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A further six additions to the lesser dung flies (Diptera, Sphaeroceridae) of Italy with new distributional data on the fauna of peninsular (southern) Italy.

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Six species of Sphaeroceridae (Diptera) – *Copromyza nigrina* (Gimmerthal), *Minilimosina albinervis* (Duda), *Rachispoda lagura* (Roháček), *Rachispoda opinata* (Roháček), *Rachispoda uniseta* (Roháček) and *Trachypella melania* (Haliday) are added to the fauna of Italy. In addition, new distributional data is presented for 16 other species, including 10 species new to either mainland Italy, or the North and South of the country. The previously unknown females of two species, *Rachispoda uniseta* (Roháček) and *Phthitia (Kimosina) glabrescens* (Villeneuve) both from the collection of the Museo di Storia Naturale di Venezia, are recorded.

Keywords: Diptera, Sphaeroceridae, Italy, faunistics, new records, distribution.

INTRODUCTION

Our knowledge of the Sphaeroceridae of the Mediterranean is still incomplete and very little is known about the faunistics of these flies except for some countries like Italy, Malta and Spain.

Despite the fact that many of the species occurring in Italy are known only from a few isolated records, the composition of the fauna of Italy is fairly well known, mainly through the work of Lorenzo Munari who published a checklist of Italian species (Munari 1995). In this work, 121 species were enumerated for the whole of Italy including its islands, although 160 species were expected to occur. By far most of the records (102) came from the North of the country whose fauna is better known, mostly through the collection of Antonio Giordani Soika housed in the Museo di Storia Naturale di Venezia. By contrast, only 38 species were recorded from the much larger but poorly investigated, peninsular South of the country (the distinction between the North and the South of the country is according to the delimitation fixed for the Italian Checklist (Minelli *et al.* 1995).

In 1997, Munari *et al.* (1997) added one species to the fauna of Italy and, one year later, Munari (1998) added a further 4 species. Two species were added by Munari & Roháček (2002) and another one by Roháček (2003). In 2006, three other species were added by Gatt (2006a) bringing the total number of sphaerocerids known from the country to 132. In this publication, 17 species were also added to the fauna of the South. Since that time, no other records from Italy have been published.

MATERIAL AND METHODS

The data on which these records are based derives from two sources. The first, and most important, is a collection of more than 1000 dry pinned unidentified specimens from the Museo di Storia Naturale di Venezia which were forwarded to the author for study through the kindness of Lorenzo Munari (Museo di Storia Naturale di Venezia). The material, almost all in the subfamily Limosininae, was collected between 1949 and 1989 by Antonio Giordani Soika, Walter Rossi, Gianni Raffone, Silvano Canzoneri, Massimo Orlandini, Andrea Visinoni, Giulio Scarpa, Giuseppe Saccà, Cesino Fattoretto and Lorenzo Munari mostly from the North of Italy.

The second source is a collection of 150 specimens in alcohol which was forwarded to the author by Maurizio Mei (Dipartimento di Biologia Animale e dell'Uomo, Entomologia, Università di Roma «La Sapienza») for identification. The flies were collected by Giuseppe Lo Giudice, Maurizio Mini and Augusto Vigna Taglianti in pitfall traps placed around sheep carrion in Fontecchia, at Monte Velino nature reserve, Abruzzo at an altitude of 1250 m a.s.l. between November 2005 and November 2006 (Lo Giudice 2007).

The new records are listed below, alphabetically within each subfamily of the Sphaeroceridae following Roháček *et al.* (2001) except where otherwise indicated as follows: 1) species newly recorded from the whole of Italy; 2) species newly recorded from mainland Italy; 3) species newly recorded from the North of Italy; and 4) species newly recorded from the South of Italy. Furthermore, additional records are given for species only recently recorded or confirmed from the South (Gatt 2006a). General information on their distribution is provided. For more detailed information on global distribution the reader is referred to Roháček *et al.* (2001). Updated information on the distribution of species in Europe (till 2004) may be found in the Fauna Europaea database (Roháček 2004a).

