

SOME DIPTERANS COLLECTED ON WINTER CADAVERS IN LA RIOJA (SPAIN) (DIPTERA: PHORIDAE, HELEOMYZIDAE AND SPHAEROCERIDAE)

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Abstract: This paper is the second part of a study on *Thyreophora cynophila* (Panzer) (Piophilidae) in La Rioja (Spain). The majority of the dipterans caught on winter mammal carcasses are listed, with new data on their biology. The heleomyzid *Scoliocentra amplicornis* (Czerny) and the phorids *Triphleba hyalinata* (Meigen) and *T. lyria* Schmitz are recorded from the Iberian Peninsula and Spain for the first time, respectively. The study is a significant contribution to the dipterological knowledge of La Rioja.

Key words: Diptera, Phoridae, Heleomyzidae, Sphaeroceridae, carcasses, faunistics, Spain, La Rioja.

Algunos dípteros capturados sobre cadáveres invernales en La Rioja (España) (Diptera: Phoridae, Heleomyzidae y Sphaeroceridae)

Resumen: Este trabajo es la segunda parte de un estudio llevado a cabo para capturar ejemplares de *Thyreophora cynophila* (Panzer) (Piophilidae) en La Rioja (España). Se enumeran la mayoría de los dípteros capturados sobre diversos cadáveres invernales de mamíferos, dando nuevos datos sobre su biología. El helomícido *Scoliocentra amplicornis* (Czerny) y los fóridos *Triphleba hyalinata* (Meigen) y *T. lyria* Schmitz se citan por primera vez de la Península Ibérica y España, respectivamente, y se aumenta notablemente el conocimiento dipterológico de La Rioja.

Palabras clave: Diptera, Phoridae, Heleomyzidae, Sphaeroceridae, cadáveres, faunística, España, La Rioja.

Introduction

Recently, a study with the aim of capturing specimens of *Thyreophora cynophila* (Panzer) (Piophilidae) in La Rioja (Spain) has been carried out. The study was made in the Natural Park of Sierra de Cebollera, concretely in Villoslada de Cameros. For that, two collecting methods were used: a) aspirator: with this method, specimens that were on cadavers (as carrion, carcasses, skeletons ...) of deers and horses, as well as on backbones of calves, were collected; and b) traps with cut up horse and calf bones with marrow as bait were set. On the other hand, the study was made in two different types of forests: *Fagus sylvatica* (beech) and *Pinus sylvestris* (pine). The collecting period was prolonged for one month, concretely from 27 February to 28 March 2010. After having finished the study almost 90 specimens of *T. cynophila* were collected. But, furthermore, more than 5000 specimens belonging to four other families of Diptera, concretely Trichoceridae, Phoridae, Heleomyzidae and Sphaeroceridae, were also caught. To know much more details of all this study, the paper by Carles-Tolrá *et al.*, 2010 must be consulted and, as it said there, this last material is the reason of this new paper.

As previously mentioned, the aim of this study was the search and capture of *T. cynophila*. Consequently, in the case of the other four families the specimens collected by both methods were mixed. Likewise, all the specimens caught on different cadavers and baits, as well as those collected in the two types of forests (beech and pine) were also put together. All of this means that the only collecting data that was kepted separately was the dates of capture and they are divided into three periods: from 27 February to 6 March, from 7 to 20 March, and from 21 to 28 March, all of

year 2010. On the weekend of 13 and 14 March, the collecting of flies and revision of traps was not possible due to the bad weather conditions. Therefore, in the list of obtained results only the period of capture is shown, as after having mixed the material, it is impossible, obviously and unfortunately, to know with what (aspirator or traps), on what (kind of cadaver) and where (beech or pine forest) each specimen was collected.

All the material was collected between 1.230 and 1.500 m a.s.l. and the specimens collected with the aspirator were caught between 4 and 12 °C.

In this paper, the results obtained of the last three families are presented: Phoridae, Heleomyzidae and Sphaeroceridae (we exclude, therefore, the family Trichoceridae as it will be studied and included in a separate paper). In total, 4946 specimens have been collected. The most abundant family has been, and with a lot of difference, that of the Heleomyzidae with 4625 specimens, representing the 93.50% of the material. It follows, by far, the Sphaeroceridae with only 249 specimens (5.03%) and finally the Phoridae with also only 72 specimens, representing only the 1.45% of the total.

Next we list the results obtained and comment, in detail, the most interesting captures. A total of 26 species has been identified, and we highlight that the heleomyzid *Scoliocentra amplicornis* (Czerny) and the phorids *Triphleba hyalinata* (Meigen) and *T. lyria* Schmitz are recorded from the Iberian Peninsula and Spain for the first time, respectively. Finally, but also interesting, 12 genera and 18 species are new to La Rioja. The proportion of sexes has been separated by a slash / (males/females).

For the biology and general geographical distribution of the different species the papers by Carles-Tolrá (2001), Dvořáková *et al.* (2009), Dvořáková-Marsová *et al.* (2005), Martinek (1999), Martinek & Barták (2001), Mocek (1998), Norrbom and Kim (1985a,b), Roháček (1983, 1997, 1999, 2009), Roháček *et al.* (2005) and Roháček & Marshall (1982) have been consulted.

