

ON THE SYRPHID FAUNA OF THE MADEIRA ARCHIPELAGO AND THE SALVAGE ISLANDS, WITH SOME FIRST RECORDS FROM DESERTA GRANDE AND SELVAGEM GRANDE (DIPTERA: SYRPHIDAE)

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Abstract: Aiming at a better understanding of the syrphid fauna of the Desertas Islands (Madeira archipelago) and Salvage Islands, a field survey was conducted at Deserta Grande and Selvagem Grande, in collaboration with the Natural Park of Madeira. At Deserta Grande, 26 syrphid samples were collected from *Rapistrum rugosum* (L.) All. s. l. and *Tolpis succulenta* (Dryand. in Ait.) Lowe flowers, in May, June and September 2001. At Selvagem Grande, 34 samples were collected from five hosts, *Lobularia canariensis* (DC) Borgen ssp. *succulenta* Borgen, *Scrophularia arguta* Sol. ex Ait., *Sonchus tenerrimus* L., *Spergularia fallax* Lowe and *Suaeda vera* Forssk. ex J.F. Gmel, between 2004 and 2005. The study of these samples led to the identification of four species for Deserta Grande - *Eupeodes corollae* (Fabricius), *Paragus coadunatus* Rondani (new record), *Scaeva pyrastris* (Linnaeus) and *Sphaerophoria scripta* (Linnaeus) – and of four species for Selvagem Grande - *Episyrphus balteatus* (De Geer), *Eupeodes corollae* (Fabricius), *Scaeva albomaculata* (Macquart) and *Sphaerophoria rueppellii* (Wiedemann), all but the second one being new records from the island. Based on the available bibliography concerning Madeira and the Salvage Islands, an extensive survey of all the species reported by the different authors is presented; the current name of a species is indicated when different from the one given in the literature. An alphabetical list is also included with the known species for each island, consulted references, and geographical distribution in Macaronesia and in the world.

Key words: Diptera, Syrphidae, Madeira Archipelago, Deserta Grande, Salvage Islands, Selvagem Grande.

Sobre la fauna de sírfidos del archipiélago de Madeira y las Islas Salvajes, con nuevas citas para Deserta Grande y Selvagem Grande (Diptera: Syrphidae)

Resumen: Buscando un mejor conocimiento de la fauna de sírfidos de las Islas Desiertas (archipiélago de Madeira) y Salvajes, se llevó a cabo un estudio en Deserta Grande y Selvagem Grande, en colaboración con el Parque Natural de Madeira. En Deserta Grande se colectaron 26 muestras de sírfidos en las flores de *Rapistrum rugosum* (L.) All. s. l. y *Tolpis succulenta* (Dryand. in Ait.) Lowe, en mayo, junio y setiembre de 2001. En Selvagem Grande se recogieron 34 muestras en cinco plantas, *Lobularia canariensis* (DC) Borgen ssp. *succulenta* Borgen, *Scrophularia arguta* Sol. ex Ait., *Sonchus tenerrimus* L., *Spergularia fallax* Lowe y *Suaeda vera* Forssk. ex J.F. Gmel, entre 2004 y 2005. El examen de estas muestras llevó a la identificación de cuatro especies para Deserta Grande - *Eupeodes corollae* (Fabricius), *Paragus coadunatus* Rondani (primera cita), *Scaeva pyrastris* (Linnaeus) y *Sphaerophoria scripta* (Linnaeus) – y de cuatro especies para Selvagem Grande - *Episyrphus balteatus* (De Geer), *Eupeodes corollae* (Fabricius), *Scaeva albomaculata* (Macquart) y *Sphaerophoria rueppellii* (Wiedemann), siendo todas salvo la segunda primeras citas para la isla. De acuerdo con la bibliografía disponible sobre Madeira y las Islas Salvajes, se presenta una amplia panorámica sobre todas las especies citadas por los diferentes autores; se indica el nombre actual de las especies cuando difiere del que aparece en la bibliografía. Se incluye igualmente una lista alfabética de las especies conocidas de cada isla, la bibliografía consultada y la distribución geográfica en la Macaronésia y a nivel mundial.

Palabras clave: Diptera, Syrphidae, archipiélago de Madeira, Deserta Grande, Islas Salvajes, Selvagem Grande.

Introduction

The syrphid fauna of the Madeira Archipelago has been studied since the mid-19th century, the first known record being from Walker (1849) (Table I). Other authors considered the theme, still on the second half of that century (Wollaston, 1858; Loew, 1860; Schiner, 1868; Thomson, 1869; Bigot, 1884; Osten-Sacken, 1884) and later, on the first half of the 20th century (Becker, 1908, 1921; Frey, 1939, 1949).

More recently, several authors contributed to a better and wider knowledge of the syrphids from Madeira Archipelago and Salvage Islands (Oromí *et al.*, 1978; Gomes & Báez, 1990; Barkemeyer, 1999; Carles-Tolrá, 2002; Pita & Gomes, 2003; Wakeham-Dawson *et al.*, 2004; Smit *et al.*, 2004 and Aguiar *et al.*, 2005).

In addition to an extensive survey of all the species cited by the different authors (Table I), this work¹ presents data from syrphids sampled at Deserta Grande (Madeira

Archipelago) and Selvagem Grande (Salvage Islands), thus contributing with indications on fauna novelties for those islands (Table II). Apart from the updated list of Madeira and Salvage syrphids, in alphabetical order, Table II indicates the author who first cited the species for a given island. Taking all the consulted articles and the new citations into account, the syrphid fauna of Madeira and Salvage may be represented as follows: Madeira Archipelago 26 – Madeira 26, Porto Santo 15 and Deserta Grande 10; Salvage Islands 4 – Selvagem Grande 4 and Selvagem Pequena 2. Until now, there are no records of syrphids for the remaining islands.

Based on data from the most recently published work concerning the Azores, Cape Verde, Canary Islands, Madeira, and Salvage Islands (Izquierdo *et al.*, 2004; Arechavaleta *et al.*, 2005; Borges *et al.*, 2005; 2008) an updated list is presented for the Macaronesian syrphid fauna (Table III).

Material and Methods

For Deserta Grande, 26 syrphid samples collected by the second author (I.S.) from *Rapistrum rugosum* (L.) All. s. l. and *Tolpis succulenta* (Dryand. in Ait.) Lowe flowers on May, June and September 2001 were analysed. All the specimens, frozen after collection, were then prepared and identified by the fourth author (A.G.).

Thirty-four samples were collected at Selvagem Grande, also by I. Silva², from *Lobularia canariensis* (DC) Borgen ssp. *succulenta* Borgen, *Scrophularia arguta* Sol. ex Ait., *Sonchus tenerrimus* L., *Spergularia fallax* Lowe, and *Suaeda vera* Forssk. ex J.F. Gmel flowers on May 2004 and March 2005. As freezing was not possible, all the collected specimens were preserved in alcohol and later identified by A. Gomes.

For each sample, the following information is given: place of collection, record number, date, altitude (when known), sex of the specimen and host plant. All the collected specimens were adults.

The samples are part of a Syrphid Collection belonging to the first author and are referred to by a letter and a number (e.g. S628).

List of Species

An alphabetically sorted list is presented of species which, until now, were referred for the Archipelago of Madeira and Salvage Islands (Smit *et al.*, 2004; Aguiar *et al.*, 2005). For each species, the consulted references are indicated, chronologically, giving special relevance to the earlier references for the different islands of the two archipelagos (Table II), the geographical distribution in Macaronesia (Table III) and the world distribution.

From the collected and analysed material, four species were identified in Deserta Grande - *Eupeodes corollae* (Fabricius), *Paragus coadunatus* Rondani, *Scaeva pyrastris* (Linnaeus) and *Sphaerophoria scripta* (Linnaeus), and another four in Selvagem Grande - *Episyrphus balteatus* (De Geer), *Eupeodes corollae* (Fabricius), *Scaeva albomaculata* (Macquart), and *Sphaerophoria rueppellii* (Wiedemann). *P. coadunatus* is a new record from Deserta Grande, and *E. balteatus*, *S. albomaculata* and *S. rueppellii* are new records from Selvagem Grande.

