

Coleophora zukowskii Toll, 1959 rediscovered in Denmark, with description of its hitherto unknown female (Lepidoptera, Coleophoridae)

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Coleophora zukowskii Toll, hitherto known only from the male holotype from southern Poland, is recorded in three specimens from Denmark and one from Germany; all were collected early in the century. The female genitalia of *zukowskii* are described and figured for the first time. Details about the specimens and their identification are provided.

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Coleophora is the most species-rich genus of Lepidoptera in Europe, with more than 400 described species (Baldizzone, 1996). A comprehensive treatment of the European coleophorid fauna has not yet been published, but they are relatively well known due to numerous papers especially by S. Toll and G. Baldizzone. 112 species have until now been recorded from Denmark.

Curating unidentified material of Danish Coleophoridae belonging to the Zoological Museum of Copenhagen I came across three specimens (1♂ and 2♀♀) from the island of Funen which I could not easily identify. The three specimens, apparently being conspecific, were collected in 1907, 1923 and 1924 by C. S. Larsen. The first had been identified by A. Bang-Haas as *C. pratella* Zeller (a species which is not on the present Danish list) and published under this name by Larsen (1917: 205). The specimens from 1923 and 1924 were studied by H. Rebel, and identified as *C. dianthi* Herrich-Schäffer, and “near *C. murinipennella* (Duponchel)”, respectively, and the 1923 specimen was published as *dianthi* by Larsen (1927: 118) (*C. dianthi* is also not on the present Danish list).

In 1952 Niels Wolff made genitalia prep-

arations from the three specimens, but he was unable to identify them. He produced drawings of the genitalia (fig. 2 & 5), and these were apparently sent to the then leading coleophorid specialist S. Toll, who stated the male to be *hackmani* (Toll), a species named by Toll himself in 1952. However, *hackmani* is a different looking species of nearly the double size. Even though Wolff wrote “*hackmani* Toll – Toll verif.” on the genitalia slide, he may have had doubt about the identification. This is the only reasonable explanation why he did not publish the species, which would have been new to the Danish list. The two females were identified as *argentula* (Stephens). Wolff later handed the three specimens and slides over to Bent W. Rasmussen, who possessed them until his untimely death, without being able to solve the problem.

My search in the literature gave the result that they belong to *C. zukowskii* Toll, which was described in 1959 from a single male from the Pieniny Mountains in southern Poland. Since then no further findings have been published, and references to it in the literature (e. g. Razowski, 1990) refers to the holotype.

Among correspondance left by B. W. Ras-

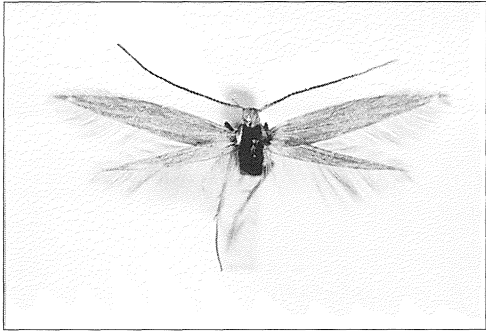


Fig. 1. *Coleophora zukowskii* Toll. ♂, Denmark, F, Heimdalsbakke, Lyngbakkerne v. Fåborg, 4.viii. 1924. G. Brovad phot.

mussen I found a letter from the late Helmut Patzak (15.ii.1973), in which he wrote about his genitalia preparation number HP 822: "...kann ich diese Art nur mit *zukowskii* Toll vergleichen". He gave no information about the origin of the specimen. Patzak did not include *zukowskii* in his treatment of Coleophoridae of East Germany (1974) or in his subsequent publications, and my search for his slide 822 was without result. However, recently Giorgio Baldiszone informed me that he has examined the slide and specimen in question, and it does indeed belong to *zukowskii*, which is thus also new to Germany. It is a male labelled: 'Germ. centr., Alter Stolberg, 28.vi.1908, leg. Petry'.

