

First description of the adult male of *Epeorus aculeatus* Braasch (Ephemeroptera: Heptageniidae)

J.M. WEBB¹ & W.P. MCCAFFERTY²

¹Department of Entomology, Purdue University, West Lafayette, Indiana 47907-2089, USA.
E-mail: jmw975@yahoo.com

²Department of Entomology, Purdue University, West Lafayette, Indiana 47907-2089, USA.
E-mail: mccaffer@purdue.edu

Abstract

The male imago of the southeast Asian species *Epeorus aculeatus* Braasch is described for the first time, based on reared material from Thailand.

Key words: Ephemeroptera; taxonomy; *Epeorus aculeatus*; Heptageniidae; stage description; Asia

Introduction

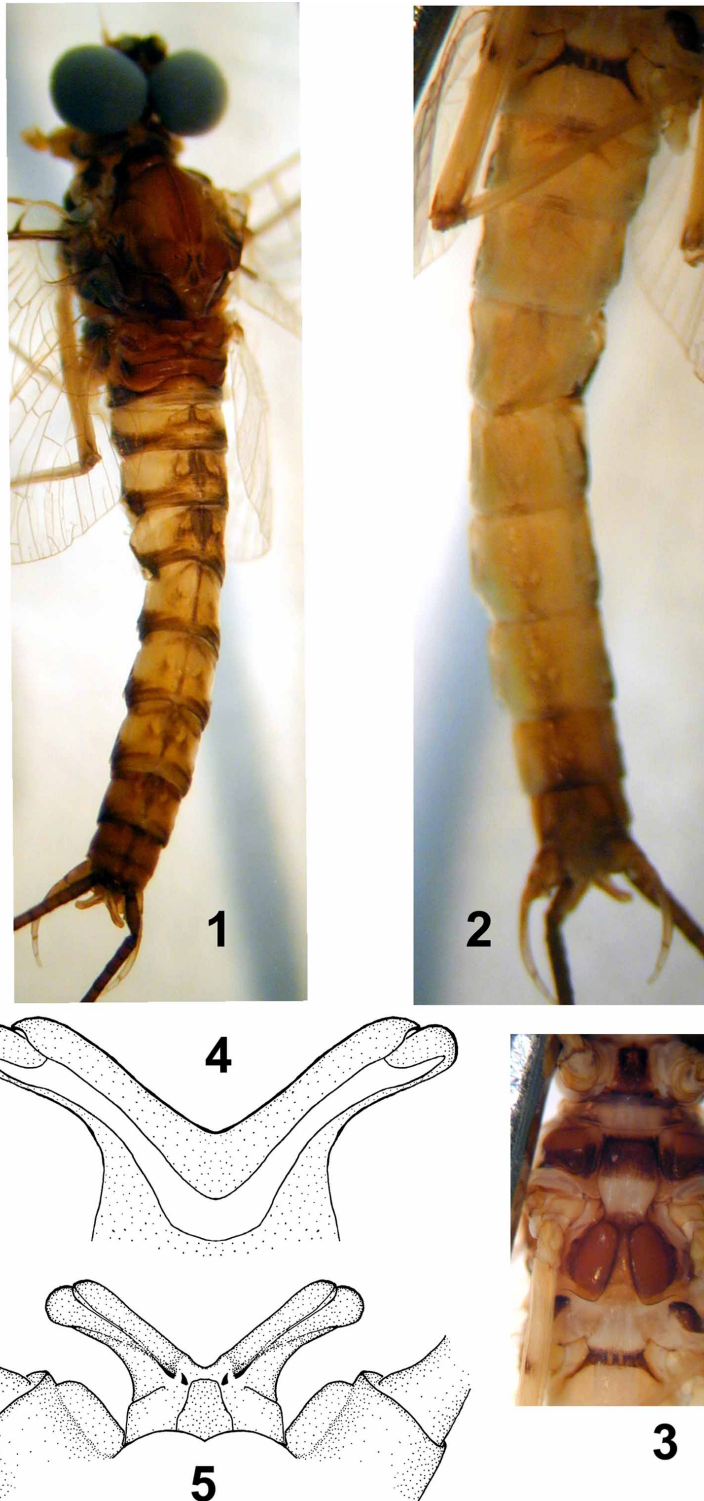
The Heptageniidae fauna of southeast Asia remains poorly known. The genus *Epeorus* Eaton (sensu Wang and McCafferty 2004) is abundant and widespread in this region but of the 22 species of *Epeorus* known from the Oriental region, only five are known from both the larval and adult stages (Soldán 2001, Tong and Dudgeon 2003, Nguyen and Bae 2004, Wang and McCafferty 2004). In this paper we provide the first description of the adult male of *Epeorus aculeatus* Braasch, based on reared material from northwestern Thailand.

