Taxonomic status of three acalyptrate dipterous species (Diptera: Milichiidae, Chiropteromyzidae)

M. CARLES-TOLRÀ

Avda. Príncipe de Asturias 30, ático 1; E-08012 Barcelona; Spain; E-mail: mcarlestolra@terra.es

Abstract
The taxonomic status of three acalyptrate dipterous species, namely *Leptometopa niveipennis fascifrons* (Becker), *Leptometopa broersei* de Meijere and *Milichia speciosa canariensis* Becker, is revised. After the study of their type material, the following results have been obtained: (a) *Leptometopa fascifrons* (Becker) is a valid species, not a subspecies of *Leptometopa niveipennis* (Strobl); (b) *Leptometopa broersei* de Meijere belongs to the species *Chiropteromyza wegelii* Frey, this last species being a junior synonym of *Leptometopa broersei*; consequently its correct name is *Chiropteromyza broersei* (de Meijere) and it belongs to the family Chiropteromyzidae, not Milichiidae; and (c) *Milichia canariensis* Becker is a valid species and not a subspecies of *Milichia speciosa* Meigen.

Key words: Diptera, Milichiidae, Chiropteromyzidae, taxonomic status.

Resumen
Posición taxonómica de tres especies de dípteros acalípteros (Diptera: Milichiidae, Chiropteromyzidae)
Se revisa la posición taxonómica de tres dípteros acalípteros, a saber *Leptometopa niveipennis fascifrons* (Becker), *Leptometopa broersei* de Meijere y *Milichia speciosa canariensis* Becker. Tras el estudio de su material tipo se han obtenido los siguientes resultados: (a) *Leptometopa fascifrons* (Becker) es una especie válida, no una subespecie de *Leptometopa niveipennis* (Strobl); (b) *Leptometopa broersei* de Meijere pertenece a la especie *Chiropteromyza wegelii* Frey, siendo esta última especie una sinonimia de *Leptometopa broersei*; consecuentemente su nombre correcto es *Chiropteromyza broersei* (de Meijere) y pertenece a la familia Chiropteromyzidae, no a los Milichiidae; y (c) *Milichia canariensis* Becker es una especie válida y no una subespecies de *Milichia speciosa* Meigen.

Palabras clave: Diptera, Milichiidae, Chiropteromyzidae, posición taxonómica.

Laburpena
Diptero akalípteroen hiru espeziren kokapen taxonomikoa (Diptera: Milichiidae, Chiropteromyzidae)

Gako-hitzak: Diptera, Milichiidae, Chiropteromyzidae, kokapen taxonomikoa.
Introduction

Some years ago the author received dipterological material collected in Spain, concretely in the province of Salamanca. It had been collected by H.-P. Tschorsnig and after its study, three papers about it were published (Carles-Tolrá, 2004, 2006, 2008). Nevertheless, some specimens belonging to the genus Leptometopa Becker, 1903 (Milichiidae) were not included as they could not be identified.

According to Papp (1984) and Carles-Tolrá (2007), five species/subspecies of this genus have been recorded from Europe. Following Hennig’s (1937) paper, the specimens from Salamanca keyed out to the subspecies L. niveipennis fascifrons (Becker). To confirm completely the identification, the type material of this subspecies was studied.

Furthermore, it was compared with the types of L. broersei (de Meijere), firstly to discard it (it was described after Hennig’s paper) and secondly to resolve the taxonomic status of this species, as Papp (1984: 116) considered it as «A doubtful species».

Finally, the taxonomic status of Milichia speciosa canariensis Becker, 1907 was also revised to resolve Papp’s (1984: 112) remark, as he considered this subspecies as «Probably a separate species».

Systematics

Leptometopa fascifrons (Becker, 1907) stat. n.

= Desmometopa niveipennis fascifrons Becker, 1907: 548.
= Leptometopa niveipennis fascifrons (Becker, 1907): Hennig, 1937: 52.

Becker (1907) described fascifrons based on one male and two females and as a subspecies of niveipennis (deposited in the ZMH: Zoologisches Museum der Humboldt-Universität, Berlin, Germany). The abundant material collected in Spain was compared with one female type specimen of fascifrons and it was checked that it belonged to this subspecies. Likewise, the Spanish material has been compared with specimens of Leptometopa niveipennis (Strobl, 1900) present in my private collection, and this has allowed to find several morphological differences between niveipennis and fascifrons, as shown in Table 1. Consequently, fascifrons is a valid species and not a subspecies of niveipennis. Having found so many differences, it is strange that Becker considered fascifrons as a subspecies and not as a species.

Male genitalia brown. Epandrium small, short haired, with a row of longer hairs along posterior and ventral margins. Surstylus fused with epandrium, small, round, with a row of minute, black inner teeth. Aedeagus short, slightly brownish, apex dilated and translucent.

Female: cerci narrow, long, with long hairs.

Total body length: 2.0–2.6 mm (males), 2.3–2.8 mm (females).

