



## A revision of the Australian intertidal water beetle genus *Hughleechia* Perkins (Coleoptera: Hydraenidae)

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### Abstract

The Australian intertidal water beetle genus *Hughleechia* Perkins, 1981, is revised, based on the study of 123 specimens. The genus and the type species, *H. giulianii* Perkins, are redescribed. One new species, *H. gracilis*, is described. High resolution digital images of the primary types are presented (online version in color), male genitalia and elytral microsculpture are illustrated, scanning electron micrographs of selected morphological features are given, and geographic distributions are mapped. Both species are intertidal, but differ markedly in habitus, elytral setae, and some ventral characters, whereas they share basic morphology of the exocrine secretion delivery system and have similar aedeagal form. *H. giulianii* is known from several localities on the southwestern and southern coasts of Australia, being collected from rock crevices that are covered by high tides, dry rock crevices in the high tide splash zone, and in rock pools a few feet above the water line, created by splash and spray but seldom or never reached by waves. *H. gracilis* is known from two localities in Tasmania, all specimens being collected from high intertidal rock faces, by pyrethrin fogging.

**Key words:** Coleoptera, Hydraenidae, *Hughleechia* Perkins, new species, Australia, intertidal zone, aquatic insects, aquatic microhabitats, holotype digital images

### Introduction

This is the sixth contribution in a series revising the Hydraenidae of Australia and Papua New Guinea. Previous papers have revised the genera *Gymnanthelium* Perkins, 1997 (Perkins 2004a), *Tympalopatrum* Perkins, 1997 (Perkins 2004b), *Limnebius* Leach, 1815 (Perkins 2004c), *Tympanogaster* Perkins, 1979 (Perkins 2006), and *Hydraena* Kugelann, 1794 (for Australia) (Perkins 2007). Papers on the remaining genera, *Hydraena* (for Papua New Guinea), and *Ochthebius* Leach, are nearing completion. About 25,000 specimens have been identified and databased, representing about 290 hydraenid species from Australia and Papua New Guinea. All revisions will include digital images of all primary types. An illustrated key to and synopsis of the genera of Australian and Papua New Guinean Hydraenidae will be presented following publication of the revisionary studies.

*Hughleechia* is a member of the subfamily Ochthebiinae, tribe Ochthebiini, subtribe Ochthebiina. Three other genera found in Australia are members of the Ochthebiina, *Ochthebius* Leach, *Gymnochthebius* Orschmuntz, and *Gymnanthelium* Perkins (Perkins 1997). *Gymnochthebius* is quite diverse in Australia (35 species), and is also widely distributed (26 species) and diverse in the New World (Perkins 1980, 2005). *Gymnanthelium* is an Australian endemic, with eight described species (Perkins 2004a). *Gymnochthebius* and *Gymnanthelium* appear to be sister groups based on the aedeagal structure and other morphological features.

*Hughleechia* morphology does not suggest a very close relationship to *Gymnochthebius*+*Gymnanthelium*, and is even more distantly related to the endemic Australian Ochthebiini genera *Tympalopatrum* and *Tympanogaster*.