Epeorus aculeatus Braasch

Epeorus aculeatus Braasch, 1990:7; Nguyen and Bae, 2004: 19

Adult description (in alcohol)

Body length 10.6 mm; forewing 10.4 mm; caudal filaments 27.0 mm. Eyes gray-black, contiguous dorsally. Ocelli black basally, white apically. Frons pale brown. Thorax brown; mesonotal transverse suture absent; medial depression of mesothoracic



FIGURES 1-5. 1, dorsal view of male; 2, ventral view of male abdomen; 3, thoracic sternum of male; 4, dorsal view of penes; 5, ventral view of penes.

furcasternum convergent anteriorly; mesosternum with dark transverse band (Fig. 3). Forefemur pale brown with dark brown spot medially, dark apically; tibia and tarsus brown; ratio of foreleg segments (F:Ti:Ta₁:Ta₂:Ta₃:Ta₄:Ta₅) 5.5:6.6:2.4:2.3:2.0:1.3:0.7; foreclaws dissimilar. Midleg light brown, femur with dark spot medially. Hindlegs missing. Wings with veins brown. Abdominal terga 2–7 yellowish brown with brown markings (Fig. 1); terga 8–10 brown with dark markings; sterna (Fig. 2) yellowish brown, slightly darker medially. Genitalia (Figs. 4 and 5) brown; base of forceps with small median flange; subgenital plate slightly excavated medially; penes fused basally, widely divergent apically and with titillators present. Caudal filaments brown.

Diagnosis and discussion

Because no other *Epeorus* from southeast Asia are known from the adult stage, we cannot know how *E. aculeatus* differs from the other species. Based on larval characteristics, Kluge (2004) indicated that *E. aculeatus* is closely related to the southern European *E. torrentium* Eaton, the type species of *Epeorus*. The penes of *E. aculeatus* are similar to those of *E. torrentium* and closely related species in that they are fused basally and divergent apically, but the penis lobes are much more slender. It also differs in having titillators and dissimilar foretarsal claws. We do not feel it is prudent at this time to speculate on the phylogenetic position of *E. aculeatus*.

Material examined

THAILAND, Chiangmai Province, small stream and waterfalls, Doi Sutep, W of Chiangmai, 1450 ft, 19-XI-1964, WL & JG Peters, 2 reared male imagos with associated exuviae (penes missing from one specimen).

Acknowledgments

The authors would like to thank L Jacobus (West Lafayette, Indiana) for providing comments on the manuscript.

References cited

- Braasch, D. (1990) Neue Eintagsfliegen aus Thailand nebst einigen Bemerkungen zu deren generischem Status (Insecta, Ephemeroptera, Heptageniidae). *Reichenbachia*, 28, 7–14.
- Kluge, N.Ju. (2004) *The Phylogenetic System of Ephemeroptera*. Kluwer Academic Publishers, Dordrecht, 442 pp.
- Nguyen, V.V. & Bae, Y.J. (2004) Larvae of the heptageniid mayfly genus *Epeorus* (Ephemeroptera: Heptageniidae) from Vietnam. *Journal of Asia-Pacific Entomology*, 7, 19–28.
- Soldán, T. (2001) Status of the systematic knowledge and priorities in Ephemeroptera studies: the Oriental region. In Domingeuz, E. (Ed.), *Trends in Research in Ephemeroptera and Plec-*

- tera*. Kluwer Academic Publishers, Dordrecht, pp. 53–65.
- Tong, X.L. & Dudgeon, D. (2003) Two new species of Heptageniidae from China (Insecta, Ephemeroptera). *Acta Zootaxonomica Sinica*, 28, 469–473.
- Wang, T.Q. & McCafferty, W.P. (2004) Heptageniidae (Ephemeroptera) of the world. Part I: Phylogenetic higher classification. *Transactions of the American Entomological Society*, 130, 11–45.