1. *Episyrphus balteatus* (De Geer, 1776)

Walker (1849), Schiner (1868), Osten-Sacken (1884), Becker (1908), Frey (1939, 1949), Gomes & Báez (1990), Barkemeyer (1999), Marcos-García *et al.* (2002), Pita & Gomes (2003), Smit *et al.* (2004), Smit (2008).

New for Salvage Islands. Recorded from Madeira (Walker, 1849), Porto Santo (Pita & Gomes, 2003) and Deserta Grande (Smit *et al.*, 2004). Present in the Azores (Diaz *et al.*, 2005) and in Canary Islands (Báez & García, 2004). Its distribution includes the Australian, Oriental and Palaearctic regions.

MATERIAL STUDIED: SALVAGE ISLANDS – Selvagem Grande (S630, 8-March-2005, ♂, flowers of *Spergularia fallax*).

2. *Eristalinus aeneus* (Scopoli, 1763)

Gomes & Báez (1990), Barkemeyer (1999), Marcos-García *et al.* (2002), Smit *et al.* (2004), Smit (2008).

Recorded from Madeira and Porto Santo (Gomes & Báez, 1990). Occurring in the Azores (Diaz *et al.*, 2005), Canary Islands (Báez & García, 2004) and Cape Verde Islands (Báez & García, 2005). It is found in all the biogeographical regions except the Neotropical one.

3. *Eristalinus taeniops* (Wiedmann, 1818)

Aguiar *et al.* (2005), Smit (2008).

Recorded from Madeira (Aguiar *et al.*, 2005). Present in Canary Islands (Báez & García, 2004). Its distribution includes the Mediterranean sub-region, Canary Islands, the Afrotropical region [including Guinea-Bissau (Gomes, 1983)], the Arabian Peninsula, and India, Nepal, and Pakistan.

4. *Eristalis tenax* (Linnaeus, 1758)

Schiner (1868), Osten-Sacken (1884), Becker (1908), Frey (1939, 1949), Gomes & Báez (1990), Barkemeyer (1999), Marcos-García *et al.* (2002), Smit *et al.* (2004), Smit (2008).

Recorded from Madeira (Schiner, 1868), Porto Santo (Gomes & Báez, 1990) and Deserta Grande (Smit *et al.*, 2004). Present in the Azores (Diaz *et al.*, 2005), Canary Islands (Báez & García, 2004) and Cape Verde Islands (Báez & García, 2005). Cosmopolitan.

5. *Eumerus hispidus* Smit, Aguiar & Wakeham-Dawson, 2004

Smit *et al.* (2004), Smit (2008).

Recorded from Madeira Archipelago – Madeira, Porto Santo and Deserta Grande (Smit *et al.*, 2004). Endemic for Madeira Archipelago.

6. *Eupeodes corollae* (Fabricius, 1794)

Schiner (1868), Osten-Sacken (1884), Becker (1908), Frey (1939, 1949), Oromí *et al.* (1978), Oromó (1983), Gomes & Báez (1990), Barkemeyer (1999), Marcos-García *et al.* (2002), Smit *et al.* (2004), Smit (2008).

Recorded from Madeira (Schiner, 1868), Porto Santo and Deserta Grande (Smit *et al.*, 2004), and Salvage Islands – Selvagem Grande e Selvagem Pequena (Oromí *et al.*, 1978)³. Present in the Azores (Diaz *et al.*, 2005), Canary Islands (Báez & García, 2004) and Cape Verde Islands (Báez & García, 2005). Afrotropical, Oriental and Palaearctic.

MATERIAL STUDIED: MADEIRA ARCHIPELAGO – Deserta Grande, Vale da Castanheira (S522, 20-May-2001, 350 m, ♂, flowers of *Rapistrum rugosum*; S523, 20-May-2001, 350 m, ♂, flowers of *Rapistrum rugosum*; S526, 20-May-2001, 350 m, ♂, flowers of *Rapistrum rugosum*; S527, 20-May-2001, 350 m, ♀, flowers of *Rapistrum rugosum*); Pedregal (S533, 06-June-2001, 450 m, ♂, flowers of *Tolpis succulenta*; S537, 06-June-2001, 450 m, ♂, flowers of *Tolpis succulenta*).

SALVAGE ISLANDS – Selvagem Grande (S626, 8-March-2005, ♀, flowers of *Spergularia fallax*; S628, 8-March-2005, ♀, flowers of *Spergularia fallax*; S629, 8-March-2005, ♂, flowers of *Spergularia fallax*; S631, 8-March-2005, ♂, flowers of *Spergularia fallax*; S632, 8-March-2005, ♀, flowers of *Spergularia fallax*; S633, 8-March-2005, ♀, flowers of *Spergularia fallax*; S634, 10-March-2005, ♂, flowers of *Sonchus tenerrimus*; S635, 10-March-2005, ♀, flowers of *Sonchus tenerrimus*; S636, 10-March-2005, ♀, flowers of *Sonchus tenerrimus*; S637, 15-March-2005, ♂, flowers of *Lobularia canariensis*; S638, 15-March-2005, ♀, flowers of *Lobularia canariensis*; S639, 15-March-2005, ♀, flowers of *Lobularia canariensis*; S640, 15-March-2005, ♀, flowers of *Lobularia canariensis*; S641, 15-March-2005, ♀, flowers of *Lobularia canariensis*; S642, 15-March-2005, ♂, flowers of *Lobularia canariensis*; S643, 15-March-2005, ♂, flowers of *Lobularia canariensis*; S645, 15-March-2005, ♀, flowers of *Spergularia fallax*; S646, 15-March-2005, ♀, flowers of *Spergularia fallax*; S647, 15-March-2005, ♀, flowers of *Spergularia fallax*; S648, 15-March-2005, ♂, flowers of *Spergularia fallax*; S649, 15-March-2005, ♂, flowers of *Spergularia fallax*; S650, 20-March-2005, ♂, flowers of *Suaeda vera*; S651, 20-March-2005, ♀, flowers of *Suaeda vera*).

7. *Eupeodes luniger* (Meigen, 1822)

Frey (1939, 1949), Gomes & Báez (1990), Barkemeyer (1999), Marcos-García *et al.* (2002), Smit *et al.* (2004)⁴, Smit (2008).

Recorded from Madeira (Frey, 1939), Porto Santo and Deserta Grande (Smit *et al.*, 2004). Occidental Palaearctic.

8. *Eupeodes nuba* (Wiedemann, 1830)

Smit *et al.* (2004), Smit (2008).

Recorded from Madeira (Smit *et al.*, 2004). Present in Canary Islands (Báez & García, 2004). Mediterranean part of the Palaearctic region, Nepal and Eastern Afrotropical region.

9. *Ischiodon aegyptius* (Wiedemann, 1830)

Loew (1860), Thomson (1869), Osten-Sacken (1884), Frey (1949), Gomes & Báez (1990), Barkemeyer (1999), Marcos-García *et al.* (2002), Pita & Gomes (2003), Smit *et al.* (2004), Smit (2008).

Recorded from Madeira (Loew, 1860), Porto Santo⁵ (Barkemeyer, 1999) and Deserta Grande (Smit *et al.*, 2004). Present in Canary Islands (Báez & García, 2004) and in Cape Verde Islands (Báez & García, 2005). Afrotropical region and Mediterranean sub-region.

10. *Melanostoma mellinum* (Linnaeus, 1758)

Becker (1908), Frey (1949), Gomes & Báez (1990), Barkemeyer (1999), Marcos-García *et al.* (2002), Smit *et al.* (2004)⁶, Smit (2008).

Recorded from Madeira (Becker, 1908) and Porto Santo (Smit *et al.*, 2004). Present in the Azores (Diaz *et al.*, 2005). Holarctic.

11. *Melanostoma wollastoni* Wakeham-Dawson, Aguiar, Smit, McCullough & Wyatt, 2004

Wakeham-Dawson *et al.* (2004), Smit *et al.* (2004), Smit (2008). Recorded from Madeira (Wakeham-Dawson *et al.*, 2004). Endemic for Madeira Island.

