

A note on some Rhinophoridae from the Mediterranean Region (Diptera)

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ABSTRACT. New records of Rhinophoridae are given for Cyprus, Gibraltar, Malta and Tunisia. Previous knowledge of this family from these countries was more limited. Some faunistic comparisons are made between the Rhinophoridae occurring in these countries and the Balearics.

KEY WORDS. Balearics, Cyprus, Gibraltar, Malta, Tunisia, faunistics, new records.

INTRODUCTION

The Rhinophoridae is a small family of flies consisting of about 170 named species from all zoogeographical areas except the Nearctic (one species each of *Phyto* and *Melanophora* are introduced) (PAPE, 1998; PAPE & ARNAUD, 2001). Most species are found in countries around the Mediterranean and in Southern Africa. The larval biology is endoparasitism of woodlice (Isopoda). The Manual of Palaearctic Diptera contains a recent overview of this family (PAPE, 1998).

The Fauna Europaea database (PAPE & BEUK, 2004) lists 45 species with most of these from around the Mediterranean, and since then four more species have been described (CERRETTI & PAPE, 2007, 2009; ROGNES, 2010). Knowledge of their distribution especially on the islands remains scanty with few published records. Searching the database for records from a selected number of countries gave these results for species number: Cyprus - 0, Gibraltar - 0, Malta - 2, and searches in the literature did not add records for Cyprus and Gibraltar (HERTING, 1961; 1993), but two species omitted from the Fauna Europaea database were listed in the literature as occurring on Malta. Some species are known from Algeria and Morocco, but only one is recorded from Tunisia: *Phyto sordidisquama* Villeneuve, 1920 (HERTING, 1961). The records given in this article extend the range of distribution of several species and change these figures thus: Cyprus - 4, Gibraltar - 5, Malta - 7, Tunisia - 4.

Only two publications list species of this family from Malta. RONDANI (1862) recorded *Melanophora roralis* (Linnaeus, 1758) and *Stevenia atramentaria* (Meigen, 1824). SCHEMBRI *et al.* recorded *Melanophora roralis*, *Phyto adolescens* Rondani, 1861 and *Stevenia deceptor* (Loew, 1847). *Stevenia atramentaria* has not been found again. The record may have been a misidentification (HERTING, 1993). Here, another four species are added. Thus, seven species of Rhinophoridae are confirmed for Malta.

Ten species of Rhinophoridae are known from mainland Iberia (TSCHORSNIG & BÄEZ, 2002). Gibraltar is physically connected to the mainland, but the airport and the town of La Linea in Spain are to some extent barriers isolating the habitats on Gibraltar, so that for some animal groups this state behaves more like an island. Furthermore, Gibraltar's habitats extend to a higher altitude, are less degraded and more diverse than those in Spain for several kilometres. For these reasons, I am treating Gibraltar as an "island"; and since there are no records of this family from there, I

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am recording, for the first time in this article, the five species recently encountered. One of these, *Macrotarsina longimana* (EGGER, 1856) is a genus and species new for Iberia. It was described from the eastern Mediterranean. Thus finding it in Gibraltar and in Malta considerably extends its distribution.

Cyprus is a large island and it has a great diversity of habitats. No previous records were found in the literature. Although only four species were encountered, it is of interest that two of these were described from Israel (KUGLER, 1978). Eventually, several more species should be found.

The three species *Melanophora roralis*, *Phyto melanocephala* (Meigen, 1824) and *Stevenia deceptoris*, were only relatively recently recorded from the Balearics, Spain (TSCHORSNIG & BÁEZ, 2002; EBEJER, 2003; CARLES-TOLRÁ & VENTURA, 2009). I found all three species to be common, but in spite of sampling widely on Mallorca and Menorca (much less so, on Ibiza), I added no more species. Nevertheless, more species are to be expected, particularly if sampling is carried out in mid summer, early spring and late autumn. The paucity of Rhizophoridae on the Balearics, compared to the much smaller Gibraltar and Malta, cannot easily be explained. However, land use, pesticide application and Isopod fauna probably account for this to some extent. For example, although Gibraltar has a very small land mass, it has a high percentage of its land free of cultivation and pesticide application with extensive dense vegetation ground cover. Gibraltar is also linked to the mainland even though in many ways its fauna and flora are isolated. This proximity allows for a likely greater number of species.

It may be of interest that the species diversity increases from west to east in the Mediterranean, although the number of species on the smaller islands remains low. The ecological and host factors that determine this have not been explored. Species in the genus *Stevenia* tend to occur in large numbers and they are encountered most often on the flowers, stems and leaves of shrubs. Species of *Phyto* can be found all year round in the southern Mediterranean and usually are seen on flowers or basking on walls, rocks or bare ground.

