



## Descriptions of *Neboissomina*, new genus and 6 new species of Ecnomidae from Australia (Trichoptera)

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### Abstract

Descriptions and keys are provided for males of 7 ecnomid caddisfly species, with 6 species new to science and to Australia. Females of 5 species are also described. These species are placed in the new genus, *Neboissomina*, new genus. The following new species are described: *N. jardinei*, *N. kuranya*, *N. mida*, *N. persona*, *N. philsuteri*, and *N. riyala*. A new combination is suggested for *N. krokale* (Neboiss, 1979). The new genus is erected based on unique characters in the male and female genitalia, wings and setal warts of the head. *Neboissomina*, new genus is endemic to northern and eastern Australia.

**Key words:** Caddisflies, ecnomid, taxonomy, keys, Insecta

### Introduction

The adults of *Ecnomus* McLachlan, *Daternomina* Neboiss, *Ecnomina* Kimmins, *Austrotinodes* Schmid, *Absensomina* Cartwright and *Wellsomina* Cartwright have been revised (Cartwright 1990, 2008, 2009, 2010). With the first 4 of these genera, associated larvae were recognized as being critical in clarifying relationships. However, this is not the case with the latter 2 genera and the new one described here. Confirmed larvae of *Neboissomina*, new genus, have not been collected to date. Adults are not often collected in large numbers although some of the species are widespread.

The genitalia of *Neboissomina* males superficially seem most closely related to some *Ecnomina*, *Daternomina* and *Austrotinodes* species that have large fused, plate-like inferior appendages. *Neboissomina* males differ from other ecnomid genera by having a pair of long, dorso-ventrally flattened (depressed) processes (mesal processes of tergum X) ventro-basal to the superior appendages. The female genitalia, with a pair of relatively small lobes divided by a median notch on sternite VIII, differ from the genitalia of *Ecnomina* which have a single elongate lobe or process, and from those of *Austrotinodes* and *Daternomina* females which have a pair of relatively large lobes on sternite VIII. The wing venation is similar to that of *Ecnomina*, *Austrotinodes* and *Daternomina* in that the forewings have relatively long fork 2 and fork 3, each with short footstalks, and the hind wings each have fork 3 longer than its footstalk. Information from females and larvae may help resolve phylogenetic relationships among these genera. The description of this new genus and 6 new species in this paper takes the Australian ecnomid fauna to 7 genera and 123 species and the world ecnomid fauna to a relatively large total of at least 13 genera and 421 species.

Support for the reciprocal monophyly of the new genus and its closest relatives rests in the fact that among the 7 currently recognized ecnomid genera with species with fused male inferior appendages, each genus is probably monophyletic as indicated by characters discussed by Cartwright (2010) and by the fact that *Neboissomina* has the following probable synapomorphies: (a) female sternite VIII has a pair of small lobes separated by a median notch and (b) the male has a pair of long, dorso-ventrally flattened (depressed) mesal processes on tergum X. Further support comes from a molecular analysis of most ecnomid genera by Johanson and Espeland (2009), whose study confirmed that "*Ecnomina*" *krokale* belongs in a new genus and is phylogenetically distinct from both *Ecnomina* and *Daternomina*.