Zootaxa 3946 (3): 331–346
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.3946.3.2
http://zoobank.org/urn:lsid:zoobank.org:pub:24E2F41D-89BF-473F-ACE0-ED951BCB2699

The identity of the semiterrestrial crab *Terrathelphusa kuchingensis* (Nobili, 1901) (Crustacea: Decapoda: Brachyura: Gecarcinucidae), with descriptions of four new species from southwestern Sarawak, Borneo, Malaysia

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Abstract

Four new species of semiterrestrial gecarcinucid crabs are described from limestone and sandstone habitats in southwestern Sarawak, Malaysia: *Terrathelphusa aglaia* **n. sp.**, *T. cerina* **n. sp.**, *T. kundong* **n. sp.**, and *T. mas* **n. sp.** The taxonomy of *T. kuchingensis* (Nobili, 1901) is discussed, its precise identity ascertained from fresh material, and its actual distribution determined. This increases the number of *Terrathelphusa* species in Borneo to eight.

Key words: limestone, sandstone, Bau, Gunung Penrissen, Southeast Asia

Introduction

The semiterrestrial gecarcinucid genus *Terrathelphusa* Ng, 1989, is currently represented by six species from Borneo and Java, namely *T. chilensis* (Heller, 1862) (= *Geothelphusa modesta* De Man, 1892) (Java), *T. kuchingensis* (Nobili, 1901) (southwestern Sarawak), *T. kuhli* (De Man, 1883) (type species, west Java), *T. loxophthalma* (De Man, 1892) (Kalimantan), *T. ovis* Ng, 1997 (northeastern Sarawak), and *T. telur* Ng, 1997 (Brunei) (Ng 1989, 1997; Ng *et al*. 2008). *Terrathelphusa kuhli* and *T. loxophthalma* had been placed in *Perbrinckia* Bott, 1969 (type species *Thelphusa enodis* Kingsley, 1880) by Bott (1969, 1970), who included taxa from Sri Lanka, Java, and Borneo. Ng (1989), however, noted that the Borneo and Java taxa should be placed in a phylogenetically distinct genus from *Perbrinckia*. *Perbrinckia* is now regarded as endemic to Sri Lanka and contains 13 species (see Ng 1989, 1997; Bahir & Ng 2005; Klaus *et al*. 2006; Ng *et al*. 2008; Beenaerts *et al*. 2010).

For Sarawak, Ng (1989) clarified the identity of *T. kuchingensis* (Nobili, 1901), which had been synonymised with *T. loxophthalma* by Bott (1970) and showed it was a valid species. Specimens from eastern Sarawak that had been identified as *T. loxophthalma* (type locality probably southeastern Kalimantan) by Holthuis (1979) and Ng (1989) were also referred to a new species, *T. ovis*, by Ng (1997), who also described another new species, *T. telur*, from Brunei.

Fresh collections from southwestern Sarawak over the last decade have obtained many specimens that appear to belong to *T. kuchingensis*. Differences in carapace form, live colour, and habitat, however, suggested that more than one species was involved. The present study clarifies the taxonomy of *T. kuchingensis* s. str. from the type material and fresh specimens. Four new species are also recognised. Specimens examined are deposited in the Sarawak Museum (SM), Kuching, Sarawak; Sarawak Biodiversity Centre (SBC), Kuching, Sarawak; and Zoological Reference Collection (ZRC) of the Lee Kong Chian Natural History Museum (ex Raffles Museum of Biodiversity Research), National University of Singapore. Measurements provided (in millimetres) are of the carapace width and length, respectively. The terminology essentially follows Ng (1988), with the abbreviations G1

Accepted by P. Castro: 5 Jan. 2015; published: 10 Apr. 2015

Remarks. *Terrathelphusa mas* **n. sp.**, can be distinguished from *T. kuchingensis* and the other species being described by a combination of characters: inner angle of carpus having a narrow and acutely triangular tooth (Fig. 9A) (versus broad and acutely triangular tooth in *T. kuchingensis* (Fig. 1A), *T. aglaia* **n. sp.** (Fig. 3A) and *T. cerina* **n. sp.** (Fig. 5A), and broadly triangular tooth in *T. kundong* **n. sp.** (Fig. 7A); and the G1 is distinctly curving outwards (Fig. 10A, B, C, D) (versus gently curving outwards in others, Figs. 2A, B, D, E; 4A, B, D, E; 6A, B, D, E; 8A, B, D, E). *Terrathelphusa* species from the Kuching region differ from taxa in the northern region *viz. T. loxophthalma*, *T. ovis* and *T. telur* as summarised in Table 1.

Acknowledgements

We thank many friends and colleagues who assisted us collect the crab specimens: Anon Alek, Andy Anon, Pui Yong Min, Lexter Noun, Joseph Bidau, Anam Ak Apui, Stam Ak Kirot, Ik Wadell Pahon, Pang Sing Tyan, and Tan Heok Hui. Charles Leh and Margarita Naming are to be thanked for their generous help with specimens in the Sarawak Museum and Sarawak Biodiversity Centre, respectively. The first author is grateful to the National University of Singapore for supporting his training through a research fellowship. The first author also thanks Andrew Alek Tuen for his kind support and his co-supervisor, Indraneil Das, for many informative discussions on many aspects related to this study. Thanks are due to reviewers for their constructive comments. Research Permit No. 349/2012 was granted by Sarawak Forest Department. The study was partially supported by Shell Chair Grant SRC/06/2010(02) and The Mohamed bin Zayed Species Conservation Fund.

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