Material examined:
Type material: 1 syntype (1 ♂) (each label in inverted commas and each line separated by a slash) deposited in ZMH:
1 ♂ (= Lectotype, designated here, not dissected): «Korsika / 55 316.VI.» (handwritten Becker); «Typus; of fascifrons/Beck.» (handwritten); «Zool. Mus. / Berlin; Leptometopa niveipennis fascifrons Beck. / det. I. Brake 1997».

Spanish material (14 ♀♂ 5 ♀♀):
Spain: Salamanca: Aldea del Obispo, Prado Caño, 30.6.1995 1 ♂; Puerto Seguro (2-3 km SO), Rivera de los Casas, 26.5.1999 2 ♂♂ (sweeping on white flowers of Umbelliferae); Villa de Gervio (6-8 km N), 26.5.1999 1 ♀ (sweeping on flowers of Thapsia villosa), 28.5.1999 5 ♂♂ 2 ♀♀ (sweeping on flowers of Thapsia villosa), 30.5.1999 4 ♂♂ 3 ♀♀ (sweeping on flowers of Thapsia villosa), Villar de la Yegua, Vado de la Vina, 24.6.1995 1 ♂ (sweeping on Umbelliferae). All H.-P. Tschorsnig leg.

Material preserved in alcohol (70º). 9 males and 3 females are deposited in the author’s collection and 5 males and 2 females are deposited in the Staatliches Museum für Naturkunde (Stuttgart).

Leptometopa fascifrons was hitherto only known from the isle of Corsica. Therefore the material collected in Salamanca extends its geographical distribution to the Iberian Peninsula in peninsular Spain.

Chiropteromyza broersei (de Meijere, 1946) comb. n.

= Leptometopa broersei de Meijere, 1946.
= Chiropteromyza wegelii Frey, 1952 syn. n.

The next step was to compare Tschorsnig's specimens
with *Leptometopa broersei* de Meijere, «A doubtful species» according to Papp (1984), as it was described after Hennig’s (1937) paper. This way, it would be discerned that the Spanish specimens did not belong to this species and Papp’s doubt would be resolved.

De Meijere (1946) described *Leptometopa broersei* based on two specimens (1 male and 1 female) (deposited in ZMAN: Zoölogische Museum, Instituut voor Taxonomische Zoölogie, Amsterdam, The Netherlands) (1). Their study has revealed not only that they do not belong to *Leptometopa* Becker, but also that they are not even Milichiiidae, but Chiropteromyzidae (!). They belong to the only known species of this genus: *Chiropteromyza vegelii* Frey, 1952 (see Papp, 1998). Consequently, *wegelii* becomes a synonym of *broersei* and belongs to genus *Chiropteromyza* Frey, 1952, that is *Chiropteromyza broersei* (de Meijere, 1946) = *Chiropteromyza vegelii* Frey, 1952 syn. n.

Up to now, this family (and species) was only known from three European countries: Findland, Suisse and Hungary. Consequently, the family Chiropteromyzidae with the species *Chiropteromyza broersei* (de Meijere, 1946) is recorded from The Netherlands for the first time.

Material examined:

Type material: 2 syntypes (1 ♀ and 1 ♂) (each label in inverted commas and each line separated by a slash) deposited in ZMAN:

1 ♂ (= Lectotype, designated here): «Oude Ooster-/begraafplaats»; «BROERSE / Amsterdam / e. l. IV. 1937»; «Uit Vogelnest / Spreeuw / (Sturnus)»; «Leptometopa / broersei / de Meijere, 1946 / ZMAN type DIPT.0718.1».

1 ♀ (= Paralectotype): «Oude Ooster-/ /begraafplaats»; «BROERSE / Amsterdam / e. l. IV. 1937»; «Uit Vogelnest / Spreeuw / (Sturnus)»; «Leptometopa / broersei / de Meijere, 1946 / ZMAN type DIPT.0718.2».

Abdomens of both exemplars detached, cleared with KOH, stored in two microvials with glycerine, and pinned under their respective exemplars. Right wing of the lectotype broken and stored together with the male abdomen.

**Milichia canariensis** Becker, 1907 stat. n. = *Milichia speciosa canariensis* Becker, 1907.

Papp (1984) in his Catalogue of Palaearctic Diptera included *canariensis* as a subspecies of *speciosa*, but adding the following comment: «Probably a separate species». The following year, Deceming and Báez (1985), in a study on the Milichiiidae of the Canary Islands, wrote: «Comparison of the male genitalia of this form with a Turkish example of the typical form reveals no appreciable differences».

Becker, based on two males and two females (deposited in ZMHB), distinguished the subspecies *canariensis* from the typical form mainly because the male had a lateral and posterior silvery stripe on the scutum. The female, on the other hand, had the silvery spots of the second tergite smaller and more oblique than in the typical form.