Species data is limited in the literature and therefore all new data available to me is included below, even on species previously recorded. The specimens are preserved in the collection of the person who collected them unless otherwise stated. The collectors' initials follow the data: John C. Deeming - JCD, Peter Dyte - CED, Keith Bensusan - KB, M.J. Ebejer - MJE, P. Gatt - PG. The codon NMWC refers to the National Museum of Wales, Cardiff, UK.

ANNOTATED SPECIES LIST

Macrotarsina longimana (Egger, 1856)

Material examined. **CYPRUS:** Kyrenia, 27.x.1995, 1 ♂, CED (NMWC). **GIBRALTAR:** SW Rocky coast, 29.ix.2008, 1 ♀, MJE; Windmill Hill Flats, 21.v.2011, 1 ♀, KB. **MALTA:** Marfa Ridge, 27.v.2011, 2 ♂♂ & 1 ♀, MJE, 1 ♂ & 1 ♀, same data but PG.

Melanophora roralis (Linnaeus, 1758)

Material examined. **MALTA:** Comino, 4.viii.1975, 4 ♂♂, MJE; Buskett, 14.iv.1977, 1 ♂ & 1 ♀, MJE; Marfa Ridge, 10.vii.1987, 1 ♂, MJE; Wied Qannotta, 5.v.1988, 1 ♂, MJE; Chadwick Lakes, 2.xi.1992, 2 ♂♂, MJE; Gnejna, 30.iv.1995, 2 ♀♀, MJE; Fomm ir-Rih, 27.iv.1997, 4 ♂♂ & 1 ♀, MJE; Ghajn Tuffieha, 9.v.1999, 1 ♂, MJE; Salina, 28.x.2001, 1 ♂, MJE.

Oplisa aterrima (Strobl, 1899)

Material examined. GIBRALTAR: Upper Rock, Spur Battery, 21.iii.2010, 2 ♂♂ & 2 ♀♀, MJE; Windmill Hill Flats, 26.iii.2010, 5 ♂♂ & 1 ♀, MJE. TUNISIA: Tabarka, Cap Negro, 15.v.1995, 1 ♀, MJE; Tabarka, Oued Berkouech, 12.iv.2005, 1 ♀, PG.

Paykullia kugleri (Herting, 1961)

Material examined. CYPRUS: Kalavassos Dam, 165m, 30°48'01N 33°16'02E, 24.iv.2002, 1 ♂ & 1 ♀, MJE.

Paykullia nubilipennis (Loew, 1847)

Material examined. MALTA: Buskett, 22.iv.1992, 1 ♀, MJE; Buskett, 1.v.1992, 5 ♂♂ & 3 ♀♀, MJE, 1 ♂ & 1 ♀, same data but PG; Buskett, 9.vii.1993, 1 ♂, MJE; Buskett, 25.iv.1994, 1 ♂, MJE; Buskett, 3.v.2001, 1 ♀, MJE.

Phyto adolescens Rondani, 1861

Material examined. GIBRALTAR: Mediterranean Steps, 200-400m, 2.x.2008, 1 ♀, MJE; Upper Rock, Spur Battery, 21.iii.2010, 1 ♂ & 1 ♀, MJE; Windmill Hill Flats, 26.iii.2010, 2 ♂♂, MJE. MALTA: Balzan, 2.ix.1975, 1 ♂, MJE; Wied is-Sewda, 24.xii.1976, 1 ♀, MJE; Wied il-Mistra, 31.iii.1985, 1 ♀, MJE (NMWC); Wied Qirda, 2.vii.1985, 1 ♀, MJE (NMWC); Wied Qirda, 2.vii.1987, 1 ♂, MJE; Rabat, Wied Ghomor, 31.iii.1992, 1 ♂, MJE; Fiddien, 8.iv.1992, 1 ♀, MJE; Wied Incita, 6.iii.1994, 1 ♂ & 1 ♀, MJE; Wied Qannotta, 5.iv.1994, 1 ♂, MJE; Wied Qannotta, 10.iv.1994, 1 ♀, MJE; Wied Qannotta, 26.ii.1995, 3 ♂♂, MJE; Mgiebah, 24.iii.1996, 2 ♂♂ & 1 ♀, MJE; Dingli, Wied Qasrun, 24.v.1998, 2 ♂♂, MJE; Wied Ghajn Rihana, 27.x.1998, 1 ♀, PG; Wied Migra l-Ferha, 2.iv.1999, 1 ♀, PG; Ghadira, 6.iv.1999, 2 ♂♂ & 1 ♀, PG; Comino, 28-30.iii.2002, 1 ♂, MJE; Wied Qannotta, 5.iii.2003, 2 ♂♂, JCD (NMWC); Ghadira, 27.v.2011, 2 ♂♂, MJE.

Phyto discrepans (Pandellè, 1896)

Material examined. GIBRALTAR: Mediterranean Steps, 12.viii.2009, 1 ♂, KB; North Front Cemetery, 22.iii.2010, 1 ♂, MJE; Upper Rock, Jew's Gate, 23.iii.2010, 1 ♂, KB.

