

ZOOSYSTEMATICA ROSSICA

Zoological Institute, Russian Academy of Sciences, St Petersburg - https://www.zin.ru/journals/zsr/ Vol. 30(1): 25–39 - Published online 8 May 2021 - DOI 10.31610/zsr/2021.30.1.25

RESEARCH ARTICLE

Flies of the family Dolichopodidae (Diptera: Brachycera), excluding the Microphorinae and Parathalassinae, from the Maltese Islands with notes on their habitats and phenology

Двукрылые семейства Dolichopodidae (Diptera: Brachycera), исключая Microphorinae и Parathalassinae, для Мальтийского архипелага, с замечаниями по биотопам и фенологии

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Abstract. All 41 species of Dolichopodidae in 22 genera (excluding one species each in the subfamilies Microphorinae and Parathalassinae) known to occur on the Maltese Islands are reviewed, with 31 of these being recorded for the first time. Habitat preferences and flight periods of the species recorded are tabulated and discussed.

Резюме. Приведен аннотированный список семейства Dolichopodidae для островов Мальтийского архипелага. Список включает 41 вид из 22 родов (но не включает два вида из подсемейств Microphorinae и Parathalassinae); 31 вид отмечен для архипелага впервые. Для отмеченных видов приводятся и обсуждаются данные по биотопической приуроченности и по срокам встречаемости имаго.

Key words: long-legged flies, faunistics, distribution, phenology, habitat, the Mediterranean, Malta, Dolichopodidae, new records

Ключевые слова: мухи-зеленушки, фаунистика, распространение, фенология, биотоп, Средиземноморье, Мальта, Dolichopodidae, новые находки

ZooBank Article LSID: urn:lsid:zoobank.org:pub:2569E918-E9B4-4C7E-ACE5-1FF0D22AFFC9

Introduction

The Dolichopodidae is one of the largest families of Diptera with over 8000 described species worldwide, almost all of which are carnivorous in both the adult and the larval stage. Diversity is highest in humid temperate forested zones and the tropics. Although in the Mediterranean the Dolichopodidae is comparatively less speciose, nonetheless it remains an important family and a useful bioindicator of habitat quality.

Very little is published about the Dolichopodidae of the Maltese Islands and indeed also for many countries and islands of the Mediterranean where the presence and distribution of many species remains inadequately known. The aim of this article is to provide records of the 41 species present on the islands, including more complete records of the ten previously recorded species. Comments on habitats and phenology are included and summarised in tables. The species *Microphor holosericeus* (Meigen, 1804) (Microphorinae) and *Eothalassius merzi* (Gatt, 2003) (Parathalassinae) are not considered further in this article because at the time this study was undertaken they were classified as families in their own right and no data relevant to this article were collected.

The earliest records of Dolichopodidae from the Maltese Islands date back to the middle of the 19th century. Zetterstedt (1849) identified a male specimen sent to him by A. Schembri, an ornithologist and naturalist, as Rhaphium longiseta (Zetterstedt, 1843), now a synonym of Syntormon denticulatum (Zetterstedt, 1843). Rondani (1859) described Ortochile schembrii Rondani, 1859 on the basis of the material sent to him from Malta also by Schembri. This is a junior synonym of O. soccata Loew, 1850. More recently, Rampini (1981) recorded Medetera roghii Rampini et Canzoneri, 1979 and Schembri et al. (1991) recorded the following six species, but little data were given: Argura arguria (Meigen, 1824), Campsicnemus crinitarsis Strobl, 1906, Ortochile soccata Loew, 1850, Sciapus euzonus (Loew, 1859), Syntormon denticulatum [as S. pumilum (Meigen, 1824)] and Teuchophorus spinigerellus (Zetterstedt, 1843). Medetera flavipes Meigen, 1824, M. micacea Loew, 1857 and Asundetus transversalis (Becker, 1907) were listed by Grichanov (2009) as present on Malta.

Several species of Dolichopodidae have a very limited distribution on the Maltese Islands and most have a behaviour that appears to limit dispersal, for example, when compared to Syrphidae. Individuals often restrict themselves to specialised microhabitats within a habitat, itself sometimes very small. A species occupying a particular (micro)habitat may "separate" itself from another species occupying an adjacent (micro)habitat, because of differing ecological factors. These factors are numerous, but field observations suggest that even in restricted habitats, shade, humidity, vegetation, the presence of surface water (its nature and quality included) and soil type with its cover of leaf litter are important variables (Meuffels et al., 1989; Pollet et al., 1989; Pollet, 1992).

These ecological restrictions render whole populations of this family prone to extermination if their habitat is disturbed. The same characteristics, however, make dolichopodid flies potentially useful as "markers" of habitats and habitat quality from the point of view of conservation even if the habitat in question is small (e.g. Pollet et al., 1992). Although this article does not aim to address this point, it provides a basis for further work.

Ecological variables

The wet season is from the beginning of October to the end of March, with surface water potentially available in a few localities up to the end of June, depending on rainfall (this was the case up to about 35 years ago; nowadays it is a rare occurrence). The dry season extends from the beginning of April to the end of September. Temperatures in January range from 2 to 18 °C, with the average daytime temperature in the middle of the day being around 14 °C. Daytime temperatures regularly reach 36 °C in the summer and can continue so for several days at a time. The islands have long hours of sunshine throughout the year. The archipelago consists of coralline limestone sedimentary rock. In some places this has a surface layer of blue clay.

Habitats include the following: pools of very high salinity both exposed to full sun and in partial shade; pools of freshwater exposed to full sun, full shade, but many with part sun part shade; large areas of garigue exposed to wind and sun generally dry all year, except immediately after rain; slow-flowing and fast-flowing freshwater streams in the valley beds, the quantity of water and speed of flow dependent to a large extent on recent rainfall; sandy and rocky coastline; coastal sand dunes; small inland wooded areas dominated by Pinus halepensis Mill. with other trees thriving in smaller communities (these include Quercus ilex L. and Q. robur L., Ceratonia, Olea, Pistacia, Populus, Rhamnus, Laurus, Prunus, Cupressus, and Crataegus; much of the undergrowth consists of Hedera, Rubus, Lonicera and Acanthus mollis L., with borders and open spaces supporting a large variety of plant species including Poaceae, Apiaceae and Lamiaceae); large areas of maguis-type vegetation that is dominated by Ceratonia, Rubus, Pistacia, Lonicera and numerous species of herbaceous plants.

