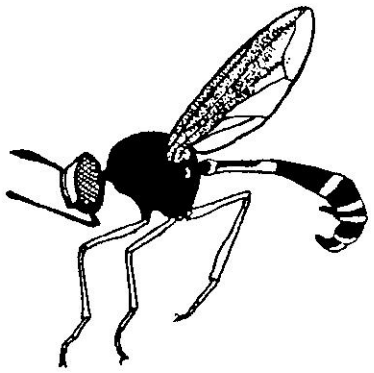
Conopid Recording Scheme.



NEWSLETTER 3
JULY 1990

INCORPORATING THE LONCHOPTERIDAE STUDY GROUP

I had planned for this newsletter to be a "Sicus Special", since the last issue generated quite a lot of new information on the genus, including several reports of males answering the description of Sicus abdominalis. Unfortunately, further research indicates that there are still numerous problems in identifying males of this species, which I am attempting to resolve. Hopefully, I will have time to prepare the Sicus issue later in the year. In the meantime, there is plenty of business to be getting on with.

I am particularly pleased to be able to include some of the material sent to me by Rod Macfarlane of New Zealand, dealing with the biology of Japanese Conopidae. The biological work is exciting in its own right, since it elucidates successful rearing techniques for conopids. However, many of you will perhaps be as surprised as I was to learn that Japan has so many species in common with the UK, making the findings all the more relevant, from our insular point of view.

1989 seems to have been a good year for conopids, and many new records have found their way into the recording scheme. A number of particularly dedicated recorders have even found time to go back over old records, transferring them to the new RA69 cards - knowing only too well how many demands the amateur entomologist has to meet in their limited spare time, I can only say how much I appreciate the effort involved. Keep up the good work!

1990 is getting off to a good start : I have taken a number of Myopa extricata from a good aculeate site nearby, and my friend and past colleague Keith Alexander has taken Myopa tessellatipennis - the secret is definitely to start looking early in the season! Following Rod Macfarlane's excellent lead, I currently have a number of suspect aculeates from the extricata site in a rearing cage on the window ledge. Perhaps my efforts will also pay off, and I will be rewarded by finding the presently-unknown larvae of the Myopa. One can but hope.

Wishing you all a good season!

Keys to the Conopidae of northern Europe

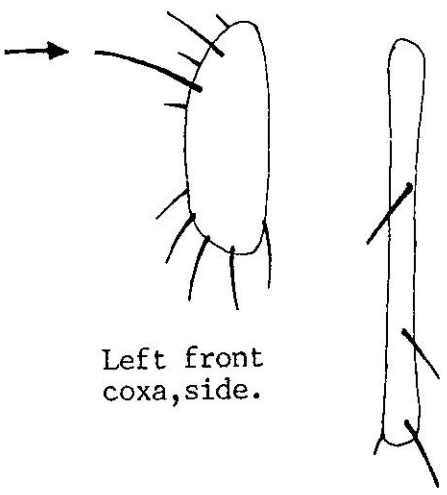
As mentioned in the last newsletter, Dr Milan Chvála of Czechoslovakia produced two important revisionary papers on the Conopidae in 1961 and 1963. With great generosity, he wishes to make his small surplus of bound reprints available at nominal cost to workers in the UK. These reprints are now available from me at a cost of £4.00 per set. Orders will be dealt with on a strict first-come, first-served basis, at one copy per person. I anticipate they will disappear very quickly ...

Revisionary keys to the Myopa testacea group

I am making some progress with new keys to this difficult section of the genus Myopa, which includes testacea and extricata, a much-confused species pair in my experience. I'm extremely grateful to Mike Edwards, Ivan Perry and John Coldwell for sending me surplus Myopa specimens - the more Myopa specimens I get to see, the better. I'm still keen to see material of any species, particularly testacea.

Lonchopteridae

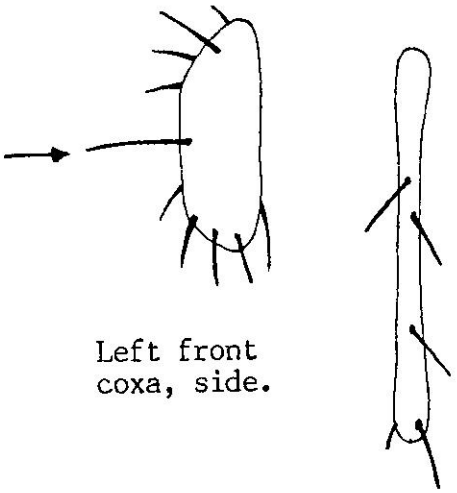
During 1989, I had an interesting correspondence with Shirley Goodyer. Whilst working on moorland invertebrates, with Dr J C Coulson of the University of Durham, she collected large quantities of Lonchoptera lutea from pitfall traps. Of these, around 5% were found, on closer examination to have an anteroventral bristle on the distal part of the middle tibia, thus confounding the 1969 key by Ken Smith (RESL Handbook X 2ai). There is little doubt that the specimens are indeed lutea. - the male genitalia are quite distinctive, but a cursory examination would probably consign such abnormal specimens to furcata. It is therefore essential to check that the other chaetotaxic characters given in the key - particularly those referring to the anterior tibia - are checked. Another distinctive character for separation, pointed out by Martin Drake, is that the long bristle on the front coxa is decidedly basal on lutea (at no more than the first third), whereas in furcata it is about halfway down the coxa.