12. *Meliscaeva auricollis* (Meigen, 1822)

Becker (1908), Frey (1939, 1949), Gomes & Báez (1990), Barkemeyer (1999), Marcos-García *et al.* (2002), Smit *et al.* (2004), Smit (2008).

Recorded from Madeira (Becker, 1908). Present in the Azores (Diaz *et al.*, 2005), Canary Islands (Báez & García, 2004) and Cape Verde Islands (Báez & García, 2005). Occidental Palaearctic.

13. *Milesia crabroniformis* (Fabricius, 1775)

Walker (1849), Osten-Sacken (1884), Becker (1908), Frey (1939, 1949), Gomes & Báez (1990), Marcos-García *et al.* (2002), Smit *et al.* (2004), Smit (2008).

Recorded from Madeira (Walker, 1849). Occidental Palaearctic, essentially restricted to the Mediterranean sub-region.

14. *Myathropa usta* (Wollaston, 1858)

Wollaston (1858), Osten-Sacken (1884), Frey (1939, 1949), Gomes & Báez (1990), Barkemeyer (1999), Marcos-García *et al.* (2002), Smit *et al.* (2004), Smit (2008).

Recorded from Madeira (Wollaston, 1858). Endemic for Madeira Island.

15. *Neoscia podagrica* (Fabricius, 1775)

Becker (1908), Frey (1949), Gomes & Báez (1990), Barkemeyer (1999), Marcos-García *et al.* (2002), Smit *et al.* (2004), Smit (2008).

Recorded from Madeira (Becker, 1908). Occidental Palaearctic.

16. *Paragus coadunatus* Rondani, 1847

Wollaston (1858), Schiner (1868), Osten-Sacken (1884), Gomes & Báez (1990), Barkemeyer (1999), Marcos-García *et al.* (2002), Pita & Gomes (2003), Smit *et al.* (2004), Smit (2008).

New for Desertas. Recorded from Madeira and Porto Santo (Wollaston, 1858). Present in Canary Islands (Báez & García, 2004). Western Mediterranean.

MATERIAL STUDIED: MADEIRA ARCHIPELAGO – Deserta Grande, Doca (S544, 10-September-2001, 14 m, ♂, flowers of *Tolpis succulenta*; S545, 10-September-2001, 14 m, 2♂♂, 4♀♀, flowers of *Tolpis succulenta*).

17. *Scaeva albomaculata* (Macquart, 1842)

Schiner (1868), Osten-Sacken (1884), Becker (1908), Frey (1949), Gomes & Báez (1990), Marcos-García *et al.* (2002), Pita & Gomes (2003), Smit *et al.* (2004), Smit (2008).

New for Selvagem Grande. Recorded from Madeira (Schiner, 1868), Porto Santo, Deserta Grande (Smit *et al.*, 2004) and Salvagem Islands – Selvagem Pequena (Pita & Gomes, 2003). Present in Canary Islands (Báez & García, 2004) and Cape Verde Islands (Báez & García, 2005). Mediterranean part of the occidental Palaearctic region and north of the Oriental region.

MATERIAL STUDIED: SALVAGE ISLANDS – Selvagem Grande (S621, 20-May-2004, ♀, flowers of *Scrophularia arguta*; S622, 20-May-2004, ♀, flowers of *Scrophularia arguta*; S623, 20-May-2004, ♀, flowers of *Scrophularia arguta*; S652, 20-May-2004, ♀, flowers of *Scrophularia arguta*; S653, 20-May-2004, ♀, flowers of *Scrophularia arguta*; S625, 8-March-2005, ♀, flowers of *Lobularia canariensis*, *Sonchus tenerrimus* e *Spergularia fallax*; S627, 8-March-2005, ♀, flowers of *Spergularia fallax*; S644, 15-March-2005, ♀, flowers of *Spergularia fallax*).

18. *Scaeva pyrastris* (Linnaeus, 1758)

Schiner (1868), Osten-Sacken (1884), Becker (1908), Frey (1939, 1949), Gomes & Báez (1990), Barkemeyer (1999), Marcos-García *et al.* (2002), Pita & Gomes (2003), Smit *et al.* (2004), Smit (2008).

Recorded from Madeira (Schiner, 1868), Porto Santo (Gomes & Báez, 1990) and Deserta Grande (Smit *et al.*, 2004). Present in Canary Islands (Báez & García, 2004). Holarctic.

MATERIAL STUDIED: MADEIRA ARCHIPELAGO – Deserta Grande, Pedregal (S531, 06-Junho-2001, 450 m, ♀, flowers of *Tolpis succulenta*).

19. *Scaeva selenitica* (Meigen, 1822)

Schiner (1868), Osten-Sacken (1884), Becker (1908), Frey (1949), Gomes & Báez (1990), Barkemeyer (1999), Marcos-García *et al.* (2002), Smit *et al.* (2004)⁷, Smit (2008).

Recorded from Madeira (Schiner, 1868). Palaearctic and Oriental.

20. *Sphaerophoria rueppellii* (Wiedemann, 1830)

Barkemeyer (1999), Pita & Gomes (2003), Smit *et al.* (2004), Smit (2008).

New for Salvagem Islands. Recorded from Madeira (Smit *et al.*, 2004) and Porto Santo⁸ (Barkemeyer, 1999). Present in the Azores (Diaz *et al.*, 2005) and Canary Islands (Báez & García, 2004). Palaearctic, Oriental and Ethiopia.

MATERIAL STUDIED: SALVAGE ISLANDS – Selvagem Grande (S620, 19-May-2004, ♂, flowers of *Suaeda vera*; S624, 20-May-2004, ♀, flowers of *Scrophularia arguta*).

21. *Sphaerophoria scripta* (Linnaeus, 1758)

Schiner (1868), Osten-Sacken (1884), Becker (1908), Frey (1939, 1949), Gomes & Báez (1990), Barkemeyer (1999), Marcos-García *et al.* (2002), Pita & Gomes (2003), Smit *et al.* (2004), Smit (2008).

Recorded from Madeira (Schiner, 1868), Porto Santo and Deserta Grande (Gomes & Báez, 1990). Present in the Azores (Diaz *et al.*, 2005) and Canary Islands (Báez & García, 2004). Holarctic and Oriental.

MATERIAL STUDIED: MADEIRA ARCHIPELAGO – Deserta Grande, Vale da Castanheira (S520, 20-May-2001, 350 m, ♀, flowers of *Rapistrum rugosum*; S521, 20-May-2001, 350 m, ♀, flowers of *Rapistrum rugosum*; S524, 20-May-2001, 350 m, ♀, flowers of *Rapistrum rugosum*; S525, 20-May-2001, 350 m, ♂, flowers of *Rapistrum rugosum*; S528, 20-May-2001, 350 m, ♂, flowers of *Rapistrum rugosum*; S529, 20-May-2001, 350 m, ♀, flowers of *Rapistrum rugosum*; S530, 20-May-2001, 350 m, ♀, flowers of *Rapistrum rugosum*); Pedregal (S534, 06-June-2001, 450 m, ♂, flowers of *Tolpis succulenta*; S535, 06-June-2001, 450 m, ♀,

flowers of *Tolpis succulenta*; S536, 06-June-2001, 450 m, ♀,
flowers of *Tolpis succulenta*; S538, 06-June-2001, 450 m, ♀,
flowers of *Tolpis succulenta*; S539, 06-June-2001, 450 m, ♀,
flowers of *Tolpis succulenta*; S540, 06-June-2001, 450 m, ♀,
flowers of *Tolpis succulenta*; S541, 06-June-2001, 450 m, ♀,
flowers of *Tolpis succulenta*; S542, 06-June-2001, 450 m, ♀,
flowers of *Tolpis succulenta*; S543, 06-June-2001, 450 m, ♀,
flowers of *Tolpis succulenta*.

22. *Syritta pipiens* (Linnaeus, 1758)

Schiner (1868), Osten-Sacken (1884), Becker (1908), Frey (1949), Gomes & Báez (1990), Barkemeyer (1999), Marcos-García *et al.* (2002), Pita & Gomes (2003), Smit *et al.* (2004), Smit (2008). Recorded from Madeira (Schiner, 1868) and Porto Santo (Barkemeyer, 1999). Present in the Azores (Diaz *et al.*, 2005) and Canary Islands (Báez & García, 2004). Holarctic and Oriental.

