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ARTICLE

First record of Pyrgotidae (Diptera, Tephritoidea) from Uruguay with two new synonyms in the genus *Leptopyrgota* Hendel

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Abstract. Pyrgotidae are a small family of Tephritoidea of worldwide distribution, whose larvae are known to be endoparasites in the abdomen of adult Scarabaeidae beetles. This study presents the first record of the family from Uruguay, represented by the *Leptopyrgota albitarsis* Aczél, 1956 from Treinta y Tres, Quebrada de los Cuervos. Based on the study of holotypes, the following synonymy is proposed: *Leptopyrgota albitarsis* Aczél, 1956 = *Leptopyrgota definienda* Bernardi, 1991, **new synonym** and *L. liae* Bernardi, 1991 **new synonym.** Photos of the holotypes of the three studied species are presented, for the first time.

Keywords. Pyrgotinae; Schizophora; New records; New synonymy; South America.

INTRODUCTION

Pyrgotidae are a small family of Tephritoidea with a worldwide distribution and more than 360 species in 55 genera (Korneyev, 2006). The Neotropical Pyrgotidae fauna consists of 59 species of 13 genera (Mello & Lamas, 2016). Specifically, the South American Pyrgotidae fauna includes 52 species of 11 genera (Steyskal, 1967; Bernardi, 1991; Mello *et al.,* 2010). The South American countries where Pyrgotidae have been previously recorded are Argentina, Brazil, Bolivia, Chile, Colombia, Ecuador and Paraguay (Steyskal, 1967; Mello & Lamas, 2016; Rodriguez *et al.,* 2017).

Pyrgotid larvae are known to be endoparasites in the abdomens of adult beetles of the subfamilies Melolonthinae and Rutelinae (Scarabaeidae) (Forbes, 1908; Davis, 1913, 1919; De Meijere, 1916; Wolcott, 1922; Aldrich, 1928; Clausen *et al.,* 1933; Moutia, 1940; Ritcher, 1940; Gardner & Parker, 1940; Paramonov, 1958). Adult pyrgotids are nocturnal and have been caught using light traps during the spring and summer seasons in Neotropical Region, indicating synchrony with the life cycles of their hosts (personal observation). The biology of the family in South America is poorly understood, with only one host record for the pyrgotid species *Carrerapyrgota bernardii* Mello, Lamas & Rafael, 2010 in association with the beetle *Pelidnota sordida* (Germar, 1824) (Coleoptera, Scarabaeidae, Rutelini) from Encruzilhada, Bahia, Brazil (Mello *et al.,* 2010).

Leptopyrgota Hendel, 1914 is the largest genus of the family in the New World, which contains 33 species (Steyskal, 1967; Bernardi, 1991), distributed from Costa Rica to Argentina. *Leptopyrgota albitarsis* was described by Aczél (1956), based on three males and four females from Campos do Jordão, São Paulo, Brazil. New records of this species were presented by Bernardi (1991), who also described 21 new *Leptopyrgota* species from Brazil. Most of these descriptions were based on one or two specimens. *Leptopyrgota definienda* Bernardi, 1991 was described based on a male and female from Itatiaia, Rio de Janeiro, Brazil, and *L. liae* Bernardi, 1991 was described based on a female from Nova Teutônia, Santa Catarina, Brazil. The descriptions were brief and did not contain sufficient diagnoses to separate them from their congeners. Thus, the species *L. definienda* and *L. liae* are considers here to be junior synonyms of *L. albitarsis,* based on external morphology characters of adults such as the spot pattern of the antennal groove and wing, chaetotaxy of head and thorax and the color of hind tarsomeres, as pointed out next.

The goal of this study is to clarify the taxonomy and distribution of *Leptopyrgota albitarsis,* based on the study of material from Uruguay.

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MATERIAL AND METHODS

The materials used in this study belong to the Instituto Fundación Miguel Lillo (IFML), Tucumán, Argentina; and Museu de Zoologia da Universidade de São Paulo (MZUSP), São Paulo, Brazil. The terminology for external morphology follows Mello & Lamas (2008), Cumming & Wood (2009), and Mello *et al.* (2010). This study is part of the author's PhD thesis (Mello, 2011a).

RESULTS AND DISCUSSION

Leptopyrgota Hendel, 1914

Leptopyrgota Hendel, 1914: 110. Type species: *Leptopyrgota amplipennis* Hendel, 1914 (original designation).
Porpedrum Enderlein, 1942 (Aczél, 1956: 31).

Diagnosis: Ocelli and ocellar seta absent; antennal groove with no vestige of any longitudinal division (carina absent); wing hyaline, with apical spot; R_{2+3} without apical spur vein; R_{4+5} bare on dorsal surface; alula reduced or absent; hind tibia with basal concavity on dorsal surface; postscutellum developed; female ovipositor without ventroapical hook.