The material from Denmark includes two females, and it is therefore now possible to describe and figure the female genitalia. It is my hope that this paper will lead to discovery of more specimens, and that its biology can eventually be elucidated.

Coleophora zukowskii Toll, 1959

Adult (fig. 1). *C. zukowskii* is a small *Coleophora* with light brown forewings with rather prominent whitish, longitudinal lines without (or nearly without) dark scales. Toll (1959) gave a detailed description of the holotype, which is in good condition. The Danish specimens are more or less worn, and little can therefore be added to his description. Toll compared *zukowskii* with

argentula (Stephens), and among Danish coleophorids it certainly resembles that species most. *C. zukowskii* is on average a little smaller (wingspan 10.0-10.5 mm for Danish specimens – Toll gave 9-10.5 mm (sic!) for the holotype); the wing span of *argentula* is 10-12 mm. The white lines in the forewing seem more prominent in *zukowskii* than in *argentula*, and therefore the forewing of the latter looks darker. Of course one needs to study the genitalia to confirm the identity of these species. Judging from the present material females are similar to males.

Male genitalia (fig. 2,3). Similar to those of *argentula*, but differing in having sacculus more evenly tapered toward apex (in *argentula* sacculus is broader than valva for two thirds of its length, and then tapering into a tip); valva of *zukowskii* reaching well beyond sacculus. Aedeagus bifurcate, with lower tine ending in a small barb; upper tine shorter, bearing a prominent barb half way out (*argentula* has both tines in aedeagus of equal length, and both ending with a more or less prominent barb).

Female genitalia (fig. 4,5). Ovipositor lobes short, weakly setose. Sternite 8 moderately sclerotized, about twice as broad as long. Antrum broad, reaching outer margin of sternite 8, without a marked emargination for ostium. Colliculum about 2 times as long as sternite 8, broad, laterally sclerotized. Ductus bursae long and thin, membranous for most of its length, but with small field of thorns about one third from corpus bursa. In corpus bursa one small, thornlike signum on a broad basal plate. *C. argentula* differs in having sternite 8 about as broad as long, with marked emargination for ostium, and a more slender antrum and colliculum, the latter membranous. The genitalia of *argentula* are figured in most handbooks dealing with *Coleophora* genitalia, e. g. by Patzak (1974) and Razowski (1990).

Relationship

Toll (1959) placed *zukowskii* next to *argentula*, and stated that this placement could be