23. *Syrphus torvus* Osten-Sacken, 1875

Gomes & Báez (1990), Barkemeyer (1999), Marcos-García *et al.* (2002), Smit *et al.* (2004), Smit (2008). Recorded from Madeira (Gomes & Báez, 1990). Holarctic and Oriental.

24. *Syrphus vitripennis* Meigen, 1822

Gomes & Báez (1990), Barkemeyer (1999), Marcos-García *et al.* (2002), Pita & Gomes (2003), Smit *et al.* (2004), Smit (2008). Recorded from Madeira (Gomes & Báez, 1990) and Porto Santo (Pita & Gomes, 2003). Present in Canary Islands (Báez & García, 2004). Holarctic.

25. *Xanthandrus babyssa* (Walker, 1849)

Walker (1849), Bigot (1884), Osten-Sacken (1884), Becker (1908), Frey (1939, 1949), Gomes & Báez (1990), Barkemeyer (1999), Marcos-García *et al.* (2002), Wakeham-Dawson *et al.* (2004), Smit *et al.* (2004), Smit (2008). Recorded from Madeira (Walker, 1849). Endemic for Madeira Island.

26. *Xylota segnis* (Linnaeus, 1758)

Becker (1908), Becker (1921), Frey (1939, 1949), Gomes & Báez (1990), Barkemeyer (1999), Marcos-García *et al.* (2002), Smit *et al.* (2004), Smit (2008). Recorded from Madeira (Becker, 1908). Present in the Azores (Diaz *et al.*, 2005) and Canary Islands (Báez & García, 2004). Holarctic.

Discussion

Despite the limited access to the islands where this syrphid survey took place – distance from Madeira, permanence schedules of the staff of Madeira Natural Park, orography, scarcity of resources – the collected material allowed to establish new records, one for Deserta Grande and three for Selvagem Grande. The former, *Paragus coadunatus*, is a West-mediterranean species, already recorded in Macaronesia. The larvae, aphidophagous, often found on creeping plants, may feed on the aphid species already cited for Deserta Grande (Ilharco, 1984; Pita & Ilharco, 2004). The novelties for Selvagem Grande - *Episyrphus balteatus*, *Scaeva albomaculata* and *Sphaerophoria rueppellii* – are Palaearctic species previously known in Macaronesia, *S. albomaculata* being already known in Selvagem Pequena (Pita & Gomes, 2003) and *S. rueppellii* being one of the most recent introductions in Madeira Archipelago (Barkemeyer, 1999). The corresponding larvae are aphidophagous and present, respectively, a high degree of poliphagy, a

predatory preference for great amounts of aphids more frequent in herbaceous than arboreal, and association to aphid colonies on creeping plants. This seems in agreement with the type of vegetation found in Selvagem Grande and the variety of aphids surveyed there (Pita *et al.*, 2007).

After analysing the species distribution in the Madeira Archipelago and Salvage Islands (Table II), it may be seen that the most common ones and with the widest distribution are *Eupeodes corollae* and *Scaeva albomaculata* which occur in five islands, whereas *Episyrphus balteatus* is found in four islands. Most of the syrphids collected were from the following aphidophagous species: *E. corollae*, *Sphaerophoria scripta* and *S. albomaculata*. All the other syrphid species known for Salvage Islands are also aphidophagous: *E. balteatus*, *E. corollae*, *S. albomaculata* and *Sphaerophoria rueppellii*. Although a low number of species was recorded until now, that fact suggests a similarity with other Mediterranean archipelagos and Continental ecosystems – the proportion of syrphids with predacious larvae is much higher than of syrphids with other feeding habits, taking their higher fly period into account (Rojo *et al.*, 1997).

Ten years past, the reported syrphid distribution in the Macaronesian archipelagos (Table III) has slightly changed since Rojo *et al.* (1997). In the Azores, the present list is similar to the previous one, but includes *Eumerus strigatus* (Diaz *et al.*, 2005), in discrepancy with Barkemeyer (2002c). For Madeira, there are three new records (*Eristalinus taeniops*, *Eupeodes nuba* and *Sphaerophoria rueppellii*), two new species for science (*Eumerus hispidus* and *Melanostoma wollastoni*), the confirmation of one species (*Syrphus torvus*) and the exclusion of two species (*Eumerus purpureus* and *Syrphus ribesii*) (Barkemeyer, 1999; Smit *et al.*, 2004; Wakeham-Dawson *et al.*, 2004; Aguiar *et al.*, 2005). For Canary Islands there are two new records (*Copestylum melleum* and *Eumerus obliquus*), a new species to science (*Merodon fuerteventurensis*), which may be a synonym waiting for confirmation (M. Báez, pers. comm.), and the confirmation of another (*Syrphus vitripennis*) (Báez, 2000; Barkemeyer, 2002b; Haeseler *et al.*, 2002; Marcos-García *et al.*, 2002; Báez & García, 2004). From Cape Verde there are three new records (*Eristalis convexifacies*, *Eumerus obliquus* and *Meliscaeva auricollis*) and a new species to science (*Eumerus caboverdensis*) (Barkemeyer, 2002a; Báez & García, 2005).

As highlighted by Rojo *et al.* (1997), in the archipelagos species with predacious and saprophagous feeding habits remain in higher proportion than species with phytophagous habits. Only the Canary Islands present almost a third of species with phytophagous larvae (29.4%), due to the occurrence of 10 *Eumerus* species, this being the only phytophagous genus reported for Macaronesia.

Comparing the specific composition of syrphids in the studied archipelagos (Table III), different situations may be observed. Only one syrphid species, *Eupeodes corollae*, is common to all five archipelagos. *Scaeva albomaculata* is present in four archipelagos (Madeira, Salvage Islands, Canary Islands and Cape Verde); three species occur in the Azores, Madeira, Canary Islands and Cape Verde (*Eristalinus aeneus*, *Eristalis tenax* and *Meliscaeva auricollis*); and two species are common to Azores, Madeira, Salvage Islands and Canary Islands (*Episyrphus balteatus* and *Sphaerophoria rueppellii*). Only one syrphid species, *Ischiodon*

aegyptius, occurs in three archipelagos (Madeira, Canary Islands and Cape Verde) and three species are common to Azores, Madeira and Canary Islands (*Sphaerophoria scripta*, *Syrirta pipiens* and *Xylota segnis*). Among the 11 referred species, four have saprophagous larvae and the others have predacious larvae.

From the biogeographic point of view, the highest proportion of endemic syrphids is presented by Canary Islands (38%), followed by Madeira (16%), Azores (8.7%) and Cape Verde (6.3%). Until now, no endemic species has been recorded from Salvage Islands.

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Notes:

¹ The part of this work concerning the samplings from Deserta Grande (Madeira Archipelago) was presented at the 11th Iberian Congress of Entomology, Funchal (Madeira), 13-17 September 2004.

² All the field work was carried out at Selvagem Grande by I. Silva, *Nature Surveillant* of the Natural Park of Madeira, and coordinated by D. Menezes, technician of the same institution and third author.

³ The first reference of this species at Salvage Islands is from Oromí *et al.* (1978) and not from Oromí (1983), as indicated in Smit *et al.* (2004).

⁴ The species *Eupeodes luniger* has not been included in the Canary Islands list for many years, according to Báez (pers. comm.), in contrast to what is indicated in Smit *et al.* (2004).

⁵ In Pita & Gomes (2003), the species *Ischiodon aegyptius* is pointed out as a new record for Porto Santo because the publication of Barkemeyer (1999) was then unknown to the authors.

⁶ The species *Melanostoma mellinum* has not been included in the Canary Islands list for many years, according to Báez (pers. comm.), in contrast to what is indicated in Smit *et al.* (2004).

⁷ The species *Scaeva selenitica* has not been included in the Canary Islands list for many years, according to Báez (pers. comm.), in contrast to what is indicated in Smit *et al.* (2004).

⁸ In Pita & Gomes (2003), the species *Sphaerophoria rueppellii* is pointed out as a new record for Porto Santo because the publication of Barkemeyer (1999) was then unknown to the authors.