Reviewing the specimens identified as *Milichia speciosa* Meigen, 1830 present in my private collection and previous papers (Carles-Tolrá, 1992, 1997, 2001, 2004; Carles-Tolrá and Pujade-Villar, 2003), all collected in 1955, 1956, 1957, and 1958, it turned out that they were *Milichia canariensis* Becker, 1907. In the following year, Carles-Tolrá and Pujade-Villar (2003) recorded *M. canariensis* from the Canarian Islands and showed that it was a species-specific reproductive system, which is known from the Canarian Islands and the nearby Canarian Islands.

**Table 1.** Morphological differences between *Leptometopa fascifrons* and *L. niveipennis*.

<table>
<thead>
<tr>
<th>Characters</th>
<th>fascifrons</th>
<th>niveipennis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head</td>
<td>vertical</td>
<td>oblique</td>
</tr>
<tr>
<td>Frons</td>
<td>1/2–2/3 orangish</td>
<td>1/4–1/3 orangish</td>
</tr>
<tr>
<td>Gena</td>
<td>not protruding</td>
<td>protruding</td>
</tr>
<tr>
<td>Antenna</td>
<td>yellow-orangish</td>
<td>brown</td>
</tr>
<tr>
<td>Labellum</td>
<td>short, thick, fleshy, yellow</td>
<td>long, thin, sclerotized, brown</td>
</tr>
<tr>
<td>Taster</td>
<td>short, tubby, oval</td>
<td>long, slim, thin</td>
</tr>
<tr>
<td>Mid and hind tibia</td>
<td>2 rings</td>
<td>brown</td>
</tr>
<tr>
<td>Size (mm, average)</td>
<td>2.4</td>
<td>1.5</td>
</tr>
</tbody>
</table>

*Note:* The location where the material was collected is now in the backyard of the main building of the Museum (ZMAN) (B. Brugge, pers. comm.).
the Iberian Peninsula, it was observed that all male specimens included in Carles-Tolrá (1992) and Carles-Tolrá and Pujade-Villar (2003) have the silvery band on the scutum. Likewise, some variability in the size of the silvery spots on the female second tergite was found. Nevertheless, reviewing the genitalia of all the males of these papers it was checked that there were no differences between those that presented the silvery stripe and those that did not. Likewise, outstanding differences among the females were not found. Therefore, both taxa belong to the same species: *M. speciosa*. Consequently, the differences mentioned by Becker are not useful to separate these two taxa.

Finally, the specimens from the Canary Islands had to be checked. Therefore, it was decided to review the type material of *canariensis*. After the study and comparison of this material with that collected in the Iberian Peninsula a distinct difference among the surstyli, as well as among the sternites of the females, was observed. The male surstyli of *canariensis* are claw-shaped (Figs. 1a-b), whereas those of *speciosa* are triangular (Figs. 2a-b). In the females, in *canariensis* sternites 3-5 are gradually, distinctly increasing, so sternite 5 is distinctly bigger than sternite 3 (Fig. 1c); on the other hand, in *speciosa* sternites 3-5 are subequal (Fig. 2c). Consequently, *canariensis* is a valid, separate species, as supposed by Papp, and not a subspecies of *speciosa*.

**Material examined:**
Type material: 4 syntypes (2 ♂♂ and 2 ♀♀) (each label in inverted commas and each line separated by
a slash) deposited in ZMHB:
1 ♂ (= Lectotype, designated here): «Gr. Canaria / 47720 V» (handwritten Becker); «Sammlung / Dr.Th.Becker»; «Type»; «Zool. Mus./ Berlin».
Abdomen of the lectotype and of one female paralectotype (no. 51470) detached, cleared with KOH and stored in microvials with glycerine pinned under their respective exemplars.

Milichia canariensis is hitherto only known from the Canary Islands and, according to Deeming and Báez’s (1985) remark, also from Turkey.

Figure 2. Milichia species Meigen: (a) Male genitalia in posteroventral view; (b) Male genitalia in ventral view; (c) Female sternites 2-7 (Scale bars: (a)-(b) = 0.2 mm; (c) = 0.5 mm).
Acknowledgements

My most sincere thanks to Hans-Peter Tschorsnig (Stuttgart) for the shipment of dipterological material among which these very interesting specimens were found and this has motivated the revision of other «milichiid species». Many thanks also to J.W. van Zuijlen (Waalwijk) for the translation of the original description of *Leptometopa broersei* from Dutch to English and to Joachim Ziegler (ZMHB) and Jenny Pohl (ZMHB) for the loan of the type material of *L. niveipennis fascifrons* and *Milichia speciosa canariensis*, as well as to Herman de Jong (ZMAN) and Ben Brugge (ZMAN) for the loan of the type material of *L. broersei*. Also to Bernhard Merz (Genève) for the xerocopies of Becker’s (1907) paper and to Juli Pujade-Villar (Barcelona) for the loan of the material from Andorra for revision, as well as for his comments about type material. Finally, I want to thank Jane Pérez (Barcelona) for her English revision of the manuscript.

References


Received / Recibido / Hartua: 5/09/2009
Accepted / Aceptado / Onartua: 22/10/2009
Published / Publicado / Argitaratua: 1/12/2009