Results

PHORIDAE

Only 72 specimens of this family, representing the 1.45%, have been collected. 4 species have been identified.

Megaselia rufipes (Meigen, 1804)

Material studied: 21-28.3.2010 2/0.

Polyphagous species with Cosmopolitan distribution.

Triphleba hyalinata (Meigen, 1830)

Material studied: 27.2.-6.3.2010 5/8, 7-20.3.2010 11/14, 21-28.3.2010 10/11.

Saprophagous species with European distribution. New species for Spain.

Triphleba intempesta (Schmitz, 1918)

Material studied: 7-20.3.2010 1/0.

Rare necrophagous species with European distribution.

Triphleba lyria Schmitz, 1935

Material studied: 27.2.-6.3.2010 1/0, 7-20.3.2010 3/5, 21-28.3.2010 0/1.

Very rare saprophagous species with European distribution. New species for Spain.

HELEOMYZIDAE

This family has been, with great difference, the most abundant. They have collected 4625 specimens, that is 93.50% of the material, and they belong to 14 species, although one of them hasn't been able to be identified as they are all females.

Genus *Heleomyza* Fallén, 1810

After the genus *Oldenbergiella* (see below), this genus has been the most abundant with 1129 specimens (24.41%). Three species have been identified, being two of them very abundant as it shown next. New genus for La Rioja.

Heleomyza captiosa (Gorodkov, 1962)

Material studied: 27.2.-6.3.2010 97/0, 7-20.3.2010 238/0, 21-28.3.2010 92/0.

According to the bibliography it is a very common psychrophilous, saprophagous and coprophagous species with Eurosiberian distribution. It can also be found in caves. The abundant material collected confirms their eating and termic preferences. New species for La Rioja.

Heleomyza modesta (Meigen, 1838)

Material studied: 27.2.-6.3.2010 1/1, 7-20.3.2010 7/1.

Although the bibliography considers this species as a very common saprophagous and coprophagous one, it doesn't seem so in the area nor in the month studied. Adults often occur in caves and presents a West Palaearctic distribution. New species for La Rioja.

Heleomyza serrata (Linnaeus, 1758)

Material studied: 27.2.-6.3.2010 104/0, 7-20.3.2010 169/0, 21-28.3.2010 55/0.

A rare coprophagous, saprophagous and cavernicolous species with Holarctic distribution, even though taking into account the results, it doesn't seem to be so rare if we look for it in the appropriated habitat. The first and sole record from the Iberian

Peninsula was from the Ciudad Real province in 1926. New species for La Rioja.

Heleomyza sp.

Material studied: 27.2.-6.3.2010 0/155, 7-20.3.2010 0/149, 21-28.3.2010 0/60.

These females belong to *H. captiosa* and *H. serrata*, but unfortunately they can not be distinguished.

Heteromyza sp.

Material studied: 27.2.-6.3.2010 0/2, 7-20.3.2010 0/42, 21-28.3.2010 0/13.

As all the specimens are females they can not be identified. New genus for La Rioja.

Neoleria ruficauda (Zetterstedt, 1847)

Material studied: 27.2.-6.3.2010 38/40, 7-20.3.2010 98/84, 21-28.3.2010 86/76.

According to the bibliography, it is a common necrophagous species with European distribution, which is confirmed with the captured specimens. New genus and species for La Rioja.

Genus *Oldenbergiella* Czerny, 1924

Roháček (1997) wrote: "Species of the genus *Oldenbergiella* are poorly known in most European countries. This is mainly caused by their small size and by the occurrence of adults only during the cold period of the year (autumn to early spring). Because of the facts mentioned above, these species are rarely collected; moreover, they can hardly be captured using standard collecting methods (i.e. netting and sweeping). However, the results presented below clearly demonstrate that the species can be found frequently if a suitable collecting method in a proper habitat and place is applied. M. Barták was successful in capturing all species mentioned here (sometimes in numbers) by means of meat-baited fly traps, exposed during the whole of the year." I completely agree with him. We highlight this genus due to the great number of specimens that were collected, as 2650 of the 4625 specimens, that is, more than a half (57.29%) belong to it. Three species have been identified. Numerous females (606) have been collected, although only 116 have been possible to identify (see *O. calcarifera*) as they were mating. New genus for La Rioja.

Oldenbergiella calcarifera Papp, 1980

Material studied: 27.2.-6.3.2010 222/13, 7-20.3.2010 332/22, 21-28.3.2010 732/81.

According to the bibliography it is a fairly common psychrophilous and necrophagous species with European distribution. This has been the most abundant species of all, with 1286 specimens (counting only the males) representing the 27.80% of all the heleomyzids collected. Therefore, we confirm that it is a very common and abundant species in the appropriated habitats. Regarding to the females, only those specimens (116) that were mating have been identified. New species for La Rioja.

Oldenbergiella canalicata Carles-Tolrá, 1998

Material studied: 21-28.3.2010 1/0.

