

***Esanpotamon namsom*, a new genus and species of potamid crab
(Crustacea: Decapoda: Brachyura) from a waterfall in
northeastern Thailand**

Phaibul Naiyanetr and Peter K. L. Ng

(PN) Department of Biology, Faculty of Science, Chulalongkorn University, Bangkok 10330, Thailand; (PKLN) School of Biological Sciences, National University of Singapore, Kent Ridge, Singapore 119260, Republic of Singapore

Abstract.—A new genus and species of potamid crab, *Esanpotamon namsom*, is described from a waterfall in northeastern Thailand. The new genus is closest to *Demanietta* Bott, 1966, but can be distinguished by several important carapace, male abdominal and gonopodal characters.

Waterfall crabs of the family Potamidae are extremely speciose in Thailand, and about 30 species are now known (Naiyanetr 1992, Ng & Naiyanetr 1993). Several years ago, the senior author collected a number of specimens from a waterfall in northeastern Thailand which were initially referred to the genus *Demanietta* Bott, 1966. As the authors were involved in a study of all the Thai species of *Demanietta*, the specimens were kept aside for this revision.

A recent re-examination of the northeastern Thai specimens showed that they represent a new species. While the external features of this new species superficially resemble species of *Demanietta*, the male abdomen and gonopods of these northern Thai specimens differ very markedly. This observation, together with due consideration of their zoogeography (the genus *Demanietta* s. s. is known only from western and southern Thailand) has compelled the authors to establish a new genus for this new species.

The present paper describes this new genus and species, here named *Esanpotamon namsom*. The abbreviations G1 and G2 are utilized for the male first and second pleopods (gonopods) respectively. The terms used in the text follow those recommended by Ng (1988). Specimens examined are de-

posited in the Zoology Collection of the Department of Biology, Chulalongkorn University, Bangkok (CUMZ); and Zoological Reference Collection, School of Biological Sciences, National University of Singapore (ZRC).

Taxonomy

Family Potamidae Ortmann, 1896
Esanpotamon, new genus

Diagnosis.—Carapace much broader than long, dorsal surface flat; postorbital and epigastric cristae confluent, rugose, very low, indistinct; anterolateral margin confluent with external orbital angle. Exopod of third maxilliped with well developed flagellum which is longer than maximum width of merus. Ambulatory legs short. Male abdomen broadly triangular; tip of telson reaching to imaginary line joining midpoints of bases of chelipeds. G1 sinuous; terminal segment subcylindrical, curving upwards (towards anterior of carapace when lying in situ), distal part sharply tapering, tip appearing spine-like, subdistal dorsal surfaces with numerous long, very stiff setae, proximal dorsal part with small, swollen flap. G2 longer than G1, elongated distal segment longer than half-length of basal segment.

Type species.—*Esanpotamon namsom*, new species, by present designation.

Remarks.—Of all Indo-Chinese potamidids, the external morphology of *Esanpotamon* most closely approaches that of *Demanietta* Bott, 1966 (type species *Potamon manii* Rathbun, 1904) (sensu Ng & Naiyanetr 1993), especially with regards to the broad and relatively smooth, flattened carapace, and the smooth surfaces of the chelipeds. Thus far, four species of *Demanietta* are known, i.e., *D. manii* (Rathbun 1904), *D. smalleyi* (Bott 1966), *D. merguensis* (Bott, 1966) and *D. tritrunensis* (Naiyanetr 1986); however, several additional Thai and Burmese waterfall species remain undescribed (unpublished data). All known *Demanietta* species occur along the Tenasserim Range which borders southern Thailand and southeastern Burma, and the Phuket Range in southeastern Thailand.