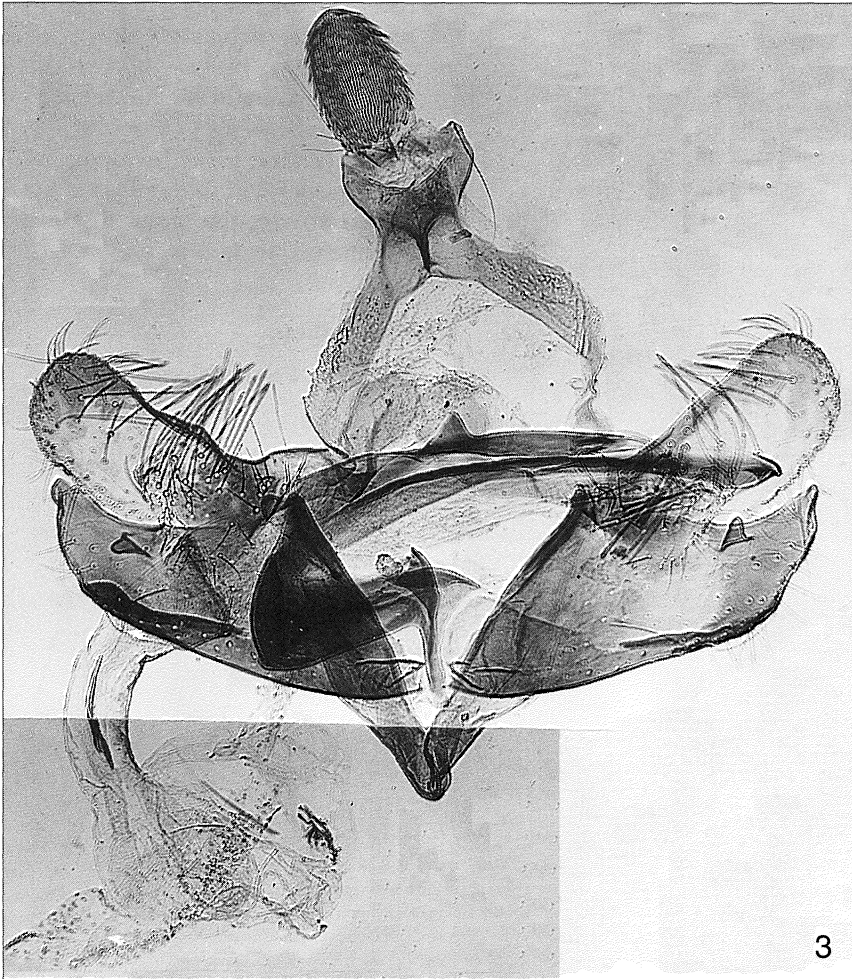
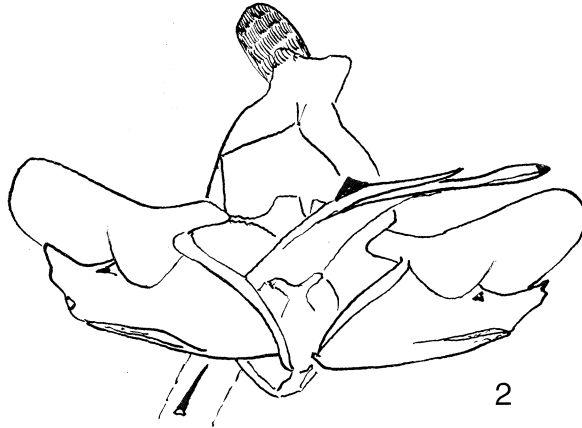


Fig. 2,3. *Coleophora zukowskii* Toll. ♂-genitalia. Fig. 2. Denmark, slide NLW 1559, N. L. Wolff del. Fig. 3. Holotype, Poland, slide Toll 2569, B. W. Rasmussen phot.

changed when the female genitalia became known. These are not as similar to *argentula* as those of the male and resemble more those of *peisoniella* Kasy, 1965 (from Austria and Hungary). As *peisoniella* is placed after *argentula* by Baldizzone (1996), *zukowskii* should be placed between these two species.

Bionomics

The host plant is unknown. Adults have been collected from the middle of June to early August. On the label of two of the specimens C. S. Larsen has written 'under (sand)brink' [under sandy bank].

The specimens are labelled: 'Lyngbak.', 'Lyngb., Fåborg', and 'Heimdalsbk, Lyngbk., Fåborg', respectively. These names all refer to about the same locality, now known as Svanninge Bakker (situated where the UTM 10 x 10 km squares NG70, NG71, NG 81 and NG 80 meet). At the beginning of the century this area of low hills on sandy soil was quite open, with large parts being covered with *Calluna* heath. Later the area became forested, mostly with conifers, and in clearings bushes and high grasses became dominant. In former days species like *Pyrausta nigrata* (Scopoli) and *Lycaena tityrus* (Poda) were frequent, and these both species had some of their last Danish localities here; the latter species has now become extinct in this country.

Distribution

Denmark, Poland, Germany.

