

POTAMON BHUMIBOL N. SP., A NEW GIANT FRESHWATER CRAB FROM
THAILAND (DECAPODA, BRACHYURA, POTAMIDAE)

BY

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ABSTRACT

A new species of giant potamid crab, *Potamon bhumibol*, is described from Thailand. It belongs to the *Potamon tannanti* Rathbun group of Indochinese freshwater crabs and is the largest freshwater crab species ever collected from Thailand. It differs from congeners mainly by the form of its male first pleopod.

RÉSUMÉ

Une nouvelle espèce de crabe Potamidae géant, *Potamon bhumibol* est décrite de Thaïlande. Elle appartient au groupe *Potamon tannanti* Rathbun de crabes indochinois d'eau douce et est l'espèce de crabe d'eau douce la plus grande jamais collectée en Thaïlande. L'espèce diffère de ses congénères principalement par la forme du pléopode 1 du mâle.

INTRODUCTION

In 1976 on a field trip of the Carcinology course of Chulalongkorn University to the northeastern part of Thailand at Phu Luang (= Big Mountain), Amphoe Wang Saphung, Loei Province, the author collected six specimens of a freshwater crab of the genus *Potamon* Savigny, 1816. The species was found in a mountain stream of the Tad Lu Waterfall at Phu Luang. Twenty-six living specimens of the same species were collected from the same locality in 1976, 1984, and 1999, respectively. The description of the new species is provided in this paper. The holotype and paratype of the new species are deposited in the collection of National Museum of Natural History (RMNH), Leiden, the Netherlands and paratypes are deposited in the collection of Chulalongkorn University, Museum of Zoology, Bangkok, Thailand (CUMZ); in the Zoological Reference Collection (ZRC) of the Raffles Museum, National University of Singapore; and in Naturmuseum Senckenberg, Frankfurt am Main, Federal Republic of Germany (SMF).

The abbreviations cb. and cl. are used for carapace width and carapace length, respectively.

Potamon bhumibol new species (text-figs. 1-2, pl. 1)

Material examined. — Mountain stream Tad Lu at Phu Luang (Phu = Mountain), Amphoe Wang Saphung, Loei Province, northeastern Thailand, 27-29 March 1976, leg. P. Naiyanetr; holotype, 1 male (RMNH D 48629); paratypes: 3 males, 1 female (CUMZ), 1 male (ZRC), same data as holotype. Paratypes: 1 male (RMNH D 48630), 1 male (CUMZ), 1 male (SMF), same locality, 19 May 1999, leg. P. Chidkrua; 14 males, 1 female (CUMZ), same locality, 1984, leg. Siri. Other paratypes: 3 males (ZRC), Ban Nam Tob, Khao Luang, Amphoe Wang Saphung, Loei Province, leg. Wisat Senama, 26 October 1982; 1 male (ZRC), Huai Phai Waterfall, Phu Rua, Amphoe Phu Rua, Loei Province, leg. Wiroon, 24 July 1982; 2 males (ZRC), Ban Na Wa, Amphoe Dan Sai, Loei Province, leg. P. Naiyanetr, 11 April 1987.

Measurements. — Holotype male, cl. 60.6 mm, cb. 82 mm; paratypes: 29 males, cl. 31.6-65 mm, cb. 52.1-87 mm, 2 females, cl. 46-48 mm, cb. 58-64 mm.

Etymology. — The specific name is given in honour of His Majesty King Bhumibol Adulyadej at the occasion of His Majesty's 72nd birthday, as a token of respect and recognition of the great interest shown by His Majesty in the natural history and conservation of wildlife in Thailand. His Majesty the King graciously permitted the use of His name for this remarkable and most interesting species, which is the largest species of freshwater crab known from Thailand.



Pl. 1. *Potamon bhumibol* new species, animal in natural surroundings.

