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## New distributional data on the Sphaeroceridae (Diptera) of Italy with three additions to the Italian list

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Three species of Sphaeroceridae (Diptera) – *Coproica digitata* (Duda), *Coproica rufifrons* Hayashi and *Minilimosina v-atrum* (Villeneuve) – are added to the fauna of Italy. New distributional data are presented for 22 other species, including 7 species new to the fauna of Sicily and 2 to the fauna of Sardinia.

Keywords: Diptera, Sphaeroceridae, new records, distribution, Italy, Sicily, Sardinia.

### INTRODUCTION

Our knowledge of the distribution of the Sphaeroceridae is very inhomogeneous. Whereas the fauna of many countries of Northern and Central Europe is rather well studied, we still know very little about faunistics of these flies in the mediterranean region, except some countries, like Italy, Malta and Spain. The fauna of Italy is rather 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. Most of the records (102) came from the North of the country whose fauna is better known, mostly through the collections of Antonio Giordani Soika. 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). The same can be said for the islands of Sicily and Sardinia, for which a mere 33 and 28 species were cited respectively. No account has been written on the fauna of Sicily, and only one (Munari & Roháček 1990) on that of Sardinia.

In 1997 Munari *et al.* (1997) added one other species to the fauna of Italy and, one year later, Munari (1998) added a further 4 species. Two other species were added by Munari & Roháček (2002) and another one by Roháček (2003), bringing the total number of sphaerocerids known from the country to 129. Since that time, no new records from Italy have been published.

### MATERIAL AND METHODS

The records this study is based on are mostly the result of field trips by the author to Sicily (1999) and the South of Italy (2003 and 2005). A small, but valuable, collection from the North of Italy and from Sardinia was kindly made available to the author by Dr. Bernhard Merz, Dr. Martin J. Ebejer and Dr. Lorenzo Chelazzi

also kindly provided specimens collected by themselves. All material was collected by the author unless otherwise indicated, and is deposited in his private collection except where indicated by the abbreviations MJEC (collection of Dr. Martin J. Ebejer, Cardiff, UK), MHNG (Muséum d'histoire naturelle, Genève, Switzerland) or ISEF (Istituto per lo Studio degli Ecosistemi, Firenze) in parentheses.

Flies were collected in a variety of biotopes by sweeping over suitable micro-habitats, like vegetation in woods, mud, beach wrack, decaying vegetation and dung. Several hundred specimens were examined. Identifications were confirmed by examination of genitalia in all species.

The species are listed alphabetically within each subfamily of the Sphaeroceridae following Roháček *et al.* (2001). 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 on the Fauna Europaea database (Roháček 2004b).

## RESULTS

### Subfamily Copromyzinae

#### *Alloborborus pallifrons* (Fallén, 1820)

Material examined: Italy: Puglia, Gargano, S. Giovanni Rotondo, Coppa di Mezzo, forest, 850 m, on horse dung, 1 ♂ and 3 ♀♀, 4 July 2005, P. Gatt.

Notes: A coprophilous species with a marked preference for horse dung. Essentially a North and Central European species which penetrates as far east as Siberia. In the Mediterranean, known with certainty only from France and dubiously from Northern Italy. The present record from the South confirms the species for Italy.

#### *Borborillus uncinatus* (Duda, 1923)

Material examined: Italy: Abruzzo, Villetta Barrea, meadow, 1000 m, horse dung, 1 ♂, 1 July 2005, P. Gatt; same data, 1 ♂, M. J. Ebejer (MJEC).

Notes: A Palaearctic species known from as far east as China. In the Mediterranean, known only from France, Northern Italy (Munari & Roháček 2002) and Yugoslavia (= Serbia). First record for Southern Italy.

#### *Crumomyia nitida* (Meigen, 1830)

Material examined: Sicily: Nebrodi, Monte Soro, *Fagus* and *Quercus* forest, 1700 m, 4 ♀♀, 7 June 1999, P. Gatt; same data, 3 ♂♂ and 1 ♀, M. J. Ebejer (MJEC).

Notes: A widespread, psychrophilous, predominantly damp forest Palaearctic species known from mainland Italy. First record for Sicily.

#### *Norrbomia costalis* (Zetterstedt, 1847)

Material examined: Italy: Abruzzo, Villetta Barrea, meadow, 1000 m, horse dung, 1 ♀, 1 July 2005, P. Gatt.