Leptopyrgota albitarsis Aczél, 1956 (Figs. 1A-F)

Leptopyrgota albitarsis Aczél, 1956: 42. Type locality: Brazil, São Paulo, Campos do Jordão.
Leptopyrgota definienda Bernardi, 1991: 334, **new synonym.**
Leptopyrgota liae Bernardi, 1991: 341, **new synonym.**

Diagnosis: Orbital seta present; antennal groove with a black rounded spot in the middle of upper margin, and with a black triangular spot in the middle of lower margin; 1 notopleural seta; three basal hind tarsomeres, sometimes five, strongly whitish; wing with apical brownish spot, sometimes with hyaline triangular pattern in the apex of cell r_{4+5}; dm-cu sinuous, sometimes with a spur vein in the middle of cell dm; r-m with a black rounded spot; syntergite 1+2 three times longer than tergite 3.

Type material examined: *Leptopyrgota albitarsis* holotype female* (Fig. 1): Brazil, São Paulo, Campos do Jordão, 18/X/1952, d'Almeida & L. Travassos-Filho col. (MZUSP). Paratypes: labels as in the holotype, 2 males and 2 females (MZUSP) and 1 male and 1 female (IFML).

Leptopyrgota definienda holotype male (Fig. 2): Brazil, Rio de Janeiro, Itatiaia, 01/XII/1947, J. Zikán col. (MZUSP).
Leptopyrgota liae holotype female (Fig. 3): Brazil, Santa Catarina, Nova Teutônia, IX/1971, F. Plaumann col. (MZUSP).

Figure 1. Holotype male of *Leptopyrgota albitarsis* Aczél, 1956, habitus lateral view. Scale: 1.0 mm. Modified from Mello (2011b).

Figure 2. Holotype male of *Leptopyrgota definienda* Bernardi, 1991 (= *L. albitarsis*), habitus lateral view. Scale: 1.0 mm.

Figure 3. Holotype female of *Leptopyrgota liae* Bernardi, 1991 (= *L. albitarsis*), habitus lateral view. Scale: 1.0 mm.

*** Comments:** Although, in the original description of *L. albitarsis* the holotype was indicated to be female (Aczél, 1956: 46), the specimen labeled as holotype in MZUSP is a male.

Additional material examined: Uruguay, Treinta y Tres, Quebrada de los Cuervos, 30/X/1970, M. Monné, M. Moratório, G. Wilmar, & R. Carbalho col., 1 male and 2 females (MZUSP).

Distribution: Brazil (Bahia, Minas Gerais, Rio de Janeiro, São Paulo); Uruguay (Treinta y tres).

Pyrgotid specimens, as observed by Malloch (1933) and Aczél (1956), are rare in collections, mainly because of their specific biological habits. Most Pyrgotidae species were described based on a few specimens and, at least in the Neotropical Region, more than half of the holotypes are females. Holotypes of 32 species out of the 59 are females (sex of the three primary types is undetermined). In contrast to other families of flies, the morphology of the male and female terminalia does not have enough morphological plasticity to be used for the segregation of species. The main characters to separate genera and species of Neotropical pyrgotids are as follows: presence of carina between antennal grooves, spot pattern of medial occipital sclerite and wing; presence of postscutellum, number of notopleural setae, presence of spur vein at apex of vein R_{2+3}, presence of setulae on dorsal surface of vein R_{4+5}, presence of femoral organ on female fore femur (*Carrerapyrgota*) or mid femur (*Idiopyrgota*), presence of falciform projection on mid coxa (*Neopyrgota*); presence of dorsal concavity at base of hind tibia, and presence and shape of the female ventroapical hook (Mello & Lamas, 2008, 2014; Mello *et al.,* 2010).

The three nominal species are considered here as being synonyms based on the shared presence of the following morphological features: frons without spot; mesofacial plate with a rounded dark spot in the middle of upper margin and a triangular dark spot in the middle of lower margin; arista at the apical third of postpedicel; mosonotum shining brown; presence of one notopleural seta; one supra-alar seta; one postalar seta; one intra-alar seta; one dorsocentral seta; 2-3 scutelar setae; hind tarsi whitish covered by shining white setulae; wing hyaline with a dark apical spot, between the cells r1, r_{2+3}, and r_{4+5}, despite the variable size and shape of the apical spot among specimens.

It is time to reevaluate how understudied is the Diptera fauna of Uruguay. This study is recording, for the first time in literature, the presence of an important Diptera family in the country, based on three specimens collected more than fifty years ago. It is time to seek public policies that can induce sampling efforts, as governmental strategy, in order to pursue a better knowledge of the diversity, distribution and biology of Diptera not only in Uruguay, but also in in other South American countries.

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