Phyto melanocephala (Meigen, 1824)

Material examined. MALTA: Rabat, 10.iv.1999, 1 ♀, PG; Salina, 15.v.2007, 1 ♀, PG.

Rhinophora lepida (Meigen, 1824)

Material examined. CYPRUS: Diarizos Valley, Kidasi, 245m, 34°43'58N 22°35'36E, 23.iv.2002, 1 ♂, MJE; Kalavassos Dam, 165m, 30°48'01N 33°16'02E, 24.iv.2002, 1 ♀, MJE; Akrounta, 130m, 34°48'48N 33°05'30E, 24.iv.2002, 1 ♀, MJE; 6km N Dora, 600m, 34°48'07N 32°45'29E, 27.iv.2002, 1 ♂, MJE.

Stevenia deceptor (Loew, 1847)

Material examined. GIBRALTAR: Botanic Gardens, 29.ix.2008, 5 ♀♀, MJE; Windmill Hill Flats, 30.x.2008, 1 ♂ & 1 ♀, MJE; Botanic Gardens, 1.x.2008, 1 ♀, MJE. MALTA: Salina,

20.v.1975, 3 ♂♂, MJE; Wied Qirda, 2.vii.1987, 1 ♂, MJE; Fiddien, 6.vii.1987, 1 ♂, MJE; Salina, 7.vii.1987, 1 ♂, MJE; Marfa Ridge, 10.vii.1987, 4 ♂♂, MJE; Ghallis, 1.v.1988, 3 ♂♂, MJE; Wied Qannotta, 5.v.1988, 1 ♂, MJE; Mtahleb, 25.vii.1989, 1 ♂ & 1 ♀, MJE; Fiddien, 20.x.1991, 3 ♂♂, MJE; Bahrija, 3.xi.1991, 1 ♀, MJE; Wied Babu, 17.xi.1991, 1 ♂ & 1 ♀, MJE; Gozo, Wied il-Lunzjata, 23.iv.1992, 1 ♀, MJE; Buskett, 27.iv.1992, 1 ♀, MJE; Buskett, 1.v.1992, 1 ♂ & 2 ♀♀, MJE; Salina, 31.v.1992, 2 ♀♀, MJE; Buskett, 5.vii.1992, 1 ♂, MJE; Marsaxlokk, 27.ix.1992, 1 ♂, MJE; Hagar Qim, 15.xi.1992, 1 ♂, MJE; Comino, 29.iv.1994, 1 ♂, PG; Gnejna, 30.iv.1995, 1 ♂ & 3 ♀♀, MJE; Wardija, 25.ii.1996, 1 ♂, MJE; Fiddien, 14.iv.1996, 1 ♂, MJE; Fomm ir-Rih, 27.iv.1997, 1 ♂, MJE; Bahar ic-Caghaq, Qrejtjen Point, 4.x.1997, 1 ♂, MJE; Ghar Lapsi, 2.xi.1997, 1 ♀, MJE; Migra l-Ferha, 2.iv.1999, 1 ♀, MJE; Bajda Ridge, 6.iv.1999, 4 ♂♂, MJE; Mizieb, 6.iv.1999, 3 ♂♂ & 2 ♀♀, PG; Ghadira, 6.iv.1999, 1 ♂, MJE; Buskett, 16.viii.2000, 1 ♀, MJE; Buskett, 3.v.2001, 2 ♂♂ & 1 ♀, MJE; Gozo, Ramla, 5.v.2001, 3 ♂♂ & 1 ♀, PG; Comino, 28-30.iii.2002, 1 ♂, MJE; Comino, 29.iii.2002, 3 ♂♂, PG; Gozo, Ramla, 3.v.2002, 2 ♂♂, PG.

CERRETTI & PAPE (2007) described *Stevenia palermitana* from Sicily. This species is very close to *deceptoria*. A large sample of over a hundred specimens of both sexes of *Stevenia* collected in May 2011 from the following localities in Malta: Fiddien, Ghadira, Marfa Ridge, Mtahleb and Wied Qannotta, all proved to be *deceptoria*. This sample is not included in the material examined section given above.

Stevenia flaviventris Kugler, 1978

Material examined. CYPRUS: Kourion dunes, 34°38'10N 32°54'05E, 30.iv.2002, 1 ♂, MJE.

Stevenia lateralis (Macquart, 1849)

Material examined. TUNISIA: Lagsab, oued, 11.v.1995, 1 ♂, MJE; Mateur, Jeffna, 16.v.1995, 1 ♂, MJE.

Stevenia obscuripennis (Loew, 1847)

Material examined. MALTA: Gozo, Wied il-Lunzjata, 23.iv.1992, 1 ♀, MJE.

Tricogena rubricosa (Meigen, 1824)

Material examined. TUNISIA: Bizerte, Ghar el-Melh, El Sidi el Meki, 3.iv.2007, 1 ♂, PG.

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