



## Revision of Neotropical species of Empidoidea (Diptera) described by Mario Bezzi. X. The species described in *Apalocnemis* Philippi (Brachystomatidae, Trichopezinae)

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### Abstract

Bezzi described two species in *Apalocnemis* Philippi, which at that time was placed in Empididae. This genus is presently assigned to Brachystomatidae, Trichopezinae. The type specimen of *A. variegata* Bezzi, 1905 is lost. *Apalocnemis cingulata* Bezzi, 1909 is redescribed and a lectotype designated based on a male specimen from Sicuani, Peru.

**Key words:** *Apalocnemis*, Empidinae, Empidoidea, Neotropical Region; taxonomy

### Introduction

This work continues the re-description of Neotropical species described by Bezzi (1905, 1909) in Empididae. *Apalocnemis* Philippi, 1865 was described as a genus of Empididae, but according to Sinclair & Cumming (2006) belongs to the monophyletic family Brachystomatidae with characters including the following synapomorphies: ejaculatory apodeme plate-like and narrowly fused to base of phallus, female tergite 7 usually bearing fringe of setae along posterior margin, and female cercus held upright. *Apalocnemis* was included in Trichopezinae, a rather heterogeneous subfamily. According to Sinclair & Cumming (2006), Trichopezinae can be separated into two groups by the presence or absence of holoptic eyes in males. The form of the male cercus with its stout inner face possibly unites the genus-group with holoptic males in which *Apalocnemis* is included.

Bezzi described two species in *Apalocnemis*. The first, *A. variegata* Bezzi, 1905, from Callanga, Peru. The only specimen, the holotype, was deposited in the Hungarian Natural History Museum, Budapest, Hungary (Smith 1962) and was destroyed in 1956 when Russian artillery bombed Budapest. The second, *A. cingulata* Bezzi, 1909, from Sicuani and Cuzco (Peru) and La Paz (Bolivia) was described from four specimens, two males and two females. This latter species is herein re-described based on a male syntype specimen from Peru, Sicuani, deposited in the Staatliches Museum für Tierkunde, Dresden. The whereabouts and status of the other syntype specimens are unknown.

The re-description presented here is complementary to the original descriptions, and are supplemented with illustrations in order to facilitate the species identification.

### Material and methods

This study is based on the examination of the type specimen of *Apalocnemis* housed in the Staatliches Museum für Tierkunde (SMT), Dresden, Germany. The terminology is according to McAlpine (1981), as presented in the first paper of this series (Rafael & Ale-Rocha 1995) as updated after Cumming and Wood (2009). Setae on symmetrical

structures that are illustrated in dorsal view are indicated only on one side whenever the same pattern is repeated on the other side. In the lists of material examined, supplementary information that was not present on the labels is enclosed in brackets. The discussion is based on the key presented by Collin (1933).

## Results

### *Apalocnemis Philippi*

*Apalocnemis Philippi*, 1865: 752. Type-species: *A. obscura* Philippi, 1865 (monotypy).

*Timalphes* Melander, 1928: 97. Type species: *Clinocera fumosa* Hutton, 1901 (orig. design.).

**Diagnosis.** *Apalocnemis* is characterized by the following characters: males usually holoptic; females dichoptic; facial setae lacking in females; Sc weakened at costa; radial fork usually long and V-shaped; laterotergite bare; hypandrium and epandrium separate, not fused; surstylus and postgonite present; internal median apodeme projecting anteriorly from female tergite 8.

**Remarks.** The above diagnosis should be viewed as tentative until a thorough revision of the genus is published. As noted by Collin (1933), there are striking differences among species and sexes in the mouthparts, coloration and genitalia, and the antennae are rather variable in shape. Although the original specimens of the Philippi type species (*A. obscura*) are likely lost (see Sinclair 2010a), the simple habitus drawing included in the description clearly matches Bezzi's concept of the genus with the distinctive long radial fork and mesonotal vittae (Philippi 1865, fig. 55).

It was suggested that a neotype should be designated at this time for *A. obscura*, but this should await a thorough revision of the genus. In Philippi's original description and discussion, he appears to have combined male and female features. The four vittae and dichoptic head in the figure is clearly a female and the vittae are likely not as boldly expressed in males. The grey body and four vittae also characterize at least *A. plorator* Collin and possibly *A. racemata* Collin. It is likely that one of these Chilean species is conspecific with *A. obscura*. Revision of the species from this region will permit assessment of this possible synonymy.

