



**Description of the female of *Parapsyche cardis* Ross (Hydropsychidae: Arctopsychinae) and a revised key to the genera of Hydropsychidae (Trichoptera: Annulipalpia) of the southeastern United States, using wing characters**

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**Abstract**

The female of *Parapsyche cardis* Ross is described and the female of *Parapsyche apicalis* (Banks) is redescribed and illustrated. A key is provided to the genera of Hydropsychidae of the southeastern United States, based primarily on wing characters.

**Key words:** wing coupling, caddisfly genitalia, Macronematinae, Hydropsychinae, Diplectroninae

**Introduction**

The subfamily Arctopsychinae (Trichoptera: Hydropsychidae) in North America contains the genera *Arctopsyche* McLachlan (4 spp.) and *Parapsyche* Betten (7 spp.; Morse 2009). Milne and Milne (1938) reviewed the North American species (as family Arctopsychidae), including descriptions of females of *Arctopsyche grandis* (Banks) and *Parapsyche apicalis* (Banks). Nimmo (1987) provided a review of the subfamily (as family Arctopsychidae), in which he described or redescribed males and females of the Canadian fauna; but the females of *Parapsyche cardis* Ross remained undescribed. Recent light trap and Malaise trap collections in the southern Appalachians, in association with the Great Smoky Mountains All Taxa Biodiversity Inventory and other surveys, yielded large numbers of both male and female arctopsychines. Examination of the females revealed that in addition to the females of *Arctopsyche irrorata* Banks and *Parapsyche apicalis*, an undescribed female form was collected. Because *A. irrorata* males and females, *P. apicalis* males and females, *P. cardis* males and the undescribed female *Parapsyche* form can be collected in the same light trap or Malaise trap sample, I inferred that the undescribed form is the female of *P. cardis*. This hypothesis is supported by morphometric data, which indicate that females of most eastern U.S. *Parapsyche* can be placed in 1 of 2 size classes, with the female of *A. irrorata* and the undescribed female in the larger category, the female of *P. apicalis* in the smaller. The female of *P. cardis* is described herein, and the females of *A. irrorata* and *P. apicalis* are redescribed to facilitate diagnosis, an especially important task when specimens of all 3 species are present in a single sample. Also, a revised key to the genera of southeastern Hydropsychidae is provided, using primarily wing characters.

The subfamilies Macronematinae (*Macrostemum* spp.) and Hydropsychinae [*Hydropsyche* s. l. (including *Ceratopsyche auct.*), *Cheumatopsyche* spp. and *Potamyia flava* (Hagen)] are considered monophyletic (Stocks 2010), the monophyly of each subfamily supported by the possession of a uniquely derived forewing-hind wing coupling apparatus (Figs. 2, 6–8). Based on the work by Geraci (2005), the subfamily Arctopsychinae is considered monophyletic, and the subfamily “Diplectroninae” [*Diplectrona modesta* Banks, *Diplectrona metaqui* Ross, *Diplectrona marianae* Reeves; *Homoplectra flinti* Weaver, *H. doringa* (Milne); *Oropsyche howellae* Ross], as currently construed, is paraphyletic.