Methods

The islands were studied mainly between 1991 and 2002 with a view to locating as many habitats and habitat types as possible for the study of Diptera in general. Most localities were visited several times during this period to sample for Diptera. Almost all localities contain a number of different habitats. For example, Ramla in Gozo is mainly a beach with dunes, but it has a freshwater stream, *Tamarix* trees, *Phragmites* beds, *Juncus* on a clay substrate, damp grass patches on clay soil and otherwise, numerous herbaceous plants, and a rocky shoreline apart from the sandy beach. Thus, it presents a number of habitats suitable for different species of Dolichopodidae. Collecting was undertaken mostly by sweep nets and all species in all families were kept for further study. Habitats were not visited solely for Dolichopodidae, although as many as 38 localities yielded these flies. About 2000 specimens were identified; 634 voucher specimens were retained and included in this article.

The main sampling localities are listed in Table 1 and shown on the map, Fig. 1. Comments on some localities not mapped are given at Table 1.

In general, Dolichopodidae have an affinity for wet or damp habitats, but if collecting were to be restricted to such sites, then, inevitably, the few species associated with dry areas would have been underrepresented or even missed. Most collecting was done between 1991 and 2002 with numerous



Fig. 1. Map of the Maltese Islands indicating the main localities sampled (for the names of localities, see Table 1).

field trips, often visiting more than one locality on the same day. All sites were visited at least once in all the 12 months of the year, but not necessarily in each consecutive year. Excursions were least in August and most frequent in March, April, October and November.

The abbreviations for collectors' names and museum codons are as follows: AB – Albert Bezzina (Malta), AP – Adrian Plant (Mahasarakham, Thailand), BM – Bernhard Merz (Geneva, Switzerland), CED – Charles E. (Peter) Dyte (Slough, UK), CF – Charles Farrugia (Antwerp, Belgium), CP – Colin Plant (Bishop Stortford, UK), JLS – James L. Schembri (Malta), KAE – Karl A. Ebejer (Newcastle, UK), JCD – John C. Deeming (Cardiff, UK), MJE – Martin J. Ebejer (Cowbridge, UK), PG – Paul Gatt (Essex, UK), SPS – Stephen P. Schembri (Malta); NHMUK – Natural History Museum (London, UK), NMWC – National Museum of Wales (Cardiff, UK).

All material is dry-mounted and stored mostly in the personal collection of the author (MJE, Cowbridge, UK). CF, AP, CP, KAE, BM donated some specimens to MJE, and AB, SPS and JLS donated their material to PG (Essex, UK). The late Peter Dyte bequeathed his collection and notes to the NHMUK. Only specimens not in the author's collection or in the private collection of PG have their depository listed in parentheses after the collector's initials.

Nomenclature and classification follows Grichanov (2007). Initial identification was based on d'Assis Fonseca (1978) and Parent (1938). Specific papers dealing with revisions of genera or species groups were also consulted (Grichanov, 2017; Grichanov & Ahmadi, 2017; Meuffels & Grootaert, 1990a, 1990b).

Results

Table 2 provides a classification and subdivision of the habitats listed above, giving the number of sites for each habitat, the number of collecting visits and the number of species found in each. Table 3 lists all the species and what is known of their habit and habitat, according to the author's data on the Maltese Islands. The species which I recognise as having strong affinities for a particular habitat are marked with an asterisk (*).

1 male, 1 female, Marsascala, Oct. 1978, AB; 1 male, Marsascala, St Thomas Bay, 24 Apr. 1993, MJE; 1 male Coming Sta Marija 20 Apr 1994 PC: 1 male

1 male, Comino, Sta Marija, 29 Apr. 1994, PG; 1 male, Fomm ir-Rih, pebble beach, 27 Apr. 1997, MJE; 1 male, Salina, marsh, 2 May 2001, MJE; 1 male, Comino, Sta Marija, beach, 8 Apr. 2002, MJE.

In the species list that follows, the genera and species are given in alphabetical order under each subfamily. Two species, one of *Medetera* Fischer von Waldheim, 1819 and one of *Rhaphium* Meigen, 1803, could not be identified. They belong to species groups that are in need of revision (I.Ya. Grichanov, pers. comm.). A single specimen of *Diaphorus* Meigen, 1824 was sent to C.E. Dyte for identification, but has been lost and its identity to species remains unknown.

The material for each species is listed in chronological order. The island name in the label data is mentioned only for Gozo and Comino, not for Malta.

Much of the Mediterranean littoral and the islands have been poorly surveyed for Diptera and the knowledge about the distribution of Dolichopodidae here is incomplete. The author is aware of several unpublished records from different Mediterranean countries for several of the species listed here. For this reason, in most cases the distribution outside the Maltese Islands is given only in broad terms rather than listed by country.

Family **Dolichopodidae**

Subfamily Sciapodinae

Genus Sciapus Zeller, 1842

Sciapus euzonus (Loew, 1859)

Material examined. 1 female, Balzan, 13 Aug. 1975, MJE; 1 female, Balzan, 5 Apr. 1977, MJE; 1 female, Buskett, 25 Aug. 1991, MJE; 1 male, Balzan, 2 Sept. 1991, KAE; 1 male, Rabat, 1 Aug. 1992, PG; 2 males, 1 female, Balzan, 23 Aug. 1994, MJE; 1 male, Fiddien, 21 Sept. 1994, MJE; 3 males, Wied il-Mistra, Malaise trap, 2 Sept. 1999, CF.

Distribution. Widespread in the West Palaearctic including North Africa.

Material examined. 2 males, Marsascala, Sept.

1978, AB; 1 male, Marsaxlokk, 30 Sept. 1978, PG;

Sciapus glaucescens (Loew, 1856)

Distribution. Mainly southwest Palaearctic species known also from the Atlantic islands of the Azores, Canaries and Madeira, and North Africa. New record for the Maltese Islands.

Sciapus zonatulus (Zetterstedt, 1843)

Material examined. 2 females, Gozo, Ramla, dunes, 22 July 1979, SPS; 1 male, 2 females, Gozo, Ramla, dunes, 23 Apr. 1992, MJE; 1 male, 1 female, Gozo, Ramla, dunes, 23 Apr. 1992, PG; 3 males, 1 female, Gozo, Ramla, dunes, 10 Apr. 1993, MJE; 2 females, Gozo, Ramla, dunes, 10 Apr. 1993, PG; 1 male, Gozo, Ramla, sea shore, 10 Apr. 1993, MJE; 1 male, Gozo, Ramla, valley, 17 Apr. 1993, PG; 2 males, 1 female, Ghadira, 5 May 1993, PG; 1 male, Ghadira, 19 March 1994, MJE; 1 male, 1 female, Ghadira, 14 Apr. 1994, MJE; 1 male, Gozo, Ramla, dunes, 1 Apr. 1994, MJE; 3 males, 1 female, Gozo, Ramla, dunes, 1 Apr. 1994, MJE; 2 males, 3 females, Gozo, Ramla, dunes, 5 Apr. 1999, MJE; 1 female, Comino, 28–30 March 2002, MJE.

