

Notes on Finnish Sphaeroceridae (Diptera) with description of the female of *Minilimosina tenera* Rohacek, 1983

Antti Haarto & Jere Kahanpää

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A description of the previously unknown female of *Minilimosina tenera* Roháček, 1983 is provided and its terminalia are illustrated. Eight species of Sphaeroceridae are reported for the first time from Finland. *Rachispoda cilifera* (Rondani, 1880) and *Minilimosina (Svarciella) unica* (Papp, 1973) are removed from the Finnish check list, the latter being recorded from a locality situated in fact in Russia.

A. Haarto, Zoological Museum, Section of Biodiversity and Environmental Science, University of Turku, FI-20014 Turku, Finland; E-mail: ahaarto@gmail.com

J. Kahanpää, Finnish Museum of Natural History, Zoology, P.O. Box 17, FI-00014 University of Helsinki, Finland; E-mail: jere.kahanpaa@helsinki.fi

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1. Introduction

The flies of the family Sphaeroceridae, also known as lesser dung flies, are mostly small and dull dark brown to grey species. The flies of this family are easily distinguished among other acalyptratae by their short and thickened basal tarsomere (basitarsus) on the hind leg. Larvae of Sphaeroceridae develop in decaying organic matter. The largest number of species live in decaying vegetation, but many species are also associated with dung, rotten fungi and even carrion (Pitkin 1988, Roháček *et al.* 2001). Some 1,550 species of Sphaeroceridae have been described so far (Marshall *et al.* 2011), but many more remain unnamed and unpublished.

There has been only little interest devoted to study of the sphaerocerids in Finland. Most museum material was collected by random sweeping by entomologists and dipterists without particularly looking for lesser dung flies. Only

Walter Hackman (1916–2001) dedicated some of his research time solely to the Finnish species of this family. During the 1960s he investigated the dipterous fauna in burrows of small mammals (Hackman 1963a, 1963b) and studied the taxonomy of the subfamily Copromyzinae (Hackman 1965) and the genus *Opacifrons* (Hackman 1968). Six sphaerocerid species were found in a study on the insect fauna breeding in fungi (Hackman & Meinander 1979).

The number of species known from Finland was 53 in 1941 (Frey 1941) and 98 in 1980 (Hackman 1980). Further Finnish records of Limosininae were added in revisions of European taxa by Roháček (1982, 1983, 1991). However, some of the species recorded as Finnish in 1941 were – and are – known only from localities ceded to Russia after the Second World War. Taking into account the recent revisionary work documented by the world catalogue (Roháček *et al.* 2001, Marshall *et al.* 2011) and the changes

proposed in this paper, the number of Finnish sphaerocerid species rises to 118.

2. Material and methods

The material examined is deposited in the Zoological Museum, Finnish Museum of Natural History, University of Helsinki (MZH) and in the private collections of the authors, Iiro Kakko, Jari Flinck and Kaj Winqvist. Coordinates are given in the old national YKJ coordinate system (see Ollikainen & Ollikainen 2004).

Finnish biogeographical regions are abbreviated using the standard latinate abbreviations. For full names and a map, see Heikinheimo & Raatikainen (1981) or any volume of the Fauna Entomologica Scandinavica book series.

Tissue for DNA sampling (a single leg transferred to 100% ethanol) was separated from some of the specimens. The samples were sent to the FinBOL project (a subproject of the International Barcode of Life project, iBOL) for further processing. The relevant iBOL voucher ID is mentioned where applicable. Results of the barcoding of these specimens were in general not yet available at the time of the writing of this paper.

3. Description of female of *Minilimosina (Minilimosina) tenera* Roháček, 1983

Diagnosis: *Minilimosina tenera* belongs to the subgenus *Minilimosina*. It is easily separated from other species of the subgenus by the shining area on sternopleuron and mesopleuron. It has a conspicuously long and densely ciliated arista. The female of *M. tenera* could be also separated from other species by short *S6* and by broad shining *S8*.

Material examined: Finland 1 ♀ *Lkoc:* Kolari, Ylläs (750016:337977), 1.–7.VII.2012, leg. A. Haarto, meat bait trap, id AHa12-002859. The trap was near a subarctic forest spring near the tree line.

Description of female: Very similar as male.