*Apalocnemis* contains 28 described species from the Neotropical and Australasian regions (Yang *et al.* 2007). In the Neotropics, *Apalocnemis* ranges from Costa Rica (Cumming & Sinclair 2009) to the extreme southern part of Argentina and Chile. In Australasia, the genus is recorded from New Zealand and eastern Australia. The two Nearctic species described in *Apalocnemis* are not congeneric and are assigned to a genus complex including *Boreodromia* Coquillett, *Palaeoparamesia* Meunier and several undescribed species from California (Sinclair 2008, 2010b).

### *Apalocnemis cingulata* Bezzi

(Figs. 1–14)

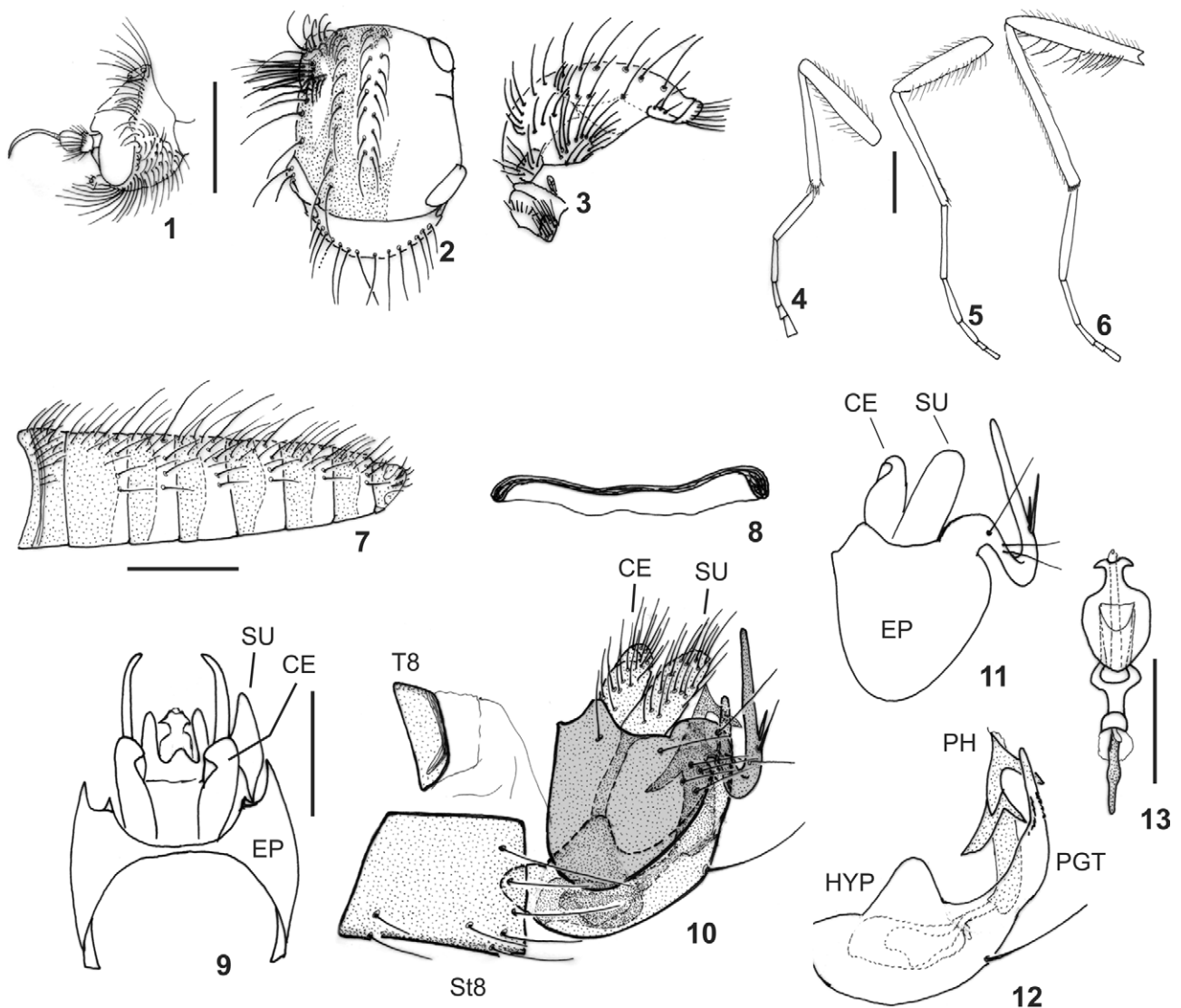
*Apalocnemis cingulata* Bezzi, 1909: 383, fig. 9; Melander, 1928: 101 (checklist); Collin, 1933: 76 (citation); Smith, 1967: 28 (catalogue); Yang *et al.* 2007: 448 (catalogue).