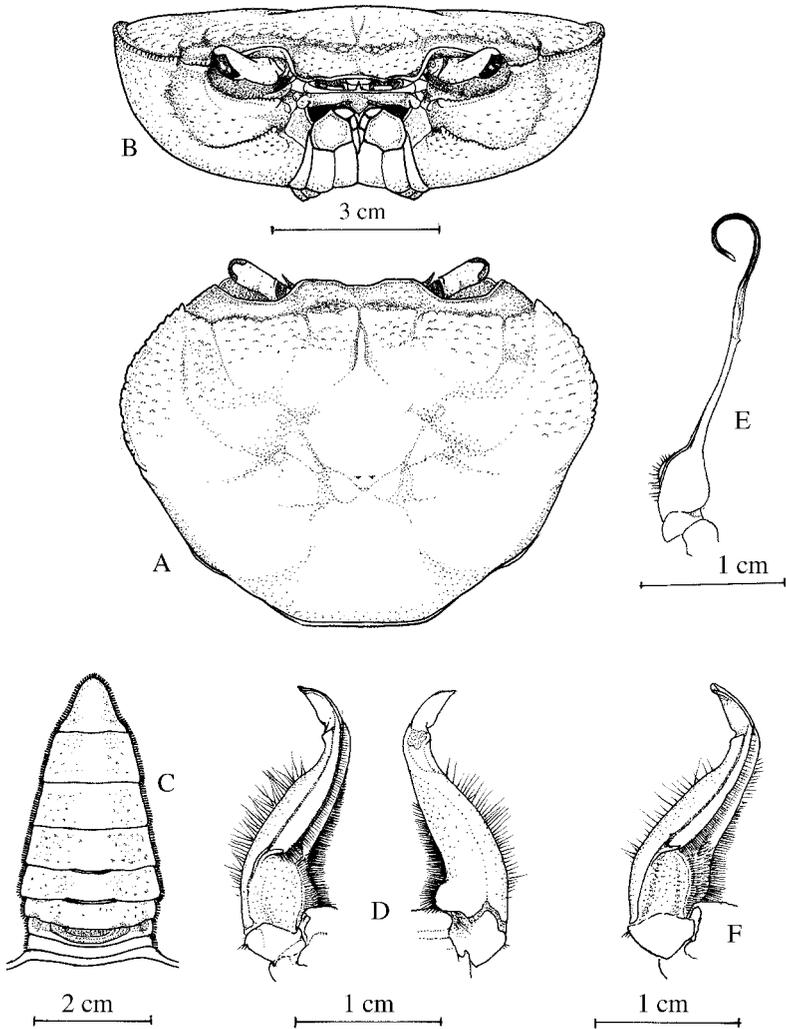


Fig. 1. *Potamon bhumibol* new species, A-E, holotype male. A, carapace in dorsal view; B, thorax in frontal view; C, abdomen; D, first gonopod; E, second gonopod. F, first gonopod of paratype taken in the same locality as the holotype, on 19 May 1999.

The proposed Thai name for this species is Pu Chao Pho Luang and the proposed English name Giant Mountain Crab. Locally the species is named Pu Hin, Pu Pha (= mountain crab).

Description. — Carapace broader than long, low; dorsal surface relatively flat; glabrous; regions relatively well-defined, cervical grooves distinct, expanded anteriorly, reaching lateral end of postorbital cristae, H-shaped depression distinct. Epigastric cristae well-developed, not sharp, rugose, separated by distinct groove which opens up into inverted V-shape posteriorly, slightly anterior to postorbital

