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Notes on the syrphid fauna of Madeira Archipelago and the Salvage Islands (Diptera, Syrphidae)¹

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RESUMEN: Se estudian 37 sírfidos procedentes de Porto Santo (archipiélago de Madeira). De las ocho especies identificadas cinco son nuevas citas para Porto Santo: *Episyrphus balteatus*, *Ischiodon aegyptius*, *Sphaerophoria rueppellii*, *Syrirta pipiens* y *Syrphus vitripennis*. Con estas adiciones el número de sírfidos de Porto Santo se eleva a diez, siendo *Sphaerophoria rueppellii* además nueva cita para el archipiélago de Madeira. Se estudia también un espécimen de *Scaeva albomaculata* procedente de Salvaje Pequeña que representa primera cita para las islas Salvajes, al igual que el áfido *Aphis craccivora*. Finalmente se aportan datos bioecológicos de larvas y adultos de las especies mencionadas, y se actualiza el listado sobre los sírfidos del archipiélago de Madeira e islas Salvajes.

Palabras clave: Syrphidae, Aphididae, Madeira, islas Salvajes, Porto Santo, *Aphis craccivora*.

ABSTRACT: In this work 37 hoverflies from Porto Santo (Madeira Archipelago) are studied. Eight species were identified from which five are new record to Porto Santo: *Episyrphus balteatus*, *Ischiodon aegyptius*, *Sphaerophoria rueppellii*, *Syrirta pipiens* and *Syrphus vitripennis*. With the new additions, the number of hoverfly species for this island amounts now to 10. One of them, *Sphaerophoria rueppellii*, is also a new record for the Madeira Archipelago. It is also studied one specimen from Selvagem Pequena (Salvage Islands), *Scaeva albomaculata* that is recorded to for the first time. The presence of aphids (*Aphis craccivora*) in these islands is also reported for the first time. Finally, data about larval and adult bioecological aspects of the recorded species are provided. An updated list of the hoverflies of Madeira Archipelago and the Salvage Islands is presented.

Key words: Syrphidae, Aphididae, Madeira, Salvage Islands, Porto Santo, *Aphis craccivora*.

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INTRODUCTION

The syrphid fauna of the Madeira Archipelago (Madeira, Porto Santo, Deserta Grande, Bugio and Ilhéu Chão) has been studied since the 19th century. During the last decade of the 20th century, it was revised and updated by Gomes & Báez (1990) and, more recently, it was analysed and compared with other Macaronesian regions (Rojo *et al.*, 1997). In the Salvage Islands (Selvagem Grande, Selvagem Pequena and Ilhéu de Fora), the presence of hoverflies had already been reported (Oromi *et al.*, 1978).

This work presents an updated list of the syrphid species of the Archipelago of Madeira and the Salvage Islands (Table I). With the inclusion of five species for Porto Santo and one for Selvagem Pequena, and taking into account previous studies (Oromi *et al.*, 1978; Gomes & Báez, 1990), the syrphid fauna of these archipelagos is thus represented as follows: Madeira Archipelago 25 – Madeira 24, Porto Santo 10, and Deserta Grande 1; Salvage Islands 2 – Selvagem Grande 1 and Selvagem Pequena 2.

MATERIAL AND METHODS

Aphids and their natural enemies were collected by the first author from spontaneous vegetation, agricultural fields and urban areas, during a survey to Porto Santo in June 1997 and May 1998. The syrphid species from that island were sampled when feeding or resting on flowers or other vegetation; some of them associated with aphid colonies. The syrphid from Selvagem Pequena was found as a pupa in a sample of aphids on *Lotus salvagensis*, kindly offered. All adult specimens, frozen after capture or emergence were subsequently prepared and identified by the second author.

The following information is provided concerning the studied samples: site of capture, record number, date, specimen status (lv - larva, pu - pupa, ad – adult), sex, host plant (in case it applies), with or without prey, and name of collector. The samples belong to the Syrphid Collection of the first author, and are identified by a letter and a number (e.g. S35).

All the aphids related with the syrphid samples from Porto Santo are object of study in a next paper (Pita & Ilharco, in prep.).

LIST OF STUDIED SPECIES

The species reported in this paper are listed alphabetically, and the subspecies level is not considered:

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

A very common species in the Palaearctic region, reported for the first time for Porto Santo. The larva is aphidophagous and polyphagous. The adult visits a large number of flowering plant species.