Esanpotamon, however, differs from *Demanietta* (sensu Ng & Naiyanetr 1993) in several key characters. The postorbital crista of *Esanpotamon* is very weak and poorly defined, whereas it is distinct and sharp in *Demanietta*. The external orbital angle and anterolateral margins are confluent without any epibranchial tooth, whereas there is a distinct epibranchial tooth and a broad external orbital angle present in *Demanietta*. Compared to known *Demanietta* species, the male abdomen of *Esanpotamon* is broadly triangular with segments 5 and 6 proportionately much broader than 9. Most significantly, the G1 is very different, with the subterminal segment gradually tapering distally, the terminal segment subcylindrical with a small proximal dorsal fold and has numerous long, stiff subdistal setae. In known *Demanietta* species, the subterminal segment has a distinct "neck", the terminal segment is conical, gently tapering, and has a broad, low dorsal fold with scattered short, soft setae (Bott 1966, 1970; Ng & Naiyanetr 1993). These differences warrant the establishment of a new genus for this new species. In addition, the distributions of *Esanpotamon* and *Demanietta* are quite

distinct. *Demanietta* is known only from western and southern Thailand, whereas *Esanpotamon* occurs in northeastern Thailand.

Etymology.—The generic name is derived from an arbitrary combination of *Esan*, the name of the northeastern part of Thailand where the type species occurs, and *Potamon*, the name of the type genus of the family Potamididae. Gender neuter.

Esanpotamon namsom, new species

Figs. 1, 2

Material examined.—Holotype: male (carapace width 31.3 mm, carapace length 22.7 mm), Sam Teb Waterfall, Nam Som District, Udon Thani Province, northeastern Thailand, coll. P. Naiyanetr, 26 Oct 1991 (ZRC 1997.772). Paratypes: 1 male, 3 females (largest carapace width 23.4 mm, carapace length 18.3 mm), same data as holotype (ZRC 1997.773–776), 6 males, 4 females same data as holotype (CUMZ).

Diagnosis.—As for genus.

Description.—Carapace much broader than long; dorsal surfaces almost flat, smooth, glabrous; epigastric cristae rugose, very weak (not sharp); epigastric cristae slightly anterior of postorbital cristae; epigastric cristae separated by broad Y-shaped groove; anterolateral margin cristate, lined with small, rounded granules, strongly convex; external orbital angle small, confluent with anterolateral margin, not separated by discernible cleft (sometimes with very small notch visible in smaller specimens); anterolateral and posterolateral regions lined with oblique striae, those on anterolateral regions stronger; posterolateral margins almost straight, strongly converging towards gently sinuous posterior carapace margin; frontal margin gently sinuous, with shallow, broad cleft visible when viewed frontally; supraorbital margin lined with low, rounded granules; infraorbital margin beaded with low, rounded granules; suborbital, pterygostomial and sub-branchial regions smooth; H-shaped median carapace depression shallow but distinct, confluent