**Diagnosis.** Male specimen holoptic; ocellar triangle protruding; upper half of postcranium with no occipital setae, lower half with many stout setae. Pedicel with stout setae; postpedicel short; stylus thickened, longer than basal segments combined. Proboscis short, retracted within open mouth, almost hidden, upward-curved. All thoracic setae stout; katepisternum glabrous. Abdominal tergites with wide band of grey pruinescence across posterior margin. Cell  $r_4$  narrow. Postgonite slender and finger-like.

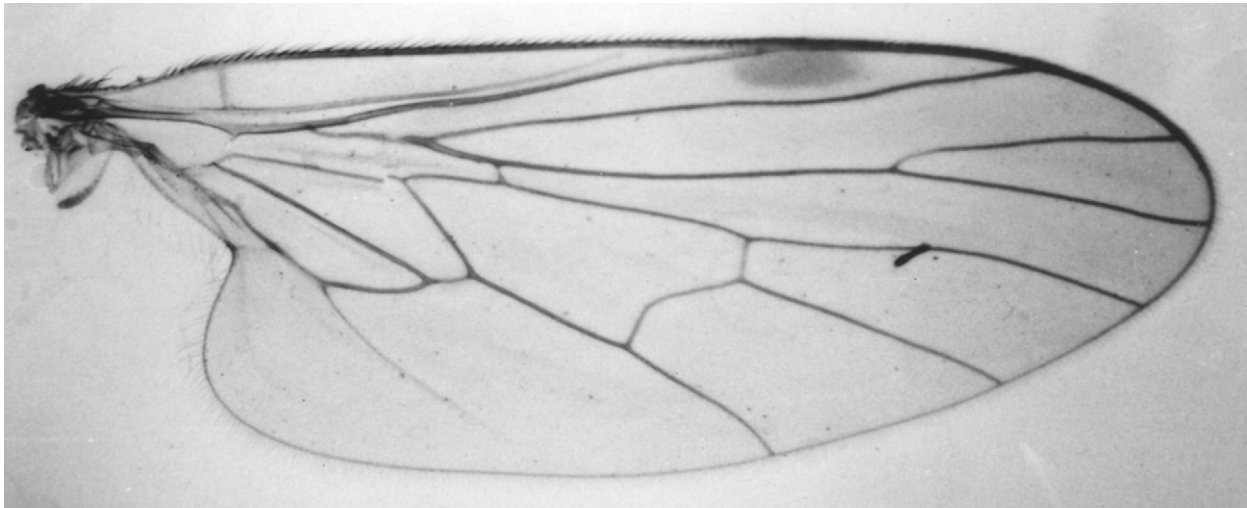
**Re-description.** Lectotype male. Body 3.9 mm, wing 4.3 mm. Head (Fig. 1) holoptic on frons. Upper ommatidia slightly larger. Ocellar tubercle dark brown, matt velvety, protruding, with 4 long slender setae. Small triangle of frons above antennae brown. Face short, wide, glabrous, grey pruinose. Proboscis with no sclerotized areas, small, brown, partially retracted within open mouth. Palpus yellow, small, porrect, spatuliform, with few short apical setae. Postcranium dark brown to black, matt velvety, with grey-brown pruinescence; postocular setae long, proclinate over eyes; vertical setae subequal to adjacent postocular ones; upper half of postcranium with no occipital setae and lower

half with many black stout setae (Fig. 1). Gena with setae slightly more slender and lighter than on lower postcranium, rather upward-curved. Postgena with row of stout setae, ventral setae slender. Antenna dark brown to black, matt velvety; pedicel with stout setae, some on outer face notably longer; postpedicel small, semicircular, almost 1.5X longer than scape and pedicel combined; stylus thick, elongated, slightly longer than basal segments.

Thorax (Figs. 2–3). Scutum dark brown to black; matt velvety with grey-brown pruinescence in certain perspectives, denser on anterior region, along dorsocentral row of setae, on posterior region, and laterally. Mesopleuron grey pruinose but anepisternum brown pruinose in certain views. Postpronotal lobe and postalar callus yellowish. Chaetotaxy: about 15 uniserial anteprenotals; 9–10 postpronotals; 0 proepisternal; about 15 proepimerals arranged in upward-curved tuft; 9–10 uniserial acrostichals; 13 uniserial dorsocentrals arranged in complete row, posterior setae longer; 3 presutural supra-alars; 7 postsutural supra-alars curved anteriorly just behind transverse suture, first three setae of this row may belong to postsutural intra-alar row; around 17 notopleurals; 3 postalars and 7 scutellars subparallel-sided.