Distribution. A west Palaearctic species distributed from parts of Scandinavia to the Mediterranean; not yet recorded from some islands, e.g. the Balearics and Sicily, but very likely to be present there. New record for the Maltese Islands.

Subfamily Dolichopodinae

Genus Dolichopus Latreille, 1796

Dolichopus signifer Haliday, 1838

Material examined. 1 male, Mgiebah, 16 March 1996, MJE; 2 males, 2 females, Mgiebah, 24 March 1996, MJE.

Distribution. Widespread across the whole Palaearctic and parts of the Afrotropical region. New record for the Maltese Islands.

Dolichopus strigipes Verrall, 1875

Material examined. 1 male, Salina, 31 May 1992, MJE; 4 males, 3 females, Salina, 13 July 1992, MJE; 2 males, 1 female, Salina, 13 July 1992, PG; 2 males, 2 females, Marsaxlokk, 26 July 1992, MJE; 1 male, Marsaxlokk, 24 Apr. 1993, PG; 1 male, 1 female, Salina, 7 July 1993, PG; 3 males, 3 females, Salina, 22 Apr. 1994, CED (NHMUK); 1 male, Salina, 22 Apr. 1994, PG.

Distribution. In many countries of Europe, where it has an affinity for salt marshes. New record for the Maltese Islands.

Table 1. The main sampling localities of the Maltese Islands (locality numbers are same as on the map, Fig. 1).

	Locality	Latitude, N	Longitude, E				
1	Mgiebah	35°58′03″	14°22′57″				
2	Mistra	35°57′21″	14°23′13″				
3	Simar (St Paul's Bay)	35°56′45″	14°22′57″				
4	Salina	35°56′38″	14°25′13″				
5	Marsaxlokk	35°50′20″	14°32′58″				
6	Marsascala	35°50′59″	14°33′56″				
7	Wied Babu	35°49′24″	14°27′34″				
8	Ghar Lapsi	35°49′55″	14°25′14″				
9	Wied is-Sewda	35°53′10″	14°26′59″				
10	Wied Incita	35°53′00″	14°26′06″				
11	Wied Ghajn Rihana	35°55′09″	14°24′36″				
12	Buskett	35°51′32″	14°24′03″				
13	Girgenti	35°51′08″	14°24′24″				
14	Fiddien	35°53′15″	14°22′50″				
15	Chadwick Lakes	35°53′43″	14°23′38″				
16	Wied Qannotta	35°56′04″	14°23′51″				
17	Wied Ghomor Rabat	35°53′39″	14°22′31″				
18	Mtahleb	35°52′35″	14°21′02″				
19	Bahrija	35°53′42″	14°20′18″				
20	Fomm Ir-Rih	35°54′25″	14°20′31″				
21	Gnejna	35°55′19″	14°20′18″				
22	Ghadira	35°58′14″	14°20′47″				
23	Sta Marija	36°00′55″	14°20′12″				
24	Ramla	36°03′40″	14°17′09″				
25	Wied ir-Ramla	36°02′47″	14°16′47″				
26	Mgarr ix-Xini	36°01′16″	14°16′09″				
27	Wied il-Lunzjata	36°01′59″	14°13′36″				
28	Wied il-Mielah	36°04′11″	14°12′26″				

Comments. Each locality encompassed more than one habitat and the sampling area extended along the length of the watercourse where this occurred, and on any accessible adjacent slopes (generally by several hundred square metres) to include garigue, maquis and steppic habitats wherever these occurred.

Some localities not listed in Table 1: The localities of Balzan and Rabat without further localisation are suburban gardens. Wied il-Mistra is a valley with maquis vegetation west of Mistra that leads to Mistra (locality 2). Tal-Hzejjen is a specific part of the valley Wied Ghajn Rihana (locality 11) near its source; Zebbieh is a village where this valley starts. Marfa Ridge is the whole area north of Ghadira (locality 22). Gharb is a village where the valley Wied il-Mielah (locality 28) starts. **Table 2.** Collecting sites, number of visits and number of species for each defined habitat; number of species specific to defined habitats.

Types of habitats			Surface water ¹	Exposure to sunshine	Number of sites	Number of visits ²	Number of species	Number of species specific to habitat
	Sandy beach	intertidal	_	exposed	5	20+	2	1
		dry	_	exposed	3	20+	2	2
	G 11	damp	_	exposed	3	17	14	0
	Sand dune	freshwater	still	exposed	2	11	3	1
Coast		freshwater	flowing	exposed	1	4	2	0
	Pebble beach	intertidal	-	exposed	3	13	2	1
	Rocky coast	intertidal	-	exposed	10	18	2	2
		dry	_	exposed	10	18	3	3
	Solt march	-	still	exposed	4	40+	7	6
	Sait marsii	-	flowing	exposed	2	8	0	0
	Valley (wied) ³	dry (summer)	_	part shaded	16	20+	6	6
		wet (winter)	still	part shaded	18	30+	15	9
		-	flowing	part shaded	15	20+	16	1
	Woodland	dry (summer)	-	shaded	4	7	3	0
		damp	—	shaded	1	7	5	0
		wet (summer)	still	exposed	1	7	0	0
		-	still	shaded	1	7	5	1
		-	flowing	exposed	0	7	0	0
		_	flowing	shaded	0	7	5	0
Inland		wet (winter)	still	exposed	4	20+	4	0
Inland		-	still	shaded	4	20+	5	0
		_	flowing	exposed	2	20+	0	0
		-	flowing	shaded	2	20+	9	0
	Garigue	dry	_	exposed	33	20+	5	2
		damp	_	exposed	12	20+	7	1
		rock pools	still	exposed	12	20+	2	0
	Maguia	dry (summer)	_	part shaded	23	20+	8	2
	wiaquis	damp (winter)	_	part shaded	23	40+	19	1
	Urban cardona	damp	_	part shaded	6	40+	3	0
		dry		part shaded	6	40+	2	0
Total 30				>230	$>400^{2}$			

 $^{\rm 1}$ Surface water available for long periods, i.e. more than just a few days after rain.

² More sites have been visited, and more frequently than there are records for Dolichopodidae.

³ "Wied" is the Maltese word for valley or watercourse; it is given here to associate this type of habitat with the locality data for the species.

Genus Ortochile Latreille, 1809

Ortochile soccata Loew, 1850

Material examined. 2 females, Mizieb, 3 Apr. 1985, MJE; 2 females, Bahrija, 6 Apr. 1985, MJE; 1 male, 2 females, Ghadira, 17 Apr. 1992, MJE; 3 males, 1 female, Gozo, Ramla, dunes, 23 Apr. 1992, MJE; 1 male, 1 female, Gozo, Mgarr ix-Xini, 23 Apr. 1992, MJE; 1 male, Fomm ir-Rih, 16 Apr. 1994, MJE.

