Nine new species of freshwater crabs (Decapoda: Brachyura: Potamidae) from Yunnan Province, China (#22317)

First submission

Editor guidance

Please submit by **14 Jan 2018** for the benefit of the authors (and your $200 publishing discount).

Structure and Criteria
Please read the 'Structure and Criteria' page for general guidance.

Custom checks
Make sure you include the custom checks shown below, in your review.

Raw data check
Review the raw data. Download from the materials page.

Image check
Check that figures and images have not been inappropriately manipulated.

Privacy reminder: If uploading an annotated PDF, remove identifiable information to remain anonymous.

Files
Download and review all files from the materials page.

29 Figure file(s)
1 Other file(s)

Custom checks

New species checks

- Have you checked our new species policies?
- Do you agree that it is a new species?
- Is it correctly described e.g. meets ICZN standard?

Structure and Criteria

2

Structure your review

The review form is divided into 5 sections.
Please consider these when composing your review:

1. **BASIC REPORTING**
2. **EXPERIMENTAL DESIGN**
3. **VALIDITY OF THE FINDINGS**
4. General comments
5. Confidential notes to the editor

You can also annotate this PDF and upload it as part of your review

When ready submit online.

Editorial Criteria

Use these criteria points to structure your review. The full detailed editorial criteria is on your guidance page.

BASIC REPORTING

- Clear, unambiguous, professional English language used throughout.
- Intro & background to show context. Literature well referenced & relevant.
- Structure conforms to PeerJ standards, discipline norm, or improved for clarity.
- Figures are relevant, high quality, well labelled & described.
- Raw data supplied (see PeerJ policy).

EXPERIMENTAL DESIGN

- Original primary research within Scope of the journal.
- Research question well defined, relevant & meaningful. It is stated how the research fills an identified knowledge gap.
- Rigorous investigation performed to a high technical & ethical standard.
- Methods described with sufficient detail & information to replicate.

VALIDITY OF THE FINDINGS

- Impact and novelty not assessed. Negative/inconclusive results accepted. *Meaningful* replication encouraged where rationale & benefit to literature is clearly stated.
- Data is robust, statistically sound, & controlled.
- Conclusions are well stated, linked to original research question & limited to supporting results.
- Speculation is welcome, but should be identified as such.

Standout reviewing tips

The best reviewers use these techniques

Tip	*Example*
Support criticisms with evidence from the text or from other sources	*Smith et al (J of Methodology, 2005, V3, pp 123) have shown that the analysis you use in Lines 241-250 is not the most appropriate for this situation. Please explain why you used this method.*
Give specific suggestions on how to improve the manuscript	*Your introduction needs more detail. I suggest that you improve the description at lines 57- 86 to provide more justification for your study (specifically, you should expand upon the knowledge gap being filled).*
Comment on language and grammar issues	*The English language should be improved to ensure that an international audience can clearly understand your text. Some examples where the language could be improved include lines 23, 77, 121, 128 – the current phrasing makes comprehension difficult.*
Organize by importance of the issues, and number your points	*1. Your most important issue* *2. The next most important item* *3. …* *4. The least important points*
Please provide constructive criticism, and avoid personal opinions	*I thank you for providing the raw data, however your supplemental files need more descriptive metadata identifiers to be useful to future readers. Although your results are compelling, the data analysis should be improved in the following ways: AA, BB, CC*
Comment on strengths (as well as weaknesses) of the manuscript	*I commend the authors for their extensive data set, compiled over many years of detailed fieldwork. In addition, the manuscript is clearly written in professional, unambiguous language. If there is a weakness, it is in the statistical analysis (as I have noted above) which should be improved upon before Acceptance.*

Nine new species of freshwater crabs (Decapoda: Brachyura: Potamidae) from Yunnan Province, China

Tohru Naruse [1] , **Jing En Chia** [2] , **Xianmin Zhou** Corresp. [3, 4]

[1] University of the Ryukyus, Tropical Biosphere Research Center, Okinawa, Japan

[2] Department of Biological Sciences, Tropical Marine Science Institute, Singapore, Republic of Singapore

[3] School of Basic Medical Sciences, Nanchang University, Research lab of Freshwater Crustacean Decapoda & Paragonimus, Nanchang, People's Republic of China

[4] Nanchang University, Key Laboratory of Poyang Lake Environment and Resource Utilization Supported by the Ministry of Education, Nanchang, People's Republic of China

Corresponding Author: Xianmin Zhou
Email address: zhouxmjxmu@ncu.edu.cn

We describe nine new species of potamid freshwater crabs from Yunnan Province, China. These include five species of the genus *Indochinamon* Yeo & Ng, 2007, two species of the genus *Potamiscus* Alcock, 1909, and one species each of the genera *Pararanguna* Dai & Chen, 1985, and *Parvuspotamon* Dai & Bo, 1994. These new species are compared with morphologically allied species in detail. Photographs of the type specimens of some comparative species are also provided to allow better understanding of those have not previously been well illustrated.

Nine new species of freshwater crabs (Decapoda: Brachyura: Potamidae) from Yunnan Province, China

Tohru Naruse[1], Jing En Chia[2] and Xianmin Zhou[3, 4]

[1]Tropical Biosphere Research Center, Iriomote Station, University of the Ryukyus, 870 Uehara, Taketomi, Okinawa 907-1541, Japan

[2]Department of Biological Sciences, National University of Singapore, 14 Science Drive 4, Singapore 117543, Republic of Singapore

[3]Research lab of Freshwater Crustacean Decapoda & Paragonimus, School of Basic Medical Sciences, Nanchang University, 461 Bayi Avenue, Nanchang City, Jiangxi Province 330006, People's Republic of China

[4]Key Laboratory of Payang Lake Environment and Resource Utilization, Ministry of Education, Nanchang University, 461 Bayi Avenue, Nanchang City, Jiangxi Province 330006, People's Republic of China

Corresponding author: Xianmin Zhou, zhouxmjxmu@ncu.edu.cn

ABSTRACT

We describe nine new species of potamid freshwater crabs from Yunnan Province, China. These include five species of the genus *Indochinamon* Yeo & Ng, 2007, two species of the genus *Potamiscus* Alcock, 1909, and one species each of the genera *Pararanguna* Dai & Chen, 1985, and *Parvuspotamon* Dai & Bo, 1994. These new species are compared with morphologically allied species in detail. Photographs of the type specimens of some comparative species are also provided to allow better understanding of those have not previously been well illustrated.

Subjects Biodiversity, Taxonomy, Zoology

Keywords Freshwater crab, Potamidae, *Indochinamon*, *Pararanguna*, *Parvuspotamon*, *Potamiscus,* Yunnan, China, taxonomy, new species

INTRODUCTION

China is the world's most species-rich country ~~of the~~ freshwater crabs~~;~~ more than 200 species ~~have been recorded from the country~~ (Dai, 1999; Cumberlidge et al., 2009; 2011; Cumberlidge & Ng, 2009). ~~As Cumberlidge et al. (2011: 46) indicated that there are "(d)ozens of new species remain undescribed",~~ ~~more and more new taxa have been described~~ (Cheng, Lin & Li, 2010; Chu, Sun & Sun, 2017; Chu, Zhou & Sun, 2017; Do, Shih & Huang, 2016; Huang, Huang & Ng, 2012; Huang, Mao & Huang, 2014; Huang, Shih & Mao, 2016; Huang, Ahyong & Shih, 2017; Huang, Shih & Ng, 2017; Lin, Cheng & Chen 2012; 2013; Naruse, Zhu & Zhou, 2013; Ng, 2017; Zhu, Naruse & Zhou, 2010).

Yunnan Province is located in southwestern China at the meeting point of the eastern Asia monsoon region, the Tibetan Plateau region and the tropical monsoon region of southern Asia and Indo-China. ~~Significant~~ range ~~of~~ the province~~'s elevation from~~ 76.4 m to 6,740 m and the presence of at least six major river systems (Irrawaddy, Mekong, Pearl, Red, Salween, and Yangtze) have contributed a wide range of habitats, topographies and its rich biota (Kunming Institute of Zoology, CAS 1999; Yang et al., 2004). Indeed, Yunnan hosts 50 species of ~~the~~ freshwater crab~~s~~ in 15 genera (Dai, 1999; Dai & Cai, 1998; Naruse, Yeo & Zhou, 2008; Chu, Zhou & Sun, 2017), which represents the highest number of freshwater crab species in the provinces ~~in~~ China. The present study serves to describe nine new species of potamid freshwater crabs from Yunnan that includes four genera, viz., *Indochinamon* Yeo & Ng, 2007, *Pararanguna* Dai & Chen, 1985, *Parvuspotamon* Dai & Bo, 1994, and *Potamiscus* Alcock, 1909.

METHODS

Specimens examined were collected by members of Chuxiong Medical College, Yunnan, and National University of Singapore for our study and are deposited in the Department of Parasitology, Medical College of Nanchang University, Nanchang (NCU MCP); the Zoological Reference Collection (ZRC), Lee Kong Chian Natural History Museum (previously Raffles Museum of Biodiversity Research), National University of Singapore; the Institute of Zoology, the Chinese Academy of Sciences, Beijing (CB); and the Ryukyu University Museum (RUMF), University of the Ryukyus, Okinawa. Measurements provided are of the carapace length (CL) by the carapace width (CW). Terminology used in descriptive accounts essentially follows Ng (1988) and Yeo & Ng (2007). The abbreviations G1 and G2 are used for the male first and second gonopods, respectively.

Morphology of some comparative species were previously not well illustrated, which sometime makes difficult to conduct taxonomic work. A part of photographs taken by a team of the third author (XZ) were shown in this study. Data of those specimens were as follows: *Indochinamon gengmaense* (Dai, 1995), holotype male (CB05192 YN6491119A), Mengding Town, Dima County Yunnan Province, coll. 7 May 1964. *Indochinamon chinghungense* (Dai, Song, He, Cao, Xu and Zhong, 1975), holotype male (CB05166 YN 637507) (47.8 × 37.0 mm), Tuanshanzai Town Jinghong County, Yunnan Province, coll. 9 Dec. 1963. *Indochinamon boshanense* (Dai & Chen, 1985), holotype male (CB05160 HD8183031), Daojie Town, Baoshan County, Yunnan Province, coll. 17 Oct. 1981. *Indochinamon jianchuanense* (Dai & Chen, 1985), holotype male (CB05159 HD 8183030), Lingcheng Town, Jianchuan County, Yunnan Province, coll. 28 Sep. 1981. *Indochinamon menglaense* (Dai & Cai, 1998), holotype male (CB05168 YN-9496196A), (43.1 × 33.2 mm), Shangyong, Mengla County, Yunnan Province, coll., 23–26 Apr. 1994. *Pararanguna semilunata* (Dai & Chen, 1985), holotype male (CB05191 HD 8183034), Xiyi Town, Baoshan County, Yunnan Province, coll. 13 Oct. 1981. *Parvuspotamon yuxiense* Dai & Bo, 1994, holotype male (CB05138 YN 9091116A), Xingping, Yuxi County, Yunnan Province, coll. Aug. 1989. *Potamiscus motuoensis* Dai, 1990, holotype male (CB05157 XZ6389084), Motuo County, Tibet, coll. 29 Jul. 1983. *Potamiscus yongshengensis* Dai & Chen, 1985, holotype male (CB05149 HD 8183035), Yongsheng County, Yunnan Province, coll. 22 Aug. 1981.

The electronic version of this article in Portable Document Format (PDF) will represent a published work according to the International Commission on Zoological Nomenclature (ICZN), and hence the new names contained in the electronic version are effectively published under that Code from the electronic edition alone. This published work and the nomenclatural acts it contains have been registered in ZooBank, the online registration system for the ICZN. The ZooBank LSIDs (Life Science Identifiers) can be resolved and the associated information viewed through any standard web browser by appending the LSID to the prefix http://zoobank.org/. The LSID for this publication is: urn:lsid:zoobank.org:pub:642C4FCB-905B-48DB-8E01-96C87249D809. The online version of this work is archived and available from the following digital repositories: PeerJ, PubMed Central and CLOCKSS.

RESULTS

Systematics

Family Potamidae Ortmann, 1896

Subfamily Potamiscinae Ortmann, 1896 (sensu Yeo & Ng, 2003)

Indochinamon Yeo & Ng, 2007

Indochinamon ahkense sp. n.

urn:lsid:zoobank.org:act:98393C16-DDA8-4A13-A9A3-C8778C17E8E6
Figures 1–3.

Material examined. Holotype male (41.3 × 32.0 mm) (NCU MCP 2013.0003), Shaping Village, Ahke Town, Guangnan County, Yunnan Province, China, coll. Chen Zeng Long, 1 Feb. 2004.

Paratypes: 7 males (largest 33.8 × 26.3 mm), 3 females (largest 43.3 × 33.4 mm) (NCU MCP 2013.0004); 4 males (largest 38.4 × 29.7 mm), 2 females (larger 43.1 × 33.2 mm) (ZRC 2013.0551), 2 males (larger 35.6 × 27.4 mm), 2 females (larger 32.5 × 24.9 mm) (RUMF-ZC-2366), same data as holotype.

Diagnosis. Carapace (Fig. 1A) broader than long; dorsal surface (Fig. 1B) flat, regions demarcated, with short, indistinct setae on metabranchial region; cervical groove distinct, deep, reaching postorbital cristae; epigastric cristae rounded, not sharp, distinctly anterior to postorbital cristae, separated from postorbital cristae by distinct groove; postorbital cristae sharp, not cristate, not reaching epibranchial tooth; regions behind epigastric and postorbital cristae rugose, branchial region weakly granulose; antennular fossae (Fig. 1B) rectangular in anterior view; external orbital angle broadly triangular, outer margin longer than inner margin, distinctly cristate, with shallow notch demarcating it from epibranchial tooth; epibranchial tooth distinct; anterolateral margin convex, serrated, distinctly cristate, confluent with posterolateral margin. Epistome (Fig. 1B) posterior margin median tooth well-developed, laterally sloping downwards, only slightly arching. Third maxilliped (Figs. 1B, 2A) exopod with distinct flagellum exceeding two-third merus width. Ambulatory legs (Fig. 1A) with mid-length, slender dactyli, carpi with well-defined median ridges; dactyli of last pair of ambulatory legs about same median length as propodi. Suture between sternites 3 and 4 (Fig. 2A) distinct, straight; pleonal cavity reaching imaginary line joining median part of cheliped bases. Male pleon (Fig. 2A) narrowly triangular;

telson broadly triangular, proximal width about 1.2 times its median length; segment 6 trapezoidal, proximal width about 2.2 times median length. G1 (Fig. 3A–C) terminal segment slender, subconical, tapered tip, slightly curved, bent obliquely outwards, with rather broad neck between terminal and subterminal segments; subterminal segment with distinct cleft on upper part of outer margin.

Etymology. The species is named after the locality in which it is found.

Remarks. *Indochinamon ahkense* sp. n. closely resembles *I. gengmaense* (Dai, 1995) in its general carapace morphology and in the slender, subconical, slightly curved G1 terminal segment with a tapered tip and bent obliquely outward. However, *I. ahkense* sp. n. can be distinguished from *I. gengmaense* by the following characters: external orbital angle blunt, with shallow notch demarcating it from epibranchial tooth (versus external orbital angle acute, with deep notch demarcating it from epibranchial tooth); and rather broad border between G1 terminal and subterminal segments (versus narrow border between G1 terminal and subterminal segments) (Figs. 1A, 2A, 3A–C; versus Fig. 4A, F; Dai, 1995: fig. 5 (4, 5), pl. 1 fig. 5; Dai, 1999: fig. 98 (4, 5), pl. 12 fig. 1).