Notes: A widespread Palaearctic species known hitherto in Italy only from the North. First record for Southern Italy.

Subfamily Limosininae

***Chaetopodella scutellaris* (Haliday, 1836)**

Material examined: Sicily: Nebrodi, Monte Soro, *Fagus* and *Quercus* forest, 1700 m, 1 ♂, 7 June 1999, P. Gatt; Italy: Puglia, Gargano, S. Giovanni Rotondo, Coppa di Mezzo, forest, 850 m, 1 ♂, 4 July 2005, P. Gatt.

Notes: An Old World (Afrotropical and Palaearctic) coprophagous species known from North Italy and Sardinia. First record for South Italy and Sicily.

***Coproica digitata* (Duda, 1918)**

Material examined: Sardinia: Oliena reg. 1450 m, Sopramonte Punta Corrasi/St. 5, 40°14'34N / 9°25'53E, 1 ♂, 14 June 2002, B. Merz (MHNG); Italy: Toscana, Parco Nazionale della Maremma, Collelungo beach and dunes, 1 ♂, 2 September 2003, P. Gatt.

Notes: A Southern Palaearctic, predominantly pasture synbovilous species. Known in the Mediterranean from Spain (including Balearic islands), France, North Africa (Egypt, Tunisia), Slovenia, Croatia, Yugoslavia, Macedonia, Greece (including Crete) Bulgaria and Israel. First record for Italy (Southern Italy and Sardinia).

***Coproica lugubris* (Haliday, 1836)**

Material examined: Italy: Abruzzo, Villetta Barrea, meadow, 1000 m, horse dung, 1 ♂, 1 July 2005, P. Gatt; Puglia, Gargano, S. Giovanni Rotondo, Coppa di Mezzo, forest, 850 m, 1 ♀, 4 July 2005, P. Gatt; Puglia, Gargano, Foresta Umbra, Falascone, 600 m, 1 ♀, 5 July 2005, P. Gatt.

Notes: A widely distributed coprophagous species known from the Australasian, Oceanian, Oriental and Palaearctic Regions. Known with certainty in Italy from the North, Sicily and Sardinia, its presence in Southern Italy is confirmed here.

***Coproica rufifrons* Hayashi, 1991**

Material examined: Italy: Toscana, Parco Nazionale della Maremma, Collelungo beach and dunes, on beach wrack, 3 ♂♂ and 4 ♀♀, 2 September 2003, P. Gatt.

Notes: Originally described from Pakistan, this species has, since that time, been reported from Australasia, Oceania and the Nearctic, Neotropical and Oriental Regions. Roháček *et al.* (2003) considered it a cosmopolitan or subcosmopolitan species of unknown origin. In the Palaearctic, it is known from the Canary Islands (Roháček *et al.* 2003), Malta (Gatt 2004) and Japan (Roháček *et al.* 2001). Not much is known about its biology. The author has collected it on windows, at light, on dog faeces and farmyard manure, on beach wrack, and has also reared it from an old nest of the Spanish sparrow (Gatt 2001; 2004). This first record for Italy (Southern Italy) further extends the known distribution of this species in Europe.

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

Material examined: Sicily: Catania, Randazzo, Rummolo, Flascio River, farm, 850 m, 1 ♀, 9 June 1999, P. Gatt; Italy: Toscana, Parco Nazionale della Maremma, 3 ♂♂ and 1 ♀, May 2003, L. Chelazzi (ISEF); Toscana, Parco Nazionale della Maremma, Collelungo beach and dunes, on beach wrack, 3 ♀♀, 2 September 2003, P. Gatt; Toscana, Grosseto, Capalbio, Burano, on *Posidonia* banquettes, 1 ♀, 13 May 2005, L. Chelazzi (ISEF); Puglia, Gargano, Lago Salso, 2 ♂♂, 4 July 2005, P. Gatt; same data, 1 ♂, M. J. Ebejer (MJEC).

Notes: A very common, cosmopolitan, coprophagous species. Known with certainty from North Italy and Sardinia, its presence is here confirmed from both South Italy and Sicily.

***Elachisoma aterritum* (Haliday, 1833)**

Material examined: Sicily: Messina, Nebrodi, 8 km NW of Cesaró, stream, *Fagus, Rubus*, 1300 m, 1 ♂, 7 June 1999, P. Gatt.