Studied material: PORTO SANTO - Farrobo (S158, 21-May-98, lv, ♀, *Prunus persica*, with aphids, col. M. T. Pita).

Species	Madeira Archipelago			Salvage Islands	
	Mad	PSa	DGr	SGr	SPe
01. <i>Episyrphus balteatus</i>	+	+*			
02. <i>Eristalinus aeneus</i>	+	+			
03. <i>Eristalis tenax</i>	+	+			
04. <i>Eumerus purpureus</i>	+				
05. <i>Eupeodes corollae</i>	+			+	+
06. <i>Eupeodes luniger</i>	+				
07. <i>Ischiodon aegyptius</i>	+	+*			
08. <i>Melanostoma babyssa</i>	+				
09. <i>Melanostoma mellinum</i>	+				
10. <i>Meliscaeva auricollis</i>	+				
11. <i>Milesia craboniformis</i>	+				
12. <i>Myiathropa mallotiformis</i>	+				
13. <i>Neoascia podagrica</i>	+				
14. <i>Paragus coadunatus</i>	+	+			
15. <i>Scaeva albomaculata</i>	+				+*
16. <i>Scaeva pyrastris</i>	+	+			
17. <i>Scaeva selenitica</i>	+				
18. <i>Sphaerophoria rueppellii</i>		+*			
19. <i>Sphaerophoria scripta</i>	+	+	+		
20. <i>Syritta pipiens</i>	+	+*			
21. <i>Syrphus ribesii</i>	+				
22. <i>Syrphus torvus</i>	+				
23. <i>Syrphus vitripennis</i>	+	+*			
24. <i>Xanthandrus parhyalinatus</i>	+				
25. <i>Xylota segnis</i>	+				
Number of species:	24	10	1	1	2

Table I – List of syrphids from the Archipelago of Madeira and the Salvage Islands. Mad – Madeira; PSa – Porto Santo; DGr – Deserta Grande; SGr – Selvagem Grande; SPe – Selvagem Pequena; + - present. * Species cited for the first time for a given island.

2. *Ischiodon aegyptius* (Wiedemann, 1830)

A very common species in tropical Africa and in the Mediterranean sub-region, including the archipelagos of Madeira and the Canaries. Cited for the first time for Porto Santo. The larva is aphidophagous and regarded as one of the main aphid predators in tropical Africa (Barbosa, 1952).

Studied material: PORTO SANTO - Campo de Baixo (S12, 8-June-97, ad, ♂, vagrant, col. M. T. Pita; S135, 8-June-97, ad, ♂, vagrant, col. M. T. Pita; S136, 8-June-97, ad, ♀, vagrant, col. M. T. Pita); Lombas (S145, 20-May-98, lv, ♀, *Hibiscus* sp., with aphids, col. M. T. Pita); Farrobo (S146, 21-May-98, pu, ♂, *Arundo donax*, col. M. T. Pita).

3. *Paragus coadunatus* Rondani, 1848

Gomes & Báez (1990) confirmed its presence in Madeira Island. A species known in Malta and in the archipelagos of Madeira and the Canaries. The larva is aphidophagous, and frequently found in aphid colonies of creeping plant communities. The adult occurs in predominantly dry and warm places.

Studied material: PORTO SANTO - Campo de Baixo (S13, 10-June-97, pu, ♀, *Malus domestica*, with aphids, col. M. T. Pita; S137, 10-June-97, pu, ♀, *Malus domestica*, with aphids, col. M. T. Pita; S138, 10-June-97, pu, ♀, *Malus domestica*, with aphids, col. M. T. Pita); Posto Agrário, Farrobo (S122, 21-May-98, ad, ♂, vagrant, col. M. T. Pita; S155, 21-May-98, lv, ♂, *Vicia faba*, with aphids, col. M. T. Pita); Farrobo (S126, 21-May-98, ad, ♂, *Chrysanthemum coronarium*, col. M. T. Pita); Pedregal de Dentro (S162, 20-May-98, lv, ♀, thistle, with aphids, col. M. T. Pita).

4. *Scaeva albomaculata* (Macquart, 1842)

Species cited for the first time for Selvagem Pequena and the first reference for the Salvage Islands. Distributed over the southern Palaearctic region. The aphidophagous larva is a predator of many aphids both from herbs and trees.

Studied material: SALVAGE ISLANDS - Selvagem Pequena (S35, 16-April-97, pu, ♂, *Lotus salvagensis*, with *Aphis craccivora* (A10)¹, col. M. Costa Neves).