Distribution. Apparently limited to France, Italy (including Sicily), and the Maltese Islands.

Genus Sybistroma Meigen, 1824

Sybistroma dufouri Macquart, 1834

Material examined. 1 male, Bahrija, 15 July 1975, SPS; 2 males, 4 females, Bahrija, 21 July 1977, MJE; 1 male, 2 females, Bahrija, 21 July 1977, JLS; 1 male, Bahrija, 1 Aug. 2003, PG.

Distribution. A southern European species found also in the Maghreb of North Africa. New record for the Maltese Islands.

Genus Tachytrechus Haliday, 1851

Tachytrechus notatus (Stannius, 1831)

Material examined. 1 female, Fiddien, 9 July 1976, MJE; 3 males, 1 female, Wied Qannotta, 23 June 1977, MJE; 3 males, Mistra, 7 July 1977, MJE; 4 males, Bahrija, 3 March 1991, MJE; 1 male, Bahrija, 21 June 1992, MJE; 4 males, 2 females, Wied Incita, 27 Feb. 1994, MJE; 1 female, Wied Ghajn Rihana, 22 Apr. 1994, CED (NHMUK); 3 males, 1 female, Wied il-Mistra, 23 Apr. 1994, CED (NHMUK); 1 male, Fomm ir-Rih, 25 Apr. 1994, CED (NHMUK); 1 male, Fomm ir-Rih, 27 Apr. 1997, MJE.

Distribution. In most of the Palaearctic, including North Africa and the East. New record for the Maltese Islands.

Subfamily Medeterinae

Genus Medetera Fischer von Waldheim, 1819

Medetera flavipes Meigen, 1824

Material examined. 1 female, Balzan, 23 June 1987, MJE; 1 male, 2 females, Attard, 11 July 1977, MJE; 3 males, 2 females, Balzan, 2 July 1987, MJE; 1 male, Wied Ghajn Rihana, 22 Apr. 1994, CED (NHMUK); 1 female, St Paul's Bay, Simar, marsh, 22 Sept. 1996, MJE; 1 male, 1 female, Fomm ir-Rih, 29 Oct. 2014, MJE.

Distribution. Most of Europe, North Africa and the Near East.

Medetera micacea Loew, 1857

Material examined. 1 male, 1 female, Comino, 29 Apr. 1994, PG; 1 female, Rabat, Dwejra, pinewood, at mercury vapour light trap, 28 Oct. 1998, MJE; 1 male, Marfa Ridge, 27 May 2011, MJE.

Distribution. Widespread across the Palaearctic.

Medetera roghii Rampini et Canzoneri, 1979

Note. The species is known from the Maltese Islands only according to Rampini (1981). No further specimens of *M. roghii* were encountered.

Distribution. Malta, Menorca, Sicily.

Medetera saxatilis Collin, 1941

Material examined. 1 female, Balzan, 10 Apr. 1976, MJE: 1 female, Balzan, 28 March 1977, MJE: 1 female, Balzan, 24 March 1977, MJE; 3 females, Buskett, 14 Apr. 1977, MJE; 1 male, 2 females, Wied is-Sewda, 17 March 1977, MJE; 1 male, Salina, 16 Apr. 1977, MJE: 1 male, 5 females, Marfa Ridge, 8 Apr. 1985, MJE; 1 male, Wied Qannotta, 4 Jan. 1987, MJE; 2 males, 1 female, Wied Oannotta, 5 May 1988, MJE; 1 male, 3 females, Marfa Ridge, 17 Apr. 1992, MJE; 3 males, 1 female, Gozo, Ramla, dunes, 23 Apr. 1992, MJE; 1 male, 1 female, Gozo, Mgarr ix-Xini, 23 Apr. 1992, MJE; 4 males, 2 females, Wied Babu, 1 May 1993, MJE; 2 males, 1 female, Fiddien, 11 May 1992, MJE; 1 male, 1 female, Mgiebah, 7 June 1994, MJE; 2 males, Wied Babu, 20 Apr. 1994, MJE; 1 male, Gozo, Ramla, dunes, 21 Apr. 1994, MJE; 5 males, Buskett, 25 Apr. 1994, MJE; 1 male, Comino, Sta Marija, 29 Apr. 1994, PG; 1 male, Wied Incita, 20 Apr. 1997, MJE; 1 male, 1 female, Bahrija, 25 Apr. 1994, MJE; 3 males, Comino, 28-30 March 2002, MJE; 2 males, 2 females, Buskett, mixed woodland, Arundo, 3 May 2001, MJE; 1 male, Mtahleb, swept from Ferula and Euphorbia, 16 Apr. 2000, MJE.

Note. Many specimens were compared with the type material of *M. saxatilis* and all conformed to that species.

Distribution. Western Europe. New record for the Maltese Islands.

Medetera truncorum Meigen, 1824

Material examined. 1 male, Comino, SE, 22 Apr. 1979, SPS; 1 male, Mgiebah, 7 June 1994, MJE; 1 male, Mgiebah, 7 June 1994, PG.

Distribution. Throughout Western Europe and North Africa. New record for the Maltese Islands.

