SYSTEMATICS, MORPHOLOGY AND PHYSIOLOGY

On the Genera *Trichomorellia* Stein and *Cyacyrtoneura* Townsend (Diptera: Muscidae)

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Sobre os Gêneros *Trichomorellia* Stein e *Cyacyrtoneura* Townsend (Diptera: Muscidae)

RESUMO - O uso dos nomes *Trichomorellia* Stein e *Cyacyrtoneura* Townsend são clarificados pelo exame da espécie-tipo, quando disponível, e análise da literatura. São propostas as seguintes sinonímias: *Dasymorellia* Malloch, 1923 é sinônimo júnior de *Trichomorellia* Stein, 1918; *Cyacyrtoneura cyanea* Townsend, 1931 é sinônimo júnior de *Pyrellia violacea* Robineau-Desvoidy, 1830; e *Cyrtoneuropsis* Townsend, 1931 (preocc.) e *Cyacyrtoneura* Townsend, 1931 são sinônimos júnior de *Morellia* Robineau-Desvoidy, 1830. *Trichomorellia boliviana* Townsend, 1931 é designada espécie-tipo de *Trichomorellia.*

PALAVRAS-CHAVE: Muscinae, material-tipo, taxonomia, *Dasymorellia*, *Morellia*

ABSTRACT - Interpretation of the generic names *Trichomorellia* Stein and *Cyacyrtoneura* Townsend is clarified by the examination of their type species, when available, and by analysis of the literature. The following new synonymies are proposed: *Dasymorellia* Malloch, 1923 is a junior synonym of *Trichomorellia* Stein, 1918; *Cyacyrtoneura cyanea* Townsend, 1931 is a junior synonym of *Pyrellia violacea* Robineau-Desvoidy, 1830; and *Cyrtoneuropsis* Townsend, 1931 (preocc.) and *Cyacyrtoneura* Townsend, 1931 are junior synonyms of *Morellia* Robineau-Desvoidy, 1830. *Trichomorellia boliviana* Townsend, 1931 is designated type species of *Trichomorellia.*

KEY WORDS: Muscinae, type material, taxonomy, *Dasymorellia*, *Morellia*

Whilst preparing a new edition of the Catalogue of the Neotropical Muscidae, two of the authors, CJBC and ACP, and more recently SSN, have re-examined many type species of Muscidae genera to clarify the identity of a number of names (see Pont 1972, 1997, 2000, 2001; Carvalho *et al.* 1993; Carvalho 2002). In the present paper, we clarify the identity of the names *Trichomorellia* Stein, 1918 and *Cyacyrtoneura* Townsend, 1931 and propose new generic and specific synonymies.

Historical Background

Stein (1918:204) proposed a new genus-group name, *Trichomorellia*, without description but in the combination *Trichomorellia cyanea* Macquart, and he referred to the forthcoming description in his review of the World genera of "Anthomyiidae". The name *Trichomorellia* is valid and available, dating from 1918, according to the International Code of Zoological Nomenclature (I.C.Z.N. 1999), Article 12.2.5. Stein (1918) listed his material as: "Mehrere Pärchen aus Theresopolis (Brasilien) in der Budapester Sammlung und von Schnuse in Peru (Tarma, 19.I.04, Urubamba 18.II.06, Chanchamayo 18.I.04), Bolivia (Sorata 22.XII.02) gesammelt."

One year later, Stein (1919:109) gave the full formal description of *Trichomorellia*, which was clearly intended to have been published before his 1918 paper. It was based on a single species, *Cyrtoneura cyanea* Macquart, 1843 (Chile) (type-species by monotypy). He redescribed both sexes, and recorded his material as present in the Budapest Museum, several pairs from Theresopolis (Brazil) and Coroica (Bolivia); he also mentioned that it had been collected abundantly by Schnuse in Peru and Bolivia.

In a note he also mentioned a specimen in the Vienna Museum, collected by Philippi in Chile and identified by Brauer as *cyanea* Macquart. He pointed out that this specimen was a species of *Myospila* and, according to Macquart's illustration of the wing, *cyanea* was misidentified by Brauer.

Stein, as was his custom, retained specimens from the collections that he identified for his own personal collection, which, after his death in 1921, passed to the Museum für

Naturkunde, Berlin. It was there that some of it was restudied by Townsend. Townsend gave three reports on this material in 1931.

Firstly (Townsend 1931a:68) he found six specimens in Stein's *cyanea* series in the Museum für Naturkunde (from Peru, Brazil and Venezuela) that were different from *Trichomorellia cyanea* sensu Stein. He considered that they probably represented the true *cyanea*, and he erected the new genus *Cyrtoneuropsis* for them.