5. *Scaeva pyrastris* (Linné, 1758)

A species distributed over the whole Holarctic region. Cited for the first time for Porto Santo by Gomes & Báez (1990). The larva is aphidophagous, mainly on aphids occurring in creeping plants and is less frequent in colonies living on trees (Rotheray, 1993).

Studied material: PORTO SANTO - Lombas (S115, 20-May-98, ad, ♂, *Chrysanthemum coronarium*, col. M. T. Pita; S116, 20-May-98, ad, ♂, *Chrysanthemum coronarium*, col. M. T. Pita); Moinho (S147, 20-May-98, lv, ♀, *Nerium oleander*, with aphids, col. M. T. Pita; S148, 20-May-98, lv, ♀, *Nerium oleander*, with aphids, col. M. T. Pita; S149, 20-May-98, lv, ♂, *Nerium oleander*, with aphids, col. M. T. Pita); Posto Agrário, Farrobo (S151, 21-May-98, lv, ♂, *Punica granatum*, with aphids, col. M. T. Pita); Salões (S161, 19-May-98, lv, ♂, *Nerium oleander*, with aphids, col. M. T. Pita).

¹ *Aphis craccivora* Koch is the first reference of aphids for the Salvage Islands.

6. *Sphaerophoria rueppellii* (Wiedemann, 1830)

It is a very abundant species over the Palaearctic region. It is referred for the first time for Porto Santo, and thus for the Madeira Archipelago. The larva is aphidophagous and is associated with aphid colonies hosted by creeping plants. The adult is frequent in dry and sunny places.

Studied material: PORTO SANTO - Pedregal de Dentro (S119, 20-May-98, ad, ♀, *Chrysanthemum coronarium*, col. M. T. Pita); Posto Agrário, Farrobo (S150, 21-May-98, lv, ♂, *Rosa* sp., with aphids, col. M. T. Pita).

7. *Sphaerophoria scripta* (Linné, 1758)

Species distributed over the Holarctic region. The first record for Porto Santo and the Desertas islands was by Gomes & Báez (1990). The adult is very frequent in fields with creeping vegetation.

Studied material: PORTO SANTO - Lombas (S117, 20-May-98, ad, ♀, *Chrysanthemum coronarium*, col. M. T. Pita); Camacha (S118, 20-May-98, ad, ♀, *Chrysanthemum coronarium*, col. M. T. Pita); Posto Agrário, Farrobo (S120, 21-May-98, ad, ♀, vagrant, col. M. T. Pita; S121, 21-May-98, ad, ♀, vagrant, col. M. T. Pita; S152, 21-May-98, pu, ♂, *Vicia faba*, with aphids, col. M. T. Pita; S153, 21-May-98, lv, ♂, *Vicia faba*, with aphids, col. M. T. Pita; S154, 21-May-98, lv, ♀, *Vicia faba*, with aphids, col. M. T. Pita; S156, 21-May-98, lv, ♀, *Citrus sinensis*, with aphids, col. M. T. Pita; S163, 21-May-98, lv, ♀, *Vicia faba*, with aphids, col. M. T. Pita; S243, 21-May-98, lv, ♀, *Vicia faba*, with aphids, col. M. T. Pita); Farrobo (S123, 21-May-98, ad, ♂, *Chrysanthemum coronarium*, col. M. T. Pita; S124, 21-May-98, ad, ♂, *Chrysanthemum coronarium*, col. M. T. Pita; S125, 21-May-98, ad, ♂, *Chrysanthemum coronarium*, col. M. T. Pita).

8. *Syrpitta pipiens* (Linné, 1758)

World-wide distributed species, except in Australia (Rojo *et al.*, 1997). Cited for the first time for Porto Santo. The larva is found in several types of decomposing organic matter (Rotheray, 1993; Pérez-Bañón & Marcos-García, 2000). The adult is quite common, even in urban areas.

Studied material: PORTO SANTO - Ponta (S114, 19-May-98, ad, ♂, vagrant, col. M. T. Pita).

9. *Syrphus vitripennis* Meigen, 1822

Species of Holarctic distribution, cited for the first time for Porto Santo. The aphidophagous larva is associated with a variety of aphids both in creeping plants and trees. The adult is quite abundant.

Studied material: PORTO SANTO - Farrobo (S157, 21-Maio-98, lv, ♀, *Prunus persica*, with aphids, col. M. T. Pita).

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