⁹ In Pita & Gomes (2003), the species *Syrirta pipiens* is pointed out as a new record for Porto Santo because the publication of Barkemeyer (1999) was then unknown to the authors.

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Table I. List of species recorded from the Madeira Archipelago and Salvage Islands, for each mentioned author. On the left, the name by which they were referred, on the right their present name, in case it is different from the previous one. * - first record of a species for a given island. (a.s.o.) = (as synonym of).

A: WALKER, 1849		<i>Eristalis ustus</i> Wollaston	<i>Myathropa usta</i>
<i>Milesia crabroniformis</i> (Fabricius)	*	<i>Milesia crabroniformis</i> (Fabricius)	—
<i>Syrphus babyssa</i> sp. n.	* <i>Xanthandrus babyssa</i>	<i>Paragus mundus</i> Wollaston	<i>Paragus coadunatus</i> (a.s.o.)
<i>Syrphus balteatus</i> (De Geer)	* <i>Episyrphus balteatus</i>	<i>Paragus tibialis</i> (Fallén)	(²)
B: WOLLASTON, 1858		<i>Sphaerophoria strigata</i> (Staeger)	<i>Sphaerophoria scripta</i> (a.s.o.)
<i>Eristalis ustus</i> sp. n.	* <i>Myathropa usta</i>	<i>Syritta pipiens</i> (Linnaeus)	—
<i>Paragus mundus</i> sp. n.	* <i>Paragus coadunatus</i> (a.s.o.)	<i>Syrphus aegyptius</i> (Wiedemann)	<i>Ischiodon aegyptius</i>
C: LOEW, 1860		<i>Syrphus babyssa</i> Walker	<i>Xanthandrus babyssa</i>
<i>Syrphus aegyptius</i> (Wiedemann)	* <i>Ischiodon aegyptius</i>	<i>Syrphus balteatus</i> (De Geer)	<i>Episyrphus balteatus</i>
D: SCHINER, 1868		<i>Syrphus brachypterus</i> Thomson	<i>Ischiodon aegyptius</i> (a.s.o.)
<i>Eristalis tenax</i> (Linnaeus)	*	<i>Syrphus corollae</i> Fabricius	<i>Eupeodes corollae</i>
<i>Melithreptus strigatus</i> Staeger	* <i>Sphaerophoria scripta</i> (a.s.o.)	<i>Syrphus gemellarii</i> (Rondani)	<i>Scaeva albomaculata</i> (a.s.o.)
<i>Paragus tibialis</i> var. <i>coadunatus</i> Rondani	<i>Paragus coadunatus</i>	<i>Syrphus pyrastris</i> (Linnaeus)	<i>Scaeva pyrastris</i>
<i>Syritta pipiens</i> (Linnaeus)	*	<i>Syrphus seleniticus</i> (Meigen)	<i>Scaeva selenitica</i>
<i>Syrphus balteatus</i> (De Geer)	<i>Episyrphus balteatus</i>	H: BECKER, 1908	
<i>Syrphus corollae</i> Fabricius	* <i>Eupeodes corollae</i>	<i>Ascia podagrica</i> (Fabricius)	* <i>Neoascia podagrica</i>
<i>Syrphus gemellarii</i> (Rondani)	* <i>Scaeva albomaculata</i> (a.s.o.)	<i>Catabomba albomaculatus</i> (Meigen) ^{3,4}	<i>Scaeva albomaculata</i>
<i>Syrphus pyrastris</i> (Linnaeus)	* <i>Scaeva pyrastris</i>	<i>Catabomba pyrastris</i> (Linnaeus) ^{3,5}	<i>Scaeva pyrastris</i>
<i>Syrphus seleniticus</i> (Meigen)	* <i>Scaeva selenitica</i>	<i>Catabomba seleniticus</i> (Meigen) ³	<i>Scaeva selenitica</i>
E: THOMSON, 1869		<i>Eristalis tenax</i> (Linnaeus)	—
<i>Syrphus brachypterus</i> sp. n.	<i>Ischiodon aegyptius</i> (a.s.o.)	<i>Eumerus purpureus</i> Macquart	(⁶)
F: BIGOT, 1884		<i>Melanostoma babyssa</i> (Walker)	(⁷)
<i>Xanthandrus parhyalinatus</i> sp. n. (1)	<i>Xanthandrus babyssa</i> (a.s.o.)	<i>Melanostoma mellinum</i> (Linnaeus)	*
G: OSTEN-SACKEN, 1884		<i>Melithreptus scriptus</i> (Linnaeus) ⁸	<i>Sphaerophoria scripta</i>
<i>Eristalis tenax</i> (Linnaeus)	—	<i>Milesia crabroniformis</i> (Fabricius)	—