Left front coxa,side.

Front left tibia, anterior view.

L.LUTEA



Left front coxa, side.

Front left tibia, anterior view.

L. FURCATA

Notes on the Rearing and Biology of Conopid Species in Japan and elsewhere.

by R P Macfarlane and Y Maeta

1 Taxonomy

Japan and Great Britain share at least ten, and perhaps twelve, of the 25 species found in Japan. The affinity across the Palaearctic zone is closer that Zimina's (1976) catalogue suggests, because of considerable synonymies in the Asian fauna. Recent synonymies include Conops vesicularis (= C. nigricosta Matsumara), C. strigatus (= C. nigrifrons Krober) and C. flavipes (= C. jozankeanus Mats.). The main difference is that Japan has a greater proportion of Conops and allied genera in its fauna, with only three species of Myopa recorded. The reason for this difference may lie in the range of available hosts : for example, we suspect that the larger Conops (Asiconops) and Archiconops parasitize either the spectacular hornets, larger Sphecidae or carpenter bees, since they occur most commonly in areas where bumblebees are rare or absent.

2 Rearing Methods

During experiments in Japan (and in Ontario, Canada), parasitized Hymenoptera were obtained by collecting dead bees from around the entrances to bumblebee colonies, and around solitary bee nesting sites. Another method, which should work, is to collect live suspected hosts and keep them alive for 1-3 weeks, until those affected by conopids can develop fully grown parasites. A host containing a conopid larva will die within about 14-20 days of oviposition. Conopid adults emerging from these hosts are then allowed to oviposit in fresh hosts, which are kept alive for about 1-2 weeks prior to dissection.

In this way, the conopid larva becomes available for description.

Some skill is needed in keeping the hosts alive, either after capture or as captive host material. Adult bees and wasps can be confined in small canisters or large screen cages. A screen cage of 4 x 4 metres can hold 20 colonies or at least 500 adult bees. The bees can be fed on a sugar solution in a budgie feeder, the base of which is plugged with cotton-wool so that the bees don't fall in. The solution needs to be changed every 5-7 days, and can be supplemented with cut flowers, potted flowering plants or pollen collected in an apiarist's pollen trap. The latter needs to be changed every 2-3 weeks to keep it fresh and attractive.

In Ontario, experiments showed that storing the abdomens of parasitized bees in a fridge to overwinter them resulted in dehydration. Better results were obtained by overwintering the tubed abdomens inside a beehive, but theoretically any cold but frost-protected situation should do.

As conopids only live for a few days (Howell, 1967) and because their attacks on the hosts are over very quickly, accumulation of host records from field observations can only occur slowly. Rearing has an essential part to play in elucidating the biology of conopids. Our studies have indicated that conopids are much underestimated as parasites of bees and wasps, and one much more common in the aculeate population than collection of adult flies alone would suggest.

3 Comments on the Biology of Selected Species

In Japan *Myopa buccata* is known to parasitize bumblebees (*Bombus spp*) and hornets (*Vespa* spp).

Myopa species active in Spring must have hosts which are active at that time. In Ontario, *Myopa* has been associated with andrenid bees, and have been recorded from *Bombus* spp elsewhere (Pouvreau, 1974).

Zodion cinereum affects *Bombus* in Japan, and has been associated with *Andrena*. This species probably has a wide host range. The Japanese/Russian species *Z. vsevoldi* has been reared from bees of the genera *Chalcidoma*, *Ceratina* and *Hylaeus*. In north America, honey bees are an important host for this genus.

Physocephala obscura (probably a synonym of *P. rufipes*) has been reared from *Bombus ardens* and *B. diversus* by E Katayama and Y Maeta. Bumblebees appear to be major hosts for *Physocephala*, although in Spain *Megachile* is also utilized.

We suspect *Conops flavipes* may be amongst the more important parasites of bumblebees during autumn in temperate Japan. *Vespula* wasps are also suspected as hosts.

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Maeta Y : Faculty of Agriculture, Shimane University, Matsue, Japan.

Note by Editor:

This article has been culled from a much larger volume of information sent to me by these authors - too much, in fact, to include fully in the newsletter. However, readers may be interested to know that a fuller account is due to appear in the journal *Kontyu*. I will provide the full reference when I have it.

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