A NEW SPECIES OF POTAMID CRAB, *ISOLAPOTAMON SEOWI* (BRACHYURA, POTAMOIDEA) FROM KOKOL HILL IN WESTERN SABAH, MALAYSIA, BORNEO

BY

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ABSTRACT

A new species of freshwater crab of the genus *Isolapotamon* Bott, 1968 (Potamidae) is described from western Sabah in Malaysian Borneo. *Isolapotamon seowi* new species, is the sixth species of *Isolapotamon* known from Sabah, and differs from its closest congener, *I. buntyae* Ng, Low & Clark, 2022, from eastern Borneo, in possessing a relatively lower carapace, a more rugose dorsal carapace surface, the postorbital cristae being sharper and subparallel with the frontal margin, relatively shorter fourth ambulatory legs, and the terminal segment of the male first gonopod is gently curved with the subdistal process slightly longer than the distal projection and angled at 90° to the longitudinal axis.

Key words. — Potamidae, Potamiscinae, freshwater crab, taxonomy, new species, Southeast Asia, Sundaland

RéSUMÉ

Une nouvelle espèce du crabe d’eau douce du genre *Isolapotamon* Bott, 1968 (Potamidae) est décrite du Sabah occidental dans le Bornéo malaisien. La nouvelle espèce *Isolapotamon seowi* est la sixième espèce du genre *Isolapotamon* connue du Sabah, et diffère du congénère le plus proche, *I. buntyae* Ng, Low & Clark, 2022, du Borneo oriental, par la possession d’une carapace relativement plus basse, par une surface de la carapace dorsale plus rugueuse, par les crêtes post-orbitales plus pointues et sub-parallèles par rapport au bord frontal, par les quatrièmes pattes ambulatoires relativement plus courtes, et par le segment terminal du premier gonopode mâle légèrement recourbé, avec le processus subdistal légèrement plus long que la projection distale et faisant un angle de 90° par rapport à l’axe longitudinal.

Mots clés. — Potamidae, Potamiscinae, crabe d’eau douce, taxonomie, nouvelle espèce, Asie du Sud-Est, Sundaland

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INTRODUCTION

The potamid freshwater crab genus Isolapotamon contains 21 species at present (Ng & Tan, 1998; Ng et al., 2008, 2022; Manuel-Santos, 2010; Mendoza & Yeo, 2014; Ng et al., 2022), known only from Borneo and Mindanao in the Philippines. Of these, 16 species are endemic to Borneo.

The Malaysian state of Sabah in northern Borneo has five recorded species, three of which are known from the highest mountain on the island, Mount Kinabalu and its environs: I. kinabaluense (Rathbun, 1904), I. anomalum (Chace, 1938) and I. griswoldi (Chace, 1938), with two other species from the eastern half of the state: I. ingeri Ng & Tan, 1998, and I. buntyae Ng, Low & Clark, 2022. Recently, the author obtained two specimens from western Sabah near the state capital Kota Kinabalu. They prove to be new to science.

The description of the new species, I. seowi and comparisons with allied taxa form the basis of the present note.

MATERIAL AND METHODS

Specimens examined are deposited in the Zoological Reference Collection (ZRC), Lee Kong Chian Natural History Museum, National University of Singapore. All measurements, in millimetres are of the maximum carapace width and length, respectively. The following abbreviations are used: asl, altitude above sea level; coll., collected by; G1, male first gonopod; G2, male second gonopod; and P2-P5 (pereiopods 2-5, respectively) (= first to fourth ambulatory legs, respectively). The terminology used follows Ng (1988, 2004) and Davie et al. (2015).

TAXONOMY

Family POTAMIDAE Ortmann, 1896
Subfamily POTAMISCINAE Bott, 1970 sensu Yeo & Ng (2003)
Genus Isolapotamon Bott, 1968

Type species.— Potamon (Potamon) anomalus Chace, 1938.

Isolapotamon seowi new species (figs. 1-4)

Material examined.— Holotype male (40.7 × 31.6 mm) (ZRC 2022.0778), Kokol Hill top, Kota Kinabalu, Sabah, East Malaysia, Borneo, ca. 6.0°N 116.2°E, ca. 800 m asl, coll. E. Lim, J. Voo & F. Seow-Choen, 4 September 2022. Paratype: 1 male (33.8 × 26.5 mm) (ZRC 2022.0779), same data as holotype.

Diagnosis.— Carapace wider than long, relatively high, dorsal surface of carapace gently convex; epigastric cristae rugose, not sharp, anterior of postorbital...
cristae; postorbital cristae sharp, subparallel with frontal margin; median lobe of posterior margin of epistome acutely triangular (fig. 2A-C). P5 merus relatively short, dactylus long (fig. 2A, F). Press button of male pleonal locking mechanism on submedian part of sternite 5 (fig. 3A). Male pleon distinctly triangular, lateral margins of somites 3-6 gently concave (fig. 2H). G1 gently sinuous; subterminal segment relatively long, with basal part broad, forming subrectangular structure, tapering suddenly distally, forming shelf-like feature on outer margin; terminal segment gently sinuous, curved, distal part bifurcated, subdistal projection positioned at 90° to longitudinal axis of terminal segment, slightly longer than distal projection, lobiform with rounded tip, lateral margins subparallel, laterally flattened (figs. 3B-E, 4A-F).

Variation.—The smaller paratype male (fig. 1B, C) agrees with the holotype in all key aspects, with the G1 structure almost identical in form.