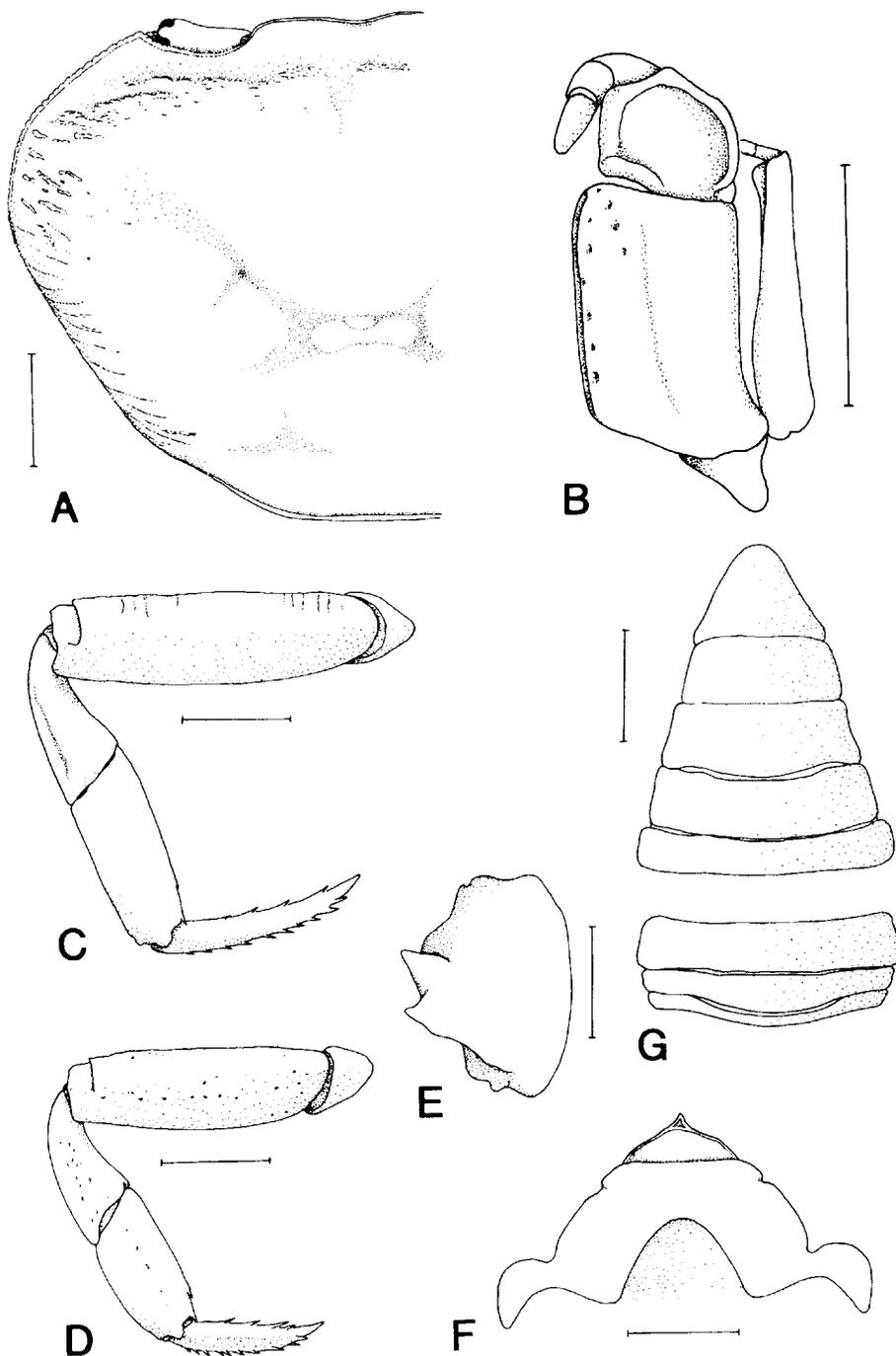


Fig. 1. *Esanpotamon namsom*, new genus and species. Holotype male (carapace width 31.3 mm, carapace length 22.7 mm) (ZRC 1997.772). A, left side of carapace; B, left third maxilliped (setae denuded); C, left third ambulatory leg (setae denuded); D, left fourth ambulatory leg (setae denuded); E, carpus of right cheliped (dorsal view); F, anterior thoracic sternites; G, abdomen (setae denuded). Scales = 5.0 mm.