Species		Typical habitat(s)	Dominant vegetation	Light preference			
1	Sciapus euzonus	valleys, gardens, orchards	none specific	sheltered, shade			
2	Sciapus zonatulus*	sandy coasts	scanty xerophytes	exposed, bright sunlight			
3	Sciapus glaucescens*	sandy coasts	scanty xerophytes	exposed, bright sunlight			
4	Dolichopus strigipes	salt marsh	Phragmites, Chenopodaceae	sheltered bright sunlight			
5	Dolichopus signifer*	clay seepage	Poaceae, Phragmites	sheltered, bright sunlight			
6	Ortochile soccata	garigue, dunes, ruderal	flowering plants	exposed, bright sunlight			
7	Sybistroma dufouri	valleys	xerophytic herbs	sunlight			
8	Tachytrechus notatus	valleys, freshwater	herbs	part sunlight			
9	Medetera flavipes	walls, tree-trunks, gardens	none specific	shade			
10	Medetera micacea	garigue	?	?			
11	Medetera roghii	? coastal caves	?	? shade			
12	Medetera saxatilis	rocks, garigue, rubble walls, valleys	Poaceae, <i>Rhamnus</i> , <i>Pistachia</i>	sheltered, part shade			
13	Medetera truncorum	garigue	xerophytic herbs	exposed sunlight			
14	<i>Medetera</i> sp.	rocks, garigue	Poaceae, <i>Rhamnus</i> , <i>Pistachia</i> , herbs	sheltered, sunlight			
15	Thinophilus flavipalpis*	salt marsh	Phragmites, Chenopodaceae	sheltered, sunlight			
16	Thinophilus achilleus*	salt pans	none specific	exposed, bright sunlight			
17	Hydrophorus praecox*	salt marsh, freshwater	none specific	exposed, bright sunlight			
18	Hydrophorus balticus*	pools on clay seepage	Tamarix, Juncus, Poaceae	sunlight			
19	Liancalus virens*	vertical rock seepage, algae	none specific	part shade			
20	Aphrosylus piscator*	rocky coasts, intertidal	none	exposed, bright sunlight			
21	Aphrosylus venator*	rocky coasts, intertidal	none	exposed, bright sunlight			
22	Syntormon denticulatum	any water	Poaceae,	sheltered, sunlight			
23	Syntormon miki	?	?	?			
24	Syntormon pallipes	any water	Poaceae	sheltered, sunlight			
25	Syntormon metathesis	any water	Poaceae	sheltered, sunlight			
26	Machaerium thinophilum*	salt marsh	Tamarix, Phragmites, Chenopodaceae	exposed, sunlight			
27	Rhaphium sp.	clay seepage, garigue	flowering herbs	exposed, bright sunlight			
28	Diaphorus sp.	?	?	?			
29	Argyra argentina	stream in woodland, maquis	Populus, Phragmites, Poaceae	dense shade to dappled sunlight			
30	Argyra argyria	stream in woodland, maquis	Populus, Phragmites, Poaceae	dense shade to dappled sunlight			
31	Chrysotus albibarbus	freshwater, damp herbage	<i>Rubus</i> , herbs	sheltered, sunlight			
32	Asyndetus separatus	salt marsh	Chenopodaceae, Poaceae	exposed, sunlight			
33	Asyndetus transversalis	valleys	Poaceae, herbs	exposed, sunlight			
34	Teuchophorus cristulatus	seepage, valleys	Poaceae	sheltered, part shade			
35	Teuchophorus spinigerellus	freshwater, damp herbage	Poaceae	sheltered, part shade			
36	Campsicnemus crinitarsis*	valleys, slow flowing freshwater	Poaceae	sheltered, shade			
37	Campsicnemus simplicissimus*	valleys, slow flowing freshwater	Phragmites, Poaceae	sheltered, shade			
38	Campsicnemus umbripennis*	clay seepage, grass	Poaceae, Juncus, Tamarix	sheltered, part shade			
39	Lamprochromus defectivus	seepage	Rubus, Prunus, herbs	sheltered sunlight, dense vegetation			
40	Micromorphus albipes	freshwater, salt marsh, reeds	<i>Phragmites</i> , Poaceae, Chenopodaceae	sheltered, shade			
41	Telmaturgus simplicipes	?	?	?			

Table 3. Habitat preferences of the species of Dolichopodidae in the Maltese Islands. Species with strong affinities for a particular habitat are marked with an asterisk (*).

Medetera sp.

Material examined. 5 males, 3 females, Wied Babu, 17 Nov. 1991, MJE; 3 males, 3 females, Wied Incita, 6 March 1994, MJE; 4 males, 3 females, Wied Babu, 20 Apr. 1994, MJE; 1 male, Buskett, 25 Apr. 1994, MJE.

Note. This is a small species with a bluish grey pollinosity that belongs to a group of species in need of revision. It does not match any currently known species and previously was not recorded from the Maltese Islands.

Subfamily Hydrophorinae

Genus Aphrosylus Haliday, 1851

Aphrosylus piscator Lichtwardt, 1902

Material examined. 1 female, Gozo, Ramla, dunes, 10 Apr. 1993, MJE; 1 male, Gozo, Ramla, dunes, 21 Apr. 1994, MJE; 2 females, Mgiebah, 24 Apr. 1994, MJE; 3 males, Fomm ir-Rih, 27 Apr. 1997, MJE; 1 female, Ghar Lapsi, 7 Dec. 1997, MJE.

Distribution. Bosnia and Herzegovina, Bulgaria, Croatia. New record for the Maltese Islands.

Aphrosylus venator Loew, 1857

Material examined. 3 males, 1 female, Gozo, Ramla, dunes, 23 Apr. 1992, MJE; 1 male, 2 females, Gozo, Ramla, dunes, 10 Apr. 1993, MJE; 2 males, Delimara, 24 Apr. 1993, MJE; 1 male, 2 females, Mgiebah, 24 Apr. 1994, MJE; 1 female, Mgiebah, 28 May 1994, MJE; 2 males, Fomm ir-Rih, 27 Apr. 1997, MJE; 1 female, Mgiebah, 16 March 1998, MJE; 2 females, Mgiebah, 26 March 1995, MJE; 2 females, Gnejna, Ras il-Karraba, 23 Dec. 1999, MJE; 1 male, Comino, rocky coast S of Sta Marija, 28–30 March 2002, MJE.

Distribution. All around the coastline of the Mediterranean and the North Atlantic islands. New record for the Maltese Islands.

Genus Hydrophorus Fallén, 1823

Hydrophorus balticus (Meigen, 1824)

Material examined. 2 males, 6 females, Gozo, Ramla, dunes, 23 Apr. 1992, MJE; 1 male, Ghadira, 17 Apr. 1992, MJE.

Distribution. Most of the West and East Palaearctic and in the Afrotropical Region. New record for the Maltese Islands.

Hydrophorus praecox (Lehmann, 1822)

Material examined. 1 male, 2 females, Salina, 16 Apr. 1977, MJE; 1 female, Comino, Sta Marija, 17 Apr. 1977, MJE; 2 males, 3 females, Marsaxlokk, 1 May 1993, MJE; 1 male, 3 females, Wied Incita, 23 Apr. 1994, CED (NHMUK); 1 female, Wied Qannotta, 22 Apr. 1994, CED (NHMUK); 1 male, 1 female, Gnejna, garigue clay seepage, 11 Feb. 1996, MJE; 3 males, 1 female, Mgiebah, coastal clay seepages, 16 March 1996, MJE; 1 female, Wied il-Mistra, 17 March 1996, MJE; 1 male, 1 female, Ghar Lapsi, coastal rock pools and splash zone, 7 Dec. 1997, MJE; 1 female, Wied Incita, freshwater rock pool, 5 March 1998, MJE.

Distribution. Almost cosmopolitan, found in all zoogeographical zones, but not in all the countries there. New record for the Maltese Islands.

Genus Liancalus Loew, 1857

Liancalus virens (Scopoli, 1763)

Material examined. 1 male, 1 female, Chadwick Lakes, 26 June 1977, SPS; 1 male, Bahrija, 13 June 1993, MJE; 1 female, Mgiebah, shore rocks, 24 Apr. 1994, CED (NHMUK); 1 female, Buskett, valley near water, 25 Apr. 1994, CED (NHMUK); 3 males, Mgiebah, 7 June 1994, MJE; 1 male, 1 female, Mgiebah, 7 June 1994, PG.