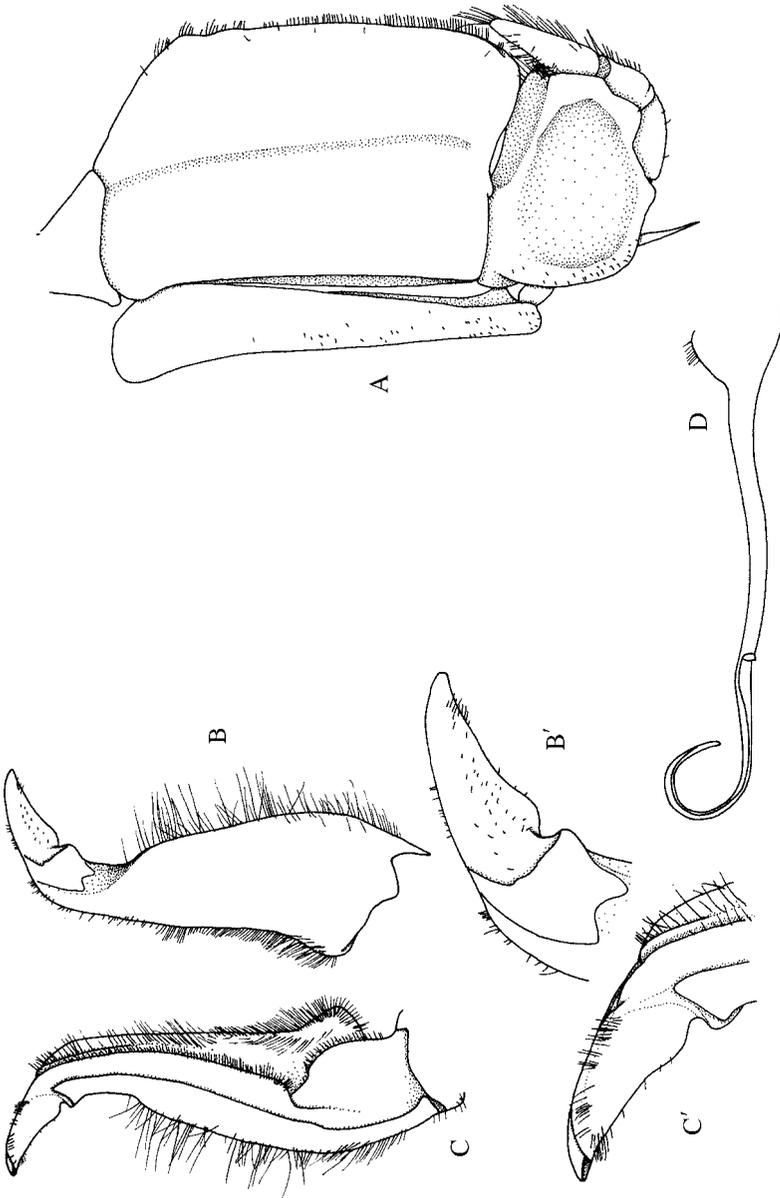


Fig. 2. *Potamon blumibol* new species, paratype, male, Ban Nam Tob, Khao Luang, Amphoe Wang Saphung, Loei Province. A, third maxilliped; B, B', C, C', first gonopod; D, second gonopod.

crisetae, separated from postorbital crisetae by short but distinct groove; postorbital crisetae strongly developed, relatively sharp, weakly rugose, relatively straight, not confluent with epibranchial tooth, breaking up into granules and rugae just before epibranchial tooth; regions behind epigastric and postorbital crisetae distinctly rugose. Frontal margin gently sinuous, not emarginate medially; frontal region gently deflexed downwards, appearing relatively broad in dorsal view, weakly granular; supra- and infraorbital margins almost straight, weakly crisetae; orbital region smooth, relatively broad, slightly expanded laterally; eyes normal; subhepatic and subbranchial regions slightly rugose. External orbital angle triangular, outer margin gently convex, distinctly crisetae; epibranchial tooth low but distinct, triangular, separated from external orbital angle by distinct cleft; anterolateral margin convex, very weakly serrated, distinctly crisetae; posterolateral margin entire, almost straight, not strongly convergent posteriorly; branchial region distinctly rugose; metabranchial region lined with numerous, faint, oblique striae. Epistome anterior margin with median triangle; posterior margin with median triangular tooth.

Ischium of third maxilliped elongate rectangular, about 1.6 times longer than broad, with distinct, well-developed, longitudinal median sulcus; merus squarish, subequal to half of ischium length, with concave outer surface; palp normal; exopod long, exceeding upper edge of ischium but not reaching midpoint of merus, inner margin of distal part produced as a blunt tooth, with well-developed flagellum subequal to width of merus.

Chelipeds subequal; outer surface of palm sparsely covered with flattened rugae, fingers gaping, shorter than palm, tips overlapping, with several longitudinal rows of pits; carpus with rugose outer surface, rugose along outer surface of inner margin, with robust, obliquely directed, subdistal spine on inner margin, with anterior part of outer margin entire; merus with serrated edges, without subterminal spine.

Ambulatory legs glabrous; second pair longest, dactylus long, slender, about 1.1 times as long as propodus, about 7.6 times longer than proximal width, with low, barely visible median ridge, propodus with broad ridge, carpus with sharply defined ridge, merus weakly rugose, with distinctly serrated upper margins, without subdistal spine; fourth ambulatory leg merus smooth, with upper margins entire.

Suture between anterior thoracic sternites 2 and 3 complete, distinct; groove or suture between sternites 3 and 4 absent; thoracic sternites 5 and 6 medially interrupted; sternites 7 and 8 medially separated by distinct longitudinal median suture. Male abdominal cavity reaching imaginary line joining median points of cheliped bases. Male abdomen narrowly triangular; telson longer than sixth somite, lateral margins very gently concave, tip rounded; somite 6 with median length

subequal to half of proximal margin length, lateral margins straight; lateral margins of somites 4 to 5 straight; lateral margins of somite 3 gently convex.

First gonopod (G1) broad; terminal segment clearly separated from subterminal segment, strongly bent outwards almost perpendicular to main axis of gonopod, 0.2 times length of subterminal segment, stout, about 2.2 times longer than broad, without dorsal flap, conical, tip slightly curving downwards, not distinctly narrowing towards tip, ventral distal opening distinct, a swelling on posterior part of outer margin; subterminal segment broad, without neck-like distal part, with distinct, broad, rectangular subdistal cleft, demarcated by bluntly angular shelf on outer margin, a distinct distal protuberance on outer margin. G2 with distal segment greater than half length of basal segment.

Colour. — Judging by colour photographs taken from living specimens, the animals are dorsally of a dark brown colour on the carapace, walking legs, and chelipeds. The inner surface of the fixed finger of the chelipeds is purple. The tips of the walking legs are orange.

Habitat. — The animals are found under stones along the banks of mountain streams in dense mountain forests.