RESULTS

SPECIES NEWLY RECORDED FROM THE WHOLE OF ITALY

Subfamily Copromyzinae

***Copromyza nigrina* (Gimmerthal, 1847)**

Material examined: Veneto: Belluno, Sappada, 1217 m, in riding school on horse manure, 1 ♂, 1 July 2004, leg. L. Munari.

Notes: This specimen was collected and recognised as new to the fauna of Italy by Lorenzo Munari who very kindly proposed that it is recorded here. It is a widely distributed European species (restricted to mountainous ranges in central and southern Europe) which has been collected from the dung of diverse mammalian species. First record for Italy (North).

Subfamily Limosininae

***Minilimosina* (*Allolimosina*) *albinervis* (Duda, 1918)**

Material examined: Puglia, Gargano, lido di Torre Mileto, on window pane, 1 ♂, 16 June 1987, leg. L. Munari.

Notes: A rarely collected Holarctic species recorded in the Palaearctic as far east as Afghanistan. First record for Italy (South).

Minilimosina (Minilimosina) sp., aff. baculum Marshall, 1985

Material examined: Abruzzo, Fontecchia, Monte Velino nature reserve, 1250 m, pitfall trap around sheep carrion station 1, 1 ♀, 5 April 2006, leg. G. Lo Giudice *et al.*

Notes: A species with long apical scutellar bristles, and pigmentation on the 8th abdominal sternite which closely resembles that illustrated for *M. baculum* by Carles-Tolrá (2001). The 10th abdominal sternite, however, is almost completely split into two hemisternites by a deep anterior median incision — a character previously unobserved in female *Minilimosina* (Roháček *pers. comm.*). The exact identity of this possibly undescribed species can only be ascertained when more specimens (including associated males) are available.

Rachispoda lagura (Roháček, 1991)

Material examined: Basilicata, Agri, su strada Ionica, 1 ♂, 13 August 1954, leg. A. G. Soika.

Notes: A halophilous species known from North Africa and Palaearctic Asia. In Europe, it has previously been recorded only from Cyprus (Roháček 2004b). First record for Italy (South).

Rachispoda opinata (Roháček, 1991)

Material examined: Padova, Battaglia Terme, 1 ♀, 28 May 1987, leg. G. Scarpa.

Notes: A hygrophilous, Palaearctic species known from the Czech Republic, Great Britain, Hungary and Slovakia. First record for Italy (North) and a new southernmost occurrence limit of the species.

Rachispoda uniseta (Roháček, 1991)

Material examined: Marche, Macerata, San Ginesio, 6 ♂♂ and 1 ♀, 6 July 1985, leg. S. Canzoneri.

Notes: A very poorly known Palaearctic species hitherto known only from the type series of three males collected in North Africa (Roháček 1991) and another three males from Switzerland (Gatt 2006b). The female was previously unknown, and will be described elsewhere (Gatt *in prep.*). First record for Italy (South).

Trachyopella (Trachyopella) melania (Haliday, 1836)

Material examined: Trentino Alto-Adige, Val di Tovel, 1 ♀, 1–3 August 1991, leg. C. Fattoretto; Veneto, Verona, Lessinia, Cerro Veronese, dungheap, 1 ♂, 4 July 1993, leg. L. Munari.

Notes: A polysaprophagous Palaearctic species widely distributed in Europe and extending as far east as Mongolia. First record for Italy (North).

SPECIES NEWLY RECORDED FROM MAINLAND ITALY

Subfamily Limosininae

***Rachispoda acrosticalis* (Becker, 1903)**

Material examined: Puglia, river Ofanto at Barletta, harbour vegetation, 1 ♂, 2 May 1954, leg. A. G. Soika.

Notes: Possibly an Afrotropical species which penetrates up to the Mediterranean and Macaronesia. In Italy previously known only from Sicily (Munari 1995) and Sardinia (Gatt 2006a). New record for mainland Italy (South).

SPECIES NEWLY RECORDED FROM THE NORTH OF ITALY

Subfamily Limosininae

***Rachispoda pseudohostica* (Duda, 1925)**

Material examined: Veneto: Vicenza, Fiume Tesina fra Longa e Maragnole, 1 ♂ and 2 ♀♀, 6 October 1988, leg. M. Orlandini.

