

New Asian *Hydroscapha*, with comments on male-female association of co-occurring species (Coleoptera, Myxophaga, Hydroscaphidae)

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Abstract

Four syntopically co-occurring species of the genus *Hydroscapha* LeConte, 1874 are recorded at three adjacent hygropetric localities in the Indian state of Meghalaya (Khasi Hills). Association of males with conspecific females was recognized as a crucial problem for the taxonomic treatment of these taxa. Antennal morphology and abundance data of all collected morphotypes and their presence/absence at each locality were used for this association; most of these data are, however, shown as insufficient for a reliable association due to intraspecific variability (in the case of antennal morphology) or incomplete knowledge of seasonal dynamics (in the case of relative abundance of males versus females). Utilizing male characters separately from those of females is suggested as a possible solution. Following this approach, updated identification keys for males and females of Asian *Hydroscapha* and tables summarizing useful diagnostic characters are provided. Disadvantages of this approach are also discussed. The examined samples include two species described as new (*Hydroscapha khasiorum* sp.n. and *H. rajani* sp.n.) and *H. monticola* Löbl, 1994, which is recorded in India for the first time. A fourth species currently represented by one specimen only is left unidentified.

Key words: Myxophaga, Hydroscaphidae, *Hydroscapha*, sexual dimorphism, morphology, hygropetric habitats, identification key, new species, Oriental Region

Introduction

The Myxophagan family Hydroscaphidae comprises minute beetles that generally inhabit algal mats over which a thin water film flows (Vanin *et al.* 2005), i.e. especially hygropetric habitats and edges of running waters. Three genera are known at present: *Scaphydra* Reichardt, 1973 (3 species) and *Yara* Reichardt & Hinton, 1976 (2 species), currently recorded only in Panama and Brazil (Reichardt & Hinton 1976), and *Hydroscapha* LeConte, 1874 with 17 described species from Palearctic, Afrotropical, Nearctic, Neotropical and Oriental Regions (Löbl 1994, 2003; Maddison 2001; Hall & Short in press).

The taxonomy of *Hydroscapha* was mostly based on readily observed external characters prior to 1994. Earlier authors usually characterized the species by the combination of body size, proportions and shape of the elytra and density of superficial punctation (e.g., Champion 1920, 1925; Peyerimhoff 1922). In a recent revision of the Asian *Hydroscapha*, Löbl (1994) has found these characters to be insufficient for species delimitation and slightly variable within the species and has shown that only the body size in combination with the proportions of antennomeres and the morphology of terminal abdominal sclerites and genitalia of males and females are reliable characters distinguishing the species. Based on this concept, Löbl (1994) (re)described twelve Asian species and provided an identification key based on the combination of the above characters.