Notes: A widely distributed polysaprophagous Holarctic species known in the Mediterranean from Spain (including Balearic islands), Northern Italy, Malta, Egypt, Bulgaria and Cyprus. First record for Sicily.

***Limosina silvatica* (Meigen, 1830)**

Material examined: Sicily: Catania, Etna, Piano delle Donne, *Pinus* forest, 1450 m, 5 June 1999, 1 ♂, M. J. Ebejer (MJEC).

Notes: A West Palaearctic woodland species. According to Roháček (2004a) it is very rare in the Mediterranean subregion, especially in the South, where it has been reported from the highlands of Tunisia, Cyprus and Israel. Known from mainland Italy and Sardinia. First record for Sicily.

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

Material examined: Italy: Mantova, Marmirolo, Bosco di Fontana, 50 m, 45°12'N / 10°45'E, 1 ♀, 25 May 2005, B. Merz (MHNG).

Notes: An uncommon European woodland species which does not penetrate to the South of Europe. First record for Italy (Northern Italy). Known from neighbouring Switzerland.

***Pseudocollinella jorpii* (Carles-Tolrà, 1990)**

Material examined: Italy: Abruzzo, Villetta Barrea, riverside, 1000 m, 1 ♂ and 1 ♀, 1 July 2005, P. Gatt; same data, 4 ♂♂ and 3 ♀♀, M. J. Ebejer (MJEC).

Notes: A mediterranean species originally described from Spain, and subsequently reported from the Azores, Canary Islands, Portugal, Morocco, Algeria, Italy, Malta and Cyprus. Recent records from Slovakia and Southern Britain suggest that the species is expanding its range northwards into Central and Northern Europe. In Italy, known with certainty from the North, and from Sicily and Sardinia. The species is here confirmed from the South.

***Pteremis fenestralis* (Fallén, 1820)**

Material examined: Sicily: Messina, Nebrodi, Monte Soro, beach and oak forest, 1700 m, 1 ♂, 7 June 1999, P. Gatt.

Notes: A Palaearctic, European species known from both the North and South of Italy. This first record for Sicily represents the southernmost known distribution of its range.

***Pullimosina (Pullimosina) vulgesta* Roháček, 2001**

Material examined: Italy: Abruzzo, Villetta Barrea, riverside, 1000 m, 1 ♀, 1 July 2005, M. J. Ebejer (MJE); Abruzzo, Passo del Diavolo, flowery meadow, 1200 m, on fungus, 1 ♂, 6 July 2005, P. Gatt.

Notes: A terricolous, phytosaprophagous, European species, known in the Mediterranean from Spain, France (including Corsica), Italy, Slovenia and Yugoslavia. Previously known only from the North of Italy. This is the first record for the South.

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

Material examined: Sardinia, Baunei reg. 0 m, Santa Maria Navarrese/St. 10, 39°59'13N / 9°41'18E, 1 ♂, 18 June 2002, B. Merz (MHNG).

Notes: Possibly an Afrotropical species which penetrates up to the Mediterranean. There are records from the Azores, Canary Islands, Spain, Italy, Malta, Algeria, Egypt, Greece (including Crete), Cyprus, Turkey, Israel and Afghanistan. In Italy previously recorded only from Sicily, this species is here added to the fauna of Sardinia.

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

Material examined: Italy: Toscana, Roccastrada 11 km West, Mulino di Giugnano, streamside vegetation, 1 ♂, 3 September 2003, P. Gatt; Puglia, Gargano, Lago Salso, 2 ♂♂, 4 July 2005, M. J. Ebejer (MJE).

Notes: A West Palaearctic species known in Italy from Sicily and Sardinia. These are the first records from mainland Italy (South).

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

Material examined: Italy: Toscana, Parco Nazionale della Maremma, 2 ♂♂ and 2 ♀♀, May 2003, L. Chelazzi (ISEP); Toscana, Parco Nazionale della Maremma, 1 ♂, 2 September 2003, P. Gatt; Puglia, Gargano, Lago Salso, 1 ♂ and 1 ♀, 4 July 2005, P. Gatt; same data, 2 ♂♂, M. J. Ebejer (MJE).

Notes: A halophilous, almost cosmopolitan species known with certainty in Italy from the North and from Sardinia and Sicily. These records confirm the species in Southern Italy.

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

Material examined: Italy: Puglia, Gargano, Lago Salso, 1 ♀, 4 July 2005, P. Gatt.