Head. Brownish black. Frons with shining long black frontal triangle. Anterior margin of frons narrowly grey dusted. Orbital plates less

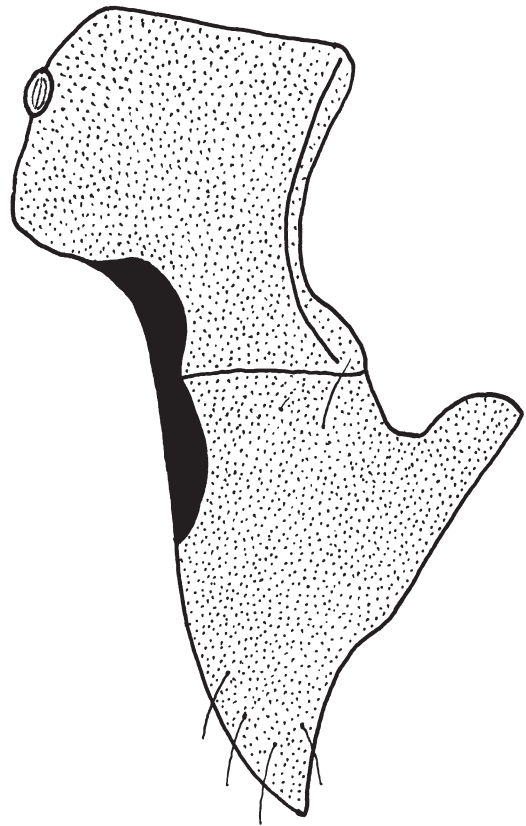


Fig. 1. Mesopleuron and sternopleuron of female of *Minilimosina tenera* Roháček, 1983.

shining than frontal triangle. Four equal sized interfrontal setae present. Two orbital setae and two vertical setae. Postvertical setae short. Facial carina and lunule grey dusted. Face shining. Largest diameter of eyes about 3 times the narrowest genal width. Antennae brownish black. Arista with long and dense ciliation.

Thorax. Mesonotum and pleurae dark brown with brownish pruinosity. Anepisternum and katepisternum with a shining black spot over front coxa (Fig. 1). Upper part of katepisternum with two setae, anterior seta short. Mesonotum with one pair of dorsocentral setae in prescutellar position and 6–8 rows of irregular acrostichal setae. Scutellum dark brown, rounded triangular, with 2 pairs of scutellar setae, length of apical pair 2.5 times as long as the length of scutellum. Halteres dark brown, base of stem yellowish.

Legs brown, trochanters and bases of tibiae somewhat paler. The ratio of length of mid tibia to length of mid basitarsus ($t_2:mt_2$) 1.8. Mid tibiae

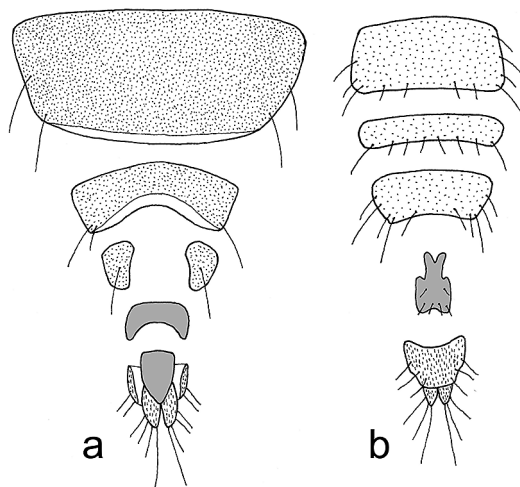


Fig. 2. Female of *Minilimosina tenera* Roháček, 1983, tip of abdomen. – a. Dorsal view. – b. Ventral view.

with *va*, basal anterodorsal, distal *ad*, *d* and *pd* setae.

Wing pale, veins pale except brown *C*. *C* distinctly extending past R_{4+5} . The ratio of length of 2nd costal sector to length of 3rd costal sector (*C*-index) 0.8. Vein R_{4+5} slightly bent forwards to *C*. The ratio of length of sector on vein M_{1+2} between cross-veins *ta* and *tb* to length of posterior cross-vein *tb* (*ta*-*tp*:*tp*) 2.5. The processes of M_{1+2} and CuA_1 beyond cross-vein *dm-cu* indistinct, but the outer corner of the discal cell not rounded. Ratio of wing width to length 0.4. Alula small and narrow.

Abdomen. Tergites dark blackish brown, shining and sparsely haired and only slightly pollinose. Tergites *T1*+*2* almost as long as *T3*+*T4*. Hind margin of tergites *T5* and *T6* weakly sclerotized, transparent. Tergite *T7* divided. Tergites *T8* and *T9* conspicuously shining brown. Sternite *S6* short, about half as long as *S7*. Sternite *S8* conspicuously shining brown and distally broad with some setulae. Sternite *S10* densely covered with short hairs and with some bristles near posterior edge. Cerci densely covered with short hairs and with four longer hairs. Dorsal and ventral side of the tip of the abdomen shown in Fig. 2 and same for the dry specimen in Fig. 3.