The new species is also similar to *I. tannanti* (Rathbun, 1904) and *I. orleansi* (Rathbun, 1904) in their shapes of the G1. *Indochinamon ahkense* sp. n. can be distinguished from *I. tannanti* by flatter carapace (versus slightly convex), epistome posterior margin divergent posteriorly (versus almost straight), and proportionally wider telson (versus telson proportionally narrower) (Figs. 1A, B, 2A; versus Yeo & Ng, 1998: fig. 1B, C). The new species can be differentiated from *I. orleansi* by its straight lateral margins of telson (versus lateral margins concave), and sharp and distinct epibranchial tooth (versus epibranchial tooth low) (Figs. 1A, 2A; versus Rathbun, 1904: fig. 20; Yeo & Ng, 1998: fig. 6B).

Distribution. Shaping Village, Ahke Town, Guangnan County, Yunnan Province, China.

***Indochinamon jingguense* sp. n.**

urn:lsid:zoobank.org:act:A2CE6AC9-8299-406E-B04B-F8135FA822EC

Figures 5–7.

Material examined. Holotype male (58.0 × 46.0 mm) (NCU MCP 2013.0007), Jinggu market, Mekong Basin, Simao, Yunnan Province, China, coll. Tan Heok Hui, 22 May 2000.

Paratypes: 4 males (largest 57.0 × 43.0 mm), 4 females (largest 53.5 × 42.1 mm), (ZRC 2013.0552), 4 males (largest 59.4 × 44.6 mm), 2 females (larger 46.2 × 37.0 mm) (ZRC 2013.0553), 3 males (largest 58.3 × 44.7 mm), 2 females (larger 50.8 × 37.5 mm) (RUMF-ZC-2367), same data as holotype; 2 males (larger 42.2 × 32.5 mm) (RUMF-ZC-2368), hill stream 20 km from Simao to Pu'er near border between Simao and Pu'er, Mekong Basin, Simao, Yunnan Province, China, coll. Tan Heok Hui, 20 May 2000.

Others: 6 males (largest 42.9 × 33.7 mm), 4 females (largest 40.3 × 31.3 mm), 4 juveniles (NCU MCP 2013.0009), 3 males (largest 41.4 × 32.1 mm) (ZRC 2013.0554), Jinggu county, Zhongshang countryside, Yunnan Province, China, coll. Chen Yan, 26 Feb. 2004.

Diagnosis. Carapace (Fig. 5A) broader than long; dorsal surface (Fig. 5B) relatively flat, glabrous; postorbital cristae not confluent with epibranchial teeth; epibranchial region and regions behind epigastric and postorbital cristae rugose; cervical groove distinct, deep; epigastric cristae raised, rounded, rugose, separated by distinct groove which opens up into V-shape posteriorly, distinctly anterior to postorbital cristae; postorbital cristae sharp, straight, rugose; external orbital angle triangular, strongly developed, with deep, narrow cleft separating it from epibranchial tooth; epibranchial tooth distinct; anterolateral margin convex, granular. Epistome (Fig. 6B) posterior margin median tooth well-developed, laterally sloping downwards, straight to gently concave. Third maxilliped (Figs. 5B, 6A) exopod with distinct flagellum about two-thirds merus width. Ambulatory legs (Fig. 5A) with long, slender dactyli; second pair longest, about 8.5 times 1onger than proximal width. Suture between anterior thoracic sternites 3 and 4 (Fig. 6A) distinct, laterally curved posteriorly; pleonal cavity reaching imaginary line joining median part of cheliped bases. Male pleon (Fig. 6A) narrowly triangular. G1 (Fig. 7A–D) sinuous; terminal segment relatively short, about 0.32 times the length of subterminal segment, subconical, obliquely bent outwards, convexly curved along inner margin, about 2.8 times longer than broad, groove for G2 marginal; subterminal segment gently sinuous, slender, without distinct cleft on upper part of outer margin. G2 (Fig. 7E) distal segment distinctly longer than half of basal segment.

Etymology. The species is named after the locality in which it is found.

Remarks. *Indochinamon jingguense* sp. n. has considerable similarity with congeners from northern Indochina, especially *I. villosum* (Yeo & Ng, 1998), *I. orleansi* (Rathbun, 1904) and *I. phongnha* Naruse, Quynh & Yeo, 2011, in their general shape of the carapace and G1.

Indochinamon jingguense sp. n. can be distinguished from *I. villosum* by less sinuous G1 (versus more sinuous) (Figs. 7A–D; versus Yeo & Ng, 1998: fig. 5I–K, M, N). The new species can be differentiated from *I. orleansi* by the following characters: sharp and distinct epibranchial tooth (versus epibranchial tooth low), anterolateral margin lined with sharp, large granules (versus anterolateral margin lined with small granules), and sharp and distinct postorbital cristae (versus relatively sharp but low postorbital cristae) (Fig. 5A; versus Yeo & Ng, 1998: fig. 6B). The new species can be distinguished from *I. phongnha* by the following characters: suborbital region smooth and lacking granules (versus suborbital region scattered with granules), outer and upper surfaces of chela with sparsely placed granules (versus outer and upper surfaces of chela forming reticulated pattern), and distal portion of subterminal segment of G1 weakly curved laterally (versus strongly curved) (Figs. 5A, B, 6B, 7A–D; versus Naruse, Nguyen & Yeo, 2011: fig. 8a, b, 9a, b).

The new species also resembles *I. chinghungense* (Dai, Song, He, Cao, Xu and Zhong, 1975), especially if non-adult individuals are observed. However, adult specimens have relatively broader G1 subterminal segments as compared to that of *I. chinghungense*, which is evidently ~~slenderer~~. The G1s of mid-sized to near full-sized individuals of this species may appear slender and sinuous like adult specimens of *I. chinghungense*, therefore the size of the specimens must be taken into consideration when identifying specimens. Moreover, *I. jingguense* can be distinguished from *I. chinghungense* by the presence of the slight hump on the inner margin of the G1 terminal segment (versus no hump on the inner margin of the G1 terminal segment) (Figs. 7A–D versus Fig. 4G; Dai et al. 1975: fig. 3; Dai, 1999: fig. 86, pl. 10 fig. 5).

Distribution. Mekong Basin, Simao and Jinggu Counties, Zhongshang, Yunnan.

***Indochinamon parpidum* sp. n.**

urn:lsid:zoobank.org:act:FC1B9878-292C-4492-8A8D-44C7935A6904

Figures 8–10.

Material examined. Holotype male (47.1 × 36.5 mm) (NCU MCP 2013.0015), Niuyu Town, Shiping County, Yunnan Province, China, coll. Li Hai Chun, 23 Feb. 2004.

Paratypes: 4 males (largest 29.1 × 22.2 mm), 10 females (largest 45.3 × 33.0 mm) (NCU MCP 2013.0016), 2 males (larger 43.4 × 32.3 mm), 2 females (larger 35.0 × 26.2 mm) (ZRC

2013.0558), 2 males (larger 39.3 × 29.7 mm), 2 females (larger 33.5 × 25.6 mm) (RUMF-ZC-2371), same data as holotype.

Diagnosis. Carapace (Fig. 8A) broader than long; dorsal surface (Fig. 8B) flat; cervical groove distinct, relatively deep, reaching postorbital cristae; epigastric cristae strong, raised, rounded, distinctly anterior to postorbital cristae; postorbital cristae sharp, breaking out into granules just before reaching epibranchial tooth, slanting posterolaterally towards anterolateral margin, not confluent with epibranchial teeth; branchial region and regions behind epigastric and postorbital cristae rugose; frontal margin gently sinuous; antennular fossae rectangular (Fig. 8B) in anterior view; external orbital angle broadly triangular, with shallow, weak notch demarcating it from epibranchial tooth; epibranchial tooth present, very small, poorly developed; anterolateral margin convex, running inwards posteriorly. Epistome (Fig. 8B) posterior margin with median tooth well-developed, acutely triangular; laterally sloping downwards, almost straight. Third maxilliped (Figs. 8B, 9A) exopod with distinct flagellum about two-thirds merus width. Suture between sternites 3 and 4 (Fig. 9A) distinct, straight; lateral margins of sternite 4 straight; pleonal cavity reaching imaginary line joining median part of cheliped bases. Male pleon (Fig. 9A) narrowly triangular; telson broadly triangular, lateral margins distinctly concave; ~~segment~~ 6 trapezoidal, proximal width about 2.1 times its median length, lateral margins convex; lateral margins of ~~segments~~ 3 straight. G1 (Fig. 10) terminal segment short, subconical, with bulge of constant width that gradually tapers distally along inner margin, strongly obliquely bent outwards, curved distally with narrowly tapered tip, groove for G2 marginal; subterminal segment gently sinuous, slender, with cleft on upper part of outer margin.

Etymology. The species name is a combination of *par*, Latin for resemble, with the species name *Indochinamon hispidum* (Wood-Mason, 1871), alluding to the shape of the G1 terminal segment.

Remarks. *Indochinamon parpidum* sp. n. closely resembles *I. hispidum* (Wood-Mason, 1871), in general carapace morphology and in the short, subconical G1 terminal segment obliquely bent outwards, curved distally, with a low, broad dorsal flap. However, *I. parpidum* sp. n. can be distinguished from *I. hispidum* by the following characters: G1 terminal segment with bulge that gradually tapers distally along the inner margin (versus G1 terminal segment with narrow bulge of constant width along inner margin); G1 terminal segment strongly, obliquely bent outwards with a narrowly tapered tip (versus G1 terminal segment obliquely bent outwards to a lesser

249 degree with a broadly tapered tip); and G1 subterminal segment with a cleft on the upper part of
250 the outer margin (versus G1 subterminal segment without a cleft on the upper part of the outer
251 margin) (Fig. 10A–C; versus Dai, 1999: fig. 94 (4, 5)).
252 *Indochinamon parpidum* sp. n. also morphologically similar to *I. guttum* (Yeo & Ng, 1998),
253 but the former can be distinguished from the latter by the distal portion of G1 subterminal
254 segment gradually bent laterally (versus abruptly bent laterally) (Fig. 10A–C; versus Yeo & Ng,
255 1998: fig. 4K–M).
256 **Distribution.** Niuyu Town, Shiping County, Yunnan Province, China.
257
258 ***Indochinamon aozaoense* sp. n.**
259 urn:lsid:zoobank.org:act:B1E8716A-894F-44E6-8D41-7226FAF9BE28
260 Figures 11–13.
261
262 **Material examined.** Holotype male (45.3 × 33.2 mm) (NCU MCP 2013.0005), Aozao
263 Village, Tuzi Town, Nanhua County, Yunnan Province, China, coll. He Yong Gang, 23 Feb.
264 2004.
265 Paratypes: 3 females (largest 35.6 × 26.7 mm) (NCU MCP 2013.0006), same data as holotype.
266 **Diagnosis.** Carapace (Fig. 11A) broader than long; dorsal surface (Fig. 11B) flat, short setae
267 present on branchial and metabranchial regions, with regions distinctly demarcated; cervical
268 groove distinct, relatively deep; epigastric cristae strong, raised, rounded, distinctly anterior to
269 postorbital cristae, separated from postorbital cristae by shallow groove; postorbital cristae sharp,
270 breaking out into granules just before reaching epibranchial tooth; branchial region and regions
271 behind epigastric and postorbital cristae rugose; antennular fossae (Fig. 11B) rectangular in
272 anterior view; external orbital angle broadly triangular, with distinct, shallow notch demarcating
273 it from epibranchial tooth; epibranchial tooth distinct; anterolateral margin convex, granular,
274 confluent with posterolateral margin; epistomal region narrow. Epistome (Fig. 11B) posterior
275 margin with median tooth well-developed; laterally sloping downwards, gently arched. Third
276 maxilliped (Figs. 11B, 12A) exopod with distinct flagellum about half merus width. Ambulatory
277 legs (Fig. 11A) with short, stout dactyli, carpi with sharply defined median ridges, meri rugose;
278 dactyli of last pair of ambulatory legs with median length about 5.7 times its proximal width,
279 about same median length as propodi. Suture between sternites 3 and 4 (Fig. 12A) distinct,

shallow, medially concave; lateral margins of sternite 4 distinctly concave; pleonal cavity reaching imaginary line joining median part of cheliped bases. Male pleon (Fig. 12A) narrowly triangular; telson broadly triangular, with lateral margins gently concave; ~~segment~~ 6 trapezoidal, lateral margins straight; lateral margins of ~~segment~~ 3 distinctly concave. G1 (Fig. 13A–D) terminal segment short, subconical, strongly bent obliquely outwards, about 0.24 times the length of subterminal segment, with tapering tip; inner margin forming a bulge of constant width; outer margin sinuous, with a cleft along upper part of outer margin; subterminal segment with distinct cleft on upper part of outer margin, greatest width about 0.41 times its length.

Etymology. The species is named after the locality in which it ~~is~~ found.

Remarks. *Indochinamon aozaoense* sp. n. closely resembles *I. boshanense* (Dai & Chen, 1985), in its general carapace morphology and in the short, subconical G1 terminal segment being strongly bent obliquely outwards, with a slight hump along the outer margin at the proximal end and a sinuous outer margin. However, *I. aozaoense* sp. n. can be distinguished from *I. boshanense* by the following characters: epigastric cristae strong (versus epigastric cristae relatively weak); lateral margins of the telson of the male pleon gently concave (versus lateral margins of the telson distinctly and widely concave); and G1 terminal segment with a broad bugle of constant width along the inner margin (versus G1 terminal segment with a relatively narrow bulge along the inner margin) (Figs. 11A, 12A, 13; versus Fig. 4C; Dai & Chen, 1985: fig. 2(4, 5, 7), pl. 1 fig. 2; Dai, 1999: fig. 96 (2, 4, 5), pl. 11 fig. 7).

The new species is also morphologically similar to *I. jianchuanense* (Dai & Chen, 1985), but the former can be differentiated from the latter by the G1 distal segment ~~strongly bent~~ (versus the bent is weaker); and bulge on the inner margin of G1 distal segment ~~larger~~ (versus narrower) (Fig. 13; versus Fig. 4I; Dai & Chen, 1985: fig. 1 (4, 5); Dai 1999: fig. 95 (4, 5)).

The new species can be distinguished from *I. menglaense* (Dai & Cai, 1998) by the anterolateral margin of the carapace being lined with rounded granules (versus anterolateral margin lined with spine-like granules); telson lateral margins ~~slightly concave~~ (versus distinctly concave); and bulge on the inner margin of G1 distal segment ~~with constant width~~ (versus more produced, rounded) (Figs. 11A, 12A, 13 versus Fig. 4E, J; Dai & Cai, 1998: figs. 12, 14, 15).

