

Complementary description of *Dudgeodes ulmeri* Sartori, 2008 and *Teloganopsis media* Ulmer, 1939 (Ephemeroptera: Teloganodidae, Ephemerellidae)

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(with 4 figures)

Abstract

Complementary description is provided for two species recently described and revised on Georg Ulmer's material, unfortunately faded and colorless. Thanks to new collected material from the Sunda Islands, *Dudgeodes ulmeri* Sartori, 2008 (Teloganodidae) and *Teloganopsis media* Ulmer, 1939 (Ephemerellidae) are partially redescribed and their diagnosis emended. Both species are mentioned from Bali for the first time.

Introduction

In his works on the Ephemeroptera of Southeast Asia, Ulmer (1924, 1939) mentioned the presence of the species *Teloganodes tristis* (Hagen, 1858) described from Sri Lanka, on Java, Sumatra and the Philippines, and gave complete descriptions of adult and larval stages. In a recent revision of Oriental Teloganodidae, Sartori *et al.* (2008) demonstrated that the *Teloganodes tristis* concept of Ulmer was incorrect, and that Southeast Asian 'Teloganodes tristis' specimens belong to the new genus *Dudgeodes* Sartori, 2008. The populations from the Philippines were described as *Dudgeodes pescadori* Sartori, 2008, based mainly on contemporary material, and the populations from Java and Sumatra as *Dudgeodes ulmeri* Sartori, 2008, exclusively on material from Ulmer's collection. As already mentioned and illustrated (Sartori *et al.* 2008), *D. ulmeri* material in hands was unfortunately completely faded, uniformly yellowish, making the description of some structure and the general coloration impossible.

A similar problem happened with the species *Teloganopsis media* Ulmer, 1939, described from Java and Sumatra. Ubero-Pascal & Sartori (2009) revised the type material deposited in the Zoologisches Museum in Hamburg (ZMH), when they described a new species from Borneo (*Teloganopsis puigae*) and proposed a phylogenetic reconstruction of the genus. Ulmer's specimens were also faded, and at that time the only material available for this species.

Thanks to new material collected very recently in Sumatra and Bali, a complementary description of the two species and illustration of their color patterns is provided here.



Figs 1-2. *Dudgeonodes ulmeri* Sartori. **1.** Male larva in toto. **2.** Detail of the head and prothorax, arrows indicate the position of the tubercles on the right hemi-thorax (Scale bar: 1 mm).

Material and methods

The whole material is kept in ethanol. Pictures of the specimens were performed with a Visionary Digital Passport II in ZMH. Material depository as follow:

MZL: Musée cantonal de zoologie, Lausanne (Switzerland)

ZMH: Zoologisches Museum, Hamburg (Germany)

LIPI: Museum of Zoology, Bogor (Indonesia)

Results

Dudgeodes ulmeri Sartori, 2008

(Figs 1-2)

MATERIAL EXAMINED: 1 larva, Indonesia: Sumatra Barat, Universitas Andalas campus, forest stream, 360m, 8.xi.2011, 00° 54.666'S, 100° 28.379'E, (UN1), M. Balke leg [MZL]; 17 larvae, Indonesia: Sumatra Barat, Bukit Barisan, above Padang, creek, 1047m, 8.xi.2011, 00° 56.739'S, 100° 32.730'E, (UN3), M. Balke leg [MZL, ZMH, LIPI]; 1 larva, Indonesia: Sumatra Barat, Harau Canyon, stream near Ikbal's cottage, 520m, 23.vi.2012, 00° 06.438'S, 100° 40.369'E, (UN11), M. Balke leg [LIPI]; 8 larvae, Indonesia: Sumatra Barat, Harau Canyon, stream, 540m, 27.ix.2009, 00° 04.428'S, 100° 38.002'E, (SUM009), M. Balke & D. Amran leg [MZL, ZMH, LIPI]; 1 larva, Indonesia: Sumatra Barat, stream on the road Jalam Padang- Bukittinggi, 518m, 29.v.2010, 00°28'60.8"S, 100°21'87"E, (SU14), J.-M. Elouard leg. [MZL]; 4 larvae, Indonesia: Sumatra Barat, Talang, stream 20km south of Solok, 650m, 25.v.2010, 0°52'52"S, 100°37'23"E, (SU6), J.-M. Elouard leg. [MZL]

1 larva, Indonesia: Bali, Baturiti, Desa Antapan, 815m, 9.x.2009, 8° 19.344'S, 115° 11.606'E, (BLI005), M. Balke & D. Amran leg. [MZL]

Complementary description.

General coloration greyish brown on the head, thorax and abdomen, legs yellowish brown, cerci medium brown (Fig. 1). Dorsal part of male eyes brownish orange (Figs 1-2). Upper face of femora with narrow longitudinal stripes characteristic of the genus. Abdominal tergites with variable markings, washed with different grey tonality, segments VI and X generally lighter than the others.

Prothorax with six tubercles, pterothorax with a single pair of tubercles (Fig. 2). Other morphological characters as described in Sartori *et al.* (2008).

Discussion

Contrary to what Sartori *et al.* (2008) stated, the prothorax of *D. ulmeri* possesses six tubercles and not four as mentioned; besides the four located near the posterior margin, two are located near the anterolateral angles of the prothorax; these last two were overlooked in the mentioned study. The dorsal part of the compound eyes of the male larvae was supposed to be yellowish brown by Sartori *et al.* (2008) whereas they are more orange than suspected.

D. ulmeri and *D. stephani* Sartori, 2008 (from Borneo) are the only two species known in which the dorsal part of the compound eyes of the male is not black but orange brown. *D. ulmeri* can be easily distinguished from



Figs 3-4. *Teloganopsis media* Ulmer. **1.** Male larva in toto. **2.** Detail of the pro- and mesothorax, thick arrows indicate the position of the tubercles on the right hemi-thorax; thin arrow indicates the position of the two single setae on the dorsal face of the left forefemur (Scale bar: 1 mm).

D. stephani by the ornamentation of the tarsal claw with two well-developed subapical teeth, and also by the shorter setae on the transverse row of the fore femora. *D. ulmeri* is mentioned for the first time from Bali, being known only from Java and Sumatra.

Teloganopsis media Ulmer, 1939
(Figs 3-4)

MATERIAL EXAMINED: 1 larva, Indonesia: Bali, Ubud, Sayan, Ayung river, 194m, 20.ix.2011, 08° 29.984'S, 115° 14.586'E, (BLI015), M. Balke leg. [MZL]

1 larva, Indonesia: Java Barat, Malang Batu Jalang, forested stream, waterfall, 9.v.2010, J.-M. Elouard leg [MZL]

Complementary description.

General coloration dark brown, especially on the abdomen, legs yellowish with apex of femora washed with dark brown, pro- and pterothorax dark brown, with a large sagittal light brown band (Fig. 3); dorsal part of the compound eyes of the male pink brown.

Prothorax with four rounded tubercles in the distal half, pterothorax with two rounded tubercles in the distal fourth (Fig. 4). Other morphological characters as described in Ubero-Pascal & Sartori (2009).

Discussion

T. media is unique among the genus *Teloganopsis* by the presence of tubercles on the thorax. It can be also separated from its close relative *T. puigae* Ubero-Pascal & Sartori, 2009 by the presence of only two setae on the dorsal face of fore femora (Fig. 4) compared to 4-5 in the latter, as well as by the coloration of the thorax, which is uniformly medium brown in *T. puigae*. The species is recorded for the first time from Bali, being known only from Java and Sumatra.

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