

## A CONTRIBUTION TO KNOWLEDGE OF THE BIODIVERSITY OF SYRPHIDAE (DIPTERA) IN SPAIN

A. RICARTE<sup>1</sup>, J. QUINTO<sup>2</sup>, M. C. D. SPEIGHT<sup>3</sup> and M. A. MARCOS-GARCÍA<sup>2</sup>

<sup>1</sup> National Museums Scotland, 242 West Granton Road, Edinburgh EH5 1JA, Scotland, United Kingdom

<sup>2</sup> Centro Iberoamericano de la Biodiversidad (CIBIO), Universidad de Alicante, Campus universitario de Sant Vicent del Raspeig, 03690 Alicante, Spain

<sup>3</sup> Department of Zoology, Trinity College, Dublin 2, Ireland

**Abstract** - Data are provided on two hoverfly species new to the Iberian Peninsula, *Brachyopa grunewaldensis* Kassebeer and *Criorhina floccosa* (Meigen), and one new to Spain, *Eumerus consimilis* Šimić & Vujić. New habitat and breeding data are presented.

**Key words:** First record, saproxylic and phytophagous hoverflies, species distribution, Iberian Peninsula, larval microhabitat, conservation, Spain

### INTRODUCTION

Since the Monograph on the Syrphidae of Spain by Gil-Collado (1930), who recognized fewer than 200 species as occurring in Spain, hoverfly studies did not advance in this country until the early 1980s (Marcos-García, 1981). The most recent hoverfly checklist for Spain lists 355 species (Marcos-García et al., 2002). Further research carried out since publication of the checklist has added at least 37 species (Ricarte et al., in prep.). The continuing discoveries of hoverflies new to Spain (e.g. Marcos-García et al., 2007, 2011; Ricarte and Marcos-García, 2010; Ricarte et al., 2010) demonstrate that Spain's hoverfly biodiversity is remarkable but still not fully known.

In hoverflies, faunistic studies are relevant to the use of conservation tools like the StN Database of European Syrphidae (Speight et al., 2010; Monteil, 2010); regional species lists are required for this tool to give optimal results (Speight and Castella, 2001).

Studying regional faunas also represents the initial step in establishing new conservation targets (Ricarte and Marcos-García, 2010) or in cataloguing threatened species (Ricarte et al., 2007; Marcos-García and Quinto, 2011).

In the present study, data is provided on three hoverfly species new to the Iberian Peninsula or Spain.

Using emergence traps, hoverflies were collected from rot holes in *Fraxinus angustifolia*, *Quercus pyrenaica*, *Quercus rotundifolia* and *Quercus faginea* (Quinto et al., 2012), and by hand net from various Spanish localities, during the period 1986 to 2011. Doczkal and Dziock (2004), Vujić and Šimić (1999) and Van Veen (2004) were used for species identification. Abbreviations used in the records are: AR = A. Ricarte; EM = E. Micó; JQ = J. Quinto; AMG = M.A. Marcos-García; MS = M.C.D. Speight. Habitat nomenclature follows Speight and Castella (2010).

All specimens are deposited in the entomological collections of the University of Alicante (CEUA), Spain. Species data are presented below.

*Brachyopa grunewaldensis* Kassebeer, 2000  
New to the Iberian Peninsula

*Material examined* – SPAIN, Ciudad Real, Cabañeros National Park: Fresneda de Gargantilla, riparian forest of *F. angustifolia*, collected by emergence trap from a trunk hole in *F. angustifolia*, leg. JQ & EM, det. MS, AMG & AR, 1♂, 31.iii-23.iv.2009, 1♀, 28.ii-31.iii./2009; Valle del Brezoso, forest of *Q. pyrenaica*, collected by emergence trap from a trunk hole in *Q. pyrenaica*, leg. JQ & EM, det. MS, AMG & AR, 1♂ and 3♀, 28.ii-31.iii.2009, 1♂ and 3♀, 31.iii-23.iv.2009; Valle de Santiago, mixed forest of *Q. faginea* and *Q. pyrenaica*, collected by emergence trap from a trunk hole in *Q. faginea*, leg. JQ & EM, det. MS, AMG & AR, 1♀, 31.iii-23.iv.2009; 1♀ [as *Brachyopa insensilis* in Ricarte et al. (2006)], Valle de Santiago (Pa1), mixed *Quercus* and *F. angustifolia* forest, 760 m asl, 8.iv.2005, leg. G. Rotheray, det. AR & AMG. SPAIN, León: 1♂ [as *Brachyopa insensilis* in Ricarte et al. (2006)], Puerto del Pando, 16.vi.1986, on flower of *Crataegus monogyna*, leg. AMG.

*Remarks* – *B. grunewaldensis* can be distinguished from other species of the *Brachyopa bicolor* group by lacking dark, undusted spots at the inner ends of the transverse suture of the mesoscutum, having a scutellum largely covered in microtrichia, having at least some pale hairs on the notopleuron and, in the median 3/5 of the mediotergite (below subscutellum) the pollinosity is restricted to the upper margin (Doczkal and Dziock, 2004).

*B. grunewaldensis* is a poorly known species with scattered records in Europe, possibly due to its recent description. In the present study, all the material of *Brachyopa insensilis* Collin, 1939 examined in Ricarte et al. (2006) has been re-identified as *B. grunewaldensis*, except for the specimens from Burgos (not accessible to the authors of the present study) and a male of the real *B. insensilis* bearing the following label data: Barcelona, Sta. M<sup>a</sup> de Palautordera, col-

lected by hand net on *Euphorbia* flowers, 10.v.1989, leg. and det. AMG. Thus, the presence of *Brachyopa insensilis* Collin, 1939 in the Iberian Peninsula has been confirmed. *Brachyopa pilosa* Collin, 1939 is also recorded in Spain, province of Guipúzcoa (Carles-Tolrà, 2009).