The new species differs from *I. dangi* Naruse, Quynh & Yeo, 2011, in the following characters: infraorbital margin straight mesially and curving upwards laterally (versus infraorbital margin almost entirely straight and oblique); G1 distal segment bent less (versus

distal segment bent more); and the bulge on the inner margin of G1 distal segment with constant width (versus the bulge absent) (Figs. 11B, 13 versus Naruse, Nguyen & Yeo, 2011: figs. 9d, e, 11a).

Distribution. Aozao Village, Tuzi Town, Nanhua County, Yunnan Province, China.

***Indochinamon lui* sp. n.**

urn:lsid:zoobank.org:act:3FAF5B0F-9963-4F00-9DBD-5FDE982DD04E

Figures 14–16.

Material examined. Holotype male (43.0 × 32.9 mm) (NCU MCP 2013.0010), Fuhuai Town, Yun County, Yunnan Province, China, coll. Lu Yong Feng, 24 Feb. 2004.

Paratypes: 2 males (larger 30.8 × 23.3 mm), 1 female (36.9 × 27.5 mm) (NCU MCP 2013.0011), 2 males (larger 33.1 × 25.0 mm), 1 female (31.4 × 23.6 mm) (ZRC 2013.0555), 1 male (25.5 × 19.6 mm), 1 female (34.8 × 26.2 mm) (RUMF-ZC- 2369), same data as holotype;

Others: 1 male (40.3 × 30.2 mm), 6 females (largest 36.2 × 28.1 mm), 5 juveniles (NCU MCP 2013.0012), 2 males (larger 32.2 × 24.9 mm) (ZRC 2013.0556), Dashan Village, Xueshan Town, Fengqing County, Yunnan Province, China, coll. Yang Zheng Bing, 1 Feb 2004; 9 males (largest male 33.3 by 24.4 mm), 13 females (largest 41.7 × 31.2 mm) (NCU MCP 2013.0013), Xinfu Town, Yun County, Yunnan Province, China, coll. Shen Tian Juan, 26 Feb. 2004; 7 males (largest 39.3 × 29.9 mm), 9 females (largest 41.0 × 30.2 mm), 3 juveniles (NCU MCP 2013.0014), 2 males (larger 37.5 × 28.8 mm), 2 females (larger 38.6 × 28.6 mm) (ZRC 2013.0557), 3 males (largest 34.6 × 25.7 mm), 2 females (larger 38.5 × 29.0 mm) (RUMF-ZC-2370), Mongku Town, Shuangjiang County, Yunnan Province, China, coll. Li Quan Cheng, 26 Feb. 2004.

Diagnosis. Carapace (Fig. 14A) broader than long; dorsal surface (Fig. 14B) flat, sparse and short setae on branchial and metabranchial regions, with regions distinctly demarcated; cervical groove distinct, relatively deep, reaching postorbital cristae; epigastric cristae rounded, distinctly anterior to postorbital cristae, separated from postorbital cristae by shallow groove; postorbital cristae sharp, breaking out into few, weak granules just before reaching epibranchial tooth; branchial region and regions behind epigastric and postorbital cristae slightly rugose; antennular fossae (Fig. 14B) rectangular in anterior view; external orbital angle broadly triangular, with

outer margin longer than inner margin, with distinct, shallow notch demarcating it from epibranchial tooth; epibranchial tooth distinct; anterolateral margin convex, confluent with posterolateral margin. Epistome (Fig. 14B) posterior margin with median tooth well-developed, obtusely triangular; laterally sloping downwards. Third maxilliped (Figs. 14B, 15A) exopod with distinct flagellum about two-third merus width. Ambulatory legs (Fig. 14A) with short, stout dactyli, carpi with sharply defined ridges, meri rugose; dactyli of last pair of ambulatory legs with median length about 6.5 times its proximal width, about 1.1 times as long as its propodus. Suture between sternites 3 and 4 (Fig. 15A) distinct; lateral margins of sternite 4 slightly concave anteriorly; pleonal cavity just exceeding imaginary line joining medial part of cheliped bases. Male pleon (Fig. 15A) narrowly triangular; telson broadly triangular, with lateral margins gently concave; ~~segment~~ 6 trapezoidal, lateral margins straight; lateral margins of segment 3 gently concave. G1 (Fig. 16) terminal segment short, subconical, with a bulge of increasing distal width along the inner margin, bent obliquely outwards, with straight tapering tip, without dorsal flap.

Etymology. The species is named after its collector, Lu Yong Feng.

Remarks. *Indochinamon lui* sp. n. closely resembles *I. boshanense* (Dai & Chen, 1985), in general carapace morphology and in the short, subconical G1 terminal segment obliquely bent outwards, with tapering tip and without a dorsal flap. However, *I. lui* sp. n. can be distinguished from *I. boshanense* by the following characters: epibranchial tooth distinct (versus epibranchial tooth poorly developed); and G1 terminal segment ~~with~~ a bulge of increasing distal width along the inner margin and straight, tapering tip (versus G1 terminal segment with a narrow bulge of constant width along the inner margin and slightly curved, tapering tip) (Figs. 14A, 16; versus Dai & Chen, 1985: fig. 2 (4, 5), pl. 1 fig. 2; Dai, 1999: fig. 96 (4, 5), pl. 11 fig. 7).

The new species is also morphologically similar to *I. jianchuanense* (Dai & Chen, 1985), but the former can be distinguished from the latter by the following characters: G1 distal segment shorter, stouter (versus G1 distal segment longer, slender); and a bulge on the inner margin of G1 distal segment more produced distally (versus the bulge more gradually narrowed distally) (Figs. 14A, 16; versus Fig. 4I; Dai & Chen, 1985: fig. 1 (4, 5); Dai, 1999: fig. 95 (4, 5)).

The new species can be differentiated from *I. dangi* Naruse, Quynh & Yeo, 2011, by the G1 distal segment bent less (versus G1 distal segment bent more); and a bulge on the inner margin of G1 distal segment with constant width (versus the bulge absent) (Fig. 16; versus Naruse, Nguyen & Yeo, 2011: fig. 9d, e).

373 **Distribution.** Yun, Fengqing and Shuangjiang Counties, Yunnan Province, China.
374
375 ***Pararanguna*** **Dai & Chen, 1985**
376 ***Pararanguna hemicyclius*** **sp. n.**
377 urn:lsid:zoobank.org:act:8D4F20E5-B08C-41C1-91AC-DADE13A58725
378 Figures 17–19.
379
380 **Material examined.** Holotype male (14.3 × 12.5 mm) (NCU MCP 2013.0017), Dashan
381 Village, Xueshan Town, Fengqing County, Yunnan Province, China, coll. Yang Zheng Bing, 1
382 Feb. 2004.
383 Paratypes: 11 males (largest 10.6 × 9.5 mm), 10 females (largest 16.2 × 13.6 mm) (NCU MCP
384 2013.0018), 3 males (largest 14.0 × 11.9 mm), 2 females (larger 15.1 × 12.8 mm) (ZRC
385 2013.0559), 2 males (larger 16.3 × 13.5 mm), 2 females (larger 15.1 × 12.4 mm) (RUMF-ZC-
386 2372), same data as holotype.
387 Others: 20 males (largest 12.0 × 10.6 mm), 24 females (largest 15.1 × 12.9 mm) (NCU MCP
388 2013.0019), 2 males (larger 12.3 × 10.7 mm), 1 female (12.9 × 10.9 mm) (ZRC 2013.0560), 1
389 male (12.3 × 10.9 mm), 1 female (12.6 × 10.5 mm) (RUMF-ZC-2373), Fengqing County,
390 Yunnan Province, China, coll. Yang Zheng Bing, Feb. 2004.
391 **Diagnosis.** Carapace (Fig. 17A) broader than long; dorsal surface (Fig. 17B) relatively flat,
392 with regions distinctly demarcated; cervical groove present, shallow, weakly developed;
393 epigastric cristae rounded, flat, distinctly anterior to postorbital cristae; postorbital cristae weakly
394 developed, gently sloping downwards anteriorly, confluent with branchial and regions behind it;
395 branchial region and regions behind epigastric and postorbital cristae rugose; antennular fossae
396 (Fig. 17B) subtriangular in anterior view; external orbital angle acutely triangular, outer margin
397 convex and longer than inner margin, with obvious cleft demarcating it from epibranchial tooth;
398 epibranchial tooth distinct, small; anterolateral margin gently convex, confluent with
399 posterolateral margin. Epistome (Fig. 17B) posterior margin with well-developed, triangular
400 median tooth that has a pointed median tip. Third maxilliped (Figs. 17B, 18) exopod without
401 flagellum. Carpi of chelipeds with well-developed, acute spines on inner margin. Ambulatory
402 legs (Fig. 17A) hairy, with very long, slender dactyli. Suture between sternites 3 and 4 (Fig. 18)
403 indistinct; pleonal cavity reaching imaginary line joining median part of cheliped bases. Male

pleon (Fig. 18) broadly triangular; telson broadly triangular, lateral margins gently convex; segment 6 trapezoidal, lateral margins convex, proximal width about 2.8–3 times its median length. G1 (Fig. 19A–C) terminal segment stout, straight, tip truncate, rounded with slight subdistal constriction, groove for G2 marginal, dorsal flap well-developed, high, broad, with broadly convex apex in median part, gradually tapered distally and concaves proximally, appears subtriangular and stout from lateral view; subterminal segment slender. G2 (Fig. 19D) distal segment cylindrical, truncate, less than half the length of basal segment.

Etymology. The species name is derived from *hemicyclium*, Latin for semicircle, alluding to the dorsal flap of the G1 terminal segment.

Remarks. *Pararanguna hemicyclius* sp. n. closely resembles the only congener, *P. semilunata* (Dai & Chen, 1985), in its general carapace morphology and in the stout, straight G1 terminal segment which is rounded with a slight subdistal constriction, possessing a truncate tip and a well-developed, high, broad dorsal flap. However, *P. hemicyclius* can be distinguished from *P. semilunata* by the following suite of diagnostic characters: anterolateral margin of carapace less convex laterally (versus anterolateral margin strongly convex laterally); dorsal surface relatively flat with distinctly demarcated regions (versus dorsal surface gently convex and inflated with weakly demarcated regions); antennular fossae appears subtriangular in anterior view (versus antennular fossae appears rectangular in anterior view); external orbital angle acutely triangular with an obvious cleft demarcating it from the epibranchial tooth (versus external orbital angle obtusely triangular with a slight cleft demarcating it from the epibranchial tooth); epistome posterior margin median tooth with an acute tip (versus epistome posterior margin median tooth with an obtuse tip); carpi of chelipeds with well-developed, acute spines on inner margin (versus carpi of chelipeds with low, obtuse spines on inner margin); male pleon broadly triangular with telson having gently convex lateral margins (versus male pleon relatively narrowly triangular with telson having almost straight lateral margins); dorsal flap of G1 terminal segment with broadly convex apex in median part with concave proximally tapered margin (versus dorsal flap of the G1 terminal segment with a more broadly convex apex in median part with convex proximally tapered margin); and G1 terminal segment appearing subtriangular from lateral view (versus G1 terminal segment appearing columnar from lateral view) (Figs. 17–19A–C; versus Dai & Chen, 1985: fig. 16 (4, 5, 7), pl. 1 fig. 5; Dai, 1999: fig. 200, pl. 25 fig. 1).

435 **Distribution.** Dashan Village, Xueshan Town, Fengqing County, Yunnan Province, China.
436
437 ***Parvuspotamon* Dai & Bo, 1994**
438 ***Parvuspotamon diyuense* sp. n.**
439 urn:lsid:zoobank.org:act:1D4DBFB9-B5BB-49CB-90EA-4C862CD75859
440 Figures 21–23.
441
442 **Material examined.** Holotype male (25.7 × 20.0 mm) (NCU MCP 2013.0020), Huaguo
443 Village, Diyu Town, Guangnan County, Yunnan Province, China, coll. Nong Guang Lin, 25 Feb.
444 2004.
445 Paratypes: 8 males (largest 23.3 × 17.4 mm), 10 females (largest 23.3 × 17.8 mm) (NCU MCP
446 2013.0021), 5 males (largest 24.7 × 18.9 mm), 1 female (21.3 × 16.2 mm) (ZRC 2013.0561), 5
447 males (largest 23.6 × 18.1 mm), 1 female (19.3 × 14.6 mm) (RUMF-ZC-2374), same data as
448 holotype.
449 Others: 2 males (larger 16.7 × 11.9 mm), 2 females (larger 17.2 ×12.5 mm) (NCU MCP
450 2013.0022), Zhetu Village, Guangnan County, Yunnan Province, China, coll. unknown, 2 Nov.
451 2002; 1 male (16.2 × 12.5 mm), 1 female (15.8 × 12.1 mm) (NCU MCP 2013.0023),
452 Xiyangjiang, base of Jiulongshan, Zhetu Village, Guangnan County, Yunnan Province, China,
453 coll. unknown, 2 Nov. 2002.
454 **Diagnosis.** Carapace (Fig. 21A) broader than long; dorsal surface (Fig. 21B) gently convex,
455 with regions distinctly demarcated; cervical groove indistinct, shallow; epigastric cristae rounded,
456 weakly developed, separated from postorbital cristae by shallow groove; postorbital cristae
457 rounded, fairly straight, reaching epibranchial tooth; branchial region and regions behind
458 postorbital cristae weakly rugose; antennular fossae (Fig. 21B) narrowly rectangular in anterior
459 view; external orbital angle triangular, low, outer margin gently convex, with distinct, shallow
460 notch demarcating it from epibranchial tooth; epibranchial tooth weakly developed, small,
461 granular, appears part of anterolateral margin; anterolateral margin convex, granular, confluent
462 with posterolateral margin. Epistome (Fig. 21B) posterior margin with median tooth broadly
463 triangular. Third maxilliped (Figs. 21B, 22A) exopod without flagellum. Ambulatory legs (Fig.
464 21A) with long, slender dactyli, carpi of first to third ambulatory legs with weak median ridges,
465 meri slightly rugose. Suture between sternites 3 and 4 (Fig. 22A) weakly developed; pleonal

cavity reaching imaginary line joining proximal part of cheliped bases. Male pleon (Fig. 22A) narrowly triangular; telson broadly triangular, proximal width about 1.3 times its median length, with lateral margins convex. G1 (Fig. 23A–D) terminal segment long, slender, subconical, outer margin convex, about 0.4 times the length of subterminal segment, gently bent but not curving obliquely outwards, inner margin straight, with truncate, narrowly rounded tip ending with dorsal hole (visible from ventral view), with groove for G2 running along entire ventral side, shelf present at neck between terminal and subterminal segments; subterminal segment slender. G2 (Fig. 23E) subconical, distal segment less than half the length of basal segment.

Etymology. The species is named after the locality in which it ~~is~~ found.

Remarks. *Parvuspotamon diyuense* sp. n. closely resembles the only congener, *P. yuxiense* Dai & Bo, 1994, in its general carapace morphology and in the long, slender, subconical G1 terminal segment with curved outer margin, truncate tip and slender subterminal segment. However, *P. diyuense* can be distinguished from *P. yuxiense* by the following characters: G1 terminal segment gently bent but not curving obliquely outwards, with a straight inner margin, with a distal dorsal hole that is visible from the ventral view (versus G1 terminal segment curving inwards, with a concave inner margin); groove for G2 ~~running~~ along the ventral side of the G1 terminal segment (versus groove for G2 being marginal along the G1 terminal segment); shelf present at lateral margin between the G1 terminal and subterminal segments (versus shelf absent at lateral margin between the G1 terminal and subterminal segments); and G2 distal segment less than half the length of the basal segment (G2 distal segment more than half the length of the basal segment) (Fig. 23; versus Fig. 20F; Dai & Bo, 1994: fig. 3 (4–6); Dai, 1999: fig. 216 (4–6)).

