

Diptera Carnoidea of the Maltese Islands

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ABSTRACT. An account is given of the families in the Carnoidea (Diptera: Schizophora) that have not been recorded previously from Malta. These are Braulidae, one species, Canacidae, one species, Carnidae, two species and Milichiidae, seven species.

KEY WORDS. Mediterranean, Malta, Braulidae, Canacidae, Carnidae, Milichiidae, faunistics, new records.

INTRODUCTION

In Europe and the Mediterranean, the families that comprise the Carnoidea are: Braulidae, Chloropidae, Carnidae, Milichiidae and Canacidae. All these are represented in Malta. EBEJER (2011) gave an account of the Chloropidae of Malta. The Canacidae (Tethininae) were studied by MUNARI & EBEJER (2001). MUNARI & MERZ (2003) added more data. SCHEMBRI *et al.* (1991) gave no data on any family of the Carnoidea. *Desmometopa m-nigrum* is listed as occurring on Malta in the Fauna Europaea database (CARLES-TOLRÁ, 2004), but no data or literature reference was given. All other species of Carnoidea listed here are first records for the Maltese Islands.

Notes on the biology were obtained from FERRAR (1987) and the Manual of Palearctic Diptera: Braulidae (PAPP, 1998a), Canacidae (Canacinae) (MATHIS, 1998), Milichiidae (PAPP & WHEELER, 1998), Carnidae (PAPP, 1998b).

This article lists the known species of the Carnoidea from the Maltese Islands except for the Chloropidae and Canacidae (Tethininae) which have already been treated as outlined above, with full data and biological notes where these are available. Unless otherwise stated, information is based on specimens collected and deposited in the collections of the author (MJE) and of Dr Paul Gatt (PG).

ANNOTATED SPECIES LIST

BRAULIDAE

This is a family of flies represented by the sole genus *Braula* Nitzsch, 1818 that consists of a small number of species. They are tiny wingless louse-like flies that live in association with honeybees. The adults attach themselves to the body of adult bees and feed from the mouthparts of the bee. The larval stages develop in the cells of the honeycomb, feeding on bees wax. *Braula* are usually only encountered by beekeepers and are not harmful to bees. They have no economic importance.

Braula coeca Nitzsch, 1818

Material examined. GOZO: San Blas, 13.iv.1998, 2 ♀♀, on *Apis mellifera*, C. Farrugia, 1 ♂ & 2 ♀♀ same data but 16.viii.1998, 2 ♀♀ same data (PG coll.).

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Braula coeca is a widespread species and not many beehives exist without this fly being present.

CANACIDAE

The Canacidae consists of six subfamilies: Apetaeninae, Canacinae, Horaismopterinae, Pelomyiinae, Tethininae and Zaleinae. The Apetaeninae is found only in the subantarctic archipelagos; the Horaismopterinae is Afrotropical; and the Zaleinae is Australasian and Oriental, reaching the southern Palaearctic only in the Red Sea. The remaining three subfamilies occur in all zoogeographic regions. The biology is unknown, but it is thought that larvae of *Canace* feed on algae growing on rocks in the intertidal zone, the same habitats where adults are found.

Canace salonitana Strobl, 1900

Material examined. MALTA: Delimara, 24.iv.1993, 1 ♀, MJE; Blata l-Bajda, near St Paul's Islands, 13.xii.1993, 1 ♂ & 2 ♀♀, MJE; Gnejna, 11.ii.1996, 1 ♀, MJE; Gnejna, Ras il-Karraba, 23.xii.1999, 2 ♂♂, MJE. GOZO: Ramla, rocky shore, 8.v.1993, 2 ♂♂ & 1 ♀, PG (PG coll.); Ramla dunes, 23.iv.1992, 1 ♂, MJE; Ramla, 10.iv.1993, 1 ♂ & 2 ♀♀, MJE. COMINO: Santa Marija, rocky shore, 29.iv.1994, 1 ♀, PG (PG coll.).

This species is widespread and common along Mediterranean coasts.

CARNIDAE

Most Carnidae are known from the northern hemisphere. Species are saprophagous in a variety of situations ranging from various plant matter to dung of a wide range of animals including other insects, to corpses of vertebrates and arthropods. Several species have been reared from bird and mammalian nests. In Malta, *Meoneura prima* was found in large numbers on a pile of mixed chicken, rabbit and sheep dung on a small farm in Xaghra, Gozo (recorded below).

