



## Contributions to the systematics of the genera *Dipseudopsis*, *Hyalopsyche* and *Pseudoneureclipsis* (Trichoptera: Dipseudopsidae), with descriptions of 19 new species from the Oriental Region.

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## Abstract

Nineteen new species of Dipseudopsidae from the Oriental Region are described and illustrated, including 6 new species of the genus *Dipseudopsis*: *D. cocon*, *D. oliveri*, *D. gunung*, *D. rathnotoia*, *D. vienha*, and *D. viklundi*; 2 new species of the genus *Hyalopsyche*: *H. trunga* and *H. orissa*; and 11 new species of the genus *Pseudoneureclipsis*: *P. bonkybin*, *P. boquan*, *P. cauky*, *P. congkem*, *P. dongian*, *P. hailan*, *P. halongensis*, *P. loang*, *P. puyah*, *P. quancong*, and *P. vetcat*. The genus *Hyalopsychella* Ulmer, 1930, is recognized as a new synonym of *Hyalopsyche* Ulmer, 1904. *Hyalopsyche parvispinosa* Schmid, 1959, and *H. parvula* Martynov, 1935, are recognized as new synonyms of *H. sachalinica* Martynov, 1910; *Hyalopsyche similis* Martynov, 1935, is recognized as a new synonym of *Hyalopsychodes rivalis* Betten, 1909; and *Hyalopsychella haplotes* Neboiss, 1989, is recognized as a new synonym of *Hyalopsyche winkleri* (Ulmer, 1930). New records of 14 other species are provided.

**Key words:** Dipseudopsidae, *Dipseudopsis*, *Hyalopsyche*, *Pseudoneureclipsis*, new species

## Introduction

The first described species of Dipseudopsidae was *Dipseudopsis capensis* Walker, 1852, from South Africa, a species subsequently recorded from all Afrotropical mainland subregions (Tobias & Tobias 2007). The family is currently divided into 8 recognized genera (Morse 2008) and has been recorded from all major biogeographical regions, but represented by only a few species in the Australian, Nearctic, Palearctic, and Neotropical Regions. The greatest species diversity occurs in the Oriental Region, having over 100 species, and the Afrotropical Region, having over 50 species. Ulmer (1904) first erected the subfamily Dipseudopsinae in Polycentropodidae. Ross (1967) elevated the Dipseudopsidae to family status based on a combination of adult characters: 1) posterior border of prosternum with narrow, sclerotized, mesal point, 2) apical segment of palps annulated, 3) dorsotentorial arms (supratentorium of Ross 1967) absent, 4) front and hind wings with crossvein *m* present, 5) ocelli absent, 6) Y-shaped suture of mesopleuron absent, 7) inferior appendages 1-segmented, and 8) prescutal suture atrophied. These characters also fit the Polycentropodidae and Psychomyiidae. Weaver (1984) presented the following synapomorphies for the Dipseudopsidae: 1) larvae with dilated forelegs; 2) larvae constructing long, narrow tubes within the bottom substrate; 3) larvae with spinneret extending far beyond other mouthparts; and 4) adult labial palps reduced.

Kjer *et al.* (2001) suggested that Dipseudopsidae are closely related to Polycentropodidae and Ecnomidae. Holzenthal *et al.* (2007) stated that the phylogenetic relationships among genera in the family are not well defined, and the genera of the Pseudoneureclipsinae are doubtful members of the family due to dissimilar morphology and ecology with respect to the remaining genera. Johanson & Espeland (2010) stated that the family Dipseudopsidae including *Pseudoneureclipsis* is not a monophyletic group, and instead concluded that the genus is more closely related phylogenetically to Ecnomidae than to *Dipseudopsis* and *Protodipseudopsis*.

## Material and methods

This study is based on the examination of 223 males, 5 females and 14 pharate male pupae of *Dipseudopsis* (15 species); 16 males and 4 females of *Hyalopsyche* (5 species); and 60 males of *Pseudoneureclipsis* (13 species). All specimens are stored in 70–80% alcohol. The preparation and illustration of the specimens follows the procedure of Oláh & Johanson (2008) and Oláh *et al.* (2006, 2008). The terminology for setal warts follows that of Oláh & Johanson (2007). The terminology applied to genitalic structures mainly follows Li *et al.* (2001). Descriptions herein are based on the examination of specimens with abdomens cleared and