Distribution. A West-Palaearctic species, known from many European countries, North Africa and the Near East. New record for the Maltese Islands.

Genus *Machaerium* Haliday, 1832

Machaerium thinophilum (Loew, 1857)

Material examined. 1 female, Salina, marsh, 28 Oct. 2001, MJE.

Distribution. Croatia, Italy, Tanzania. New record for the Maltese Islands.

Genus Thinophilus Wahlberg, 1844

Thinophilus achilleus Mik, 1900

Material examined. 1 female, Gozo, Zebbug salt pans, 2 May 2002, BM.

Distribution. Italy (including Sardinia), Spain, North Africa. New record for the Maltese Islands.

Thinophilus flavipalpis (Zetterstedt, 1843)

Material examined. 1 male, Salina, 16 Apr. 1977, MJE; 1 male, Salina, 7 July 1993, MJE; 1 female, Salina, 11 Apr. 1994, MJE; 2 males, 2 females, Salina, 22 Apr. 1994, PG.

Species		Status	Flight period											
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Sciapus euzonus	common												
2	Sciapus glaucescens	common												
3	Sciapus zonatulus	common												
4	Dolichopus strigipes	common												
5	Dolichopus signifer	local												
6	Ortochile soccata	abundant												
7	Sybistroma dufouri	rare												
8	Tachytrechus notatus	common												
9	Medetera flavipes	abundant												
10	Medetera micacea	rare												
11	Medetera roghii	?												
12	Medetera saxatilis	abundant												
13	Medetera truncorum	uncommon												
14	Medetera sp.	common												
15	Thinophilus flavipalpis	scarce												
16	Thinophilus achilleus	rare												
17	Hudrophorus balticus	local												
18	Hudrophorus praecox	common												
19	Liancalus virens	rare												
20	Aphrosulus piscator	common												
21	Aphrosulus venator	common												
22	Syntormon denticulatum	abundant												
 23	Syntormon metathesis	rare												
24	Syntormon mikii	rare												
25	Syntormon nallines	abundant												<u> </u>
<u></u> 26	Machaerium thinophilum	rare												<u> </u>
20 27	Rhanhium sp	common												
21 28	Dianhorus sp	rare												
20 20	Argura argenting	raro												
20	Argura argunia	raro												
21	Chrysotys albibarbus	common												
<u>3</u> 0	Asymdatus sonaratus	common												<u> </u>
32 32	Asyndetus separatus	roro												
<u>ງ</u>	Asynueius transversaits	Tale												
34 25	Touchophorus cristiaaus	scarce												
ວວ ວດ	Campaian amus aninitamia	common												
<u>ა</u> თ ეუ	Compsionemus crinitarsis	scarce												
31 20	Campsichemus simplicissimus													
<u>30</u>	Lampsichemus umoripennis	IOCAI												
39	Lamprochromus defectivus	scarce												
40	Micromorphus albipes	abundant												
41	41 Telmaturgus simplicipes			40	4-	07	0.0	4-	4 7		_		4.2	<u> </u>
	Number of species per mor	4	10	17	27	22	17	15	5	5	9	13	4	

Table 4. Flight periods and status of the species of Dolichopodidae in the Maltese Islands.

Distribution. Widespread in the Palaearctic including North Africa. New record for the Maltese Islands.

Subfamily Rhaphiinae

Genus Rhaphium Meigen, 1803

Rhaphium sp.

Material examined. 1 female, Gozo, Ramla, dunes, 23 Apr. 1992, MJE; 1 male, Rabat, Wied Ghomor, 31 March 1992, MJE; 1 female, Gozo, Wied ir-Ramla, 10 Apr. 1993, MJE; 2 females, Wied Qannotta, 20 Feb. 1994, MJE; 2 males, 1 female, Gozo, Ramla, dunes, 21 Apr. 1994, MJE (CED); 1 female, Bahrija, 25 Apr. 1994, MJE; 4 males, Gnejna, 11 Feb. 1996, MJE; 1 female, Bahrija, 19 March 1996, MJE; 5 males, 3 females, Gnejna, garigue, clay seepages, 9 March 1996, MJE; 2 males, 2 females, Mgiebah, coastal clay seepages, 16 March 1996, MJE; 1 male, 2 females, Mgiebah, coastal clay seepages, 24 March 1996, MJE; 3 males, 2 females, Wied Ghajn Rihana, Tal-Hzejjen, Zebbieh, 3 March 1997, MJE.

Distribution. New record of the genus for the Maltese Islands.

Subfamily Diaphorinae

Genus Argyra Macquart, 1834

Argyra argentina (Meigen, 1824)

Material examined. 1 male, Chadwick Lakes, 11 Oct. 1992, PG.

Distribution. West-Palaearctic species; present in North Africa. New record for the Maltese Islands.

Argyra argyria (Meigen, 1824)

Material examined. 2 males, Buskett, 14 Apr. 1977, MJE; 1 male, Chadwick Lakes, 11 Oct. 1992, PG; 1 male, 1 female, Chadwick Lakes, 8 Nov. 1992, MJE; 1 female, Mgiebah, 24 Apr. 1994, MJE; 1 female, Mgiebah, 28 May 1994, MJE.

Distribution. West-Palaearctic species; present in North Africa.

Genus Asyndetus Loew, 1869

Asyndetus separatus (Becker, 1902)

Material examined. 1 female, Marsaxlokk, 24 July 1992, PG; 2 females, Marsaxlokk, 26 July 1992, MJE; 1 female, Marsaxlokk, 24 Apr. 1993, PG; 1 male, Marsaxlokk, marsh, 4 May 2001, MJE. *Distribution*. Spain, North Africa, Near East. New record for the Maltese Islands.

Asyndetus transversalis (Becker, 1907)

Material examined. 1 male, Wied il-Mistra, Malaise trap, 2 Sept. 1999, CF.

Distribution. North Africa, Iraq, the Maltese Islands.