Biology unknown, but like other *Oldenbergiella* species it seems to be a psychrophilous and necrophagous species, although it is rare. This species is only known from Spain and Andorra. New species for La Rioja.

Oldenbergiella seticerca Papp, 1980

Material studied: 27.2.-6.3.2010 151/0, 7-20.3.2010 224/0, 21-28.3.2010 382/0.

According to the bibliography, it is a rare psychrophilous and necrophagous species, but very abundant if we look for it in the appropriated place, as the 757 males collected confirm. New species for La Rioja.

Oldenbergiella sp.

Material studied: 27.2.-6.3.2010 0/49, 7-20.3.2010 0/139, 21-28.3.2010 0/302.

606 females of this genus were collected. Based on the males identified, these females belong mostly to *O. calcarifera* and *O. seticercus* and, in less number, to *O. canalicata*. In a first attempt to separate the females of these three species it has been seen that it requires a deeper and more detailed study, therefore it has been left for a future paper. Therefore, for the moment, only 116 females have been possible to identify as belonging to *O. calcarifera* as they were mating (see above). We highlight that only mating couples of *O. calcarifera* have been collected, for what I don't know the reason, taking into account the also abundance of *O. seticercus*.

Orbellia cuniculorum (Robineau-Desvoidy, 1830)

Material studied: 7-20.3.2010 0/1.

A rare coprophagous species with European distribution. New genus and species for La Rioja.

Orbellia myiopiiformis Robineau-Desvoidy, 1830

Material studied: 7-20.3.2010 0/1.

A rare psychrophilous species with European distribution. New species for La Rioja.

Scoliocentra amplicornis (Czerny, 1924)

Material studied: 27.2.-6.3.2010 8/50, 7-20.3.2010 43/111, 21-28.3.2010 26/97.

A common coprophagous species with Western Palaearctic distribution. New genus for La Rioja and new species for the Iberian Peninsula.

Suillia humilis (Meigen 1830)

Material studied: 7-20.3.2010 0/1, 21-28.3.2010 0/1.

A common mycetophagous species with Palaearctic distribution.

Suillia pallida (Fallén, 1820)

Material studied: 27.2.-6.3.2010 3/1, 21-28.3.2010 1/0.

A very common mycetophagous species with West Palaearctic distribution.

Tephrochlamys flavipes (Zetterstedt, 1838)

Material studied: 27.2.-6.3.2010 0/1, 7-20.3.2010 0/9, 21-28.3.2010 0/13.

A common saprophagous and mycetophagous species with European distribution. New genus and species for La Rioja.

SPHAEROCERIDAE

Only 249 specimens, representing the 5.03% of the material, have been caught and they belong to 9 species.

Apteromyia claviventris (Strobl, 1909)

Material studied: 27.2.-6.3.2010 4/2, 7-20.3.2010 31/47, 21-28.3.2010 16/13.

This has been the most abundant sphaerocerid species with 113 specimens. A common saprophagous species with Holarctic distribution. In the Palaearctic only known from Europe. Also collected in caves. New genus and species for La Rioja.

Copromyza nigrina (Gimmerthal, 1847)

Material studied: 7-20.3.2010 1/0.

A common saprophagous and coprophagous species, widespread in the Palaearctic region. New genus and species for La Rioja.

Crumomyia fimetaria (Meigen, 1830)

Material studied: 27.2.-6.3.2010 2/2, 7-20.3.2010 4/0, 21-28.3.2010 0/1.

A very common psychrophilous, saprophagous and mycetophagous species with West Palaearctic distribution. New genus and species for La Rioja.

Crumomyia nitida (Meigen, 1830)

Material studied: 27.2.-6.3.2010 7/7, 7-20.3.2010 8/19, 21-28.3.2010 2/7.

A very common saprophagous species with West Palaearctic distribution. Also reported from caves. The first and sole record from Spain is from 1909 from the Comunidad de Madrid. New species for La Rioja.

Crumomyia roserii (Rondani, 1880)

Material studied: 21-28.3.2010 1/0.

A rare saprophagous species with European distribution. Also collected in caves. New genus and species for La Rioja.

Gigalimosina flaviceps (Zetterstedt, 1847)

Material studied: 27.2.-6.3.2010 0/2, 7-20.3.2010 1/2, 21-28.3.2010 1/1.

A common saprophagous species with European distribution, although it is rare in the south (only in mountains). Also attracted to decayed fungi.

Minilimosina parvula (Stenhammar, 1854)

Material studied: 27.2.-6.3.2010 1/0, 7-20.3.2010 3/8, 21-28.3.2010 22/27.

A common saprophagous and necrophagous species with Holarctic distribution. New genus and species for La Rioja.

Puncticorpus lusitanicum (Richards, 1963)

Material studied: 27.2.-6.3.2010 1/0.

A saprophagous species with West European distribution. Also collected in caves. New genus and species for La Rioja.

Spelobia palmata (Richards, 1927)

Material studied: 27.2.-6.3.2010 1/0, 7-20.3.2010 2/0, 21-28.3.2010 2/1.

A very common necrophagous and saprophagous species with West Palaearctic distribution. New species for La Rioja.

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