Secondly (Townsend 1931b:314) he stated the *cyanea* sensu Stein, based on one male, six females from Lorenzopata (Bolivia), was a misidentification for which he proposed the "new name" *Trichomorellia boliviana*.

Thirdly (Townsend 1931c:479) he concluded that the six specimens that he had previously examined (Townsend 1931a) were not in fact the true *cyanea* of Macquart; as the genus *Cyrtoneuropsis* was a junior homonym, he proposed the names *Cyacyrtoneura cyanea* n. gen., n. sp., for these specimens. He was influenced in this course of action by a paper by Engel (1931:134) in which he (Engel) tabulated the differences between *Myospila cyanea* Macquart (Schnuse's material) and *Dasymorellia trichops* Malloch (syn: *Trichomorellia cyanea* sensu Stein, not Macquart).

In order to resolve the identity of the various names proposed by Townsend, we have attempted to locate and study all the material involved.

Curtonevra cyanea Macquart, 1843 (Macquart 1843a:314, 1843b:157) was described from both sexes from Concepción in Chile, from material sent to the Muséum National d'Histoire Naturelle - MNHN (Paris) by Gay and Dumont-Durville. There are two syntypes in MNHN, under number 1863 in box 60 of the Macquart collection. The male has the accession number 670.37, the number for a collection from Chile sent by Gay. It is rather mouldy; right antenna and left wing missing. It is labelled by Macquart "N°. 78. / *Curtonevra* / *cyanea*.". ACP has labelled it and designates it herewith as lectotype, in order to fix the identity of the name *cyanea*. The female has the data "Concept. / (Chili) / Durv." written on an accessions disc, and also the number "80". It is also mouldy, and lacks the left hind leg. It has been labelled paralectotype. Both specimens are conspecific and belong to a good species of the genus *Myospila* Rondani. *Myospila cyanea* (Macquart) was correctly recognized by Engel (1931:134), Snyder (1940:6), and Carvalho & Couri (2002: 170).

The material identified as *cyanea* by Stein and subsequently studied by Townsend was in the Museum für Naturkunde of the Humboldt University - ZMHB (Berlin). The series listed by Stein from the Hungarian Natural History Museum (Budapest) was destroyed in 1956, but in any case was not seen by Townsend. We have been only partially successful in locating Townsend's ZMHB material, despite several searches made by us independently over the last four years.

The six specimens from Peru, Brazil and Venezuela that Townsend (1931a:68) found in ZMHB in Stein's series of *cyanea* have not been found. This has proved particularly problematic because it was on these specimens that Townsend based his new genus and species, *Cyacyrtoneura cyanea*. His description is sufficiently generalized to make it difficult even to guess at the identity of this genus, especially as Townsend used Engel's (1931) paper to determine that his *cyanea* was not the true *cyanea* of Macquart; and presumably it was not the same as *cyanea* sensu Stein which he (Townsend) had previously described as *boliviana*.

Part of the series of one male and six females from Lorenzopata (Bolivia), which formed the series of *cyanea* sensu Stein, is in ZMHB. These are the specimens which Townsend (1931b:314) stated to be misidentified and for which he proposed the "new name" *Trichomorellia boliviana*. However, according to the International Code of Zoological Nomenclature (I.C.Z.N. 1999), this is not a new replacement name for *cyanea* of Stein but the description of a new species. We have found one male and one female in ZMHB, labelled holotype (male) and allotype (female) by Townsend. Both are identical with *Dasymorellia trichops* Malloch, 1923, as reported by Townsend himself (1931c) and subsequently recorded as such in the catalogues of Neotropical Muscidae (Pont 1972, Carvalho *et al*. 1993).

The specimen mentioned by Stein (1919) in the Vienna Museum has been seen by ACP and was in fact correctly identified as *Myospila cyanea* (Macquart) by Brauer. Stein never saw the type-series of *cyanea*.

Searches for the Type-Material, and Identity of the Names

Trichomorellia Stein, and *cyanea* of Stein, 1918:204 (*Trichomorellia*)

The material examined by Stein (1918) was partially found by Townsend (1931a, b) when he described *Trichomorellia boliviana*. Holotype male and paratype female of *boliviana* in ZMHB. Holotype male labelled by Stein: "Bolivia Mapiri / 25/4/03 / Lorenzopata": "Trichomorellia / Cyanea Macq. / det. Stein" [Stein's handwriting]; "Type"; "Trichomorellia / boliviana TT / Holotype & Allotype ♂♀" [Townsend's handwriting]. Paratype female labelled: "Bolivia Mapiri / 07-03 / Lorenzopata"; "Type"; "Trichomorellia / boliviana / Towns. / Allotype ♀" [Townsend's handwriting]. Both specimens with a lateral label "Trichomorellia / boliviana Tns. / Holotype ♂ / Allotype ♀ / A.C. Pont det. / 1999" [Pont's handwriting].