Genus Chrysotus Meigen, 1824

Chrysotus albibarbus Loew, 1857

Material examined. 1 male, 2 females, Fiddien, 6 July 1987, MJE; 1 female, Fiddien, 4 May 1988, MJE; 1 female, Fiddien, 28 July 1989, MJE; 1 male, 3 females, Wied Incita, 4 March 1989, MJE; 1 male, Fiddien, 5 March 1991, MJE; 1 female, Gozo, Wied il-Mielah, Gharb, 30 Nov. 1991, MJE; 1 female, Fiddien, 8 Apr. 1992, MJE; 1 female, Gozo, Wied ir-Ramla, 23 Apr. 1992, MJE; 3 females, Gozo, Ramla, dunes, 23 Apr. 1992, MJE; 1 female, Gozo, Wied il-Lunzjata, 23 Apr. 1992, MJE; 2 males, Fiddien, 17 June 1992, MJE; 3 males, Bahrija, 21 June 1992, MJE; 6 males, 1 female, Chadwick Lakes, 8 Nov. 1992, MJE; 4 males, 3 females, Wied Incita, 27 Feb. 1994, MJE; 1 female, Wied Incita, 6 March 1994, MJE; 1 male, 3 females, Fiddien, 15 Apr. 1994, MJE; 5 females, Gozo, Ramla, dunes, 21 Apr. 1994, MJE; 1 female, Gozo, Wied il-Lunzjata, 21 Apr. 1994, MJE; 1 male, 1 female, Wied il-Mistra, 17 March 1996, MJE.

Distribution. Southern Europe, North Africa, Near East. New record for the Maltese Islands.

Genus Diaphorus Meigen, 1824

Diaphorus sp.

Material examined. 1 male, Bahrija, 4 July 1993, PG. *Distribution.* New record of the genus for the Maltese Islands.

Subfamily Peloropeodinae

Genus Micromorphus Mik, 1878

Micromorphus albipes (Zetterstedt, 1843)

Material examined. 1 female, Wied Qannotta, 1 Apr. 1985, MJE; 1 male, 3 females, Bahrija, 6 Apr. 1985, MJE; 1 female, Gozo, Wied il-Mielah, Gharb, 30 Nov. 1991, MJE; 5 males, 1 female, Girgenti, 3 March 1991, MJE; 2 males, Fiddien, 5 March 1991, MJE; 2 males, Rabat, Wied Ghomor, 31 March 1992, MJE; 1 male, 2 females, Gozo, Wied ir-Ramla, 4 July 1992, MJE; 1 male, Girgenti, 18 Apr. 1993, MJE; 2 males, Wied Qannotta, 20 Feb. 1994, MJE; 2 males, 2 females, Salina, 21 Apr. 1994, MJE; 2 males, 2 females, Fomm ir-Rih, 16 Apr. 1994, MJE; 1 male, Fiddien, 20 Apr. 1994, PG; 1 male, Gozo, Xatt l-Ahmar, 21 Apr. 1994, JCD (NMWC); 1 male, 1 female, Gozo, Wied ir-Ramla, 21 Apr. 1994, JCD (NMWC); 1 male, 2 females, Gozo, Ramla, dunes, 21 Apr. 1994, CED (NHMUK); 2 males, 4 females, Gozo, Ramla, dunes, 21 Apr. 1994, MJE; 3 males, 1 female, Gozo, Wied il-Lunzjata, 21 Apr. 1994, MJE; 4 males, 1 female, Mgiebah, 28 May 1994, MJE; 4 males, Wied Ghajn Rihana, Tal-Hzejjen, Zebbieh, 3 Feb. 1997, MJE; 1 male, 1 female, Marsaxlokk, marsh, 2 Apr. 1999, MJE.

Distribution. Almost cosmopolitan, found in all zoogeographical zones. New record for the Maltese Islands.

Subfamily Sympycninae

Genus Campsicnemus Haliday, 1851

Campsicnemus crinitarsis Strobl, 1906

Material examined. 1 female, Fiddien, 17 June 1992, MJE; 2 males, 1 female, Fomm ir-Rih, 16 Apr. 1994, MJE; 4 males, Fomm ir-Rih, 25 Apr. 1994, CED (NHMUK); 4 males, 3 females, Fomm ir-Rih, 25 Apr. 1994, MJE; 1 female, Bahrija, freshwater stream, 19 March 1996, MJE; 1 male, Bahrija, 1 Nov. 1998, MJE.

Distribution. Spain (including the Canary Islands), Italy, North Africa, North Aegean Islands, Maltese Islands.

Campsicnemus simplicissimus Strobl, 1906

Material examined. 1 male, Wied Incita, 4 March 1991, MJE; 1 male, Gozo, Wied il-Mielah, Gharb, 30 Nov. 1991, MJE; 3 males, 2 females, Gozo, Ramla, dunes, 4 July 1992, MJE; 1 male, Gozo, Wied ir-Ramla, 17 Apr. 1993, PG; 1 male, Wied Qannotta, 20 Feb. 1994, MJE; 1 male, Fomm ir-Rih, 16 Apr. 1994, MJE; 1 female, Gozo, Ramla, dunes, 21 Apr. 1994, MJE; 2 males, 2 females, Wied Ghajn Rihana, 22 Apr. 1994, CED and JCD (1 pair NHMUK and 1 pair NMWC); 1 male, Fomm ir-Rih, 25 Apr. 1994, CED (NHMUK).

Distribution. Central and southern Europe. New record for the Maltese Islands.

Campsicnemus umbripennis hispanicus Strobl, 1906

Material examined. 1 male, 1 female, Gozo, Ramla, dunes, 15 Apr. 1994, AP; 1 male, 1 female, Gozo, Ramla, dunes, 15 Apr 1994, CP; 1 male, 4 females, Gozo, Ramla, dunes, 21 Apr. 1994, MJE; 1 male, Fomm ir-Rih, 25 Apr. 1994, MJE; 1 female, Mgiebah, coastal clay seepages, 16 March 1996, MJE.

Distribution. West-Palaearctic species. New record for the Maltese Islands.

Genus Lamprochromus Mik, 1878

Lamprochromus defectivus Strobl, 1899

Material examined. 1 female, Bahrija, 8 Apr. 1993, PG; 1 female, Gozo, Ramla, dunes, 10 Apr. 1993, PG; 1 female, Gozo, Ramla, dunes, 15 Apr. 1994, PG; 4 males, 3 females, Gozo, Ramla, dunes, 21 Apr. 1994, MJE; 1 female, Mgiebah, 7 June 1994, MJE.

Distribution. Crete, Spain. New record for the Maltese Islands.

Genus Syntormon Loew, 1857

Syntormon denticulatum (Zetterstedt, 1843)

Material examined. 1 female, Bahrija, 2 Feb. 1994, MJE; 2 males, Bahrija, 3 Nov. 1991, MJE; 4 males, 3 females, Gozo, Ramla, dunes, 21 Apr. 1994, MJE; 1 male, Gozo, Wied il-Mielah, Gharb, 30 March 1991, MJE; 2 males, 1 female, Gozo, Wied ir-Ramla, 4 July 1992, MJE.

Distribution. Countries around the Mediterranean through Ukraine to Middle Asia.

Syntormon metathesis (Loew, 1850)

Material examined. 1 female, Fiddien, 1 Nov. 1992, PG; 2 females, Salina, 7 July 1993, PG; 1 female, Wied Ghajn Rihana, 5 Feb. 1994, PG.