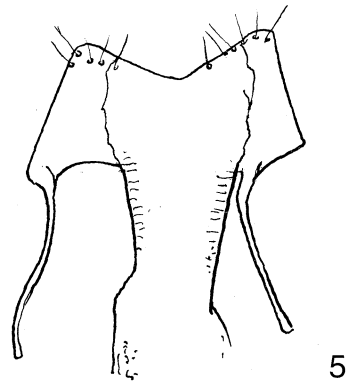
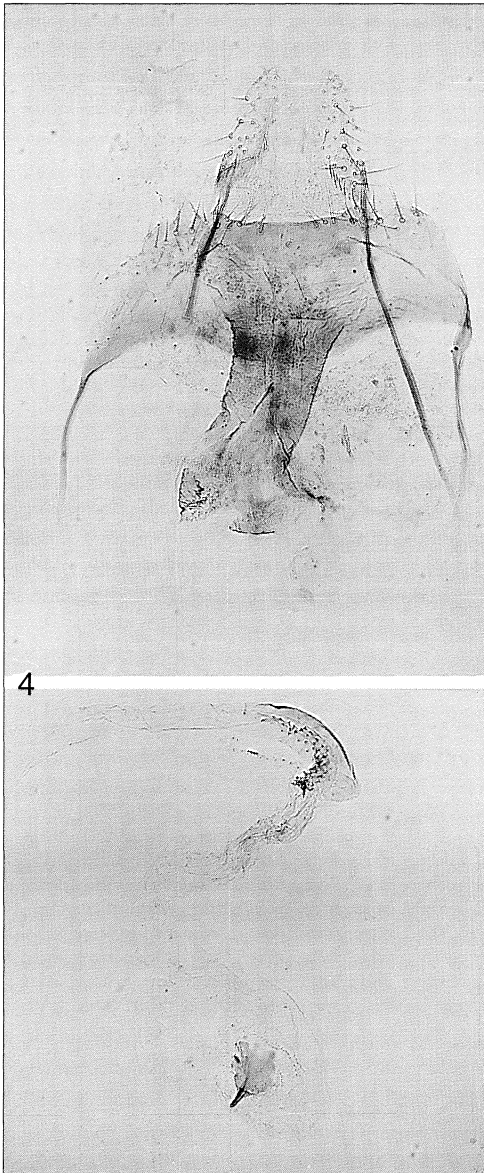


Fig. 4,5. *Coleophora zukowskii* Toll. ♀-genitalia, Denmark. Fig. 4. Slide NLW 1650, R. Sutter phot. Fig. 5. Slide NLW 1542, N. L. Wolff del.

Dansk sammendrag

Coleophora zukowskii Toll genfundet i Danmark, med beskrivelse af den hidtil ukendte hun (Lepidoptera, Coleophoridae).

Blandt ubestemt materiale af slægten *Coleophora* i Zoologisk Museums samling fandtes 3 eksemplarer af *C. zukowskii* Toll, som tidligere kun var kendt i ét eksemplar fra det sydlige Polen. Eksemplarerne er fanget i Lyngbakkerne (=Svaninge Bakker) på Sydfyn i 1907, 1923 og 1924, og de har været publiceret af Larsen (1917, 1927) som *C. pratella* Zeller og *C. dianthi* Herich-Schäffer, begge arter som ikke er fundet i Danmark.

Under arbejdet med denne artikel viste det sig, at der også findes et hidtil upubliceret fund af *zukowskii* fra Tyskland.

Hunnen af *zukowskii* har ikke tidligere været kendt, og de hunlige genitalier kan nu afbildes og beskrives.

Den danske lokalitet, Svaninge Bakker, bestod tidligere af store, sandede områder, der blandt andet husede den sidste danske bestand af *Lycaena tityrus* (Poda) (Lycaenidae). Nu er området for det meste tilplantet med nåletræer, og det er et spørgsmål, om *zukowskii* fortsat findes på lokaliteten. Det er mit håb, at denne artikel må bidrage til, at denne lidet kendte sommerfugl bliver eftersøgt og måske genfundet i Danmark eller andetsteds, så også dens biologi kan blive klarlagt.

Acknowledgements

I wish to thank Gert Brovad, ZMUC for taking the photograph of the adult moth, and Reinhard Sutter, Bitterfeld, Germany, for the difficult task photographing the female genitalia of *zukowskii* from a very unsatisfying slide. The drawings (fig. 2,5) were made by the late N. L. Wolff, and the photograph on fig. 3 by the late B. W. Rasmussen. G. Baldizzone, Asti, Italy and N. P. Kristensen, ZMUC kindly commented upon the manuscript.

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