Distribution. Xiyangjiang, Zhetu and Huaguo Village, Diyu Town, Guangnan County, Yunnan Province, China.

***Potamiscus* Alcock, 1909**

***Potamiscus fumariatus* sp. n.**

urn:lsid:zoobank.org:act:0A9F4D94-7238-4780-8171-9D0D6DF36881

Figures 24–26.

Material examined. Holotype, male (24.1 × 20.1 mm) (NCU MCP 2013.0024), Bailu Town, Wuding County, Yunnan Province, China, coll. Liu Shao Yan, 25 Feb. 2004.

Diagnosis. Carapace (Fig. 24A) distinctly broader than long, dorsal surface (Fig. 24B) relatively flat, cervical grooves indistinct, weakly developed, reaching postorbital cristae; epigastric cristae rounded, rugose, appearing almost confluent with postorbital cristae, weakly separated from postorbital cristae by indistinct groove, region between epigastric cristae and frontal margin rugose; frontal region narrow; postorbital cristae gently slanting posterolaterally towards anterolateral margin; regions behind epigastric and postorbital cristae rugose; antennular fossae (Fig. 24B) slit-like in anterior view; cleft between external orbital angle and epibranchial tooth narrow; epibranchial tooth distinct, developed, spine-like; anterolateral margin convex, cristate, very weakly serrated being almost smooth, running inwards posteriorly. Exopod of third maxilliped without flagellum. Suture between sternites 3 and 4 absent (Fig. 25A); pleonal cavity reaching imaginary line joining median part of cheliped bases. Male pleon (Fig. 25A) narrowly triangular; telson broadly triangular. G1 (Fig. 26A–D) terminal segment short, columnar, with broadly flattened truncate, coiled (when viewed dorsally) tip, shorter than half the length of subterminal segment, with groove for G2 marginal; subterminal segment sinuous, broad.

Etymology. The species name is derived from an arbitrary combination of the Latin "*fumario*" (=chimney) and -atus (a suffix to form adjective indicating the possession of a thing or a quality), alluding to the possession of chimney-like G1s.

Remarks. *Potamiscus fumariatus* sp. n. is represented by a single specimen collected together with another species, *Aparapotamon grahami* (Rathbun, 1931). However, it can be easily distinguished from the latter species by the absence of the flagellum on the exopod of the third maxilliped and its distinct G1 structure.

It most closely resembles *Potamiscus motuoensis* Dai, 1990, in general carapace morphology and in the G1 terminal segment being columnar-shaped and being shorter than half the length of the subterminal segment. Nevertheless, *P. fumariatus* can be easily distinguished from *P. motuoensis* by the following characters: anterolateral margin of carapace less convex laterally (versus anterolateral margin of carapace more convex laterally); epibranchial tooth spine-like (versus epibranchial tooth triangular and low); and G1 terminal segment ~~with~~ a broadly flattened truncate tip (versus G1 terminal segment with a blunt tapering tip) (Figs. 24A, 26A–D; versus Figs. 20C, G; Dai, 1990: fig, 69-4, pl. 9 fig. 3; Dai, 1999: fig. 106 (5, 6), pl. 13 fig. 1).

527 **Distribution.** Bailu Town, Wuding County, Yunnan Province, China.
528
529 ***Potamiscus crassus* sp. n.**
530 urn:lsid:zoobank.org:act:AA45FEE-505F-4C92-BA19-8D8E7AD3091E
531 Figures. 27–29.
532
533 **Material examined.** Holotype male (28.0 × 23.6 mm) (NCU MCP 2013.0025), purchased
534 from Kunming market, purportedly from Jinshajiang, Yunnan Province, China, coll. Yang Chang
535 Man, 10 June 2002.
536 Paratypes: 24 males (largest 26.3 × 22.4 mm), 18 females (largest 23.3 × 18.9 mm) (ZRC
537 2013.0562), 5 males (largest 27.8 × 23.4 mm), 3 females (largest 25.1 × 19.8 mm) (ZRC
538 2013.0563), 6 males (largest 25.4 × 21.2 mm), 4 females (largest 24.2 × 19.4 mm) (RUMF-ZC-
539 2375), same data as holotype.
540 **Diagnosis.** Carapace (Fig. 27A) broader than long, dorsal surface (Fig. 27B) flat, cervical
541 grooves indistinct, weakly developed, not reaching postorbital cristae; epigastric cristae rounded,
542 slightly rugose, appearing almost confluent with postorbital cristae, weakly separated from
543 postorbital cristae by indistinct groove; postorbital cristae gently slanting posterolaterally
544 towards anterolateral margin; regions behind epigastric and postorbital cristae rugose; antennular
545 fossae (Fig. 27B) slit-like in anterior view; orbital region broad; epibranchial tooth distinct, low,
546 poorly developed, not triangular; anterolateral margin convex, weakly serrated, not confluent
547 with posterolateral margin, running inwards posteriorly. Epistome (Fig. 27B) posterior margin
548 lateral parts straight, with broadly triangular, obtuse median tooth. Exopod of third maxilliped
549 without flagellum. Suture between sternites 3 and 4 distinct forming a shelf (Fig. 27B); lateral
550 margin of sternum 4 straight; pleonal cavity reaching imaginary line joining median part of
551 cheliped bases. Male pleon (Fig. 28A) narrowly triangular; telson narrowly triangular, shorter
552 than proximal width, longer than sixth ~~segment~~. G1 (Fig. 29A–D) terminal segment stocky,
553 subconical, length about 1.5 times the proximal width, with truncate, broadly rounded tip,
554 appearing longitudinally twisted, with groove for G2 marginal; subterminal segment strongly
555 sinuous, broad, about 1.6 times longer than broad, with distinctive subdistal cleft along outer
556 margin.

Etymology. The specific name is derived from the Latin "*crassus*" (= thick, fat), alluding its very stocky G1.

Remarks. Like the previous species, *Potamiscus crassus* sp. n. was also found together with *Aparapotamon grahami* (Rathbun, 1931). However, it can be easily distinguished from the latter species by the narrowly triangular telson of the male pleon, the absence of the flagellum on the exopod of the third maxilliped and its distinct G1 structure.

Potamiscus crassus sp. n. most closely resembles *P. yongshengensis* Dai & Chen, 1985, in general carapace morphology and in the subconical G1 terminal segment appearing longitudinally twisted as well as possessing a truncate tip. However, *P. crassus* sp. n. can be easily distinguished from *P. yongshengensis* by the following characters: epibranchial tooth poorly developed and not triangular (versus epibranchial tooth more developed and triangular); suture between sternites 3 and 4 distinct forming a shelf and lateral margin of sternum 4 straight (versus suture between sternites 3 and 4 not present and lateral margin of sternum 4 concave); male pleon with narrow telson, lateral margins proximally narrowed abruptly (versus male pleon with broadly triangular telson, lateral margins of telson only slightly concave); and G1 terminal segment with broadly rounded tip (G1 terminal segment with a narrowly rounded tip) (Figs. 27A, 28A, 29A–D; versus 20D, H; Dai & Chen, 1985: fig. 5 (4, 5, 7), pl. 1 fig. 6; Dai, 1999: fig. 102 (2, 4, 5), pl. 12 fig. 5).

Distribution. Jinshajiang, Yunnan Province, China.

CONCLUSIONS

The present study described nine new species of potamid freshwater crab genera *Indochinamon* Yeo & Ng, 2007, *Pararanguna* Dai & Chen, 1985, *Parvuspotamon* Dai & Bo, 1994, and *Potamiscus* Alcock, 1909. *Indochinamon* was established for species mainly distributed on Indochina and southern China that were previously assigned to "*Potamon*", which was until then used as a "catch-all" genus for many Asian potamid species (Yeo & Ng, 2007). The present study added 5 species to the genus, and the genus currently contains 39 species (Cumberlidge & Ng, 2009; Naruse, Nguyen & Yeo, 2011; Do, Nguyen & Le, 2016; present study). Twenty out of the 34 species are distributed on China, of which 19 species are known from Yunnan. *Potamiscus* is also distributed on Indochina and southern China (Cumberlidge & Ng, 2009). The present study added two species, and the genus now contains 16 species, 7 of

which have been recorded from Yunnan. *Pararanguna* and *Parvuspotamon* were monotypic genera, but the present study described 1 species each for the 2 genera. Both genera are endemic to Yunnan Provice. Yunnan was already known to host the highest number of freshwater crab species in the provinces in China, and the present study further added 9 species and brings the number to 59. It is noteworthy that 8 out of 9 new species described in the present study were collected by local colleagues and students at our request within a relatively short period in February 2004. Considering also the fact that more and more species have been discovered from Yunnan as well as other provinces of China (see Introduction), it is most probable that the species diversity of this group is still understudied.

ACKNOWLEDGEMENTS

We are grateful to Peter K. L. Ng for his support and encouragement of this study, and to Darren C. J. Yeo and Ng Ngan Kee for their kind assistance and input to this manuscript. Students from Chuxiong Medical College, Yunnan, and Tan Heok Hui (National University of Singapore) kindly helped collecting material for our study. We also thank Jun Chen and Shuqiang Li for their help in accessing specimens in IZAS. Thanks are also due to Chunchao Zhu and Jiexin Zou for their help during a course of this study.

Funding support

A research grant on Indochinese arthropods from the National University of Singapore. This work is supported by the National Science Foundation of China (Grant No. 81260257, 31460156, 31560179), Natural Science Foundation of Jiangxi, China (Grant No. 20171BAB214013), the Innovation Special Foundation for Graduates of Nanchang University (Grant No. CX2016280) and National Sharing Service Platform for Parasite Resources (TDRC-22).

REFERENCES

Cheng YZ, Lin GH, Li YS. 2010. Two new species of freshwater crabs (Decapoda: Potamidae) serving as intermediate hosts of *Paragonimus* in Fujian, China. *Chinese Journal of Parasitology & Parasitic Diseases* 28(4):241–245. (In Chinese with English abstract and figure legends)

619 Chu K, Sun Y, Sun H. 2017. *Sinopotamon baokangense* sp. nov., a new freshwater crab with
620 spoon-tipped cheliped fingers from Hubei Province, P.R. China (Decapoda, Brachyura,
621 Potamidae). Crustaceana 90(3):263-274.
622 Chu K, Zhou L, Sun H. 2017. A new genus and new species of freshwater crab (Decapoda:
623 Brachyura: Potamidae Ortmann, 1896) from Yunnan Province, China. *Zootaxa* 4286(2):241–
624 253. DOI: 10.11646/zootaxa.4286.2.7
625 Cumberlidge N, Ng PKL, Yeo DCJ, Magalhães C, Campos MR, Alvarez F, Naruse T, Daniels
626 SR, Esser LJ, Attipoe FYK, Clotilde-Ba F-L, Darwall W, McIvor A, Baillie JEM, Collen B &
627 Ram M. 2009. Freshwater crabs and the biodiversity crisis: Importance, threats, status, and
628 conservation challenges. *Biological Conservation* 142:1665–1673. DOI:
629 10.1016/j.biocon.2009.02.038
630 Cumberlidge N, Ng PKL, Yeo DCJ, Naruse T, Meyer KS, Esser LJ. 2011. Diversity, endemism
631 and conservation of the freshwater crabs of China (Brachyura: Potamidae and
632 Gecarcinucidae). Integrative Zoology 2011, 6:45–55. DOI: 10.1111/j.1749-
633 4877.2010.00228.x
634 Cumberlidge N, Ng PKL. 2009. Systematics, evolution, and biogeography of the freshwater
635 crabs. In: Martin JW, Crandall KA & Felder DL, ed. *Crustacean Issues 18. Decapod*
636 *Crustacean Phylogenetics.* Boca Raton: CRC Press, 491–504. DOI: 10.1201/9781420092592-
637 c25
638 Dai AY. 1990. On the zoogeographical distribution of freshwater crabs in southwestern China.
639 *From Water to Land, Snake Research Institute* 375–385, pl. 1. (in Chinese with English
640 summary).
641 Dai AY. 1995. Five new species of freshwater crabs of genus *Potamon* from Yunnan Province,
642 China (Crustacea: Decapoda: Potamidae). *Journal of the Taiwan Museum* 48(1):49–59.
643 Dai AY. 1999. *Fauna Sinica (Arthropoda. Crustacea. Malacostraca. Decapoda.*
644 *Parathelphusicae. Potamidae)*. Beijing: Science Press. (In Chinese with English summary)
645 Dai AY, Bo WF. 1994. A new genus and three new species of freshwater crabs of Yuxi area of
646 Yunnan Province (Crustacea: Decapoda: Brachyura: Potamidae). *Memoirs of Beijing Natural*
647 *History Museum* 54:21–28.

Dai AY, Cai YX. 1998. Freshwater crabs of Xishangbanna, Yunnan Province, China (Malacostraca: Crustacea: Parathelphusidae, Potamidae). *Acta Zootaxonomica Sinica* 23(3):245–252. (In Chinese with English summary and figure legends)

Dai AY, Chen GX. 1985. A preliminary report on the freshwater crabs of Hengduan Mountains Area. *Sinozoologica* 3:39–72, pl. 1, 2. (In Chinese with English summary)

Dai AY, Song YZ, He LY, Cao WJ, Xu ZB, Zhong WL. 1975. Description of several new species of freshwater crabs belonging to the intermediate hosts of lung flukes. *Acta Zoologica Sinica* 21(3):257–264, pls. 1–3.

Do VT, Shih HT, Huang C. 2016. A new species of freshwater crab of the genus *Tiwaripotamon* Bott, 1970 (Crustacea, Brachyura, Potamidae) from northern Vietnam and southern China. Raffles Bulletin of Zoology, 64:213–219.

Do VT, Nguyen TC, Le HA. 2016. A new species of the genus *Indochinamon* Yeo & Ng, 2007 (Crustacea: Brachyura: Potamoidea: Potamidae) from northern Vietnam. *Raffles Bulletin of Zoology* 64:187–193.

Huang C, Ahyong ST, Shih HT. 2017. *Cantopotamon*, a new genus of freshwater crabs from Guangdong, China, with descriptions of four new species (Crustacea: Decapoda: Brachyura: Potamidae). *Zoological Studies* 56(41): 1–20. DOI: 10.6620/ZS.2017.56-41

Huang C, Huang JR, Ng PKL. 2012. A new species of *Nanhaipotamon* Bott, 1968 (Crustacea: Decapoda: Brachyura: Potamidae) from Zhuhai, Guangdong Province, China. *Zootaxa* 3588:55–63.