In Cabañeros National Park, *B. grunewaldensis* was found in acidophilus *Quercus* forests and *Fraxinus* forests, both with mature trees. Trapped adults emerged from trunk holes of *F. angustifolia*, *Q. pyrenaica* and *Q. faginea*. These data provide the first known hoverfly/tree association information for *B. grunewaldensis*. *Brachyopa* larvae are usually recorded from sap runs (Rotheray, 1994). Because *B. grunewaldensis* adults emerged from tree holes in Cabañeros, their larvae were likely to be feeding on sap runs inside the holes. Perhaps, sap-dependent hoverflies such as *Brachyopa* avoid exposed sap runs in Mediterranean ecosystems because they are more ephemeral due to the climatic conditions.

*Criorhina floccosa* (Meigen, 1822)  
New to the Iberian Peninsula

*Material examined* – SPAIN, Ciudad Real, Parque Nacional de Cabañeros: Valle del Brezoso, forest of *Q. pyrenaica*, collected by emergence trap from a trunk hole in *Q. pyrenaica*, leg. JQ & EM, , det. AMG & JQ, 1♀, 31.iii-23.iv.2009, 1♀, 23.iv-27.v.2009; Valle de Santiago, mixed forest of *Q. faginea* and *Q. pyrenaica*, collected by emergence trap from a trunk hole in *Q. faginea*, leg. JQ & EM, det. AMG & JQ, 1♀, 28.ii-31.iii.2009, 6♀, 23.iv-27.v.2009.

*Remarks* – Although *C. floccosa* is widespread in the Palearctic region and a relatively large hoverfly (up to 15 mm (Speight et al., 2010)), there were no published records from the Iberian Peninsula prior to the present study. In Quinto et al. (2012), *C. floccosa* was one of the species analyzed for studying ecological networks in the community of saproxylic insects from Cabañeros, but the material examined was not detailed for this species. The information provided in the present study therefore represents



Fig. 1. Male of the hoverfly *Criorhina floccosa* from the Spanish province of Teruel. Picture by Jacint Cerdà [[www.biodiversidadvirtual.org/insectarium/details.php?image\\_id=336325](http://www.biodiversidadvirtual.org/insectarium/details.php?image_id=336325)].

the first documented record of *C. floccosa* in the Iberian Peninsula.

In addition to the Cabañeros *C. floccosa*, a male of this species from another Spanish locality (Fig. 1) is known from two pictures on the web page Insectarium Virtual ([www.biodiversidadvirtual.org/insectarium/details.php?image\\_id=336325](http://www.biodiversidadvirtual.org/insectarium/details.php?image_id=336325) and [www.biodiversidadvirtual.org/insectarium/details.php?image\\_id=336326](http://www.biodiversidadvirtual.org/insectarium/details.php?image_id=336326)). Pictures were made in a locality with riparian vegetation in the province of Teruel, Castellote, 30TYL22, 806 m asl, 1.v.2012. This male was identified by A. Ricarte and M. A. Marcos-García, who are registered as experts in Insectarium Virtual for identifying Syrphidae pictures on the grounds of an agreement between this web page and

the Spanish Entomological Society ('Asociación española de Entomología').

In Cabañeros, *C. floccosa* was found in acidophilous *Quercus* forests with mature trees. This saproxylic species is known to breed in rot holes of *Acer*, *Fagus* and *Ulmus* (Speight, 2011). Results provided here represent the first breeding records from species of *Quercus*: *Q. faginea* and *Q. pyrenaica*.

*Eumerus consimilis* Šimić & Vujić, 1996  
New to Spain

*Material examined* – SPAIN, Zaragoza: 1♂, Pina de Ebro, Retuerta de Pina, 350m, UTM 30TYL, 27.94, Nr. 4012/23.ix.1991, leg. Blasco-Zumeta, det. as *Eumerus*

*turanicola* by MS 1995, det. as *E. consimilis* by AR 2012. Specimen collected possibly by Malaise trap.

**Remarks** – This is a poorly known species with scattered records in Europe, but recorded in both the Balkan and Iberian Peninsulas (Vujić and Šimić, 1999; van Eck, 2011). The biology of this species is also unknown, although it can be regarded as phytophagous/saprophagous, like other known *Eumerus* larvae (Ricarte et al., 2008).

Incorporating the species added in this note, the total number of hoverfly species recorded from Spain is 395. The conservation status of *B. grunewaldensis* is uncertain at European level (Speight et al., 2010). However, the larval microhabitat data provided in this study would be of key importance in establishing conservation strategies, if required. *C. floccosa* is unthreatened in Europe, but threatened or decreasing in several central and northern European countries (Speight et al., 2010); the maintenance of mature trees rich in rot holes is required for the survival of this saproxylic species. *E. consimilis* is regarded as decreasing both at European and regional levels (e.g. France, Germany) (Speight et al., 2010). This *Eumerus* species has been also recorded from several Portuguese localities near the coast (van Eck, 2011). The record presented here, from Zaragoza (northeast Spain, far from the sea), suggests that *E. consimilis* could be widespread in the Iberian Peninsula. However, the range and distribution of this and the other two studied species are insufficiently known and further conclusions on their conservation status seem unrealistic at this juncture.

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