

On some parasites of the sawfly *Diprion*
(*Microdiprion*) *pallipes* Fall. in Sweden
(*Hym. Parasitica*).

By

KARL-HERMAN FORSSLUND.

In vol. 78, 2-3 of this journal G. J. Kerrich has dealt with the ichneumon fly *Rhorus substitutor* Thunb. from a systematic point of view, mainly on the basis of material I have reared from the pine sawfly *Diprion pallipes* Fall. In conjunction with Kerrich's paper I would like to supplement some data on the biology of this species and some other parasites on this sawfly obtained from Swedish localities. For help with the determination I wish to express my most sincere thanks to Mr. G. J. Kerrich, London, and Dr. Wolter Hellén, Helsingfors.

The host insect *Diprion pallipes* has proven a serious pest of young pines during later years especially on elevated localities in northern and central Sweden. It occurs mainly on burned and clear-cut areas on poor sites but also on mountains above the true timber line. In northern Dalecarlia infestations have been observed on the following places: parish Älvdalen: Mossiberg and Grimsåkersbrännan (burned areas), Storvarden (mountain); parish Idre: Klingforsen (burnt area), Himmeråsen (mountain). As yet the parasites have only been observed in the named localities. Here *Rhorus substitutor* is the most important species. It is strongly predominant and the other species have been reared in few specimens only. The increase of *Rhorus* during later years has caused the infestation of *D. pallipes* to cease almost completely.

Rhorus substitutor starts usually to hatch about 10 days later than the sawfly and it ends about 8 days after it. Already in the first instar the larvae of the sawfly may get eggs of *Rhorus*. Nevertheless the larvae complete the development and spin their cocoons in the soil as usual. Single larvae of *Rhorus* may be able to spend two winters in the cocoon before they emerge. Two males of *Rh. substitutor* have been reared from larvae of *Diprion (Gilpinia) verticale* Gussak. On the same pine where these larvae lived some larvae of *D. pallipes* also occurred (Grimsåkersbrännan).

The remaining parasites reared from *D. pallipes* will now be discussed.

Aptesis basizonius Grav. (W. Hellén det.). Of this species, which is most common parasite on *D. sertifer* Geoffr. only 1 ♂ has been reared. The locality is Klingforsen.

Adelognathus tetracinctorius Thunb. (W. Hellén det.). The larvae of this species live ectoparasitically. They are attached dorsally, laterally or ventrally on the thorax as well as on the abdomen. Each sawfly larva may carry from one to four parasitic larvae. In the second part of August the fully developed larvae crawl out on needles in the vicinity and spin their cocoons which are long and narrow and taper towards both ends. The sawfly larvae succumb and their shrunk and blackened bodies remain on the twigs. Of *A. tetracinctorius* 20-odd specimens were found at Mossiberg. In addition a cocoon was found inside a locality with an outbreak of *Diprion sertifer* in the province of Värmland: Gåsborn, Älvsjöhyttan 1949 (reared in 1950).

Gelis sp. Specimens of this genus have been reared from cocoons found in all localities of northern Dalecarlia. Unfortunately all are males, and an exact determination is accordingly not possible. The species of *Gelis* are hyperparasites and probably live here on larvae of *Rhorus substitutor*.

Exenterus simplex Thoms. (G. J. Kerrich det.). From Mossiberg 2 ♂ 2 ♀, from Klingforsen 1 ♀ and from Himmeråsen 4 ♂ are reared. At Klingforsen 5 ♂ were caught on 13/6 1954 and 1 ♀ on 28/8 1956 on wings in the forest. According to Kerrich (Bull. Brit. Mus. Nat., Ent. 1952, p. 356) this species was previously found only in 2 specimens, one of which is now in Coll. Thunberg in Uppsala and the other in Coll. Thomson in Lund. The latter was found by Zetterstedt on the isle of Gotland in 1843.

Hypsantyx lituratorius L. (G. J. Kerrich det.). A single ♂ is reared from Grimsåkersbrännan. (One ♂ from *D. verticale*, Klingforsen.)

Lamachus longiventris Thoms. (G. J. Kerrich det.). 5 ♂ 6 ♀ reared from Mossiberg and 1 ♂ from Grimsåkersbrännan.

Holocreminus frutetorum Thoms. (G. J. Kerrich det.). 1 ♂ 1 ♀ reared from Klingforsen. In this locality the species was a parasite also on *D. verticale*.

Finally it may be mentioned that from a cocoon of *Adelognathus tetracinctorius* a chalcid fly was reared. K. J. Heqvist has stated that it is a n.sp. and n.gen. which he will describe under the name of *Telepsogina adelognathi*. The cocoon was found August 29, 1956, and the imago hatched Sept. 3 in the same year.

I intend to deal with *Diprion pallipes* and its parasites in greater detail in another paper.