<i>Paragus tibialis</i> (Fallén)	(9)	<i>Syrpita pipiens</i> (Linnaeus)	—
<i>Syrpita pipiens</i> (Linnaeus)	—	<i>Syrphus ribesii</i> (Linnaeus)	(16)
<i>Syrphus balteatus</i> (De Geer)	<i>Episyrphus balteatus</i>	<i>Syrphus cf. torvus</i> Osten-Sacken	* <i>Syrphus torvus</i>
<i>Syrphus corollae</i> Fabricius	<i>Eupeodes corollae</i>	<i>Syrphus vitripennis</i> Meigen	*
<i>Syrphus docorus</i> (Meigen) ¹⁰	* <i>Meliscaeva auricollis</i> (a.s.o.)	<i>Xanthandrus parhyalinatus</i> (Bigot) ¹	<i>Xanthandrus babyssa</i> (a.s.o.)
<i>Syrphus maculicornis</i> (Zetterstedt)	<i>Meliscaeva auricollis</i> (a.s.o.)	<i>Xylota segnis</i> (Linnaeus)	—
<i>Syrphus scutellaris</i> (Fabricius)	(11)	O: BARKEMEYER, 1999	
<i>Xanthandrus parhyalinatus</i> (Bigot) ¹	<i>Xanthandrus babyssa</i> (a.s.o.)	<i>Episyrphus balteatus</i> (De Geer)	—
<i>Xylota segnis</i> (Linnaeus)	*	<i>Eristalinus aeneus</i> (Scopoli)	—
I: BECKER, 1921		<i>Eristalis tenax</i> (Linnaeus)	—
<i>Xylota puella</i> sp. n. ¹²	<i>Xylota segnis</i> (a.s.o.)	<i>Eumerus purpureus</i> Macquart	(15)
J: FREY, 1939		<i>Eupeodes corollae</i> Fabricius	—
<i>Epistrophe auricollis</i> (Meigen)	<i>Meliscaeva auricollis</i>	<i>Eupeodes luniger</i> (Meigen)	—
<i>Epistrophe balteata</i> (De Geer)	<i>Episyrphus balteatus</i>	<i>Ischiodon aegyptius</i> (Wiedemann)	*
<i>Eristalomyia tenax</i> (Linnaeus)	<i>Eristalis tenax</i>	<i>Melanostoma babyssa</i> (Walker)	(7)
<i>Eristalomyia tenax</i> var. <i>campestris</i> Meigen	<i>Eristalis tenax</i>	<i>Melanostoma mellinum</i> (Linnaeus)	—
<i>Eristalomyia tenax</i> var. <i>hortorum</i> Meigen	<i>Eristalis tenax</i>	<i>Meliscaeva auricollis</i> (Meigen)	—
<i>Ischiodon scutellaris</i> (Fabricius)	(11)	<i>Myathropa usta</i> (Wollaston)	—
<i>Lasiotopicus pyrastris</i> (Linnaeus) ¹³	<i>Scaeva pyrastris</i>	<i>Neoascia podagrica</i> (Fabricius)	—
<i>Melanostoma babyssa</i> (Walker)	(7)	<i>Paragus coadunatus</i> Rondani	—
<i>Milesia crabroniformis</i> (Fabricius)	—	<i>Scaeva pyrastris</i> (Linnaeus)	—
<i>Myiatriopa mallotiformis</i> sp. n. ¹⁴	<i>Myathropa usta</i> (a.s.o.)	<i>Scaeva selenitica</i> (Meigen)	—
<i>Paragus tibialis</i> (Fallén)	(9)	<i>Sphaerophoria rueppellii</i> (Wiedemann)	*
<i>Sphaerophoria scripta</i> (Linnaeus)	—	<i>Sphaerophoria scripta</i> (Linnaeus)	—
<i>Syrphus corollae</i> Fabricius	<i>Eupeodes corollae</i>	<i>Syrpita pipiens</i> (Linnaeus)	*
<i>Syrphus luniger</i> Meigen	* <i>Eupeodes luniger</i>	<i>Syrphus torvus</i> Osten-Sacken	—
<i>Xanthandrus parhyalinatus</i> (Bigot) ¹	<i>Xanthandrus babyssa</i> (a.s.o.)	<i>Syrphus vitripennis</i> Meigen	—
<i>Xylota segnis</i> (Linnaeus)	—	<i>Xanthandrus parhyalinatus</i> (Bigot) ¹	<i>Xanthandrus babyssa</i> (a.s.o.)
L: FREY, 1949		<i>Xylota segnis</i> (Linnaeus)	—
<i>Epistrophe auricollis</i> (Meigen)	<i>Meliscaeva auricollis</i>	P: CARLES-TOLRÁ, 2002	
<i>Epistrophe balteata</i> (De Geer)	<i>Episyrphus balteatus</i>	<i>Episyrphus balteatus</i> (De Geer)	—
<i>Eristalomyia tenax</i> (Linnaeus)	<i>Eristalis tenax</i>	<i>Eristalinus aeneus</i> (Scopoli)	—
<i>Eristalomyia tenax</i> var. <i>campestris</i> Meigen	<i>Eristalis tenax</i>	<i>Eristalis tenax</i> (Linnaeus)	—
<i>Eristalomyia tenax</i> var. <i>hortorum</i> Meigen	<i>Eristalis tenax</i>	<i>Eumerus purpureus</i> Macquart	(15)
<i>Eumerus purpureus</i> Macquart	(15)	<i>Eupeodes corollae</i> Fabricius	—
<i>Ischiodon aegyptium</i> (Wiedemann)	<i>Ischiodon aegyptius</i>	<i>Eupeodes luniger</i> (Meigen)	—
<i>Lasiotopicus albomaculatus</i> (Macquart) ¹³	<i>Scaeva albomaculata</i>	<i>Ischiodon aegyptius</i> (Wiedemann)	—
<i>Lasiotopicus pyrastris</i> (Linnaeus) ¹³	<i>Scaeva pyrastris</i>	<i>Melanostoma mellinum</i> (Linnaeus)	—
<i>Lasiotopicus selenitica</i> (Meigen) ¹³	<i>Scaeva selenitica</i>	<i>Meliscaeva auricollis</i> (Meigen)	—
<i>Melanostoma babyssa</i> (Walker)	(7)	<i>Milesia crabroniformis</i> (Fabricius)	—
<i>Melanostoma mellinum</i> (Linnaeus)	—	<i>Myathropa usta</i> (Wollaston)	—
<i>Milesia crabroniformis</i> (Fabricius)	—	<i>Neoascia podagrica</i> (Fabricius)	—
<i>Myiatriopa mallotiformis</i> Frey ¹⁴	<i>Myathropa usta</i> (a.s.o.)	<i>Paragus coadunatus</i> Rondani	—
<i>Paragus mundus</i> Wollaston	<i>Paragus coadunatus</i> (a.s.o.)	<i>Scaeva albomaculata</i> (Macquart)	—
<i>Neoascia podagrica</i> (Fabricius)	—	<i>Scaeva pyrastris</i> (Linnaeus)	—
<i>Paragus tibialis</i> (Fallén)	(9)	<i>Scaeva selenitica</i> (Meigen)	—
<i>Sphaerophoria scripta</i> (Linnaeus)	—	<i>Sphaerophoria scripta</i> (Linnaeus)	—
<i>Syrpita pipiens</i> (Linnaeus)	—	<i>Syrpita pipiens</i> (Linnaeus)	—
<i>Syrphus corollae</i> Fabricius	<i>Eupeodes corollae</i>	<i>Syrphus torvus</i> Osten-Sacken	—
<i>Syrphus luniger</i> Meigen	<i>Eupeodes luniger</i>	<i>Syrphus vitripennis</i> Meigen	—
<i>Xanthandrus parhyalinatus</i> (Bigot) ¹	<i>Xanthandrus babyssa</i> (a.s.o.)	<i>Xanthandrus babyssa</i> (Walker)	—
<i>Xylota segnis</i> (Linnaeus)	—	<i>Xanthandrus parhyalinatus</i> (Bigot) ¹	<i>Xanthandrus babyssa</i> (a.s.o.)
M: OROMÍ, BÁEZ & MACHADO, 1978		<i>Xylota segnis</i> (Linnaeus)	—
<i>Metasyrphus corollae</i> (Fabricius)	* <i>Eupeodes corollae</i>	Q: PITA & GOMES, 2003	
N: GOMES & BÁEZ, 1990		<i>Episyrphus balteatus</i> (De Geer)	*
<i>Episyrphus balteatus</i> (De Geer)	—	<i>Ischiodon aegyptius</i> (Wiedemann)	—
<i>Eristalinus aeneus</i> (Scopoli)	*	<i>Paragus coadunatus</i> Rondani	—
<i>Eristalis tenax</i> (Linnaeus)	*	<i>Scaeva albomaculata</i> (Macquart)	*
<i>Eumerus purpureus</i> Macquart	(15)	<i>Scaeva pyrastris</i> (Linnaeus)	—
<i>Ischiodon aegyptius</i> (Wiedemann)	—	<i>Sphaerophoria rueppellii</i> (Wiedemann)	—
<i>Melanostoma babyssa</i> (Walker)	(7)	<i>Sphaerophoria scripta</i> (Linnaeus)	—
<i>Melanostoma mellinum</i> (Linnaeus)	—	<i>Syrpita pipiens</i> (Linnaeus)	—
<i>Meliscaeva auricollis</i> (Meigen)	—	<i>Syrphus vitripennis</i> Meigen	*
<i>Metasyrphus corollae</i> (Fabricius)	<i>Eupeodes corollae</i>	R: WAKEHAM-DAWSON, AGUIAR, SMIT, MCCULLOUGH & WYATT, 2004	
<i>Metasyrphus luniger</i> (Meigen)	<i>Eupeodes luniger</i>	<i>Melanostoma wollastoni</i> sp. n.	*
<i>Milesia crabroniformis</i> (Fabricius)	—	<i>Xanthandrus babyssa</i> (Walker)	—
<i>Myathropa mallotiformis</i> Frey	<i>Myathropa usta</i> (a.s.o.)	S: SMIT, AGUIAR & WAKEHAM-DAWSON, 2004	
<i>Neoascia podagrica</i> (Fabricius)	—	<i>Episyrphus balteatus</i> (De Geer)	*
<i>Paragus coadunatus</i> Rondani	—	<i>Eristalinus aeneus</i> (Scopoli)	—
<i>Scaeva albomaculata</i> (Macquart)	—	<i>Eristalis tenax</i> (Linnaeus)	*
<i>Scaeva pyrastris</i> (Linnaeus)	*	<i>Eumerus hispidus</i> sp. n.	*
<i>Scaeva cf. selenitica</i> (Meigen)	<i>Scaeva selenitica</i>	<i>Eupeodes corollae</i> (Fabricius)	*
<i>Sphaerophoria scripta</i> (Linnaeus)	*	<i>Eupeodes luniger</i> (Meigen)	*
		<i>Eupeodes nuba</i> (Wiedemann)	*
		<i>Ischiodon aegyptius</i> (Wiedemann)	*
		<i>Melanostoma mellinum</i> (Linnaeus)	*
		<i>Melanostoma wollastoni</i> Wakeham-Dawson, Aguiar, Smit, McCullough & Wyatt	