Huang C, Mao SY, Huang JR. 2014. Two new potamid crabs, *Yuexipotamon arcophallus* new genus, new species and *Minutomon shanweiense* new genus, new species, (Crustacea: Decapoda: Brachyura: Potamidae) from southern China. *Zootaxa* 3764(4):455–466. DOI: 10.11646/zootaxa.3764.4.5

Huang C, Shih HT, Mao SY. 2016. *Yuebeipotamon calciatile*, a new genus and new species of freshwater crab from southern China (Crustacea, Decapoda, Brachyura, Potamidae). *ZooKeys* 615:61–72. DOI: 10.3897/zookeys.615.9964

Huang C, Shih HT, Ng PKL. 2017. A new genus and new species of Potamidae (Crustacea: Decapoda: Brachyura: Potamoidea), the first stygomorphic cave crab known from China and East Asia. Zootaxa, 4232 (1): 71–084.

678 Kunming Institute of Zoology, CAS, 1999. *Wildlife in Yunnan*. Beijing: Chinese Forestry
679 Publishing House.
680 Lin GH, Cheng YZ, Chen SH. 2012. A new species of genus *Nanhaipotamon* (Decapoda:
681 Potamidae) from China. *Chinese Journal of Parasitology & Parasitic Diseases* 30(6):434–
682 437. (In Chinese with English summary and figure legends)
683 Lin GH, Cheng YZ, Chen SH. 2013. A new species of the genus *Nanhaipotamon* (Decapoda:
684 Potamidae) serving as intermediate host of *Paragonmus skrjabini*. *Chinese Journal of*
685 *Parasitology & Parasitic Diseases* 31(1):39–42. (In Chinese with English summary and
686 figure legends)
687 Naruse T, Yeo DCJ, Zhou X. 2008. Five new species of freshwater crabs (Crustacea: Decapoda:
688 Brachyura: Potamidae) from China. *Zootaxa* 1812:49–68.
689 Naruse T, Nguyen XQ, Yeo DCJ. 2011. Three new species of *Indochinamon* (Crustacea:
690 Decapoda: Potamidae: Potamiscinae) from Vietnam, with a redescription of *Ranguna*
691 (*Ranguna*) *kimboiensis* Dang, 1975. *Zootaxa* 2732:33–48.
692 Naruse T, Zhu C, Zhou X. 2013. Two new species of freshwater crabs of the genus
693 *Heterochelamon* Türkay & Dai, 1997 (Crustacea: Decapoda: Brachyura: Potamidae) from
694 Guangxi Zhuang Autonomous Region, southern China. *Zootaxa* 3647(4):567–576.
695 Ng PKL. 1988. *The freshwater crabs of Peninsular Malaysia and Singapore*. Singapore:
696 Shinglee Press.
697 Ng PKL. 2017. Descriptions of two new cavernicolous species of *Chinapotamon* Dai &
698 Naiyanetr, 1994 (Crustacea: Brachyura: Potamidae) from China. *Crustacean Research* 46: 1–
699 16. DOI: 10.18353/crustacea.46.0_1
700 Rathbun MJ. 1904−1906. Les crabes d'eau douce (Potamonidae). *Nouvelles Archives du Muséum*
701 *d'Histoire naturelle Paris*, 4e série, 6:225−312, pls. 9−18; 7:159–322; 8:33−122.
702 Wood-Mason J. 1871. Contributions to Indian Carcinology: On Indian and Malayan Telphusidae,
703 Part I. *Journal of the Asiatic Society of Bengal* 40(2):189−207, 449−454, pls. 11−14, 27.
704 Yang Y, Tian K, Hao J, Pei S, Yang Y. 2004. Biodiversity and biodiversity conservation in
705 Yunnan, China. *Biodiversity & Conservation* 13(4):813−826.
706 Yeo DCJ, Ng PKL. 1998. Freshwater crabs of the *Potamon tannanti* species group (Crustacea,
707 Decapoda, Brachyura, Potamidae) of northern Indochina. *Raffles Bulletin of Zoology*
708 46(2):627−650.

709 Yeo DCJ, Ng PKL. 2003. Recognition of two subfamilies in the Potamidae Ortmann, 1896
710 (Brachyura, Potamidae) with a note on the genus *Potamon* Savigny, 1816. *Crustaceana*
711 76(10):1219–1235. DOI: 10.1163/156854003773123456
712 Yeo DCJ, Ng PKL. 2007. On the genus "*Potamon*" and allies in Indochina (Crustacea:
713 Decapoda: Brachyura: Potamidae). *Raffles Bulletin of Zoology, Supplement* 16:273–308.
714 Zhu C, Naruse T, Zhou X. 2010. Two new species of freshwater crabs of the genus
715 *Sinolapotamon* Tai & Sung, 1975 (Decapoda, Brachyura, Potamidae) from Guangxi zhuang
716 autonomous region, China. Crustaceana 83(2):245–256.
717 DOI: 10.1163/001121609X12603430877199
718
719
720
721
722
723

Figure legends

Fig. 1. *Indochinamon ahkense* sp. n. (Holotype, NCU MCP 2013.0003).
A, overall view; B, cephalothorax, anterior view.

Fig. 2. *Indochinamon ahkense* sp. n. (Holotype, NCU MCP 2013.0003).
A, cephalothorax, ventral view; B, left chela, outer view.

Fig. 3. *Indochinamon ahkense* sp. n. Holotype (NCU MCP 2013.0003).
A–C, left G1; A, ventral view; B, enlarged view of distal portion, ventral view; C, dorsal view; D, left G2, dorsal view. Scales = 3 mm.

Fig. 4. Dorsal views of entire bodies (A-E) and ventral views of G1s (F-J) of comparative *Indochinamon* species.
A, F, *I. gengmaense* (Dai, 1995) (Holotype, CB05192 YN6491119A); B, G, *I. chinghungense* (Dai, Song, He, Cao, Xu and Zhong, 1975) (Holotype, CB05166 YN 637507); C, H, *I. boshanense* (Dai & Chen, 1985) (Holotype, CB05160 HD8183031); D, I, *I. jianchuanense* (Dai & Chen, 1985) (Holotype, CB005159 HD 8183030); E, J, *I. menglaense* (Dai & Cai, 1998) (Holotype, CB05168 YN-9496196A).

Fig. 5. *Indochinamon jingguense* sp. n. (Holotype, NCU MCP 2013.0007).
A, overall view; B, cephalothorax, anterior view.

Fig. 6. *Indochinamon jingguense* sp. n. (Holotype, NCU MCP 2013.0007).
A, cephalothorax, ventral view; B, right chela, outer view.

Fig. 7. *Indochinamon jingguense* sp. n. (Holotype, NCU MCP 2013.0007).
A–D, left G1; A, ventral view; B, enlarged view of distal portion, ventral view; C, dorsal view; D, enlarged view of distal portion, dorsal view; E, left G2, dorsal view. Scales = 3 mm.

Fig. 8. *Indochinamon parpidum* sp. n. (Holotype, NCU MCP 2013.0015).

A, overall view; B, cephalothorax, anterior view.

Fig. 9. *Indochinamon parpidum* sp. n. (Holotype, NCU MCP 2013.0015).
A, cephalothorax, ventral view; B, right chela, outer view.

Fig. 10. *Indochinamon parpidum* sp. n. (Holotype, NCU MCP 2013.0015).
A–D, left G1; A, ventral view; B, enlarged view of distal portion, ventral view; C, dorsal view; D, enlarged view of distal portion, dorsal view. Scales = 3 mm.

Fig. 11. *Indochinamon aozaoense* sp. n. (Holotype, NCU MCP 2013.0005).
A, overall view; B, cephalothorax, anterior view.

Fig. 12. *Indochinamon aozaoense* sp. n. (Holotype, NCU MCP 2013.0005).
A, cephalothorax, ventral view; B, right chela, outer view.

Fig. 13. *Indochinamon aozaoense* sp. n. (Holotype, NCU MCP 2013.0015).
A–D, left G1; A, ventral view; B, enlarged view of distal portion, ventral view; C, dorsal view; D, enlarged view of distal portion, dorsal view. Scales = 3 mm.

Fig. 14. *Indochinamon lui* sp. n. (Holotype, NCU MCP 2013.0010).
A, overall view; B, cephalothorax, anterior view.

Fig. 15. *Indochinamon lui* sp. n. (Holotype, NCU MCP 2013.0010).
A, cephalothorax, ventral view; B, right chela, outer view.

Fig. 16. *Indochinamon lui* sp. n. (Holotype, NCU MCP 2013.0010).
A–D, left G1; A, ventral view; B, enlarged view of distal portion, ventral view; C, dorsal view; D, enlarged view of distal portion, dorsal view. Scales = 3 mm.

Fig. 17. *Pararanguna hemicyclius* sp. n. (Holotype, NCU MCP 2013.0017).
A, overall view; B, cephalothorax, anterior view.

Fig. 18. *Pararanguna hemicyclius* sp. n. (Holotype, NCU MCP 2013.0017).
Cephalothorax, ventral view.

Fig. 19. *Pararanguna hemicyclius* sp. n. (Holotype, NCU MCP 2013.0017).
A–C, right G1; A, ventral view; B, dorsal view; C, lateral view; D, right G2, dorsal view. Scale = 1 mm.

Fig. 20. Dorsal views of entire bodies (A–D) and ventral views of G1s (E–H) of comparative species.
A, E, *Pararanguna semilunata* (Dai & Chen, 1984) (Holotype, CB05191 HD8183034); B, F, *Parvuspotamon yuxiense* Dai & Bo, 1994 (Holotype, CB05138 YN 9091116A); C, G, *Potamiscus motuoensis* Dai, 1990 (Holotype, CB05157 XZ6389084); D, H. *Potamiscus yongshengensis* Dai & Chen, 1985 (Holotype, CB05149 HD 8183035).

Fig. 21. *Parvuspotamon diyuense* sp. n. (Holotype, NCU MCP 2013.0020).
A, overall view; B, cephalothorax, anterior view.

Fig. 22. *Parvuspotamon diyuense* sp. n. (Holotype, NCU MCP 2013.0020).
A, cephalothorax, ventral view; B, right chela, outer view.

Fig. 23. *Parvuspotamon diyuense* sp. n. (Holotype, NCU MCP 2013.0020).
A–D, right G1; A, ventral view; B, enlarged view of distal portion, ventral view; C, dorsal view; D, enlarged view of distal portion, dorsal view; E, right G2, dorsal view. Scales = 1 mm.

Fig. 24. *Potamiscus fumariatus* sp. n. (Holotype, NCU MCP 2013.0024).
A, overall view; B, cephalothorax, anterior view.

Fig. 25. *Potamiscus fumariatus* sp. n. (Holotype, NCU MCP 2013.0024).
A, cephalothorax, ventral view; B, right chela, outer view.

818 Fig. 26. *Potamiscus fumariatus* sp. n. (Holotype, NCU MCP 2013.0024).
819 A–D, left G1; A, ventral view; B, enlarged view of distal portion, ventral view; C, dorsal view; D,
820 enlarged view of distal portion, dorsal view; E, left G2, dorsal view. Scales = 1 mm.
821
822 Fig. 27. *Potamiscus crassus* sp. n. (Holotype, NCU MCP 2013.0025).
823 A, overall view; B, cephalothorax, anterior view.
824
825 Fig. 28. *Potamiscus crassus* sp. n. (Holotype, NCU MCP 2013.0025).
826 A, cephalothorax, ventral view; B, left chela, outer view.
827
828 Fig. 29. *Potamiscus crassus* sp. n. (Holotype, NCU MCP 2013.0025).
829 A–D, right G1; A, ventral view; B, enlarged view of distal portion, ventral view; C, dorsal view;
830 D, enlarged view of distal portion, dorsal view; E, right G2, dorsal view. Scales = 3 mm.
831
832

Figure 1

Indochinamon ahkense sp. n. (Holotype, NCU MCP 2013.0003).

A, overall view; B, cephalothorax, anterior view.

**Note: Auto Gamma Correction was used for the image. This only affects the reviewing manuscript. See original source image if needed for review.*

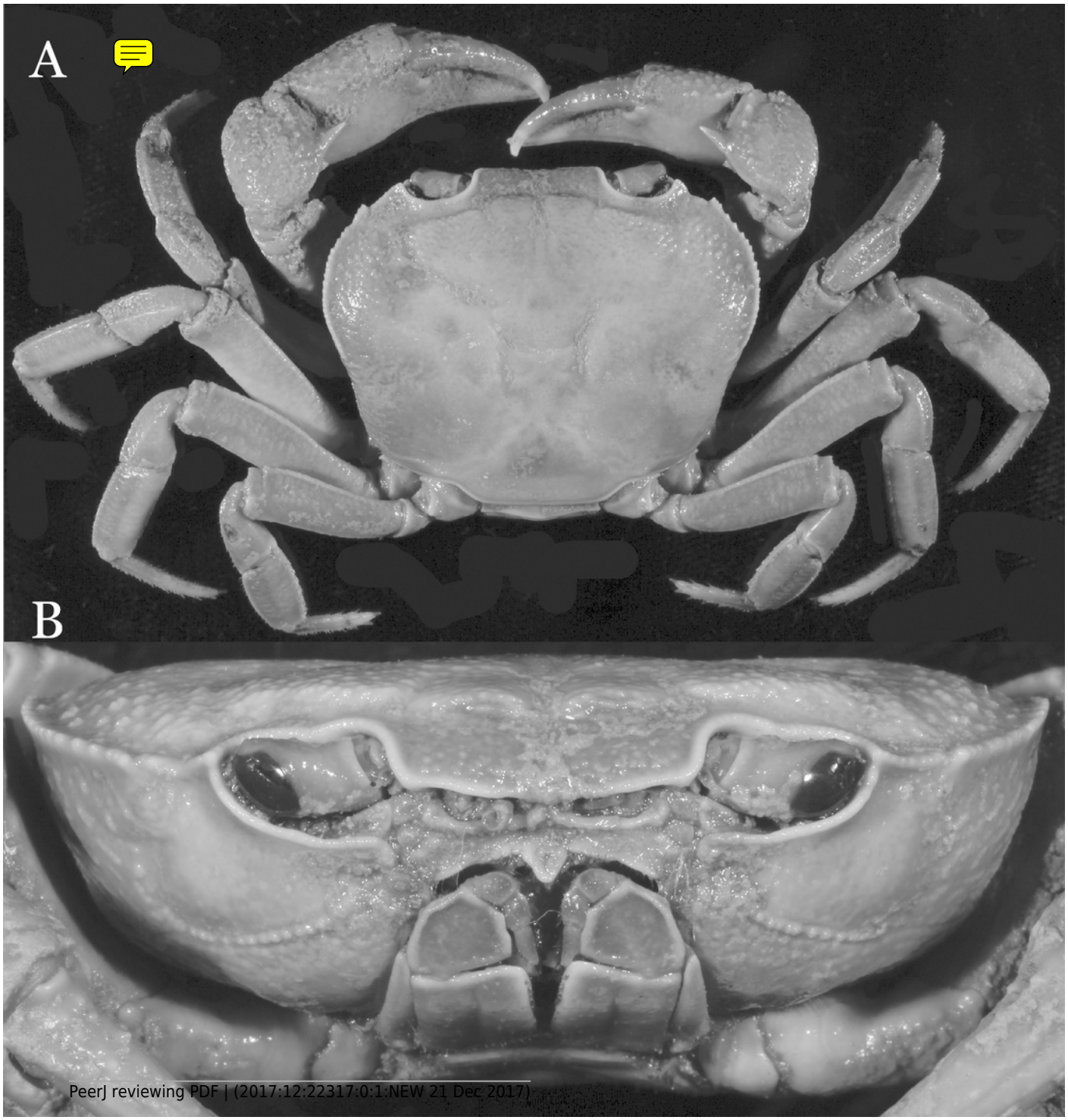

Figure 2

Indochinamon ahkense sp. n. (Holotype, NCU MCP 2013.0003).

