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## A new species of *Tiwaripotamon* Bott, 1970, from northern Vietnam, with notes on *T. vietnamicum* (Dang & Ho, 2002) and *T. edostilus* Ng & Yeo, 2001 (Crustacea, Brachyura, Potamidae)

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### Abstract

A new species of potamid freshwater crab, *Tiwaripotamon vixuyenense* sp. nov., is described from caves in Ha Giang, northern Vietnam. The new species can be distinguished from congeners by a suite of characters, including the relatively small epibranchial tooth, more slender ambulatory legs and a proportionately stout male first gonopod. Molecular data using the mitochondrial cytochrome oxidase subunit I (COI) supports its placement as a new species. The molecular data also supports the inclusion of another species, *Geothelphusa vietnamica* Dang & Ho, 2002, from Ninh Binh, south of Hanoi, Vietnam in *Tiwaripotamon* Bott, 1970. The live coloration of *T. vietnamicum* and *T. edostilus* Ng & Yeo, 2001 is provided to help field identification.

**Key words:** *Tiwaripotamon vixuyenense*, *T. vietnamicum*, *T. edostilus*, new species, freshwater crabs, Vietnam, mtDNA, COI, live coloration

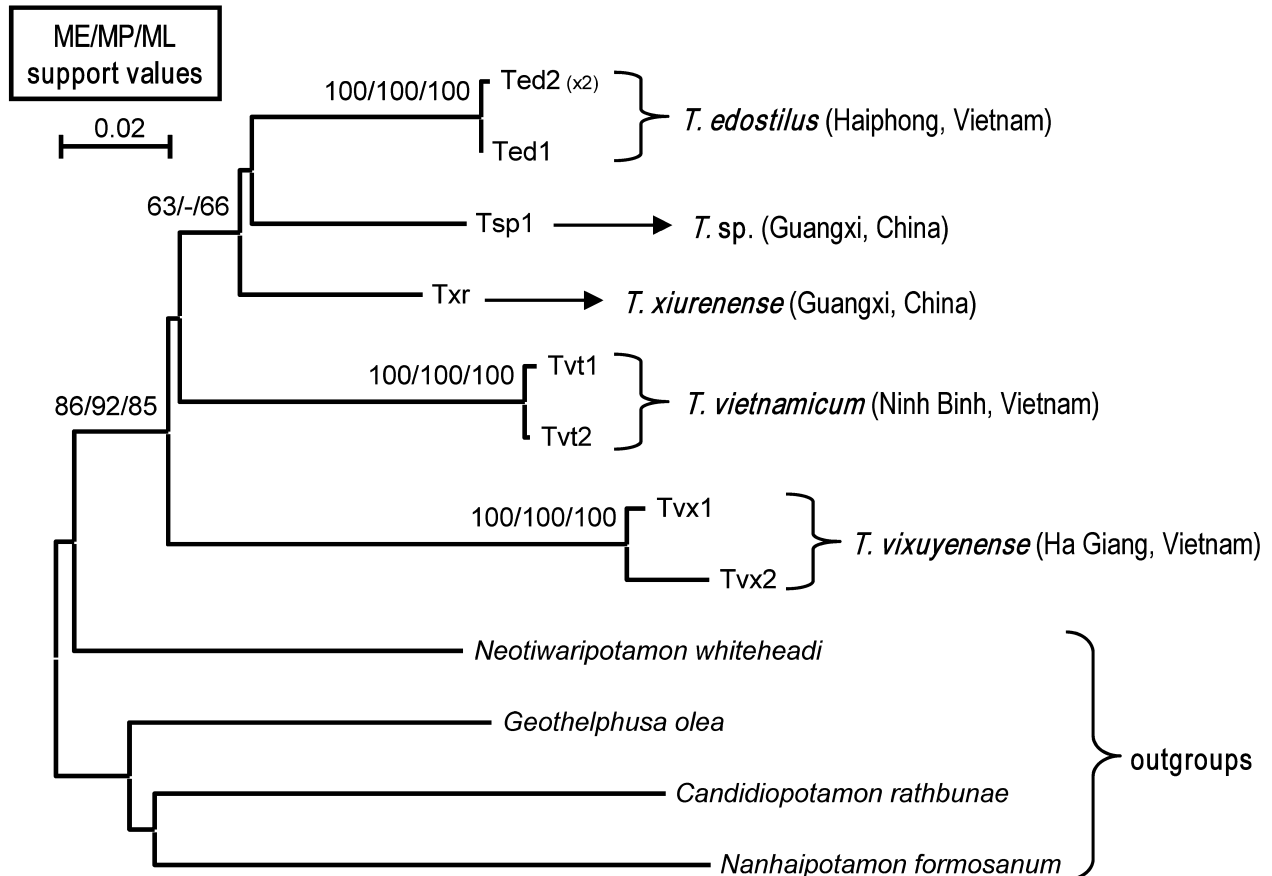
### Introduction

The genus *Tiwaripotamon* Bott, 1970 is a group of freshwater crabs, with long ambulatory legs and a distinctive male first gonopod, and lives in terrestrial habitats and/or around limestone caves (Ng 1992; Ng & Yeo 2001). This genus was established by Bott (1970) and has been revised by Ng & Yeo (2001), with five species recognised at present, viz. *T. annamense* (Balss, 1914), *T. araneum* (Rathbun, 1905), *T. edostilus* Ng & Yeo, 2001, *T. pingguoense* Dai & Naiyanetr, 1994 and *T. xiurenense* Dai & Naiyanetr, 1994 (cf. Ng *et al.* 2008). Another species, *Geothelphusa vietnamica* Dang & Ho, 2002, described from Vietnam, which had been referred to *Hainanpotamon* Dai, 1995 (see Ng *et al.* 2008) was also referred to *Tiwaripotamon* by Yeo & Naruse (2007).

Recently, several specimens of *Tiwaripotamon*, including *T. vietnamicum* and *T. edostilus*, were collected from northern Vietnam. A third species, showing different morphological characters from congeners, and supported by mitochondrial cytochrome oxidase subunit I (COI) evidence, is described herein. The live coloration and habitats of *T. edostilus* and *T. vietnamicum*, as well as the new species, are also provided.

### Material and methods

Specimens of *Tiwaripotamon* were collected from northern Vietnam, including Ha Giang and Ninh Binh provinces and Hai Phong City (Fig. 1; Table 1), preserved in 70–95% ethanol after collection and illustrated with the help of a drawing tube attached to a stereomicroscope. The material examined is deposited in the Institute of Ecology and Biological Resources, Hanoi, Vietnam (IEBR-FC); the Zoological Collections of the Department of Life Science, National Chung Hsing University, Taichung, Taiwan (NCHUZOOL); and the Zoological Reference Collection of the Raffles Museum of Biodiversity Research, National University of Singapore, Singapore (ZRC).



**FIGURE 8.** A minimum evolution (ME) tree for *Tiwaripotamon* species from Vietnam and China, and the outgroups used in this study based on COI marker. Probability values at the nodes represent support values for ME, maximum parsimony (MP) and maximum likelihood (ML). Only values > 50% are shown. For haplotype names, see Table 1.

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