

**FIRST RECORDS OF DIXIDAE (DIPTERA, NEMATOCERA) FROM MALTA.****Martin J. Ebejer<sup>1</sup>****ABSTRACT**

Three species of Dixidae are recorded for the first time from the Maltese Islands: *Dixa nebulosa* Meigen, *Dixella attica* (Pandaziz) and *Dixella graeca* (Pandaziz).

**INTRODUCTION**

Few nematoceros Diptera (midges and gnats) have ever been recorded from Malta. These flies are generally associated with aquatic habitats and such habitats are restricted on these relatively arid islands. Freshwater with vegetation is almost non-existent in the hot months from the end of May to early October. The Dixidae is a small family of midges allied to mosquitoes (Culicidae). Only two of the six known genera occur in Europe and North Africa. Within this geographical area 16 species of *Dixa* Meigen, 1818 and 20 species of *Dixella* Dyar & Shannon, 1924 are known (Rozkošný, 1990).

Dixid flies, also known as meniscus midges, are dependant on an aquatic habitat for larval development. Some species also develop in urban gardens, utilising small water bodies especially those that have aquatic plants. The larva occupies the niche created by the meniscus at the edge of the surface film and it carries this with it as it moves on the substrate. It feeds on microorganisms and decaying plant debris filtering out the particles by using mouth brushes in a way similar to that used by the mosquito larva. Three species of Dixidae, based on an examination of over 250 specimens, are here recorded for the first time from Malta and Gozo. These species have been able to survive in a relatively hostile environment.

**MATERIAL AND METHODS**

The material, with the exception of two specimens, was collected by the author (MJE) and Dr Paul Gatt (PG) of Rabat, Malta. In the winter months, sweeping in suitable habitats was generally rewarded with good numbers of both sexes, although males predominated.

Most specimens are preserved in alcohol. For identification, selected male and female abdomens were removed and cleared in KOH before microscopic examination in glycerine on a slide. Identification was based on Disney, (1975, 1992) and Wagner *et al.*, (1992). All the specimens are either in the author's collection or in the private collection of Dr Gatt according to the person who collected the respective specimens. In the case of the two specimens collected by Mr Schembri, their depository is indicated by the initials of the author or of Dr Gatt.

***Dixa nebulosa* Meigen, 1830**

1 ♂, Buskett, 7.iv.1977, S. Schembri, (MJE).

This species, with its distinctive wing pattern, has been recorded only once. If this locality was the only site where it bred then it may well have become extinct since there have been significant changes to its habitat over the last 15 years. It is found throughout European countries and in North Africa, from Morocco.

***Dixella attica* (Pandaziz, 1933)**

1 ♂, Fiddien, 14.xii.1976, MJE; 1 ♂, Ghajn Rihana, 7.iii.1979, S.P. Schembri, (PG); 2 ♂♂ and 2 ♀♀, Fiddien, 5.iii.1991, MJE; 4 ♂♂ and 1 ♀, Fiddien, 11.v.1991, MJE; 2 ♀♀, Girgenti, 20.xi.1991, MJE; 1 ♂ and 1 ♀, Fiddien, 8.iv.1992, MJE; 1 ♂ and 1 ♀, Fiddien, 15.iv.1992, MJE; 1 ♀, Balzan (garden), 20.iv.1992, MJE; 1 ♀, Rabat, Fiddien, 15.iv.1992, PG; 1 ♀, Gozo, Wied ir-Ramla, 23.iv.1992, MJE; 4 ♂♂ and 1 ♀, Rabat, Fiddien, 10.v.1992, PG; 1 ♂,

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Chadwick Lakes, 29.x.1992, PG; 2 ♀♀, Rabat, Fiddien, 1.xi.1992, PG; 2 ♂♂ and 3 ♀♀, Fiddien, 8.xi.1992, MJE; 15 ♂♂ and 3 ♀♀, Rabat, Fiddien, 23.i.1993, PG; 2 ♂♂ and 4 ♀♀, Bahrija, 30.i.1993, PG; 1 ♀ and 2 larvae, Ghajn Rihana, 21.ii.1993, both larvae pupated after 2 days and 2 ♀♀ emerged on 27 February, PG; 7 ♂♂ and 4 ♀♀, Gozo, Wied ir-Ramla, 10.iv.1993, MJE; 1 ♀, Gozo, Wied ir-Ramla, 17.iv.1993, PG; 1 ♂ and 2 ♀♀, Gozo, Wied ir-Ramla, 17.iv.1993, PG; 5 ♂♂ and 5 ♀♀, Wied il-Qlejgha, 2.ii.1994, MJE; 3 ♂ and 1 ♀, Bahrija, 2.ii.1994, PG; 41 ♂♂ and 15 ♀♀, Ghajn Rihana, 5.ii.1994, PG; 6 ♂♂ and 1 ♀, Rabat, Fiddien, 3.iii.1994, PG; 1 ♂ Buskett, 27.iii.1994, PG; 16 ♂♂ and 6 ♀♀, Ghajn Rihana, 1.iv.1994, PG; 5 ♂♂ and 4 ♀♀, Bahrija, 2.iv.1994, PG; 1 ♂, Rabat, at window, 3.iv.1994, PG; 9 ♂♂ and 4 ♀♀ and 3 larvae, Ghajn Rihana, 4.xii.1994, 3 ♂ adults emerged on 8, 11 and 12 December, PG; 3 ♂♂ and 1 ♀, Wied Qannotta, 26.ii.1995, PG; 4 ♂♂ and 1 ♀, Wied Qannotta, 16.xii.1995, MJE; 6 ♂♂ and 2 ♀♀, Wied Qannotta, 18.iii.1996, MJE; 13 ♂♂ and 4 ♀♀, Zebbieh, Wied Ghajn Rihana, 3.iii.1997, MJE.

A common and widespread species occurring throughout the cooler months on Malta and Gozo. It occurs in several western European countries

including Greece. It is also known from Israel, Tunisia and Algeria.

#### *Dixella graeca* (Pandaziz, 1937)

1 ♀, Attard (garden), 21.xii.1976, MJE; 1 ♂ and 1 ♀, Fiddien, 5.iii.1991, MJE; 3 ♂♂ and 1 ♀, Girgenti, 20.xi.1991, MJE; 4 larvae, Rabat, Fiddien, 15.iv.1992, PG; 1 ♂ and 1 ♀, Fiddien, 11.v.1992, MJE; 3 ♂♂, Bahrija, 30.i.1993, PG; 1 ♀, Wied il-Ghasel, 4.ii.1993, PG; 1 ♂, Bahrija, 8.iv.1993, PG; 2 ♂♂, Ghajn Rihana, 4.ii.1994, PG; 1 ♂, Ghajn Rihana, 2.iv.1994, PG; 1 ♂ and 5 ♀♀, Bahrija, 2.iv.1994, PG; 2 ♂♂, Buskett, 27.xi.1994, PG; 1 ♂, Bahrija, 24.xii.1998, MJE.

A small dark species easily recognised by the male genitalia. It is less widespread and less frequent than the foregoing species. Damp, shaded habitats seem to be preferred. Known from Italy and Greece.

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