A, cephalothorax, ventral view; B, left chela, outer view.

**Note: Auto Gamma Correction was used for the image. This only affects the reviewing manuscript. See original source image if needed for review.*

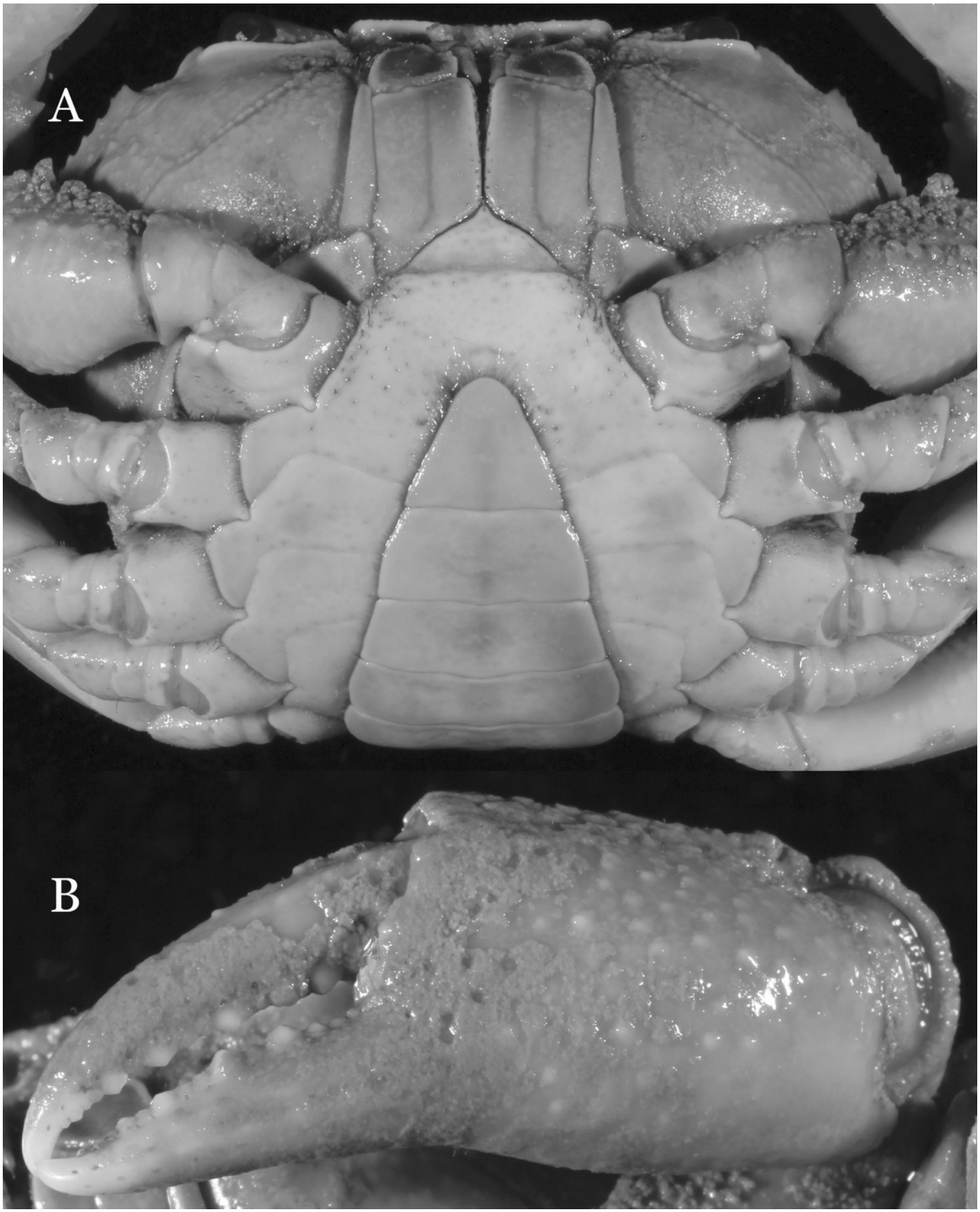
A
B

Figure 3

Indochinamon ahkense sp. n. Holotype (NCU MCP 2013.0003).

A–C, left G1; A, ventral view; B, enlarged view of distal portion, ventral view; C, dorsal view; D, left G2, dorsal view. Scales = 3 mm.

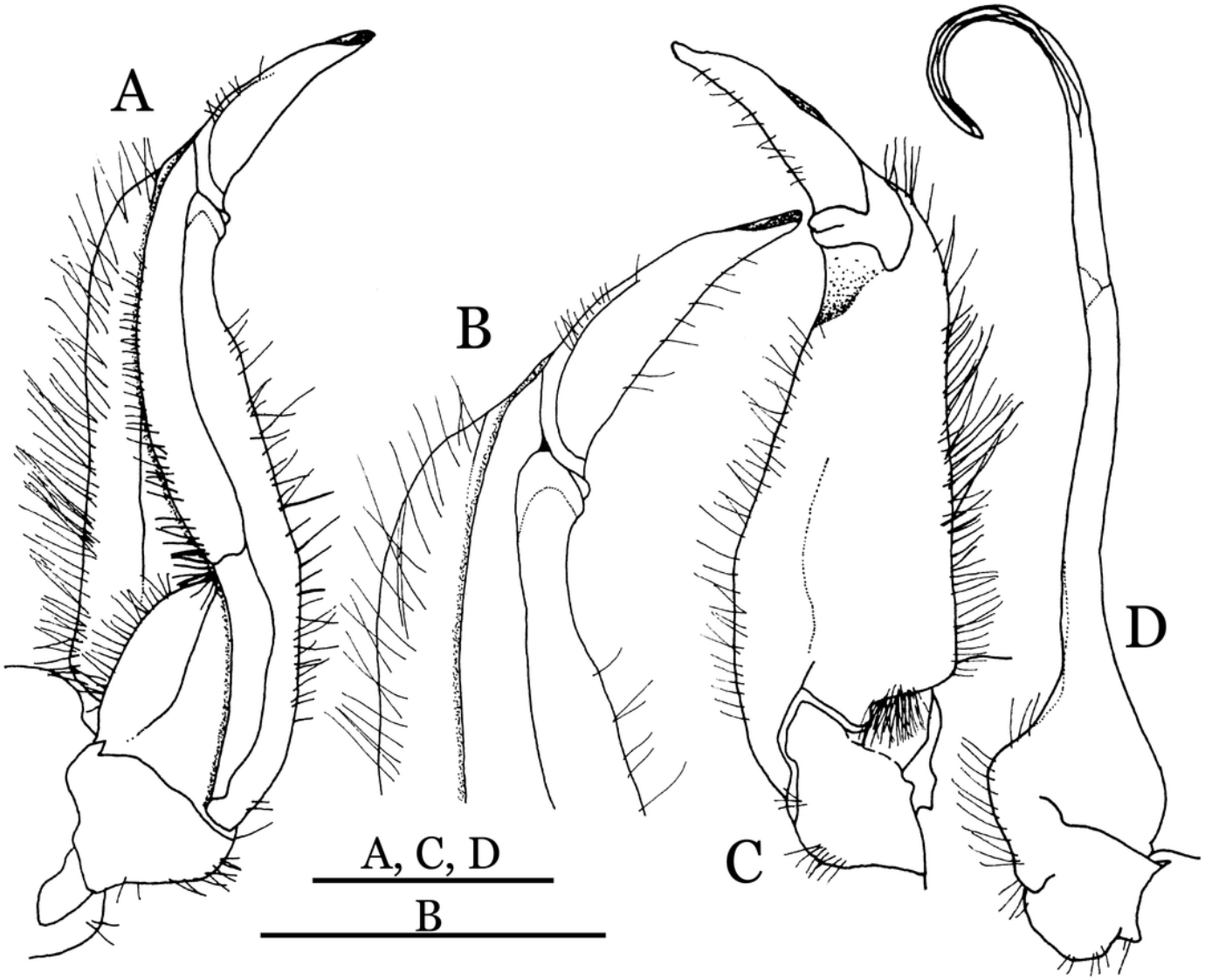

Figure 4

Dorsal views of entire bodies (A-E) and ventral views of G1s (F-J) of comparative [I]Indochinamon[i] species.

A, F, I. gengmaense (Dai, 1995) (Holotype, CB05192 YN6491119A); B, G, I. chinghungense (Dai, Song, He, Cao, Xu and Zhong, 1975) (Holotype, CB05166 YN 637507); C, H, I. boshanense (Dai & Chen, 1985) (Holotype, CB05160 HD8183031); D, I, I. jianchuanense (Dai & Chen, 1985) (Holotype, CB005159 HD 8183030); E, J, I. menglaense (Dai & Cai, 1998) (Holotype, CB05168 YN-9496196A).

**Note: Auto Gamma Correction was used for the image. This only affects the reviewing manuscript. See original source image if needed for review.*

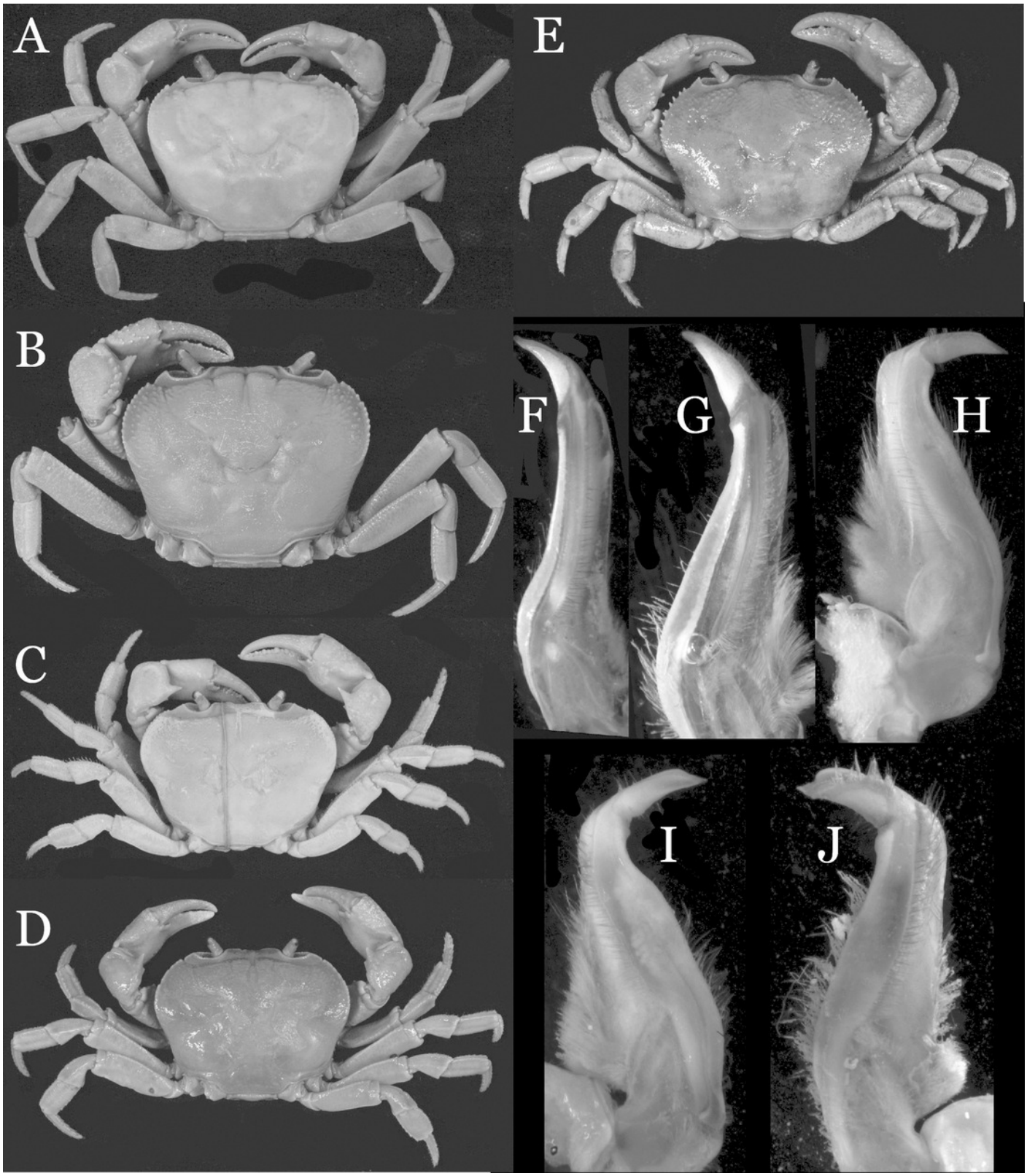
A
E
B
F
G
H
C
D
I
J

Figure 5

Indochinamon jingguense sp. n. (Holotype, NCU MCP 2013.0007).

A, overall view; B, cephalothorax, anterior view.

**Note: Auto Gamma Correction was used for the image. This only affects the reviewing manuscript. See original source image if needed for review.*

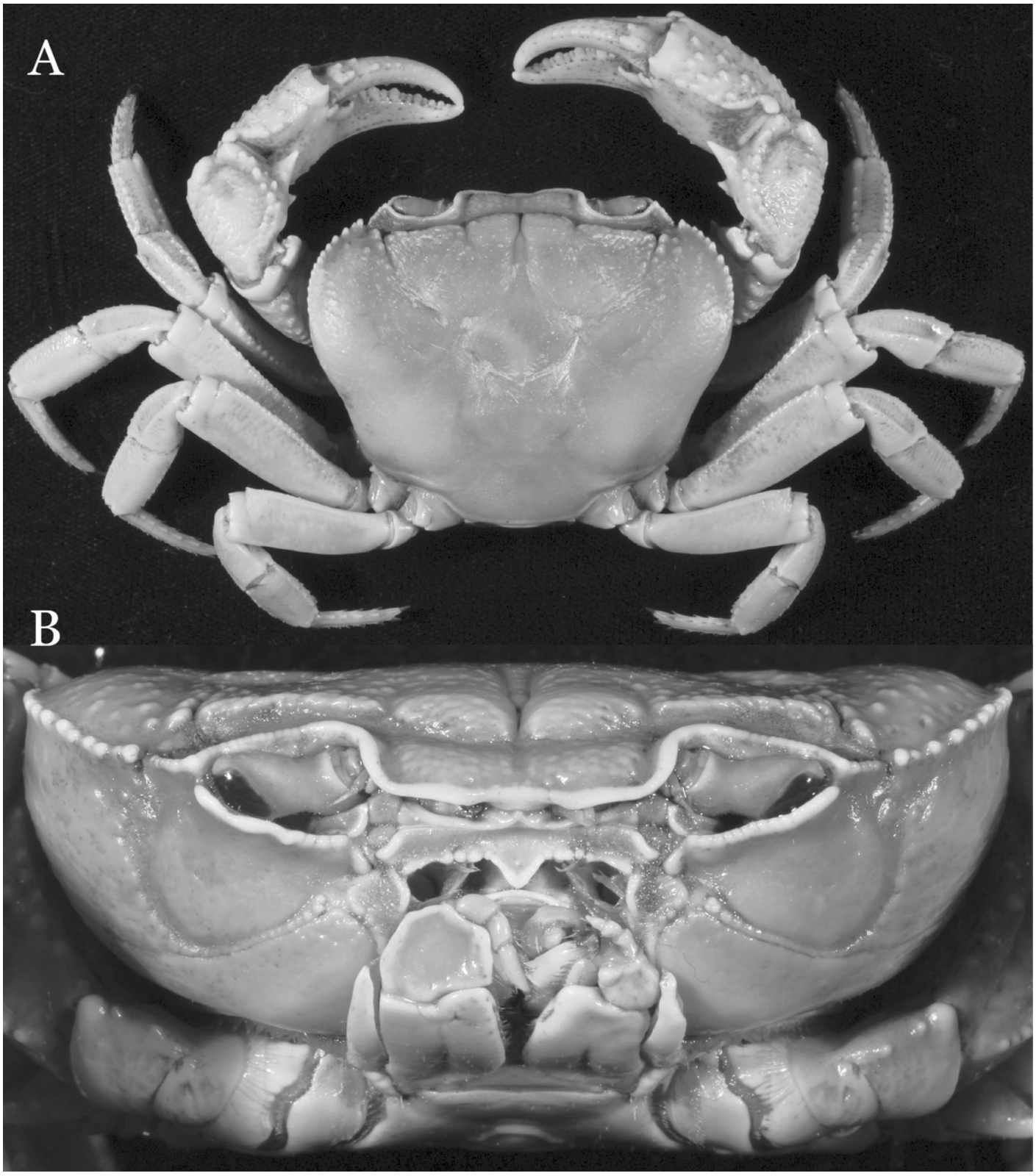
A
B

Figure 6

Indochinamon jingguense sp. n. (Holotype, NCU MCP 2013.0007).