Distribution. Widespread in Europe as far as the Urals. New record for the Maltese Islands.

Syntormon mikii Strobl, 1899

Material examined. 1 female, Gozo, Ramla, dunes, 9 Jan. 1993, PG.

Distribution. Europe, the Mediterranean and North Africa. New record for the Maltese Islands.

Syntormon pallipes (Fabricius, 1794)

Material examined. 1 female, Marfa Ridge, 8 Apr. 1985, MJE; 2 males, Fiddien, 5 Feb. 1991, MJE; 1 female, Wied Incita, 4 March 1991, MJE; 2 females, Bahrija, 3 Nov. 1991, MJE; 4 males, 2 females, Girgenti, 20 Nov. 1991, MJE; 3 males, 2 females, Fiddien, 8 Apr. 1992, MJE; 1 female, Gozo, Wied ir-Ramla, 17 Apr. 1993, PG; 1 female, Fiddien, 1 Apr. 1994, PG; 4 males, 3 females, Gozo, Ramla, dunes, 21 Apr. 1994, MJE; 1 female, Salina, 22 Apr. 1994, PG; 1 female, Gnejna, Ras il-Karraba, 30 Jan. 2000, MJE.

Distribution. Widespread in all Europe, most of Africa, Middle Asia and the East Palaearctic. New record for the Maltese Islands.

Genus Telmaturgus Mik, 1874

Telmaturgus simplicipes (Becker, 1908)

Material examined. 1 specimen, Gozo, Wied il-Lunzjata, 23 Apr. 1992, CED (NHMUK); 1 female, Fiddien, 10 May 1992, PG; 2 females, Buskett, 7 July 1993, PG; 1 male, 2 females, Gozo, Wied il-Lunzjata, 11 Dec. 1993, PG; 1 male, Fiddien, 20 Apr. 1994, PG.

Distribution. Widespread in Europe, the Mediterranean through to Middle Asia, Africa and the Oriental Region. New record for the Maltese Islands.

Genus Teuchophorus Loew, 1857

Teuchophorus cristulatus Meuffels et Grootaert, 1990

Material examined. 3 males, Bahrija, 3 Nov. 1991, MJE; 2 males, 1 female, Bahrija, 10 Aug. 1992, PG; 1 male, Chadwick Lakes, 11 Oct. 1992, PG; 1 male, Fiddien, 20 Apr. 1994, CED (NHMUK).

Distribution. Sicily, Bulgaria, Turkey. New record for the Maltese Islands.

Teuchophorus spinigerellus

(Zetterstedt, 1843)

Material examined. 2 males, Buskett, 14 Apr. 1977, MJE; 1 male, 1 female, Mtarfa, 12 Jan. 1980, MJE; 3 males, 2 females, Girgenti, 3 March 1991, MJE; 2 males, 2 females, Gozo, Wied ir-Ramla, 4 July 1992, MJE; 2 males, 2 females, Gozo, Wied ir-Ramla, 4 July 1992, MJE; 2 males, Buskett, 14 Apr. 1994, MJE; 1 male, Fiddien, 20 Apr. 1994, CED (NHMUK); 4 males, Fiddien, 20 Apr. 1994, PG; 1 male, Wied il-Mistra, 23 Apr. 1994, JCD (NMWC); 2 males, Mgiebah, 24 Apr. 1994, CED (NHMUK); 2 males, Bahrija, 25 Apr. 1994, CED (NHMUK); 1 male, Gozo, Wied il-Lunzjata, 21 Apr. 1994, MJE; 2 males, Bahrija, 25 Apr. 1994, CED (NHMUK); 3 males, Bahrija, freshwater stream, 19 March 1996, MJE.

Distribution. Europe including the Mediterranean and southern European Russia.

Discussion

The Dolichopodidae is a speciose family, with larger countries having several hundred species. The Maltese Islands are very small and few seminatural habitats remain. Nonetheless, with just 41 species the Dolichopodidae are still poorly represented on the archipelago. Sixteen species are rare and little can be said about their habits locally. The remaining 34 species are usually common although rarely abundant in any one site.

The available data on the fauna of the Maltese Islands give a good indication of habitat association of most of the species. In some cases, this is well established, for example, Campsicnemus and freshwater, Thinophilus and salt marsh, Aphrosylus and rocky intertidal coasts. For others, it is not always clear what habitat associations occur, especially in the Mediterranean where very little ecological work has been undertaken compared to that in countries of more northern latitudes. The presence of surface clay on the limestone bedrock may be important for the ecology of the Dolichopodidae as it allows surface water to persist for long periods. At least three species, *Dolichopus signifer*, Campsicnemus umbripennis hispanicus and *Rhaphium* sp. seem to be particularly dependent on this. The reported association of Medetera roghii with caves (Rampini & Canzoneri, 1979) has no clear explanation. I have found large numbers of *M. saxatilis* in caves and/or crowded in the shade of rocky overhangs in the Maltese Islands, Gibraltar and Menorca. This was not always associated with particularly hot weather and there was no obvious presence of small organisms that may serve as a prey to these flies. Also, I did not observe any activity that remotely suggested lekking (i.e. the males' communal behaviour among themselves in a small area and within sight of each other to win the attention of a female for mating). In fact, it appeared that all the individuals were simply resting and movement was induced (reluctantly to my eyes) only by my approach.

April is the month when most species can be found (Table 3) and it is notable how rapidly the species appear in the spring and then decline only slowly as the hot summer approaches. There is a second but smaller peak of activity in late autumn. This pattern is typical of many Diptera in low altitude regions of the Mediterranean, especially where humid habitats become scarce in summer. The gap in the flight period for some of the species between the spring and the autumn suggests that there is probably a second generation in the autumn rather than one long flight period. Pollet et al. (2019) in their paper on the Dolichopodidae of Portugal give species habitat associations and also show two flight periods for several of them.

The islands in the Mediterranean deserve a lot more study of their Diptera where undoubtedly much remains to be learnt about species' ecology, assemblages and distribution. Probably undescribed species may also be discovered.

Acknowledgements

I owe much gratitude to the late C.E. Dyte (Slough, UK) for advice, identification and helpful discussion on the taxonomy of some of the species. K. Ebejer, C. Farrugia, J.C. Deeming, B. Merz, A. Plant and C. Plant are thanked for donating specimens. I express special gratitude to P. Gatt, who allowed me free access to all his records including those of specimens donated to him by others. He also critically read an earlier draft of this paper. I am grateful to I.Ya. Grichanov (St Petersburg, Russia) for kindly examining stacked photographs of the as yet unidentified species of *Medetera* and *Rhaphium* and giving his valuable opinion.

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Received 21 January 2021 / Accepted 5 May 2021. Editorial responsibility: A.A. Przhiboro