Notes: The species has been previously mentioned from Finland by Roháček (1993) without details about the exact locality, and listed from Finland by Roháček (2013). The female of

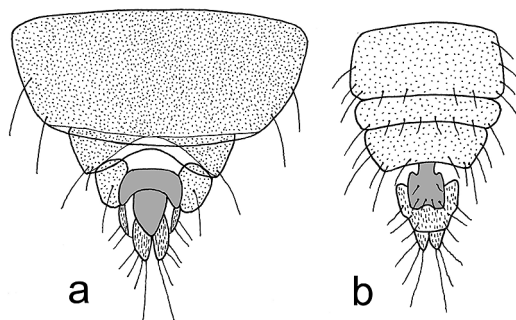


Fig. 3. Female of *Minilimosina tenera* Roháček, 1983, tip of abdomen of dry specimen. – a. Dorsal view. – b. Ventral view.

Minilimosina tenera keys correctly out as *M. tenera* in recent keys (Roháček 1983, 1993).

4. Species new to Finland

Crumomyia pedestris (Meigen, 1830)

Material examined: Finland 2♂1♀ *Ab*: Taivassalo, Orikvuori (6733:3208), 11.VI.–18.VII.2003, leg. A. Haarto & V.-M. Mukkala, pitfall trap and 1♀ *Ab*: Taivassalo, Orikvuori (6733:3208), 21.VIII.–5.X.2003, leg. A. Haarto & V.-M. Mukkala, pitfall trap. The traps were in a deciduous forest.

This wing polymorphic species (see Roháček 2012) has usually greatly reduced wings (Fig. 4) and therefore it is easy to determine.

Ischiolepta micropyga (Duda, 1938)

Material examined: Finland 1♂ *Ab*: Turku, Haapa-alho (67195:32394), 22.–24.V.2012, 1♂ *Ab*: Paimio, Langinmäki (67090:32618), 22.–



Fig. 4. Female of *Crumomyia pedestris* (Meigen, 1830).

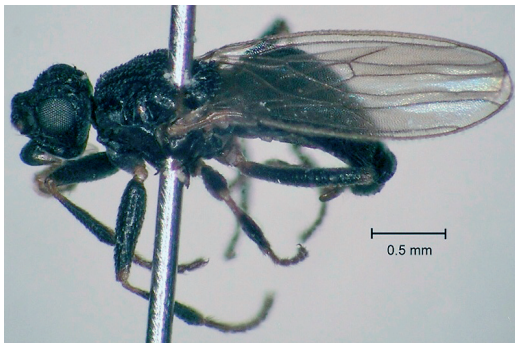


Fig. 5. Male of *Ischiolepta micropyga* (Duda, 1938).

24.V.2012, id AHa13-000156 and 1♂ *Ab*: Salo, Meriniitty (67016:32850), 7.–9.VIII.2012. All specimens were collected with pitfall traps.

Fig. 5 shows a male specimen of this species. The male of *Ischiolepta micropyga* can be separated from other Finnish species of the genus *Ischiolepta* by the distinctly distally dilated and flattened mid tibia. The maximum diameter of the mid tibia is almost as long as the diameter of the mid femur. *Ischiolepta micropyga* is also distinguished by its shiny mesonotum without microtrichia between setae. Other Finnish species of *Ischiolepta* have matt mesonotum due to microtrichia. *Ischiolepta nitida* (Duda, 1920) has only few microtrichia on the mesonotum and so it seems rather shiny, but it has yellow (and swollen) femora and tibiae while the legs of *I. micropyga* are dark with yellow tarsi, and its femora are slender. The male genitalia of *I. micropyga* were illustrated by Buck and Marshall (2002).

Minilimosina (*Svarciella*) *v-atrum* (Villeneuve, 1917)

syn. *Minilimosina* (*Svarciella*) *splendens* (Duda, 1928)

Material examined: Finland 1♀ *Ab*: Turku, Topinoja (67167:32438), 18.–25.VI.2012, leg. S. Härkönen & W. Lanta, pitfall trap, iBOL DNA fingerprint voucher idAHa13-000356.

Earlier records of *Minilimosina v-atrum* from Finland by Roháček (1977, 1983) were based on misinterpretation of this species (clarified by study of the type material later by Roháček 2001) and the correct name of the species recorded from Finland as *M. v-atrum* is *Minilimosina* (*M.*) *guestphalica* (Duda, 1918).



Fig. 6. Male of *Spelobia belanica* Roháček, 1983. Tip of abdomen detached.

Paralimosina kaszabi Papp, 1973

Material examined: Finland 1♂ *N*: Nummi-Pusula, Myllymäki (67259:33352), 30.V.2010, leg. A. Haarto, id AHa10-005549 and 1♂ *N*: Loviisa, vanha kaatopaikka (6706004:3460679), 20.VII.2008, leg. Jari Flink, id JF08-2012.