Meoneura prima (Becker, 1903)

Material examined. MALTA: Balzan, 8.ii.1977, 1 ♀, MJE, 2 ♂♂ same data but 9.iii.1992; Marfa Ridge, 17.iv.1992, 1 ♂, MJE, 1 ♀ same data but 5.x.1997; Ghadira, 9.iv.1993, 1 ♂ & 1 ♀, MJE, 2 ♂♂ same data but 19.iii.1994; Fiddien, 16.i.1994, 1 ♂ & 1 ♀, MJE; Wied Incita, 27.ii.1994, 1 ♂ & 1 ♀, MJE; Qormi, Wied il-Kbir, 17.i.1999, 1 ♀, MJE; Qormi, Ghammieri, Government Farm, 11.xii.1999, 1 ♀, MJE; Mgiebah, 25.iii.2001, 2 ♀♀, MJE. GOZO: Gharb, Wied il-Mielah, 30.xi.1991, 1 ♀, MJE; Xaghra, 11.ii.1995, 3 ♂♂ & 2 ♀♀, MJE.

Meoneura granadensis Lyneborg, 1969

Material examined. MALTA: Buskett, 25.viii.1991, 1 ♂ & 4 ♀♀, MJE; Buskett, 9.vii.1993, 1 ♂, MJE.

MILICHIIDAE

The Milichiidae is represented all over the world. A small number of species have been widely dispersed through anthropogenic activity. Like the Carnidae, species of the Milichiidae are saprophagous in a wide variety of pabula of both plant and animal origin. A majority of records indicates little specialization, but there are notable exceptions, for example, the European species

Milichia ludens (Wahlberg, 1847) lives as a scavenger in the nests of the ant *Lasius fuliginosus* Latreille, 1798. Two species of the North American genus *Pholeomyia* Bilimek, 1867 live in the nests of the leaf cutter fungus growing ants of the genus *Atta* Fabricius, 1804 and other species in this genus have been reared from the nests of Megachilidae bees and bat dung in caves.

All the species of Milichiidae that are found in Malta, with the exception of *Milichia pubescens*, have a very wide distribution and are relatively common flies. *Milichia pubescens* is a west Palaearctic species but it is uncommon.

Desmometopa m-nigrum (Zetterstedt, 1848)

Material examined. MALTA: Ras il-Karraba, 27.xii.1975, 2 ♂♂ & 2 ♀♀, MJE; Balzan, 29.xii.1975, 1 ♀, MJE, 6 ♂♂ & 2 ♀♀ same data but 1.ix.1991; Gzira, 2.v.1978, 1 ♀, at window, PG (PG coll.); Balzan, San Anton gardens, several on freshly killed *Apis mellifera*, 8.ix.1978, 1 ♀, PG (PG coll.); Wied Qannotta, 4.i.1987, 3 ♂♂ & 2 ♀♀, MJE; Fiddien, 28.vii.1989, 1 ♀, MJE; Fawwara, 2.iii.1991, 1 ♂, MJE; Buskett, 25.viii.1991, 1 ♀, MJE; Ghadira, 17.iv.1992, 5 ♂♂ & 1 ♀, MJE; Salina, 13.vii.1992, 1 ♂, PG (PG coll.); Delimara, 24.iv.1993, 2 ♂♂ & 2 ♀♀, MJE; Ghar Lapsi, 7.xii.1997, 1 ♂, MJE; Zebbug, Wied Qirda, 19.iv.1998, 1 ♀, MJE; Naxxar, San Pawl tat-Targa, 23.viii.1998, 4 ♂♂ & 2 ♀♀, on flowers of *Ceratonia siliqua*; Qormi, Ghammieri, Government Farm, 11.xii.1999, 3 ♂♂, MJE. GOZO: Mgarr ix-Xini, 23.iv.1992, 1 ♀, MJE.

Desmometopa varipalpis Malloch, 1927

Material examined. MALTA: Delimara, 24.iv.1993, 4 ♀♀, MJE; Salina, 16.x.1993, 1 ♀, MJE; Rabat, xi.1994, 1 ♀, at light, PG (PG coll.).