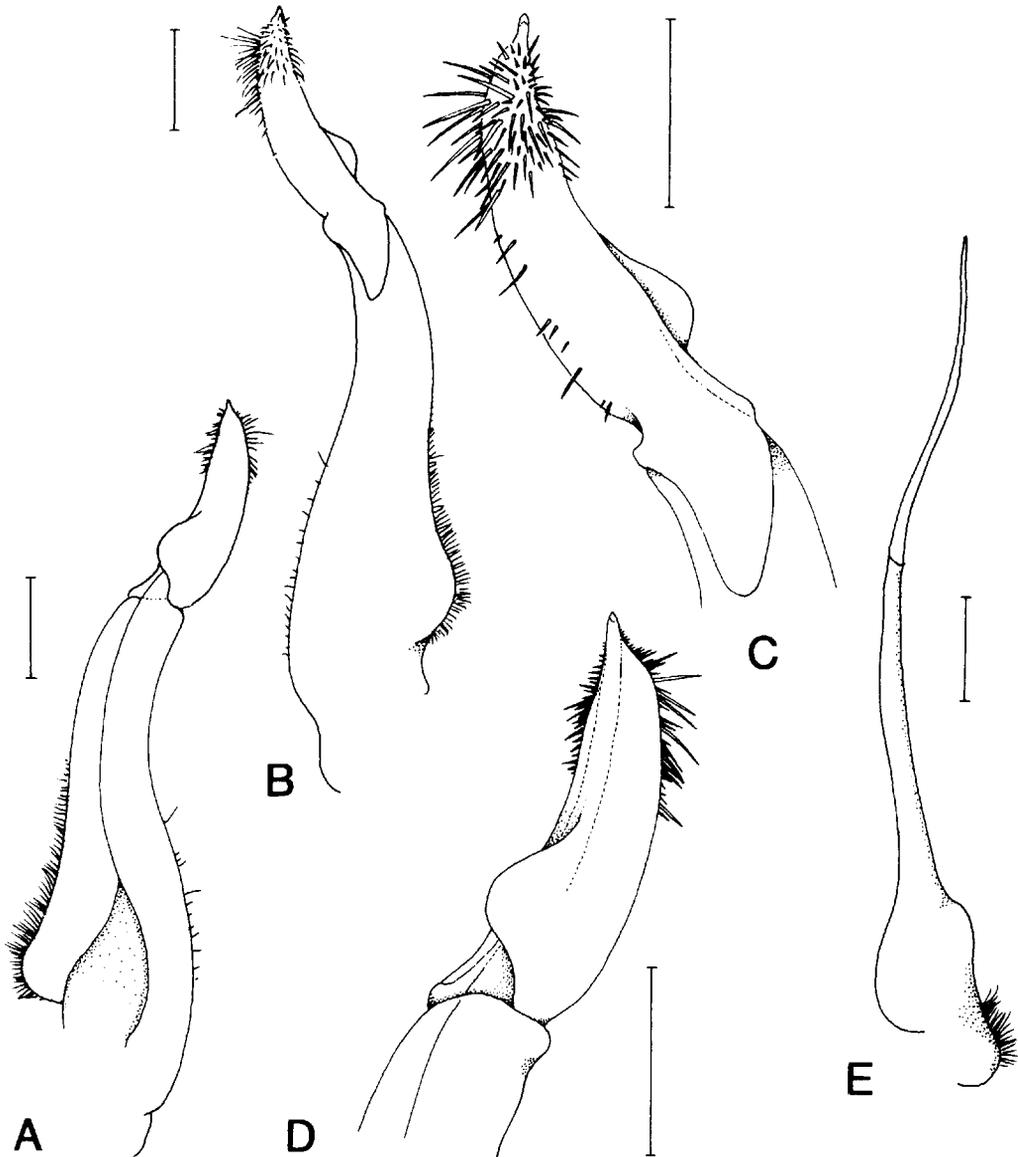


Fig. 2. *Esanpotamon namsom*, new genus and species. Holotype male (carapace width 31.3 mm, carapace length 22.7 mm) (ZRC 1997.772). A, left G1 (ventral view); B, left G1 (dorsal view); C, terminal segment of left G1 (ventral view); D, terminal segment of left G1 (dorsal view); E, left G2. Scales = 1.0 mm.

with shallow cervical grooves which reach to area between postorbital cristae and junction of antero- and posterolateral regions; shallow lateral depression present between cardiac and intestinal regions. Orbits transverse; eyes and cornea well developed. Ischium of third maxilliped rectangular, with shallow median sulcus; margins of merus

cristate with median depression; exopod slender, with long flagellum.

Male chelipeds with one chela much larger than other; female chelipeds subequal; outer surfaces of palm smooth to weakly punctate; fingers gently curving, subequal in length to palm, cutting edges with numerous broad teeth and denticles;

carpus with broad, strong, sharp tooth on inner distal angle, with smaller tooth at its base positioned at approximately right angles. Ambulatory legs of normal length; fourth leg shortest; second leg longest; merus with low (usually blunt) subterminal tooth but without subterminal spine, surface lined with weak transverse striae and sometimes weakly punctate.