<i>Meliscaeva auricollis</i> (Meigen)	—
<i>Milesia crabroniformis</i> (Fabricius)	—
<i>Myathropa usta</i> (Wollaston)	—
<i>Neoascia podagrica</i> (Fabricius)	—
<i>Paragus coadunatus</i> Rondani	—
<i>Scaeva albomaculata</i> (Macquart)	*
<i>Scaeva pyrastris</i> (Linnaeus)	*
<i>Scaeva selenitica</i> (Meigen)	—
<i>Sphaerophoria rueppellii</i> (Wiedemann)	*
<i>Sphaerophoria scripta</i> (Linnaeus)	—
<i>Syrirta pipiens</i> (Linnaeus)	—
<i>Syrphus torvus</i> Osten-Sacken	—
<i>Syrphus vitripennis</i> Meigen	—
<i>Xanthandrus babyssa</i> (Walker)	—
<i>Xylota segnis</i> (Linnaeus)	—
T: AGUIAR, SMIT & WAKEHAM-DAWSON, 2005	
<i>Eristalinus taeniops</i> (Wiedemann)	*
U: SMIT, 2008	
<i>Episyrphus balteatus</i> (De Geer)	—
<i>Eristalinus aeneus</i> (Scopoli)	—
<i>Eristalinus taeniops</i> (Wiedemann)	—
<i>Eristalis tenax</i> (Linnaeus)	—
<i>Eumerus hispidus</i> Smit, Aguiar & Wakeham-Dawson	—
<i>Eupeodes corollae</i> (Fabricius)	—
<i>Eupeodes luniger</i> (Meigen)	—
<i>Eupeodes nuba</i> (Wiedemann)	—
<i>Ischiodon aegyptius</i> (Wiedemann)	—
<i>Melanostoma mellinum</i> (Linnaeus)	—
<i>Melanostoma wollastoni</i> Wakeham-Dawson, Aguiar, Smit, McCullough & Wyatt	—
<i>Meliscaeva auricollis</i> (Meigen)	—
<i>Milesia crabroniformis</i> (Fabricius)	—
<i>Myathropa usta</i> (Wollaston)	—
<i>Neoascia podagrica</i> (Fabricius)	—
<i>Paragus coadunatus</i> Rondani	—
<i>Scaeva albomaculata</i> (Macquart)	—
<i>Scaeva pyrastris</i> (Linnaeus)	—
<i>Scaeva selenitica</i> (Meigen)	—
<i>Sphaerophoria rueppellii</i> (Wiedemann)	—
<i>Sphaerophoria scripta</i> (Linnaeus)	—
<i>Syrirta pipiens</i> (Linnaeus)	—

<i>Syrphus torvus</i> Osten-Sacken	—
<i>Syrphus vitripennis</i> Meigen	—
<i>Xanthandrus babyssa</i> (Walker)	—
<i>Xylota segnis</i> (Linnaeus)	—
V: PITA, SILVA, MENEZES & GOMES, present paper	
<i>Episyrphus balteatus</i> (De Geer)	*
<i>Eupeodes corollae</i> (Fabricius)	—
<i>Paragus coadunatus</i> Rondani	*
<i>Scaeva albomaculata</i> (Macquart)	*
<i>Scaeva pyrastris</i> (Linnaeus)	—
<i>Sphaerophoria rueppellii</i> (Wiedemann)	*
<i>Sphaerophoria scripta</i> (Linnaeus)	—

(1) *Xanthandrus parhyalinatus* Bigot, 1884 is a junior subjective synonym of *X. babyssa* (Walker, 1849), new synonymy established by Wakeham-Dawson *et al.* (2004).

(2) Misinterpretation of Osten-Sacken (1884), in his list of diptera from Madeira Island based on a bibliographic review, concerning the species referred by Schiner (1868), *Paragus tibialis* var. *coadunatus* Rondani, 1847.

(3) Smit *et al.* (2004) consider misspelling of *Lasiophthicus* by Becker (1908), who named it *Catabomba* [*Lasiophthicus*].

(4) Wrong author, the correct one is Macquart (Smit *et al.*, 2004).

(5) Misspelling of *pyrastris*.

(6) According to Smit *et al.* (2004), the specimens identified by Becker (1908) as *Eumerus purpureus* may be *E. hispidus*.

(7) Misidentification of *Melanostoma wollastoni* (Wakeham-Dawson *et al.*, 2004).

(8) Misspelling of *Melithrepus* (Smit *et al.*, 2004).

(9) Misidentification of *Paragus coadunatus* (Smit *et al.*, 2004).

(10) Misspelling of *decorus* (Meigen) (Smit *et al.*, 2004).

(11) Misidentification of *Ischiodon aegyptius* (Smit *et al.*, 2004).

(12) Smit *et al.* (2004) establish that *Xylota puella* Becker, 1921 is a junior subjective synonym of *Xylota segnis* (Linnaeus, 1758) while Barkemeyer (1999) refers that it was not possible to confirm the synonymy between the two species assumed by Dirickx (1994) [in Barkemeyer (1999)], since the holotype was missing from the Natural Science Museum of the Humboldt University, in Berlin.

(13) Misspelling of *Lasiophthicus* (Smit *et al.*, 2004).

(14) Misspelling of *Myathropa* (Smit *et al.*, 2004).

(15) According to Smit *et al.* (2004), the specimens also identified as *Eumerus purpureus* by this author may be *E. hispidus*.

(16) Misidentification of *Syrphus torvus* (Smit *et al.*, 2004).

Table II. List of syrphids from the Archipelago of Madeira and the Salvage Islands, where an alphabetic character indicates the author of the first record for each island. Madeira Archipelago: MAD (Madeira), PSA (Porto Santo), DGR (Deserta Grande), BUG (Bugio), ICH (Ilhéu Chão); Salvage Islands: SGR (Selvagem Grande), SPE (Selvagem Pequena), IFO (Ilhéu de Fora). * Species reported for the first time for a given island. Records by: a – Walker (1849), b – Wollaston (1858), c – Loew (1860), d – Schiner (1868), e – Becker (1908), f – Frey (1939), g – Oromí *et al.* (1978), h – Gomes & Báez (1990), i – Barkemeyer (1999), j – Pita & Gomes (2003), k – Wakeham-Dawson *et al.* (2004), l – Smit *et al.* (2004), m – Aguiar *et al.* (2005), n – Pita *et al.* (present paper).

Syrphid species from Madeira Archipelago and Salvage Islands	Madeira Archipelago				Salvage Islands			
	MAD	PSA	DGR	BUG	ICH	SGR	SPE	IFO
<i>Episyrphus balteatus</i> (De Geer, 1776)	a	j	l	—	—	n*	—	—
<i>Eristalinus aeneus</i> (Scopoli, 1763)	h	h	—	—	—	—	—	—
<i>Eristalinus taeniops</i> (Wiedemann, 1818)	m	—	—	—	—	—	—	—
<i>Eristalis tenax</i> (Linnaeus, 1758)	d	h	l	—	—	—	—	—
<i>Eumerus hispidus</i> Smit, Aguiar & Wakeham-Dawson, 2004	l	l	l	—	—	—	—	—
<i>Eupeodes corollae</i> (Fabricius, 1794)	d	l	l	—	—	g	g	—
<i>Eupeodes luniger</i> (Meigen, 1822)	f	l	l	—	—	—	—	—
<i>Eupeodes nuba</i> (Wiedemann, 1830)	l	—	—	—	—	—	—	—
<i>Ischiodon aegyptius</i> (Wiedemann, 1830)	c	i	l	—	—	—	—	—
<i>Melanostoma mellinum</i> (Linnaeus, 1758)	e	l	—	—	—	—	—	—
<i>Melanostoma wollastoni</i> Wakeham-Dawson, Aguiar, Smit, McCullough & Wyatt, 2004	k	—	—	—	—	—	—	—
<i>Meliscaeva auricollis</i> (Meigen, 1822)	e	—	—	—	—	—	—	—
<i>Milesia crabroniformis</i> (Fabricius, 1775)	a	—	—	—	—	—	—	—
<i>Myathropa usta</i> (Wollaston, 1858)	b	—	—	—	—	—	—	—
<i>Neoascia podagrica</i> (Fabricius, 1775)	e	—	—	—	—	—	—	—
<i>Paragus coadunatus</i> Rondani, 1847	b	b	n*	—	—	—	—	—
<i>Scaeva albomaculata</i> (Macquart, 1842)	d	l	l	—	—	n*	j	—
<i>Scaeva pyrastris</i> (Linnaeus, 1758)	d	h	l	—	—	—	—	—
<i>Scaeva selenitica</i> (Meigen, 1822)	d	—	—	—	—	—	—	—
<i>Sphaerophoria rueppellii</i> (Wiedemann, 1830)	l	i	—	—	—	n*	—	—
<i>Sphaerophoria scripta</i> (Linnaeus, 1758)	d	h	h	—	—	—	—	—
<i>Syrirta pipiens</i> (Linnaeus, 1758)	d	i	—	—	—	—	—	—
<i>Syrphus torvus</i> Osten-Sacken, 1875	h	—	—	—	—	—	—	—
<i>Syrphus vitripennis</i> Meigen, 1822	h	j	—	—	—	—	—	—
<i>Xanthandrus babyssa</i> (Walker, 1849)	a	—	—	—	—	—	—	—
<i>Xylota segnis</i> (Linnaeus, 1758)	e	—	—	—	—	—	—	—
Total	26	15	10	—	—	4	2	—

