Coleophora coronillae, a new coleophorid moth for the Dutch fauna (Lepidoptera: Coleophoridae)

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Abstract: The coleophorid moth *Coleophora coronillae* is recorded for the first time from The Netherlands. The species was found at Simpelveld (province of Limburg), where many adults were observed early July 1999. Larval cases were collected at the same locality in the same year. The next year adults were also present, and therefore it is likely that *C. coronillae* has become a resident here. This new locality is situated far beyond the north-west limits of its range: the nearest collecting site lies at a distance of 130 km. External characters and genitalia are described and figured. Moreover, bionomics and geographical distribution are discussed.

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Introduction

In the evening of the fifth of July 1999 my wife and I visited the shunting yard at Simpelveld in the extreme south of the Dutch province of Limburg. This locality, a xerotherm habitat which is well known among botanists, has become one of our favourate collecting sites in South Limburg. It looked as though the visit of that evening would become one of the less profitable ones until we netted a whitish coleophorid, which was unknown to us. The next few minutes we observed at least sixty adults of this species between and near groups of coronillas (*Coronilla varia* L.) in a very restricted area of the shunting yard. The unknown coleophorid turned out to be *Coleophora coronillae* Zeller, a species not recorded before from The Netherlands.

The finding of this coleophorid moth inspired us to pay some subsequent visits to the Simpelveld shunting yard in order to collect further data on the species. In the next paragraphs the results will be discussed and, moreover, attention will be paid to identification problems, bionomics and geographical distribution.

In the Dutch checklist (Kuchlein & De Vos, 1999) *C. coronillae* should be inserted as 0591a between *C. serpylletorum* E. Hering and *C. conspicuella* Zeller. According to the letter code system adopted in The Netherlands and Belgium the species will be coded as COLECORO.

Fig. 1. Male of *Coleophora coronillae*.

Identification

Coleophora coronillae is a medium-sized coleophorid moth: the Dutch specimens have a wingspan of 13,5 –16,0 mm. The ground colour of the forewing is yellowish, tinged brownish towards the apex, with four very narrow, silvery white, longitudinal streaks (fig. 1). These streaks may become less distinct in worn specimens. The scape is provided with a long tuft of hair scales.

The species belongs to group 18 of the coleophorid system proposed by Toll (1953, 1962). His system is essentially accepted in the literature. In the Dutch list this group is represented by four species: *C. conspicuella* Zeller, *C. ditella* Zeller, *C. caelebipennella* Zeller, and *C. vibicella* (Hübner). Externally the adults of *C. coronillae* can be easily distinguished from these species. *Coleophora conspicuella, C. caelebipennella,* and *C. vibicella* have unicolorous whitish antennae, whereas in *C. coronillae* and *C. ditella* the antennae are annulated. However, in the latter species the