Etymology.—The species is named after an old friend, Francis Seow-Choen, noted gastroenterologist and an expert on phasmid insects who has published several important books on the stick insect fauna of Malaysia. An intrepid explorer,
he came across the present specimens during one of his many surveys and kindly arranged for them to be passed to the author for this study.

Remarks.— The bifurcated distal part of the G1 terminal segment of *I. seowi* new species, places it with a group five other species: *I. griswoldi* (Chace, 1938) (Mount Kinabalu, Sabah), *I. collinsi* Holthuis, 1979 (Gunung Mulu and Brunei),
Fig. 3. *Isolapotamon seowi* new species, holotype male (40.7 × 31.6 mm) (ZRC 2022.778), Kokol Hill, Sabah. A, Sternopleonal cavity and gonopods in situ; B, left G1 (ventral view); C, left G1 (dorsal view); D, distal part of left G1 (ventral view); E, distal part of left G1 (ventral view); F, left G2. B-F to same scale.

Fig. 4. *Isolapotamon seowi* new species, holotype male (40.7 × 31.6 mm) (ZRC 2022.778), Kokol Hill, Sabah. A, Left G1 (ventral view); B, distal part of left G1 (ventral view); C, distal part of left G1 terminal segment (ventral view); D, distal part of left G1 terminal segment (dorsal view); E, F, distal part of left G1 terminal segment (subdorsal views); G, left G2. Scales: A, B, G = 1.0 mm; C-F = 0.5 mm.
I. nimboni Ng, 1987 (southern and central Sarawak), I. grusuphallus Ng & Yang, 1986 (southern Sarawak) and I. buntyae Ng, Low & Clark, 2022 (eastern Sabah).

With regards to the overall carapace and gonopod features, I. seowi is closest to I. buntyae, which was described from one male measuring 43.6 mm in carapace width from Ulu Dusun in eastern Borneo; and is similar in size to the holotype male of I. seowi (40.7 mm carapace width). Isolapotamon seowi differs in having the carapace relatively flatter, with the dorsal surface appearing less convex in frontal view (fig. 2C) (versus relatively higher carapace with the dorsal surface more convex in I. buntyae; Ng et al., 2022, fig. 4C); the regions adjacent to the anterolateral margins are prominently more rugose, with the rugae relatively sharper (fig. 2A, D) (versus rugosities lower and less prominent in I. buntyae; Ng et al., 2022, fig. 4A, B); the postorbital cristae are sharper and subparallel with the frontal margin (fig. 2A, B) (versus less prominent and sloping posteriorly from the front in I. buntyae; Ng et al., 2022, fig. 4A, B); the P5, notably the merus and dactylus, are relatively shorter (fig. 2A, F) (versus relatively longer in I. buntyae; Ng et al., 2022, fig. 4A); the lateral margins of male pleonal somites 3-6 are gently concave (fig. 2H) (versus gently convex to almost straight in I. buntyae; Ng et al., 2022, fig. 4F); and most significantly, the G1 terminal segment is only gently curved, the subdistal process is angled at almost 90° to the longitudinal axis of the terminal segment, and the lateral margins of the subdistal projection are parallel (figs. 3B-E, 4A-F) (versus G1 terminal segment strongly curved, C-shaped, the subdistal process is angled at about 70° to the longitudinal axis of the terminal segment, and the lateral margins of the subdistal projection are diverging towards a wider tip in I. buntyae; Ng et al., 2022, fig. 5B-E, 6E-G).

The G1 subdistal projection being at an angle of about 90° to the main longitudinal axis is a character I. seowi shares with I. collinsi, I. griswoldi and I. grusophallus. Isolapotamon collinsi and I. grusophallus are distinct because the subdistal projection is prominently longer than the distal projection (cf. Ng & Tan, 1998, figs. 5A-D, 6A-D; Grinang et al., 2014, fig. 5; Ng et al., 2022, fig. 7D-G, I-L). In I. griswoldi, the overall G1 is proportionately shorter and the terminal segment is more strongly curved (cf. Ng & Tan, 1998, figs. 5M-P).

There are also differences in the basal part of the G1 subterminal segment. It is prominently wider, narrowing suddenly towards the terminal segment, forming a shelf-like structure on the outer margin in I. griswoldi, I. grusophallus, I. buntyae and I. seowi (cf. figs. 3B, C, 4A, B; Ng & Tan, 1998, figs. 5M, N, 6A, B; Grinang et al., 2014, fig. 5), but in I. collinsi and I. nimboni, the wide basal part of the G1 subterminal segment tapers more gradually, not forming an shelf-like structure (Ng & Tan, 1998, figs. 5A, B, 10I, J; Ng et al., 2022, fig. 7D-G, I-L).

Ecology.— The specimens of I. seowi were obtained at night at around 11 p.m., shortly after heavy rain, in a small cement drain with cracks at the bottom, next
to a fruit tree orchard; the running water being clear and the substrate full of dead leaves. One specimen was observed feeding on the detritus. The drain was being cleared of detritus by locals as part of regular maintenance when the crabs were found and passed to the collectors. The area is private land, unprotected and has been impacted by human development, the only extant forest being about a kilometre downhill. The vegetation in this area has been disturbed by local villagers and only sites much deeper in the forest still have primary forest. *Isolapotamon* crabs are normally found in pristine habitats, occurring in primary forest streams and rivers (Grinang et al., 2016), so the present specimens of *I. seowi* may just be remnants of the original population.

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