Male anterior thoracic sternites smooth or weakly punctate; sternites 3 and 4 completely fused without trace of sutures; suture between sternites 2 and 3 distinct, almost straight. Male abdomen with segment 3 broadest; segments 3–6 progressively narrower and less trapezoidal; lateral margins of segment 6 gently convex; telson triangular, lateral margins almost straight, tip rounded. Female abdomen broadly oval.

G1 sinuous; subterminal segment relatively slender, gradually tapering towards distal part, gently curving outwards; terminal segment, subcylindrical, approximately 0.4 times length of subterminal segment, median part broadest, gently curving upwards (towards anterior of carapace when lying in situ), distalmost part sharply tapering, tip appearing spine-like, subdistal surfaces with numerous long, very stiff setae, proximal half with small but well developed, swollen dorsal flap. G2 approximately 1.2 times length of G1, distal segment very long, approximately 0.7 times length of basal segment.

Remarks.—*Esanpotamon namsom* is the smallest known potamid crab known from Thailand (see Ng & Naiyanetr 1993), reaching carapace widths of only about 31 mm. The largest female specimen available (23.4 by 18.3 mm, ZRC 1997.774) is not fully mature, and from the shape of its abdomen, is probably only a few moults from reaching adulthood. This suggests that the holotype male has reached the adult size. In any case, the well developed G1 of the male holotype certainly indicates it is mature.

Like other waterfall crabs, *E. namsom*

lives under rocks in clear, fast flowing streams (Naiyanetr 1978, 1988).

Etymology.—The name is derived from the name of the district where the species occurs, Nam Som. The name is used as a noun in apposition.

Acknowledgments

The study was supported in part by a grant (RP 950360) to the second author from the National University of Singapore.

Literature Cited

- Bott, R. 1966. Potamiden aus Asien (*Potamon Savigny* und *Potamiscus Alcock*) (Crustacea, Decapoda).—*Senckenbergiana Biologica* 47:469–509.
- . 1970. Die Süßwasserkrabben von Europa, Asien, Australien und ihre Stammesgeschichte. Eine Revision der Potamoidea und Parathelphusoidea (Crustacea, Decapoda).—*Abhandlungen Senckenbergischen Naturforschenden Gesellschaft* 526:1–338.
- Naiyanetr, P., 1978. The use of waterfall crabs as the evidence to indicate the relationship between the mountains of Thailand.—Abstracts of the National Conference on Agriculture and Biological Science, Animal Science Section, Kasetsart University, Bangkok, 1 pg.
- . 1986. Crab of Tenasserim Range Part II.—Abstracts of a Seminar on Wildlife of Thailand, Faculty of Forestry, Kasetsart University, Bangkok 7:11.1–11.3.
- . 1988. Freshwater crabs in Thailand.—In Book published in memory of the Royal Cremation of Associate Professor Dr. Praphun Chitachumnong, Chulalongkorn University, Phaisalsilpa Press, Bangkok, 15 pp.
- . 1992. Validation of five new species of Thai potamid crabs (Crustacea: Decapoda: Brachyura).—*Raffles Bulletin of Zoology* 40(1):1–7.
- Ng, P. K. L. 1988. The freshwater crabs of Peninsular Malaysia and Singapore. Department of Zoology, National University of Singapore, Shinglee Press, Singapore, 156 pp.
- , & P. Naiyanetr. 1993. New and recently described freshwater crabs (Crustacea: Decapoda: Brachyura: Potamidae, Gecarcinucidae and Parathelphusidae) from Thailand.—*Zoologische Verhandelingen* 284:1–117.
- Ortmann, A. 1896. Das system der Decapoden-Krebse.—*Zoologische Jahrbuchner (Systematics)* 9:409–453.
- Rathbun, M. J. 1904. Les crabes d'eau douce.—*Nouvelles Archives du Muséum d'Histoire Naturelle*, Paris (4)6:225–312, pls. 9–18.