**FIGURES 1–13.** *Apalocnemis cingulata* Bezzi, lectotype ♂ (pres. desig.). 1, head, lateral view; 2, thorax, dorsal view; 3, thoracic dorsum, lateral view; 4, right fore leg, anterior view; 5, left mid leg, posterior view; 6, left hind leg, posterior view; 7, abdomen, dorsal view; 8, tergite 8, dorsal view; 9, terminalia, dorsal view; 10, terminalia, lateral view, 11, epandrium and cercus, lateral view; 12, hyandrium and phallus, lateral view; 13, ejaculatory apodeme and phallus, posterior view. Abbreviations: CE = cercus; EP, epandrium; HYP = hyandrium; PGT = postgonite; PH = phallus; ST = sternite; SU = surstylus; T = tergite. Scale bars: Figs. 1–3, 4–6, 7 = 0.5 mm; 8–12 = 0.2 mm; 13 = 0.1 mm.



**FIGURE 14.** Wing. *Apalocnemis cingulata* Bezzi, lectotype ♂ (pres. desig.).

Legs (Figs. 4–6). Subshining; coxae, trochanter and femora brown, except extreme distal portion of femora yellow; tibiae and basal tarsomeres yellow, distal tarsomeres darker; grey pruinescence more distinct on coxae, trochanter and femora. All coxae with longer setae on anterior face; still longer setae on all femora anteroventrally and posteroventrally, fore femur posterodorsally and hind femur anterodorsally; dorsal setae slightly shorter. Tibiae with short setae; mid tibia with 2 subapical setae slightly stouter, 1 anteroventral and 1 posteroventral. All tarsi longer than respective tibiae.

Wing (Fig. 14). Hyaline with brown veins. Costal vein with slightly longer setae at base (rather inconspicuous in figure); Sc almost complete;  $R_1$  lacking setae; pterostigma light brown; cell  $r_4$  narrow;  $A_1$  evanescent distally. Alula yellow with paler setae. Halter yellow.

Abdomen (Fig. 7). Dark brown to black, matt velvety. Tergites with band of grey pruinescence across posterior margin and with slender and long setae, the lateral and posterior setae notably longer. Sternites concolorous with tergites, each with grey pruinescence across posterior margin but narrower and less distinct than on tergites. Tergite 8 narrower than sternite 8 (Fig. 10).

Terminalia (Figs. 8–13). Concolorous with preabdomen tergites, except epandrium yellow; small, dorsally directed, not keel-shaped. Epandrium (Fig. 11) with long curved process and pair of stout setae medially. Cercus slightly shorter than surstylus. Postgonite distinct, elongate with small denticles subapically. Phallus (Figs. 12, 13) rather complex, with two hat-shaped subapical expansions. Ejaculatory apodeme (Fig. 12) plate-like.

Female specimen not examined. Originally described as: “eyes dichoptic; terminalia black, ventrally yellow, robust with yellow spines distally; femora yellow, except brown medially”.

**Geographic distribution.** Peru, Bolivia.

**Material examined.** **LECTOTYPE** ♂ (here designated), “PERU [Cuzco], Sicuani, 17.vi.1903 [3500 m]” (SMT).

**Lectotype condition.** Right postpedicel lost. Right wing mounted on microslide. Terminalia in vial with glycerin.

**Remarks.** This species was described based on four specimens from Peru and Bolivia. The single remaining specimen in Dresden has been labelled lectotype by the present author to fix and stabilize the current concept of the name.

**Discussion.** Using the key of Collin (1933, p. 74), the male specimen of *A. cingulata* runs to “group D” with vein  $R_1$  bare, head holoptic and no “intrahumeral” setae. It does not fit any couplet of “group D”. It runs to couplet 17 by having more than four scutellar bristles but thereafter does not fit couplet 18 (two notopleurals) or couplet 21 (three strong notopleurals in a line) as it has about 17 notopleural bristles (see Fig. 3). Based on the figures in Collin (1933, fig. 15g, p. 78), *A. cingulata* has an antenna rather similar to *A. innocua* Collin, 1933 with a short and rather truncate postpedicel. It also appears to be closely related to *A. mediocris* Collin, 1933. When comparing both, they present similar antennal shape (except stylus is subapical in *A. mediocris* as in figs. 16g–h of Collin 1933, p. 82), a similar

pattern of setae on postcranium, and similar terminalia shape (Collin 1933, figs. 16g–h, p. 82). The original description of *A. mediocris* differs from *A. cingulata* by the number of setae on notopleuron and scutellum, by the size and number of ocellar setae and some details in the coloration. Based on characters presented here *A. cingulata* is not conspecific with these two species.

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