Notes: A poorly known Palaearctic species recorded in Europe from Italy eastwards to eastern Russia and Mongolia. In Italy, hitherto known only from the South (Munari 1995). New record for the North.

SPECIES NEWLY RECORDED FROM THE SOUTH OF ITALY

Subfamily Limosininae

***Bifronsina bifrons* (Stenhammar, 1855)**

Material examined: Abruzzo, foce fiume Sinello, on window pane, 1 ♀, 13 June 1987, leg. L. Munari; Puglia, Gargano, Lido di Torre Mileto, on window pane, 1 ♂, 16 June 1987, leg. L. Munari.

Notes: The subgenus *Bifronsina* Roháček, 1983 has recently been elevated to generic rank by Papp (2008). *B. bifrons* is a subcosmopolitan, polysaprophagous, synanthropic species. In Italy, previously recorded from the North and from Sardinia (Munari 1995).

***Coproica hirtula* (Rondani, 1880)**

Material examined: Abruzzo, foce fiume Sinello, on window pane, 4 ♂♂ and 4 ♀♀, 13 June 1987, leg. L. Munari.

Notes: A common, coprophagous cosmopolitan species known from Italy in the North (Munari 1995).

***Coproica pusio* (Zetterstedt, 1847)**

Material examined: Puglia, Lago Varano, foce di Capoiale, marine shore intertidal zone, 1 ♀, 16 June 1987, leg. L. Munari; Abruzzo, Fontecchia, Monte Velino nature reserve, 1250 m, pitfall trap around sheep carrion station 5, 1 ♀, 22 June 2006, leg. G. Lo Giudice *et al.*

Notes: A widespread Palaearctic coprophagous species, also recorded from

the Oriental region (Pakistan). Previously recorded from the North of Italy and from Sicily (Munari 1995).

***Coproica rohaceki* Carles-Tolrá, 1990**

Material examined: Abruzzo, foce fiume Sinello, on window pane, 3 ♂♂ and 1 ♀, 13 June 1987, leg. L. Munari.

Notes: A coprophagous synanthropic species known in the Palaearctic from Norway, Spain, the Canary Islands, Italy, Malta and Cyprus. It is also known from Japan, and more recently Taiwan (Hayashi 2007) in the Oriental region. In Italy, it has been recorded from the North (Munari 1995).

***Minilimosina (Svarciella) vitripennis* (Zetterstedt, 1847)**

Material examined: Abruzzo, Fontecchia, Monte Velino nature reserve, 1250 m, pitfall trap around sheep carrion station 1, 1 ♀, 3 May 2006, leg. G. Lo Giudice *et al.*

Notes: A widespread Holarctic species, rarely collected from mountainous parts of the Mediterranean region. Mostly phytosaprophagous in wet woods and meadows, but also collected from small mammal burrows. Previously known from the North of Italy (Munari 1995).

***Opalimosina (Opalimosina) mirabilis* (Collin, 1902)**

Material examined: Lazio, Marina di Ardea, 1 ♀, 8 March 1985, leg. M. Orlan-dini; Abruzzo, Fontecchia, Monte Velino nature reserve, 1250 m, pitfall trap around sheep carrion station 1, 1 ♀, 5 April 2006, leg. G. Lo Giudice *et al.*; 2 ♀♀, same data, but 3 May 2006.

Notes: A subcosmopolitan, coprophagous species. Previously known from the North of Italy (Munari 1995).

***Spelobia pseudosetaria* (Duda, 1918)**

Material examined: Abruzzo, Fontecchia, Monte Velino nature reserve, 1250 m, pitfall trap around sheep carrion station 1, 1 ♀, 3 May 2006, leg. G. Lo Giudice *et al.*

Notes: The subgenus *Spelobia* Spuler, 1924 has recently been elevated to generic rank by Papp (2008). *S. pseudosetaria* is a widespread, phytosaprophagous, hemi-synanthropic Holarctic species. In Italy, hitherto recorded from the North of Italy and Sicily (Munari 1995).