Pullimosina (*Pullimosina*) *meijerei* (Duda, 1918)

Material examined: Finland 1♂1♀ *Ab*: Taivassalo, Orikvuori (6733:208), 11.VI.–18.VII.2003, leg. A. Haarto & V.-M. Mukkala, pitfall trap. 1♀ *Ab*: Paimio, Langinmäki (67090:32619), 25.–27.VI.2012 and 1♂2♀ *Ab*: Raisio, Kuloinen (67176:32355), 7.–9.VIII.2012, iBOL DNA voucher specimens AHa13-000328 (♂) and AHa13-000373 (♀).

The Orikvuori site is a deciduous forest. Two specimens from *Ab*: Taivassalo were brachypterous and other specimens were macropterous.

Spelobia belanica Roháček, 1983

Material examined: Finland 3♂1♀ *Lkoc*: Kolari, Ylläs, Varkaankuru (75027:33813), 2.–8.VII.2012, leg. Tom Clayhills, a pitfall trap surrounded by chicken excrement pellets (Biolan), id AHa13-000047 to -000050. The male AHa13-000050 is an iBOL DNA voucher specimen. The pitfall traps were on a wet peat bog.

Photo of male specimen is in fig. 6.

Spelobia pappi Roháček, 1983

Material examined: Finland 1♂1♀ *Ok*: Suomussalmi, Hossa (726394:361916), 27.VI.–1.VII.2011, leg. A. Haarto, malaise trap, id



Fig. 7. Male of *Spelobia pappi* Roháček, 1983.

AHa11-004291 and -004292. The malaise trap was on a wet sedge pine swamp. 1♂ *Lkoc*: Kolari, Ylläs (750016:337977), 1.–7.VII.2012, leg. A. Haarto, malaise trap baited with chicken excrement pellets (Biolan), id AHa12-002930. The malaise trap was near a subarctic forest spring near the tree line. 1♂3♀ *Lkoc*: Kolari, Ylläs, Varkaankuru (75027:33813), 2.–8.VII.2012, leg. A. Haarto, malaise trap baited with Biolan, id AHa12-002735 to -002737 and AHa12-002699. 6♂13♀ *Lkoc*: Kolari, Ylläs, Varkaankuru (75027:33813), 2.–8.VII.2012, leg. Tom Clayhills, pit fall trap with Biolan around. Two males as iBOL DNA fingerprint voucher specimens have id AHa12-002750 and -002752. Two females as iBOL DNA fingerprint voucher specimens have id AHa12-002751 and -002753. Other specimens have id rom AHa12-002756 to -002767 and AHa12-002787 to -002789. The Varkaankuru site is a wet peat bog.

Photo of male specimen is in Fig. 7. Both *S. pappi* and *S. belanica* are associated with moorland habitats and are considered tyrphobiont and tyrphophilous respectively (cf. Roháček & Barták 1999).

Trachypella (Trachypella) atomus (Rondani, 1880)

Material examined: Finland 1♀ *N*: Vantaa, Hakkila, Kormängsbäcken (66865:33964), 27.VI.2011, leg. J. Kahanpää, id jka11-01632, an iBOL DNA voucher specimen.

Earlier specimens of *T. atomus* (Rondani,

1880) from Finland were misidentified and belong to *T. lineafrons* (Spuler, 1925) (Roháček & Marshall 1985).

5. Deletions and other notes

Rachispoda cilifera (Rondani, 1880)

This species is reliably known only from Central and South Europe (Roháček 1991). Hackman (1980) included it in the Finnish fauna on the basis of a single Finnish specimen labeled as *R. cilifera* in MZH. It belongs to *Rachispoda anceps* (Stenhammar, 1855). MZH also holds about 20 specimens previously identified as *R. cilifera* from Russian Karelia (Metsäpirtti, Paanajärvi) and the Leningrad Oblast (Uusikirkko). They belong to the closely related species *Rachispoda segem* (Roháček, 1991).

Minilimosina unica (Papp, 1973)

The only allegedly Finnish specimen is the male holotype of *Limosina hackmani* Roháček, 1977 which is a junior synonym of *Minilimosina unica* (Papp, 1973) (Roháček & Marshall 1988). It is kept in MZH (id GV.12418). The type locality was given as “Finland: Ks: Kuusamo” by Roháček (1977), but according to collectors notes of Richard Frey, the exact collecting locality is in the Paanajärvi area which was ceded to Russia after the second world war. As no other specimens have been found in Finland, *Minilimosina unica* is deleted from the list of Finnish species.

Spelobia manicata (Richards, 1927)

Spelobia manicata (Richards) was synonymized with *Spelobia chunipes* (Meigen, 1830) by Pitkin (1988). However, *S. manicata* is still considered as a valid species by J. Roháček (pers. comm.). Both *S. manicata* and *S. chunipes* forms (sensu Roháček) occur in Finland, so if they are valid species, both should be included on the Finnish checklist of Sphaeroceridae.

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