Remarks. — *Potamon bhumibol* is the largest species of freshwater crab in Thailand. As to sexual dimorphism in *P. bhumibol*, the males are larger than the females. *P. bhumibol* is an endemic species in Loei Province, northeastern Thailand.

The overall morphology of *Potamon bhumibol* n. sp. indicates that it belongs to the *Potamon tannanti* species group, a utilitarian grouping of large, aquatic freshwater crabs sharing a particular suite of morphological characters and habits (see Yeo & Ng, 1998). Yeo & Ng (1998) included nine species from northern Indochina in the *P. tannanti* species group, viz., *P. tannanti* Rathbun, 1904, *P. jinpingense* Dai, 1995 [northern Vietnam, southern China], *P. orleansi* Rathbun, 1904, *P. mieni* Dang, 1967, *P. cua* Yeo & Ng, 1998 [northern Vietnam], *P. guttus* Yeo & Ng, 1998, *P. ou* Yeo & Ng, 1998, *P. villosum* Yeo & Ng, 1998 [northern Laos], and *Potamon lipkei* Ng & Naiyanetr, 1993 [northern Thailand]. Several species of *Potamon* from southern China can also be regarded as members of the *P. tannanti* species group (see Dai, 1999) but the G1 structures of these do not closely resemble that of *P. bhumibol* (D. C. J. Yeo, pers. comm.).

Potamon bhumibol is morphologically closest to *P. lipkei* from northern Thailand (see Ng & Naiyanetr, 1993, fig. 12). Apart from the external similarity, the form of their G1 structures is also very similar, being stout and possessing an outwardly bent, short, conical terminal segment, lacking dorsal flaps (see Ng & Naiyanetr, 1993, fig. 47B-E). However, some G1 characters can still be used to separate *P. bhumibol* from *P. lipkei*. These are the following: (i) the terminal segment is proportionately shorter, being c. 0.2 times as long as the subterminal segment

(versus terminal segment proportionately longer, c. 0.3 times the length of the subterminal segment); (ii) the tip of the terminal segment curves slightly downward (versus tip of terminal segment almost straight); (iii) the tip of the terminal segment is rounded (versus tip of terminal segment sharp); (iv) the terminal segment has a distinct swelling on the posterior part of the outer margin (versus terminal segment with posterior part of outer margin straight); (v) the subterminal segment has a bluntly angular shelf, demarcating a rectangular cleft on the subdistal part of the outer margin (versus subterminal segment with broadly rounded shelf, demarcating rounded cleft on subdistal part of outer margin) (cf. Ng & Naiyanetr, 1993, fig. 47B-E). Externally, the anterolateral margins of *P. bhumibol* appear to be less strongly convex than those of *P. lipkei*. The strongly convex anterolateral margins of *P. lipkei* are probably associated with the fact that its branchial regions are considerably broader than its metabranchial regions, resulting in a “waist-like” separation between the two regions (Ng & Naiyanetr, 1993: 19, fig. 12). There is no “waist” in *P. bhumibol*, with the anterolateral margins merging smoothly with the posterolateral margins.

The form of the G1 (especially the rectangular subdistal cleft on the outer margin of the subterminal segment) in *Potamon bhumibol* might also be confused with that in *P. mieni* and *P. cua* (both from northern Vietnam). *Potamon bhumibol*, however, can be distinguished from *P. mieni* by its strongly rugose branchial region (versus branchial region weakly rugose); proportionately shorter G1 terminal segment, c. 0.2 times length of subterminal segment (versus proportionately longer G1 terminal segment, c. 0.3 times length of subterminal segment); and absence of a narrowing towards the tip in the terminal segment of G1 (versus G1 terminal segment “bottle-neck”-like, with a distinct narrowing towards the tip) (cf. Yeo & Ng, 1998, figs. 3B-C, E, G, 6C). Likewise, there are some external as well as internal characters that can be used to differentiate *P. bhumibol* from *P. cua*, viz., the dorsal carapace being glabrous (versus dorsal carapace sparsely setose in the metabranchial region); the G1 terminal segment being proportionately shorter and stouter, c. 0.2. times length of subterminal segment and 2.2 times longer than broad, respectively (versus terminal segment proportionately longer and slenderer, c. 0.4 times length of subterminal segment and 3.2 times longer than broad, respectively); and the G1 terminal segment outer margin being distinctly swollen posteriorly (versus terminal segment outer margin very gently convex to almost straight posteriorly) (cf. Yeo & Ng, 1998, figs. 4B-C, E, G, 7A). *Potamon bhumibol* is immediately distinguished from the remaining members of the *P. tannanti* species group by its very short, strongly bent G1 terminal segment, coupled with the distinct, broad, rectangular subdistal cleft on the outer margin of the subterminal segment of G1.

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