



***Kakadudessus tomweiri*, a new genus and species of diving beetle from tropical northern Australia, based on molecular phylogenetic and morphological data (Coleoptera, Dytiscidae, Bidessini)**

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Abstract

The diving beetle genus and species, *Kakadudessus tomweiri* **gen.n.**, **sp.n.** are described from the Northern Territory (Kakadu National Park, headwaters of Mary River) and north-eastern Queensland (Cape York Peninsula) of Australia. The new species has an elongate, almost flat habitus and elytra with pale yellowish markings. The head has a cervical line between the hindmargin of the eyes and the clypeus is anteriorly bordered. Pronotum and elytra have well developed striae, the latter without sutural lines and accessory striae. The posterior part of the basal cavity of epipleura has no transverse carina, the fairly elongate and narrow prosternal process reaches the metaventrite. The latter is provided with rows of punctures at its midline and the metacoxal lines are longer than the distance between them and strongly diverging anteriorly. The parameres are bi-segmented, very thin, slender and elongate, and slightly bifid apically. The combination of all these characters separates the new species and, thus, also the new genus from all other Bidessini. Morphologically, *Kakadudessus* resembles species of *Leiodytes* Guignot, 1936, *Limbodessus* Guignot, 1939 and *Uvarus* Guignot, 1939, the parameres resemble those of species of *Allodessus* Guignot, 1953. DNA sequence data from the mitochondrial genes cytochrome oxidase subunit I (cox1) and the large ribosomal subunit (16S rRNA), however, suggest that *Kakadudessus* does not belong to any of the known Oriental and Australasian Bidessini genera. Most importantly, recognition of *Kakadudessus* does not create paraphyly. All specimens were collected in small pools of shaded and intermittent streams and rivers with sandy or gravelly bottom and without any vegetation.

Key words: Diving beetles, Dytiscidae, Bidessini, new genus, new species, classification, molecular systematics, northern Australia

Introduction

Many Australasian genera of the tribe Bidessini, one of the most diverse groups of Dytiscidae (Biström 1988, Nilsson 2001), have been revised or will be revised in the near future (Balke & Ribera 2004, Watts 1978, Watts & Humphreys 2001, 2003, 2004, 2006, Watts & Leys 2005, Hendrich & Wang 2006; Hendrich et al. in prep.). Others like the species- rich genera *Hydroglyphus* Motschulsky, 1853 or *Leiodytes* Guignot, 1936 are still in need of modern revisions. During a survey of the water beetle fauna of the Kakadu National Park in 1996, numerous new dytiscids were discovered and many of these have already been described (Hendrich 1997, 2008, Hendrich & Watts 2004, 2007). The senior author collected a small series of an enigmatic and colourful dytiscid belonging to the tribe Bidessini which, however, does not fit into any recognized genus. Additional specimens were collected almost ten years later for an ongoing DNA barcoding project of the Australian dytiscid fauna. Further two specimens were obtained from the Australian National Insect Collection, collected by T. Weir and P. Zborowski in Queensland. Based on morphological and molecular evidence, we assign this new species to a new genus.