A, cephalothorax, ventral view; B, right chela, outer view.

**Note: Auto Gamma Correction was used for the image. This only affects the reviewing manuscript. See original source image if needed for review.*

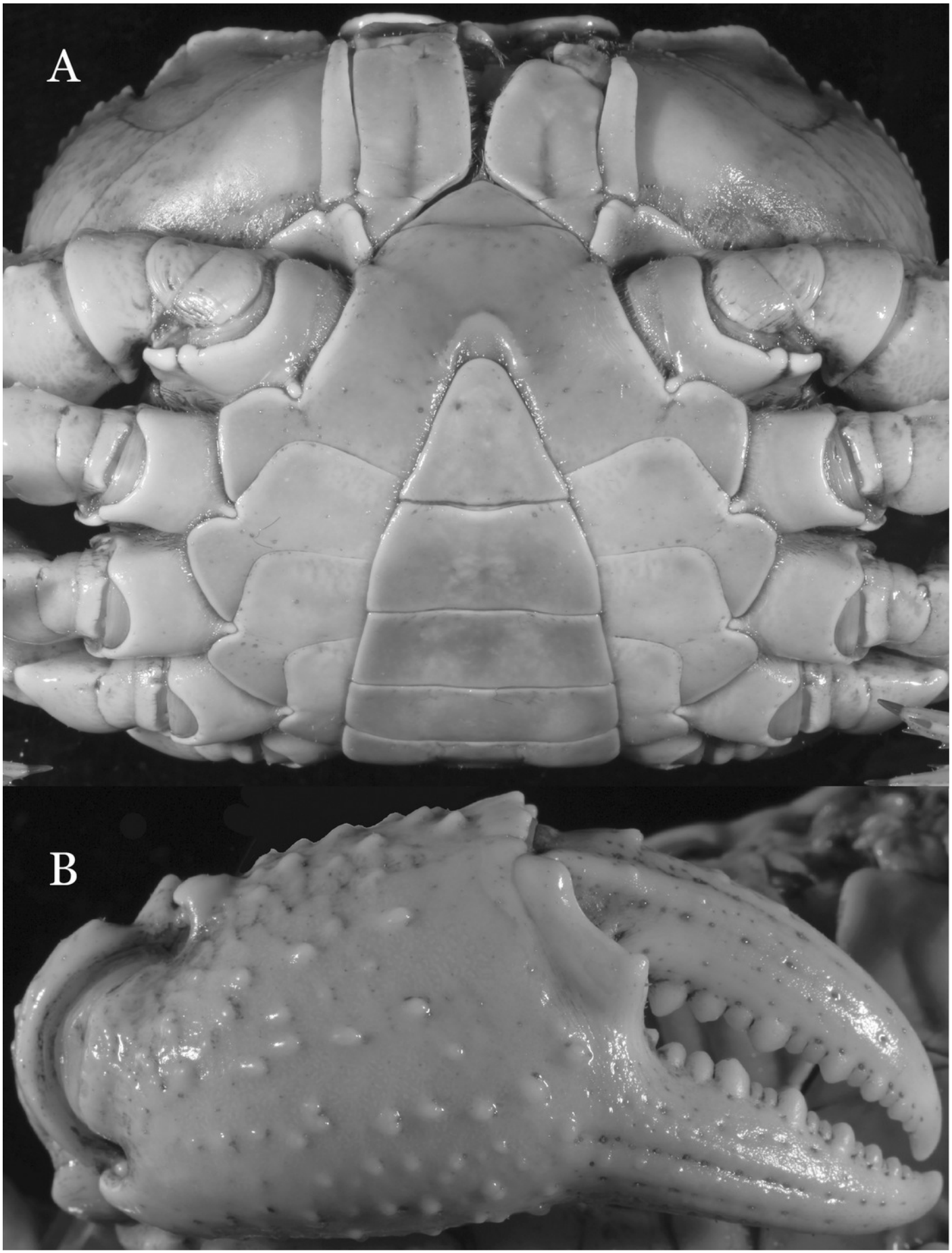
A
B

Figure 7

Indochinamon jingguense sp. n. (Holotype, NCU MCP 2013.0007).

A–D, left G1; A, ventral view; B, enlarged view of distal portion, ventral view; C, dorsal view; D, enlarged view of distal portion, dorsal view; E, left G2, dorsal view. Scales = 3 mm.

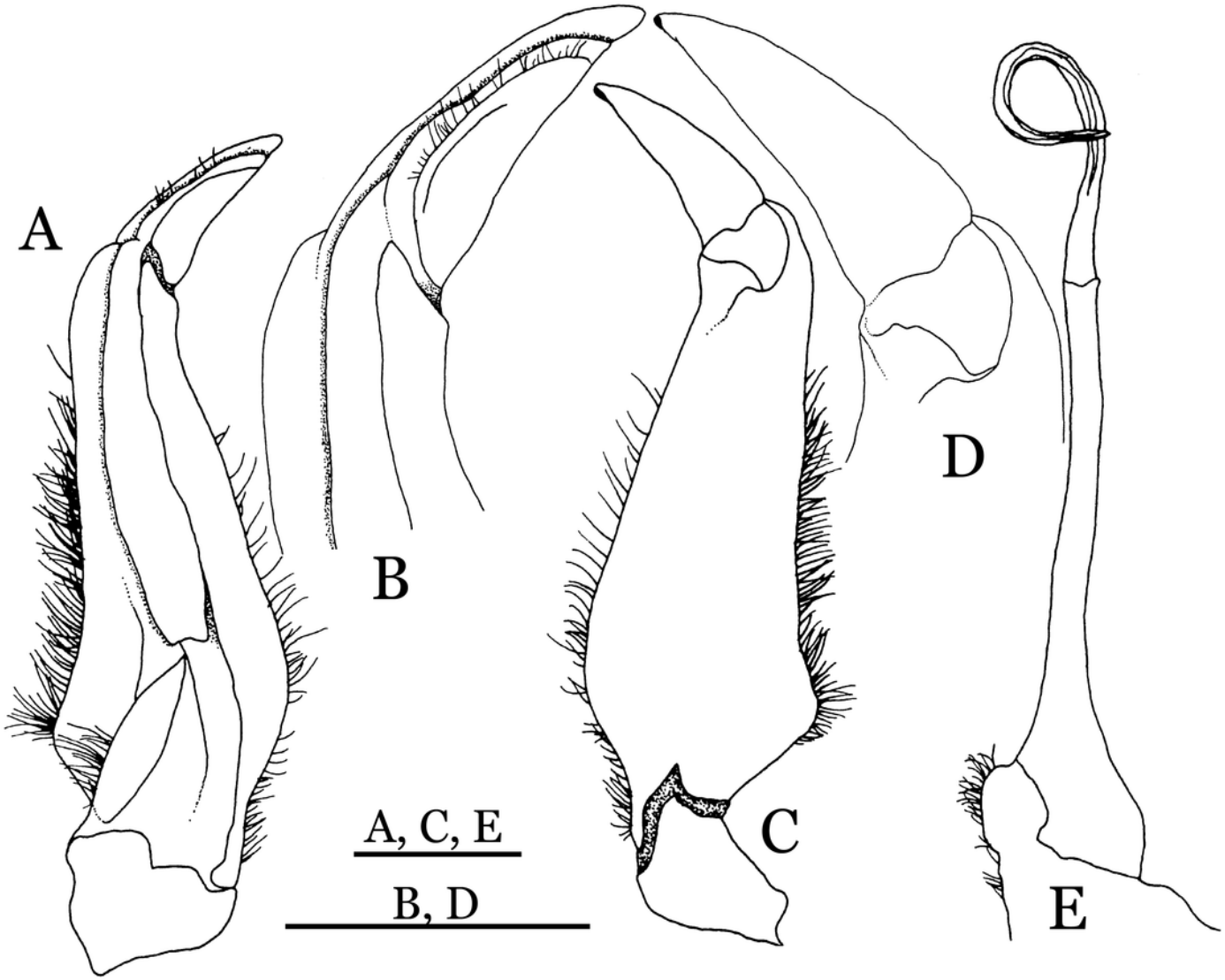

Figure 8

Indochinamon parpidum sp. n. (Holotype, NCU MCP 2013.0015).

A, overall view; B, cephalothorax, anterior view.

**Note: Auto Gamma Correction was used for the image. This only affects the reviewing manuscript. See original source image if needed for review.*

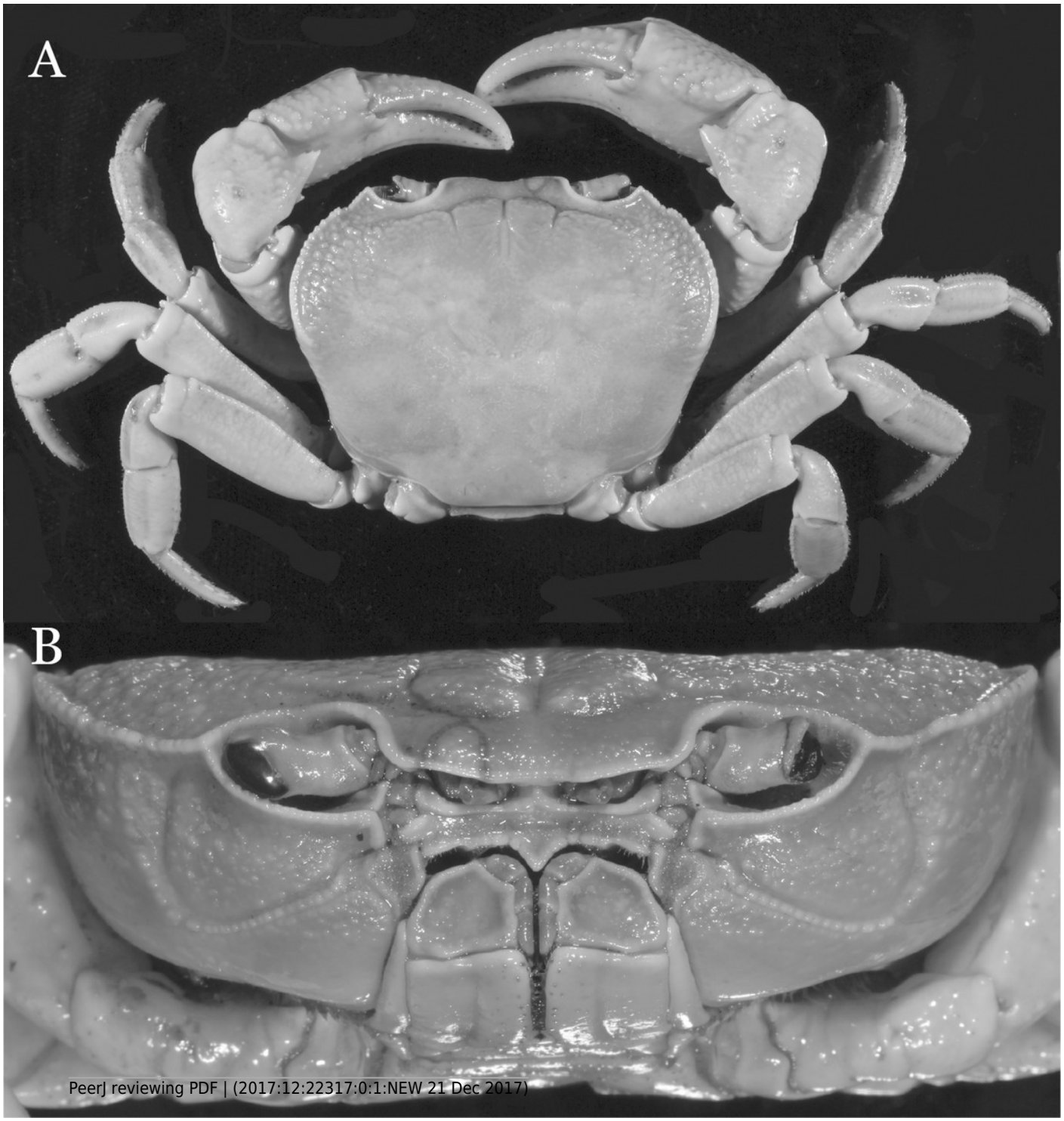

Figure 9

Indochinamon parpidum sp. n. (Holotype, NCU MCP 2013.0015).

A, cephalothorax, ventral view; B, right chela, outer view.