Notes: A widely distributed West Palaearctic species with Easternmost records from Tadzhikistan. In the Mediterranean, known from Spain (including Balearic

islands), Italy (with certainty from the North, Sicily and Sardinia), Bulgaria, Greece and Israel. The species is here confirmed from Southern Italy.

***Rachispoda modesta* (Duda, 1924)**

Material examined: Italy: Puglia, Gargano, Lago Salso, 1 ♂ and 2 ♀♀, 4 July 2005, P. Gatt; same data, 1 ♀, M. J. Ebejer (MJEC); Puglia, Gargano, Mt. Calvo, woodland, 800 m, 1 ♂, 4 July 2005, P. Gatt.

Notes: A hygrophilous species widely distributed in the Southern Palaearctic. In Italy, known from the North, Sicily and Sardinia. The species is here recorded for the first time from the South.

***Spelobia (Eulimosina) ochripes* (Meigen, 1830)**

Material examined: Sicily: Catania, Etna, 3 km NW of Milo, 1000 m *Castanea* and *Corylus* forest, 1 ♀, 9 June 1999, P. Gatt.

Notes: A Holarctic and Oriental species known in the Mediterranean from Spain, France (including Corsica), mainland Italy, Tunisia, Slovenia, Yugoslavia, Macedonia, Greece and Bulgaria. First record for Sicily.

***Spelobia (Spelobia) baezi* (Papp, 1977)**

Material examined: Italy: Verona, Malcesine, Chiesa S. Michele, 45°46'N / 10°50'E, 560 m, 1 ♂, 26 May 2001, B. Merz (MHNG).

Notes: Recorded from the Canary Islands, Great Britain, Andorra, Spain, Morocco, Italy, Croatia, Cyprus and Israel. In Italy, known from the South, Sardinia and Sicily. This is the first record of the species from the North.

***Spelobia (Spelobia) rufilabris* (Stenhammar, 1855)**

Material examined: Italy: Abruzzo, Villetta Barrea, 1000 m, woodland, 1 ♂, 1 July 2005, P. Gatt; Puglia, Gargano, S. Giovanni Rotondo, Coppa di Mezzo, forest, 850 m, 2 ♂♂ and 1 ♀, 4 July 2005, M. J. Ebejer (MJEC); Puglia, Gargano, S. Giovanni Rotondo, Monte Calvo 800 m, woodland, 1 ♂ and 1 ♀, 4 July 2005, P. Gatt.

Notes: A widespread, woodland Eurosiberian species which penetrates as far south as Spain and Italy. Also recorded from Nepal and Mongolia. In Italy, it has been recorded solely from the North. This is the first record for the South.

***Thoracochaeta brachystoma* (Stenhammar, 1855)**

Material examined: Italy: Toscana, Grosseto, Capalbio, Burano, on *Posidonia* banquets, 4 ♂♂ and 6 ♀♀, 13 May 2005, L. Chelazzi (ISEF).

Notes: A cosmopolitan species known from the North of Italy. This is the first record for the South.

Subfamily Sphaerocerinae

***Lotobia pallidiventris* (Meigen, 1830)**

Material examined: Sicily: Catania, Randazzo, Monte Spagnolo, 3 ♀♀, 1200 m, mixed forest, 6 June 1999, P. Gatt; Catania, Randazzo, Rummolo, Flascio River,

Tab. 1: Distribution of new records of Sphaeroceridae from Italy.

N = north; S = south; Si = Sicily; Sa = Sardinia.

+ = reliable literature record; ? = doubtful literature record; ?C = previous doubtful literature record, confirmed; NR = new record.