***Trachyopella (Trachyopella) lineafrons* (Spuler, 1925)**

Material examined: Abruzzo, Fontecchia, Monte Velino nature reserve, 1250 m, pitfall trap around sheep carrion station 1M, 1 ♂ and 1 ♀, 14 July 2006, leg. G. Lo Giudice *et al.*

Notes: A Nearctic species that has been introduced to Europe as well as South America and New Zealand. Mostly polysaprophagous but also on carrion and excrement. In Italy, known only from one locality in the North of Italy (Munari & Roháček 2002).

Subfamily Limosininae

***Coproica lugubris* (Haliday, 1835)**

Material examined: Puglia, Gargano, Lido di Torre Mileto, on window pane, 6 ♂♂ and 2 ♀♀, 16 June 1987, leg. L. Munari.

***Coproica rufifrons* Hayashi, 1991**

Material examined: Marche, San Benedetto del Tronto, 2 ♂♂, 17 July 1966, ? leg.

***Coproica vagans* (Haliday, 1833)**

Material examined: Marche: San Benedetto del Tronto, beach, 3 ♂♂ and 1 ♀, 17 July 1966, ? leg.; Puglia: Gargano, Lido di Torre Mileto, on window pane, 1 ♀, 16 June 1987, leg. L. Munari; Lago Varano, foce di Capoiale, marine shore intertidal zone, 2 ♂♂, 16 June 1987, leg. L. Munari.

***Rachispoda brevior* (Roháček, 1991)**

Material examined: Abruzzo: Fiume Sinello, near river mouth, 4 ♂♂, 8 June 1987, leg. L. Munari; Basilicata: Fiume Bradano, 6 ♂♂ and 4 ♀♀, 11–14 August 1953, leg. A. G. Soika; Agri, su strada Ionica, 5 ♂♂ and 4 ♀♀, 13 August 1954, leg. A. G. Soika; Lazio: Roma, 6 ♂♂ and 2 ♀♀, 20 August 1954, leg. A. G. Soika; Roma, Tolfà, 1 ♂, 5 September 1987, leg. A. Visinoni; Tevere, via Salaria 15 km north of Roma, 4 ♂♂ and 3 ♀♀, 6 July 1985, leg. S. Canzoneri; Marche, Macerata, San Ginesio, 1 ♂, 6 July 1985, leg. S. Canzoneri; Toscana: Grosseto, Massa Marittima, Lago Accesa, 1 ♀, 10 July 1985, leg. M. Orlandini.

***Rachispoda fuscipennis* (Haliday, 1833)**

Material examined: Abruzzo: Pescara, Fiume Saline, 2 ♀♀, 21 July 1953, leg. A. G. Soika; Fiume Sinello, 1 ♂ and 1 ♀, 8 June 1987, leg. L. Munari; Fiume Sinello, 1 ♂ and 1 ♀, 12 June 1987, leg. L. Munari; Basilicata: Fiume Bradano, ferrovia, 20 ♂♂ and 10 ♀♀, 11 August 1953, leg. A. G. Soika; Potenza, Fiume Agri, Montemurro, 400 m, 1 ♀, 12 August 1953, leg. A. G. Soika; Puglia: Taranto, Fiume Agri, river mouth, 1 ♂, 30 May 1951, leg. A. G. Soika; Fiume Ofanto, Barletta, 3 ♂♂ and 3 ♀♀, 15 August 1953, leg. A. G. Soika; Santa Margherita, saline, 4 ♂♂ and 1 ♀, 2 April 1954, leg. A. G. Soika; Brindisi, Torre Gualcita, 1 ♂, 28 April 1954, leg. A. G. Soika; Barletta, Santa Margherita, saline, 8 ♂♂ and 2 ♀♀, 1–2 May 1954, leg. A. G. Soika; Toscana: Arezzo, Fiume Arno, 3 km from river mouth, 3 ♂♂ and 1 ♀, 30 July 1953, leg. A. G. Soika; Grosseto, Monte Argentario, barene fra Orbetello e Porto S. Stefano, 1 ♀, 30 July 1955, leg. A. G. Soika.