Leptometopa latipes (Meigen, 1830)

Material examined. MALTA: Marsaxlokk marsh, 26.vii.1992, 2 ♂♂, MJE, 5 ♀♀ same data but 27.ix.1992; Wied l-Isqof, 15.xi.1992, 1 ♀, PG (PG coll.); Mtahleb, 26.v.2011, 1 ♂, MJE. COMINO: Santa Marija beach, 28-30.iii.2002, 3 ♂♂, MJE.

Leptometopa niveipennis (Strobl, 1900)

Material examined. MALTA: Fiddien, 15.iv.1992, 1 ♀, PG (PG coll.); Buskett, 22.iv.1992, 1 ♂ & 2 ♀♀, MJE; Ghallis, 23.viii.1992, 1 ♀, MJE; Marsaxlokk marsh, 27.ix.1992, 1 ♀, MJE; Manikata, 9.iv.1993, 1 ♀, MJE; Delimara, 24.iv.1993, 4 ♂♂, MJE; Wied Qannotta, 10.iv.1994, 1 ♂, MJE; Mgiebah, 24.iv.1994, 2 ♂♂ & 2 ♀♀, MJE, 3 ♂♂ same data but 26.iii.1995, 1 ♀ same data but 16.iii.1996; Gnejna, 11.ii.1996, 1 ♂, MJE, 1 ♂ same data but 4.v.2002; Ghar Lapsi, 7.xii.1997, 3 ♂♂, MJE; Mtahleb, 16.iv.2000, 4 ♂♂, swept from *Ferula* and *Euphorbia* flowers, MJE. GOZO: Ramla dunes, 5.iv.1999, 2 ♂♂ & 4 ♀♀, MJE. COMINO: Santa Marija beach, 28-30.iii.2002, 3 ♂♂ & 2 ♀♀, MJE.

Madiza glabra Fallén, 1820

Material examined. MALTA: Buskett, 22.iv.1992, 1 ♂ & 1 ♀, MJE; Delimara, 24.iv.1993, 1 ♀, PG (PG coll.); Mgarr, Bingemma, 1.xi.1998, 2 ♂♂, MJE; Qormi, Tal-Handaq, Wied il-Kbir, 17.i.1999, 1 ♂, MJE; Mtahleb, 16.iv.2000, 1 ♂ & 2 ♀♀, swept from *Ferula* and *Euphorbia* flowers, MJE; Rabat, 21.vi.2003, 1 ♂ & 2 ♀♀, at window, PG (PG coll.). GOZO: Ghasri, 24.i.1999, 1 ♂, MJE.

Milichia pubescens Becker, 1907

Material examined. MALTA: Balzan, 4.ix.1975, 1 ♀, MJE, 1 ♂ same data but 23.x.1993; Rabat, 17-20.xii.1993, 2 ♂♂ & 1 ♀, at window, PG (PG coll.), 1 ♂ same data but at light, 1.i.1994, 1 ♀ same data but at light, xi.1994.

Milichiella lacteipennis (Loew, 1866)

Material examined. MALTA: Balzan, 1.iii.1991, 1 ♂ & 2 ♀♀, MJE; Fiddien, 1.xi.1992, 1 ♀, PG (PG coll.), 2 ♂♂ same locality but 21.ix.1994, MJE; Manikata, 9.iv.1993, 1 ♀, PG (PG coll.); Ghadira, 19.iii.1994, 2 ♂♂, MJE, 1 ♂ same data but 14.iv.1994, 12 ♀♀ same data but 25.x.1998; Marsaxlokk, 6.ix.1995, 1 ♀, MJE; Balzan, 22.ix.1997, 1 ♀, MJE; Wardija, 16.xi.1997, 2 ♂♂, MJE; Mistra, 2.vi.2002, 1 ♀, MJE; Mtahleb, 26.v.2011, 1 ♂, PG (PG coll.). **GOZO:** Ramla dunes, 21.ix.1992, 1 ♀, MJE; Dwejra, 28.xi.1993, 1 ♀, MJE; Xaghra, farmyard manure, 11.ii.1995, 1 ♀, PG (PG coll.).

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