Table III. Presence of syrphids in Macaronesia: AZ (Azores Archipelago), MD (Madeira Archipelago), SV (Salvage Islands), CV (Cape Verde Islands) and CN (Canary Islands). * Endemic species.

Syrphid species from Macaronesia	Macaronesia				
	AZ	MD	SV	CN	CV
<i>Allograpta nasuta</i> (Macquart, 1842)	-	-	-	-	CV
<i>Baccha elongata</i> (Fabricius, 1775)	AZ	-	-	-	-
<i>Chamaesyrrhus nigricornis</i> Santos Abreu, 1924	-	-	-	CN*	-
<i>Chrysotoxum intermedium</i> Meigen, 1822	AZ	-	-	-	-
<i>Chrysotoxum triarquatatum</i> Macquart, 1839	-	-	-	CN*	-
<i>Copestylum melleum</i> (Jaennicke, 1867)	-	-	-	CN	-
<i>Episyrphus balteatus</i> (De Geer, 1776)	AZ	MD	SV	CN	-
<i>Eristalinus aeneus</i> (Scopoli, 1763)	AZ	MD	-	CN	CV
<i>Eristalinus megacephalus</i> (Rossi, 1794)	-	-	-	-	CV
<i>Eristalinus taeniops</i> s. str. (Wiedemann, 1818)	-	MD	-	-	-
<i>Eristalinus taeniops</i> (Wiedemann, 1818) ssp. <i>canariensis</i> (Becker, 1908)	-	-	-	CN*	-
<i>Eristalis arbustorum</i> (Linnaeus, 1758)	AZ	-	-	-	-
<i>Eristalis convexifacies</i> Macquart, 1850	-	-	-	-	CV
<i>Eristalis tenax</i> (Linnaeus, 1758)	AZ	MD	-	CN	CV
<i>Eumerus amoenus</i> Loew, 1848	AZ	-	-	-	-
<i>Eumerus caboverdensis</i> Barkemeyer, 2002	-	-	-	-	CV*
<i>Eumerus canariensis</i> Báez, 1982	-	-	-	CN*	-
<i>Eumerus dubius</i> Báez, 1982	-	-	-	CN*	-
<i>Eumerus erythrocerus</i> Loew, 1858	-	-	-	-	CV
<i>Eumerus hispidus</i> Smit, Aguiar & Wakeham-Dawson, 2004	-	MD*	-	-	-
<i>Eumerus latitarsis</i> Macquart, 1839	-	-	-	CN*	-
<i>Eumerus nivariae</i> Báez, 1982	-	-	-	CN*	-
<i>Eumerus obliquus</i> (Fabricius, 1805)	-	-	-	CN	CV
<i>Eumerus pulchellus</i> Loew, 1848	-	-	-	CN	-
<i>Eumerus purpurariae</i> Báez, 1982	-	-	-	CN*	-
<i>Eumerus purpureus</i> Macquart, 1839	-	-	-	CN*	-
<i>Eumerus santosabreui</i> Báez, 1982	-	-	-	CN*	-
<i>Eumerus strigatus</i> (Fallén, 1817)	AZ	-	-	-	-
<i>Eumerus terminalis</i> Santos Abreu, 1924	-	-	-	CN	-
<i>Eupeodes corollae</i> (Fabricius, 1794)	AZ	MD	SV	CN	CV
<i>Eupeodes luniger</i> (Meigen, 1822)	-	MD	-	-	-
<i>Eupeodes nuba</i> (Wiedemann, 1830)	-	MD	-	CN	-
<i>Heringia adpropinquans</i> (Becker, 1908)	-	-	-	CN*	-
<i>Ischiodon aegyptius</i> (Wiedemann, 1830)	-	MD	-	CN	CV
<i>Ischiodon feae</i> (Bezzi, 1912)	-	-	-	-	CV
<i>Melanostoma incompletum</i> Becker, 1908	-	-	-	CN*	-
<i>Melanostoma mellinum</i> (Linnaeus, 1758)	AZ	MD	-	-	-
<i>Melanostoma wollastoni</i> Wakeham-Dawson, Aguiar, Smit, McCullough & Wyatt, 2004	-	MD*	-	-	-
<i>Meliscaeva auricollis</i> (Meigen, 1822)	AZ	MD	-	CN	CV
<i>Merodon fuerteventurensis</i> Barkemeyer, 2002	-	-	-	CN*	-
<i>Milesia crabroniformis</i> (Fabricius, 1775)	-	MD	-	-	-
<i>Myathropa florea</i> (Linnaeus, 1758)	AZ	-	-	CN	-
<i>Myathropa usta</i> (Wollaston, 1858)	-	MD*	-	-	-
<i>Neoascia podagrica</i> (Fabricius, 1775)	-	MD	-	-	-
<i>Paragus borbonicus</i> Macquart, 1842	-	-	-	-	CV
<i>Paragus coadunatus</i> Rondani, 1847	-	MD	-	CN	-
<i>Paragus pusillus</i> Stuckenberg, 1954	-	-	-	-	CV
<i>Paragus tibialis</i> (Fallén, 1817)	-	-	-	CN	-
<i>Platycheirus albimanus</i> (Fabricius, 1781)	AZ	-	-	-	-
<i>Platycheirus rosarum</i> (Fabricius, 1787)	AZ	-	-	-	-
<i>Scaeva albomaculata</i> (Macquart, 1842)	-	MD	SV	CN	CV
<i>Scaeva pyrastris</i> (Linnaeus, 1758)	-	MD	-	CN	-
<i>Scaeva selenitica</i> (Meigen, 1822)	-	MD	-	-	-
<i>Sphaerophoria nigra</i> Frey, 1945	AZ*	-	-	-	-
<i>Sphaerophoria philantha</i> (Meigen, 1822)	AZ	-	-	-	-
<i>Sphaerophoria rueppellii</i> (Wiedemann, 1830)	AZ	MD	SV	CN	-
<i>Sphaerophoria scripta</i> (Linnaeus, 1758)	AZ	MD	-	CN	-
<i>Syritta flaviventris</i> Macquart, 1842	-	-	-	-	CV
<i>Syritta pipiens</i> (Linnaeus, 1758)	AZ	MD	-	CN	-
<i>Syrphus ribesii</i> (Linnaeus, 1758)	AZ	-	-	-	-
<i>Syrphus torvus</i> Osten-Sacken, 1875	-	MD	-	-	-
<i>Syrphus vitripennis</i> Meigen, 1822	-	MD	-	CN	-
<i>Xanthandrus azorensis</i> Frey, 1945	AZ*	-	-	-	-
<i>Xanthandrus babyssa</i> (Walker, 1849)	-	MD*	-	-	-
<i>Xanthandrus comtus</i> (Harris, 1780)	AZ	-	-	-	-
<i>Xylota segnis</i> (Linnaeus, 1758)	AZ	MD	-	CN	-
Total	23	26	4	34	16
Endemic	2	4	0	13	1