***Rachispoda longior* (Roháček, 1991)**

Material examined: Abruzzo, Fiume Sinello, near river mouth, 1 ♀, 8 June 1987, leg. L. Munari; Puglia: Fiume Ofanto, Barletta, 1 ♀, 15 August 1953, leg. A. G. Soika.

Tab. 1: Distribution of new records of Sphaeroceridae from Italy. N = North; S = South; Si = Sicily; Sa = Sardinia; + = reliable literature record; NR = new record.

	Italy	N Italy	S Italy	Si	Sa
COPROMYZINAE					
1. <i>Copromyza nigrina</i> (Gimmerthal, 1847)	NR	NR			
LIMOSININAE					
2. <i>Bifronsina bifrons</i> (Stenhammar, 1855)	+	+	NR		+
3. <i>Coproica hirtula</i> (Rondani, 1880)	+	+	NR		
4. <i>Coproica pusio</i> (Zetterstedt, 1847)	+	+	NR	+	
5. <i>Coproica rohaceki</i> Carles-Tolrá, 1990	+	+	NR		
6. <i>Minilimosina albinervis</i> (Duda, 1918)	NR		NR		
7. <i>Minilimosina</i> sp. aff. <i>baculum</i> Marshall, 1985	NR		NR		
8. <i>Minilimosina vitripennis</i> (Zetterstedt, 1847)	+	+	NR		
9. <i>Opalimosina mirabilis</i> (Collin, 1902)	+	+	NR		
10. <i>Rachispoda acrosticalis</i> (Becker, 1903)	+		NR	+	+
11. <i>Rachispoda lagura</i> (Roháček, 1991)	NR		NR		
12. <i>Rachispoda opinata</i> (Roháček, 1991)	NR	NR			
13. <i>Rachispoda pseudohostica</i> (Duda, 1925)	+	NR	+		
14. <i>Rachispoda uniseta</i> (Roháček, 1991)	NR		NR		
15. <i>Spelobia pseudosetaria</i> (Duda, 1918)	+	+	NR	+	
16. <i>Trachyopella lineafrons</i> (Spuler, 1925)	+	+	NR		
17. <i>Trachyopella melania</i> (Haliday, 1836)	NR	NR			

CONCLUSIONS

Six species — *Copromyza nigrina*, *Minilimosina albinervis*, *Rachispoda lagura*, *R. opinata*, *R. uniseta* and *Trachyopella melania* – are added to the sphaerocerid fauna of Italy, bringing the total number of species known from the country to 138. Another, unnamed, probably undescribed species of *Minilimosina sensu stricto* is briefly characterised. In addition, new distributional data is presented for 16 other species, including one species new to mainland Italy, eight and one species new to the South and North of Italy respectively, and six species recently recorded from the South. These results are listed in Tab. 1 for ease of reference.

The material from the Museo di Storia Naturale di Venezia consists of more than a 1000 specimens collected over a span of 40 years by a number of Italian entomologists and collectors. It comprises a total of 55 species, almost all of them belonging to the subfamily Limosininae. Most of the collecting appears to have been done on the banks of rivers and streams, with some collecting over mammalian dung and very little on carrion. The composition of the collection reflects this, and is rich in hygrophilous species. For example, 14 of the 19 species of *Rachispoda* previously

recorded from Italy (Munari 1995) are represented in it, and three of the six named species new to Italy recorded in this paper belong to this genus. By contrast, the coprophagous species in the subfamilies Copromyzinae and Sphaerocerinae which favour large ungulate dung, for example, are very poorly represented. Nonetheless, the collection is clearly valuable as shown by the presence in it of six species previously unrecorded from Italy, and two species — *R. uniseta* and *Phthitia glabrescens* — of which the female was previously unknown, and which will be described elsewhere (Gatt *in prep.*).

The material from Monte Velino nature reserve, Abruzzo, although smaller (150 specimens) is also important. It is composed of 19 species of which 5 are newly recorded from the South. Although the methods used to collect this sample (pitfall traps around dead sheep) favoured the capture of terricolous and/or necrophagous species, only *Spelobia talparum* (Richards, 1927) and *Telomerina flavipes* (Meigen, 1830), can be considered truly terricolous, or primarily necrophagous, respectively.

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