Identity. *Trichomorellia cyanea* of Stein was a misidentification and as such an unavailable name; the species that Stein had before him was later described as *Trichomorellia boliviana* Townsend (1931b:314), which is now recognised as a junior synonym of *Dasymorellia trichops* Malloch, 1923. As the genus-group name *Trichomorellia* was based on a misidentified type-species, it is our decision (see I.C.Z.N., 1999: Article 70) that the name *Trichomorellia* should be based on the species Stein (1918) actually had before him, i.e. *cyanea* sensu Stein, 1918 [= *boliviana* Townsend, 1931 = *trichops* Malloch, 1923 (see above)], rather than on the true *cyanea*, i.e. *Myospila cyanea* (Macquart, 1843). The genus-group name *Dasymorellia* Malloch, 1923 is thus a junior synonym of *Trichomorellia* Stein, 1918 syn. nov., the latter with the type-species

Trichomorellia boliviana Townsend, 1931 = *Dasymorellia trichops* Malloch, 1923, by present designation.

Cyacyrtoneura Townsend, *Cyrtoneuropsis* Townsend, 1931 (preocc.), and *cyanea* Townsend, 1931c:479 (*Cyacyrtoneura*)

The type material should be in ZMHB (see discussion above), but independent searches in that museum by ACP and SSN have not found it. With no material in ZMHB, we have tried searching for specimens in the various places where Charles Henry Tyler Townsend lived, in the hope that he had kept some specimens with him in a personal collection. In the early 1900s, Townsend was working for the U.S. Department of Agriculture at the National Museum of Natural History, Washington - USNM (Wade 1936, Townsend 1943), and even after that he sent some type specimens of his new species to be deposited in the USNM. ACP therefore contacted Dr. Raymond Gagné of that institute, but according to him there is no *Cyacyrtoneura* material or relevant *cyanea* material in the USNM. Townsend studied the *Cyacyrtoneura* material during 1928, when he spent six months visiting European and American museums under the auspices of the Estación Agricola Experimental La Molina, Lima, Peru (Townsend 1931a:65). He lived in Peru from 1923 to 1929, moving finally to Brazil in 1929 and living there until his death in 1944 (Wade 1936, Townsend 1943, Evenhuis 1997). SSN has contacted Claus Rasmussen (Department of Entomology, University of Illinois, USA), who had been dealing with Townsend's collection in La Molina, but again no muscid material was found. Our attention then focused on the Diptera collection at the Museu de Zoologia da Universidade de São Paulo, São Paulo, where Townsend also deposited some type specimens, mainly of Tachinidae. However, SSN has not found any material there.

As no type-material of *Cyacyrtoneura cyanea* has been found, nor any other material identified as this by Townsend or any other worker (see Carvalho *et al.* 1993), we have no first-hand diagnostic characters that would enable us to recognise and identify this species. From the sparse information that has been published, we can provide the following diagnosis: wider body; calypters considerably widened behind; size, colour and other morphological characters in the main as in *Trichomorellia trichops* (Malloch, 1923) (Townsend 1931a:68); scutum sparsely hairy; 2 katepisternal [1:1, but Townsend probably overlooked a weak lower posterior seta]; wings clear; M3 [dm-cu crossvein] nearly straight; abdomen metallic green and thinly silvery (Townsend 1931c:479); scutum and scutellum at most short pilose; mid tibia lacking a strong flexor bristle below middle [submedian posteroventral seta]; eyes pilose (Townsend 1935:138-139); length 6 mm; rather stout, *Lucilia*-like; thorax violet and abdomen metallic green; mesoscutum and abdomen thinly silvery; four black thoracic vittae, the inner pair narrower; four postsutural dorsocentrals; otherwise like *Trichomorellia* (Townsend 1937:39).

Identity. From this diagnosis, it is clear that *Cyacyrtoneura cyanea* is not a *Trichomorellia* species because the "squamae [are] well widened behind". It seems more like a *Morellia* species, and in the key by Carvalho & Couri (2002) the species *cyanea* runs to *Morellia violacea* (Robineau-Desvoidy, 1830). We are therefore proposing the new synonymy of *Cyacyrtoneura cyanea* Townsend, 1931 as a new junior synonym of *Pyrellia violacea* Robineau-Desvoidy, 1830 **syn. nov.** Following on from this, two more new synonyms are proposed, with *Cyrtoneuropsis* Townsend, 1931 (preocc.) and *Cyacyrtoneura* Townsend, 1931 as new junior synonyms of *Morellia* Robineau-Desvoidy, 1830 **syn. nov.**

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