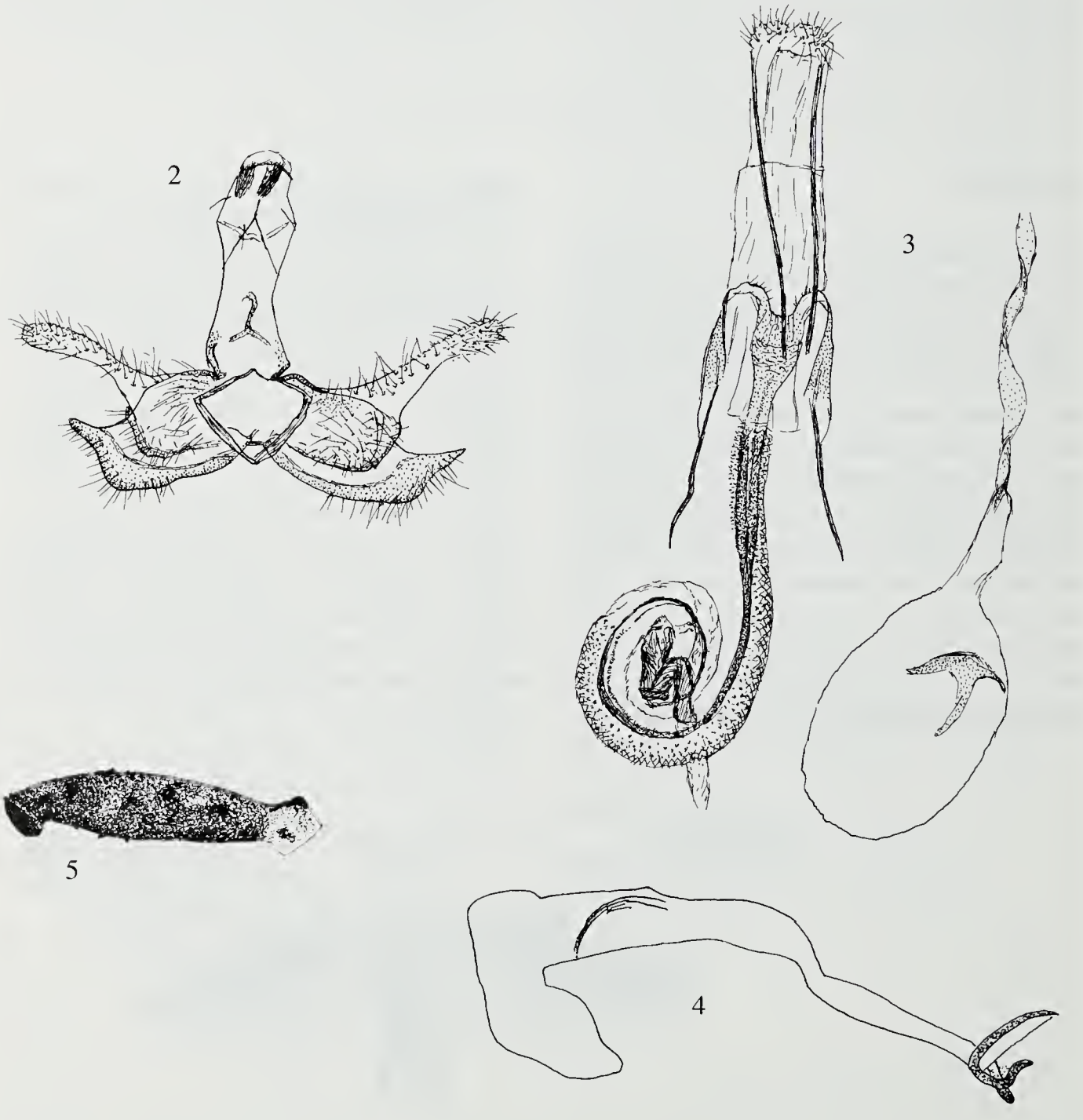

Fig. 2-5. *Coleophora coronillae*. 2, male genitalia; 3, female genitalia; 4, aedeagus; 5, larval case.

white median longitudinal streak in the forewing penetrates into the fringe and this differs from *C. coronillae* in which the streak does not reach the margin.

The larvae of *C. coronillae* feed on *Coronilla varia* L. In Central Europe two other *Coleophora*-species occur of which the larvae feed on this foodplant, viz. *C. colutella* (Fabricius), and *C. fuscociliella* Zeller. *C. coronillae* can be distinguished from the former species by the annulated antenna which is unicolorous in *C. colutella.* However, *C. fuscociliella* shows some similarity externally to *C. coronillae,* but in the latter species the white median streak of the forewing is straight over its whole length and very narrow, whereas in *C. fuscociliella* this streak is slightly curved and broad in the middle.

The genitalia of *C. coronillae* can be easily recognised, both male (fig. 2 and 4) and female (fig. 3). For depictions of the genitalia of similar species the reader is referred to the publications of Patzak (1974) and Razowski (1990).

Bionomics

The larvae of the Coleophoridae nearly always make portable cases which are constructed of silk and often also of plant material. These larval cases are readily recognised (but sometimes difficult to find) and fairly constant of structure in the respective species. Some principal types of cases are named by Hering (1951); see also Kuchlein (1993) and Emmet et al. (1996).

The bionomics of the early stages of *C. coronillae* are still incompletely known. Illustrative for this lack of knowledge is that the cases of *C. coronillae* and *C. colutella* have been confused for a long period of time. Iit was universally thought that the larva of *C. coronillae* constructs a lobe case. This view can be found already in Von Heinemann & Wocke (1877) and subsequently in all publications which treat the larval case of this species (e.g. Hering, 1957; Schütze, 1931; Suire, 1961; Toll, 1953, 1962). Patzak (1974) was the first to draw attention to this error. He pointed out that all adults bred from larvae with lobe cases, collected on *Coronilla varia* appeared to belong to *Coleophora colutella.* The larva of *C. coronillae*, however, constructs quite another type of case, viz. a tubular silk case, figured by him (l.c.). His conclusion was based on the study of specimens bred by Petry. Rapp (1936) published some of Petry's short notes on these breedings, without, however, a description of the larval case. Petry only reported that he collected one case "from the fruits of *Coronilla varia* L." in Thuringia (Germany) on 22 August 1930. Moreover, he collected the pods of *Coronilla* in early August and bred from these the adults on 15 and 16 July 1929. Finally, Rapp (l. c.) reported that Beer also found the cases in Thuringia, where they were collected on the pods of *Coronilla varia*; these pods showed bore holes demonstrating that the larvae fed within the pods.

Besides *Coronilla* some additional foodplants of *C. coronillae* have been published, viz. *Lathyrus* (Schütze, 1931; Lhomme, 1953), *Astragalus* (Lhomme, 1953; Toll, 1953), and *Spartium* (Lhomme, 1953). All are very probably erroneous.