	Italy	N Italy	S Italy	Si	Sa
<b>COPROMYZINAE</b>					
1. <i>Alloborborus pallifrons</i> (Fallén, 1820)	?C	?	NR		
2. <i>Borborillus uncinatus</i> (Duda, 1923)	+	+	NR		
3. <i>Crumomyia nitida</i> (Meigen, 1830)	+	+	+	NR	
4. <i>Norrbomia costalis</i> (Zetterstedt, 1847)	+	+	NR		
<b>LIMOSININAE</b>					
5. <i>Chaetopodella scutellaris</i> (Haliday, 1836)	+	+	NR	NR	+
6. <i>Coproica digitata</i> (Duda, 1918)	NR		NR		NR
7. <i>Coproica lugubris</i> (Haliday, 1836)	+	+	?C	+	+
8. <i>Coproica rufifrons</i> Hayashi, 1991	NR		NR		
9. <i>Coproica vagans</i> (Haliday, 1833)	+	+	?C	?C	+
10. <i>Elachisoma aterrimum</i> (Haliday, 1833)	+	+		NR	
11. <i>Limosina silvatica</i> (Meigen, 1830)	+	+	+	NR	+
12. <i>Minilimosina v-atrum</i> (Villeneuve, 1917)	NR	NR			
13. <i>Pteremis fenestralis</i> (Fallén, 1820)	+	+	+	NR	
14. <i>Pseudocollinella jorlii</i> (Carles-Tolrá, 1990)	+	+	?C	+	+
15. <i>Pullimosina vulgesta</i> Roháček, 2001	+	+	NR		
16. <i>Rachispoda acrosticalis</i> (Becker, 1903)	+			+	NR
17. <i>Rachispoda brevior</i> (Roháček, 1991)	+		NR	+	+
18. <i>Rachispoda fuscipennis</i> (Haliday, 1833)	+	+	?C	+	+
19. <i>Rachispoda longior</i> (Roháček, 1991)	+	+	?C	+	+
20. <i>Rachispoda modesta</i> (Duda, 1924)	+	+	NR	+	+
21. <i>Spelobia baezi</i> (Papp, 1977)	+		NR	+	+
22. <i>Spelobia ochripes</i> (Meigen, 1830)	+	+	+	NR	
23. <i>Spelobia rufilabris</i> (Stenhammar, 1855)	+	+	NR		
24. <i>Thoracochaeta brachystoma</i> (Stenhammar, 1855)	+	+	NR		
<b>SPHAEROCERINAE</b>					
25. <i>Lotobia pallidiventris</i> (Meigen, 1830)	+	+	NR	NR	+

farm, 850 m, 1 ♀, 7 June 1999, P. Gatt; Messina, Nebrodi, 8 km NW of Cesaro, beech forest, 1 ♂ and 3 ♀ ♀, 1300 m, 7 June 1999, P. Gatt; Italy: Toscana, Parco Nazionale della Maremma, Collelungo, beach and dunes, 1 ♀, 2 September 2003, P. Gatt.

Notes: An Old World coprophagous species known from the Afrotropical, Oriental and Palaearctic regions. Recorded from North Italy and Sardinia. First record for South Italy and Sicily.

#### CONCLUSIONS

Three species – *Coproica digitata*, *C. rufifrons* and *Minilimosina v-atrum* – are added to the sphaerocerid fauna of Italy. The presence of *Alloborborus pallifrons* is confirmed. *Rachispoda brevior* is newly recorded from mainland Italy. One species – *Spelobia baezi* – is newly recorded from the North. Ten species – *A. pallifrons*, *Borborillus uncinatus*, *Chaetopodella scutellaris*, *Lotobia pallidiventris*, *Norrbomia costalis*, *Pullimosina vulgesta*, *Rachispoda brevior*, *R. modesta*, *Spelobia rufilabris* and *Thoracochaeta brachystoma* are newly recorded from the South.

Five species – *Coproica lugubris*, *C. vagans*, *Pseudocollinella jorlii*, *Rachispoda fuscipennis* and *R. longior* are confirmed from the South. Seven species – *Crumo-myia nitida*, *Chaetopodella scutellaris*, *Elachisoma aterrimum*, *Lotobia pallidiven-tris*, *Limosina silvatica*, *Pteremis fenestralis*, and *Spelobia ochripes* are newly re-corded from Sicily. *Coproica vagans* is confirmed from Sicily. *Coproica digitata* and *Rachispoda acrosticalis* are new to the fauna of Sardinia. These results are lis-ited in Tab. 1 for ease of reference.

By and large, most of the records cited in this work are of common species with a wide geographical distribution and serve to highlight the need for more field work in the area. Some records, however, are notable. *A. pallifrons* was hitherto known with certainty in the Mediterranean only from France. *C. rufifrons* was pre-viously known in Europe only from Malta. The record for *P. fenestralis* in Sicily represents the southernmost known distribution of its range. *L. silvatica* occurs very rarely in the Mediterranean, especially the south.

The new distributional data on Sphaeroceridae from Italy cited in this account are mostly the result of the modest collecting efforts of one individual using general methods during three brief visits. More intensive investigation, including the use of trapping and baiting techniques, is expected to unearth more species.

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