Our own efforts to discover the immature stages at this new locality remained unsuccessful. Concrete evidence for their presence has been obtained by Mr C. J. M. Alders, who swept and beat some empty cases from *Coronilla* in early August 1999. These cases were evidently attached to the foodplant, and belonged to the generation of which we observed the moths earlier that year.

The shunting yard was visited by my wife and me two times in the autumn of 2000, viz. on 21 September and on 10 October in the hope of discovering the younger larvae. However, we found no trace of them in the field. Hence, we took dozens of plants with us to examine them closer at home, paying special attention to the pods, of which the interior part (containing the minute seeds) was inspected. This closer examination also remained without result.

Known data on the larval behaviour of *Coleophora coronillae* show some similarity

to that of *C. gallipennella* (Hübner), a species not recorded from The Netherlands. The young larva of *C. gallipennella* lives within the pods of *Astragalus glycyphyllos* L., where it eats the seeds. The older larva constructs a case which is attached to the edge of the pod, and from this case the larva penetrates into the pod where it eats the seeds (Lhomme, 1953) (see also note below).

The voltinism of *C. coronillae* most probably corresponds with that of most other coleophorids. The species has one generation per year and the moths appear in the course of June and July. In The Netherlands the adults of *C. coronillae* were observed on 12 June, and on 5 and 7 July.

Geographical distribution

The distributional range of *C. coronillae* covers large parts of Europe (fig. 6). Outside Europe the species is only known from Asia Minor (Vives Moreno, 1988). The western and northern limits of its range are constituted by a line from Spain through France, North Germany, Poland and the former USSR. In the latter territory *C. coronillae* was recorded from Lithuania (Ivinskis, 1993; Ivinskis & Savenkov, 1991), the Volga-Ural region (Anikin et al., 1999), Armenia and the Caucasus (Vives Moreno, 1988). This shows that the species has not yet been found in the regions surrounding The Netherlands, viz. the British Isles, Belgium, and Nordrhein-Westfalen.

The location nearest to the Dutch one is Lahnstein near Koblenz (Rheinland-Pfalz, Germany), where Grosz captured a specimen on 26 June 1957 (Biesenbaum & Van der Wolf, 1999). The distance is nearly 130 km as the crow flies.

There is some evidence for recent expansion elsewhere in Europe, for the species reached new areas situated more northerly in recent years, viz. in North Germany (Gaedike & Heinicke, 1999) and Southeast Russia (Anikin et al., 1999). It appears as if *C. coronillae* can be considered as a new resident for the Dutch fauna: the moths have been recorded in considerable numbers on the same locality in two successive years, and, moreover, the larval cases have been collected there.

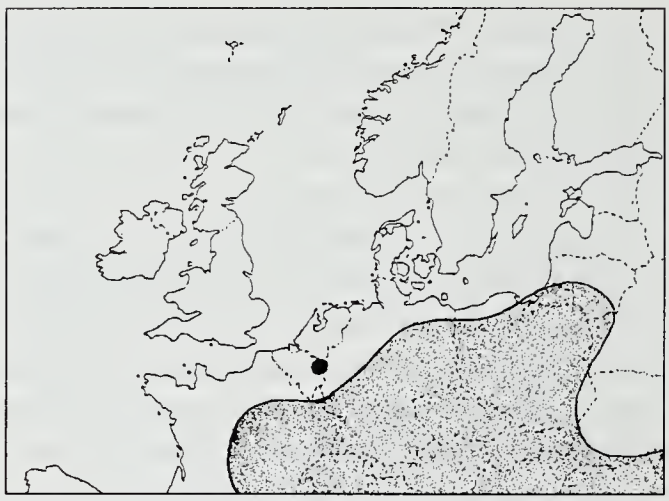

Fig. 6. Geographical distribution of *Coleophora coronillae*.

Note added in proof:
After the finishing of the proof Mr A Schreurs (Kerkrade), who I informed earlier of the occurrence of *C. coronillae* at the Simpelveld shunting yard, reported the following. He visited the locality on 15 August 2000 and found ten larvae whose cases were all attached to the edges of the pods of the footplant. This observation suggests that indeed the larval habits of *C. coronillae* are very similar to those of *C. gallipennella*.

Samenvatting

Coleophora coronillae wordt voor het eerst uit Nederland gemeld. Van deze soort werden in 1999 vele adulten en 9 larvale zakjes gevonden te Simpelveld (provincie Limburg). In het volgende jaar werden de vlinders opnieuw op deze plek aangetroffen en het is dan ook aannemelijk, dat hier werkelijk sprake is van een aanwinst voor onze fauna. Uitwendige kenmerken van de adulten en de genitaliën worden behandeld, alsmede levenswijze en verspreiding van de soort.

Acknowledgement

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