**Note: Auto Gamma Correction was used for the image. This only affects the reviewing manuscript. See original source image if needed for review.*

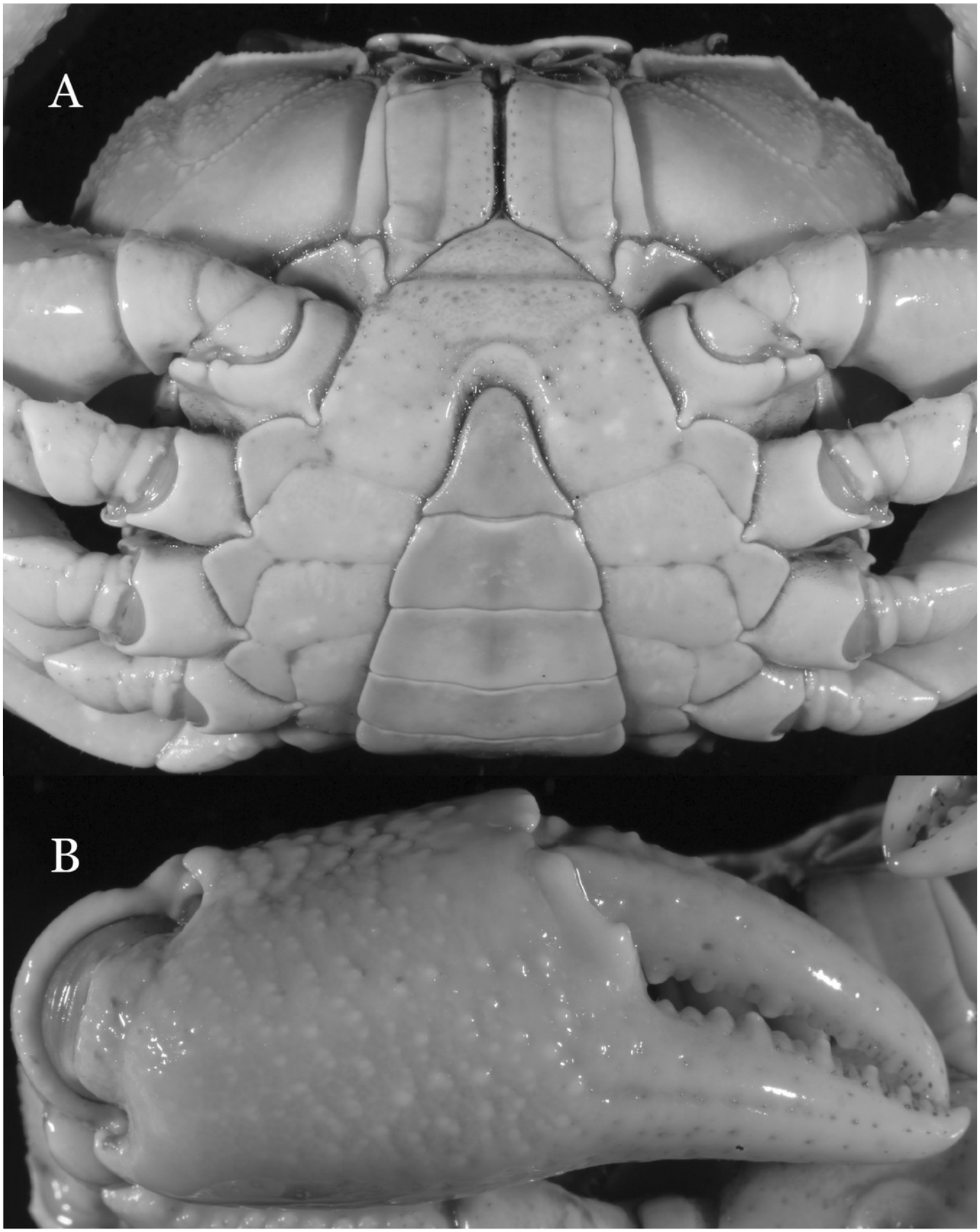
A
B

Figure 10

Indochinamon parpidum sp. n. (Holotype, NCU MCP 2013.0015).

A–D, left G1; A, ventral view; B, enlarged view of distal portion, ventral view; C, dorsal view; D, enlarged view of distal portion, dorsal view. Scales = 3 mm.

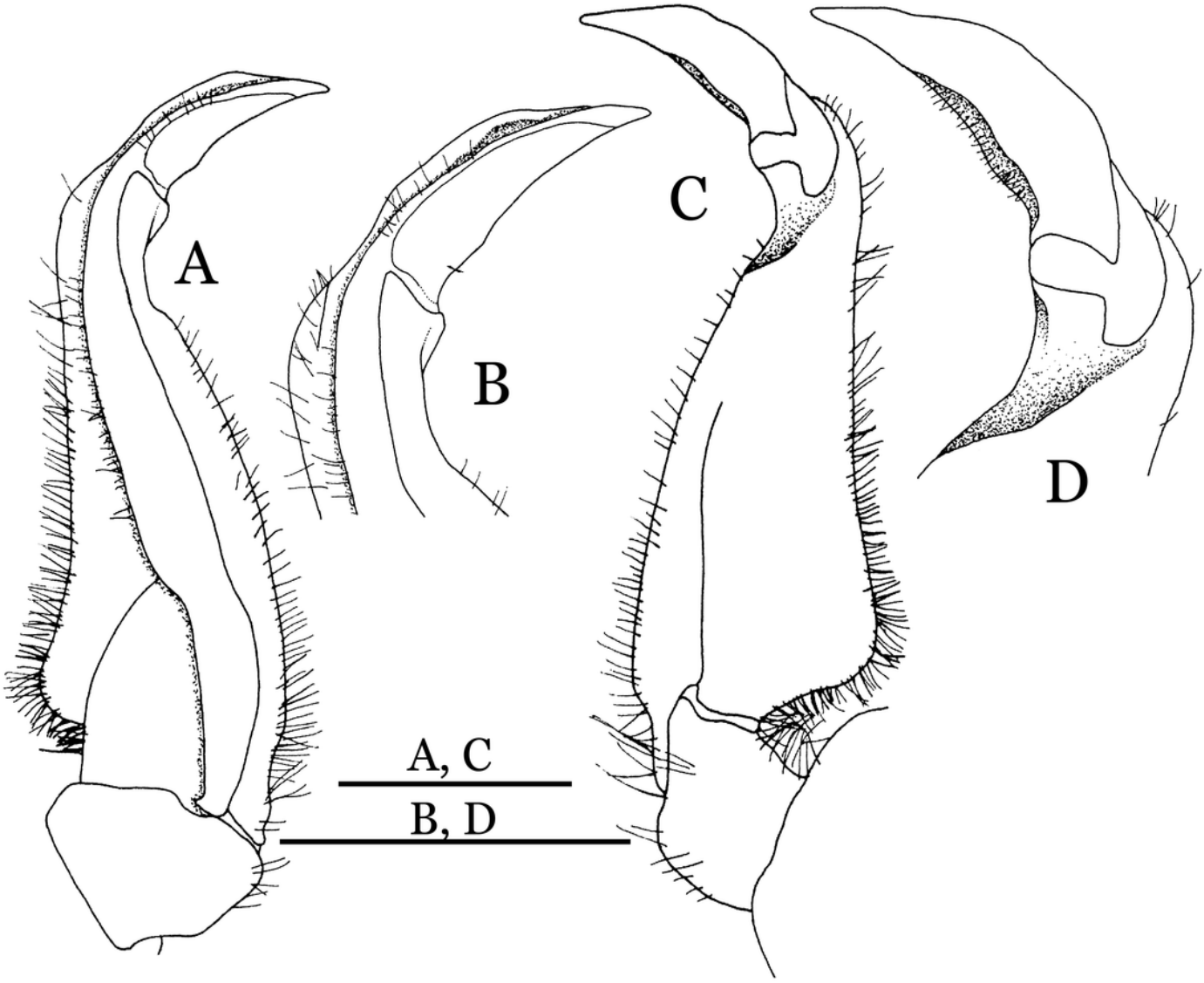

Figure 11

Indochinamon aozaoense sp. n. (Holotype, NCU MCP 2013.0005).

A, overall view; B, cephalothorax, anterior view.

**Note: Auto Gamma Correction was used for the image. This only affects the reviewing manuscript. See original source image if needed for review.*

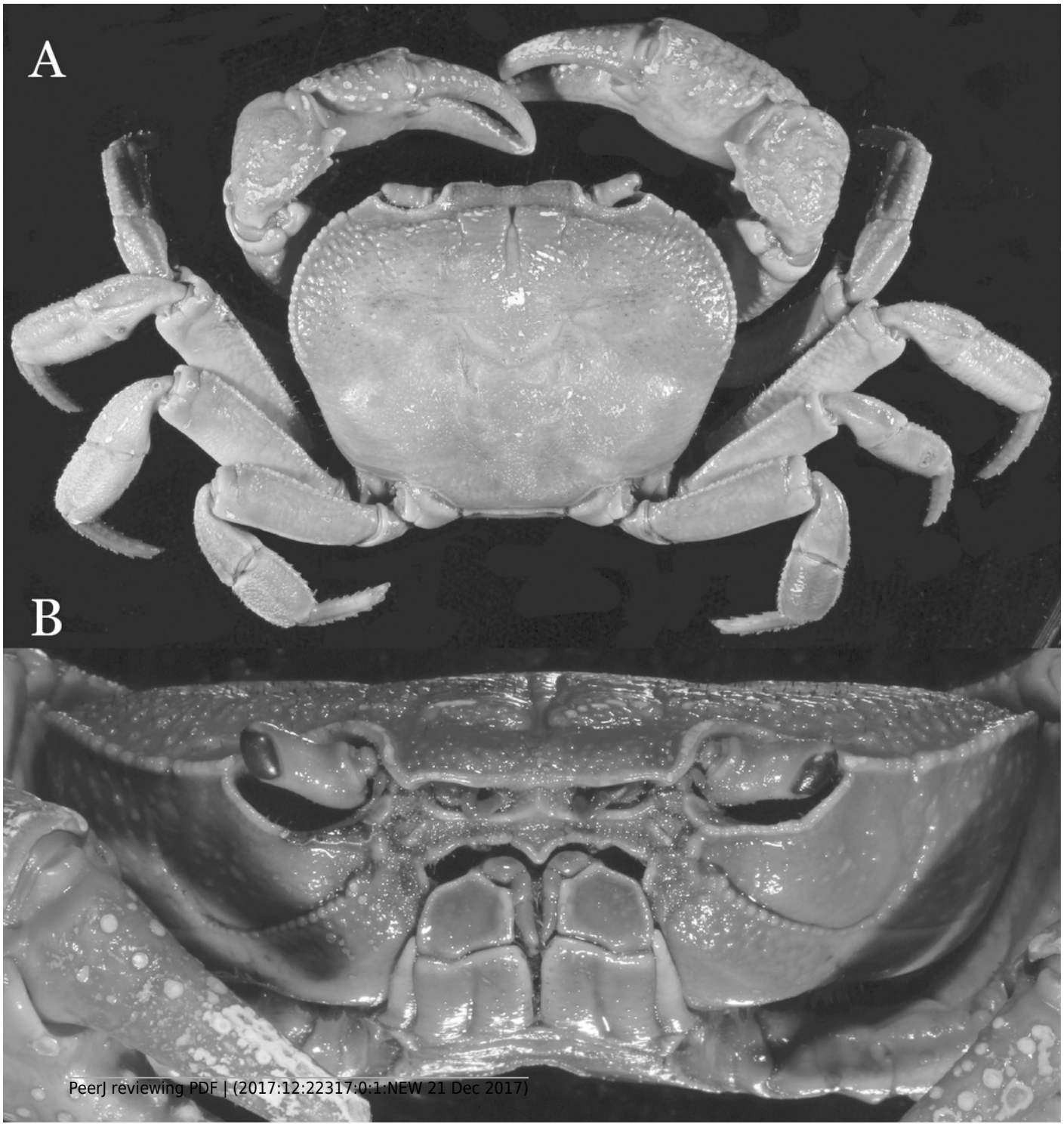

Figure 12

Indochinamon aozaoense sp. n. (Holotype, NCU MCP 2013.0005).

A, cephalothorax, ventral view; B, right chela, outer view.

**Note: Auto Gamma Correction was used for the image. This only affects the reviewing manuscript. See original source image if needed for review.*

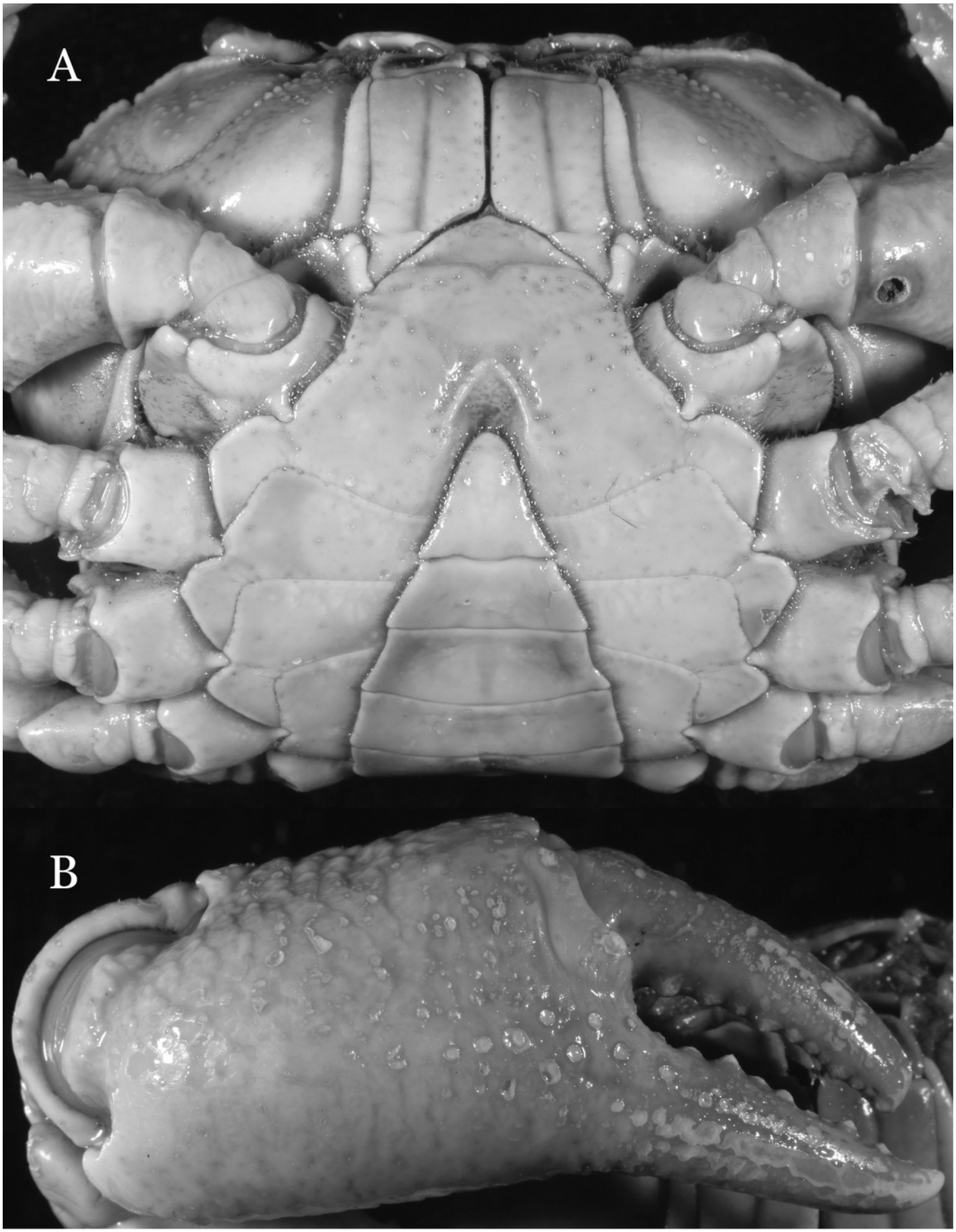
A
B

Figure 13

Indochinamon aozaoense sp. n. (Holotype, NCU MCP 2013.0015).

A–D, left G1; A, ventral view; B, enlarged view of distal portion, ventral view; C, dorsal view; D, enlarged view of distal portion, dorsal view. Scales = 3 mm.

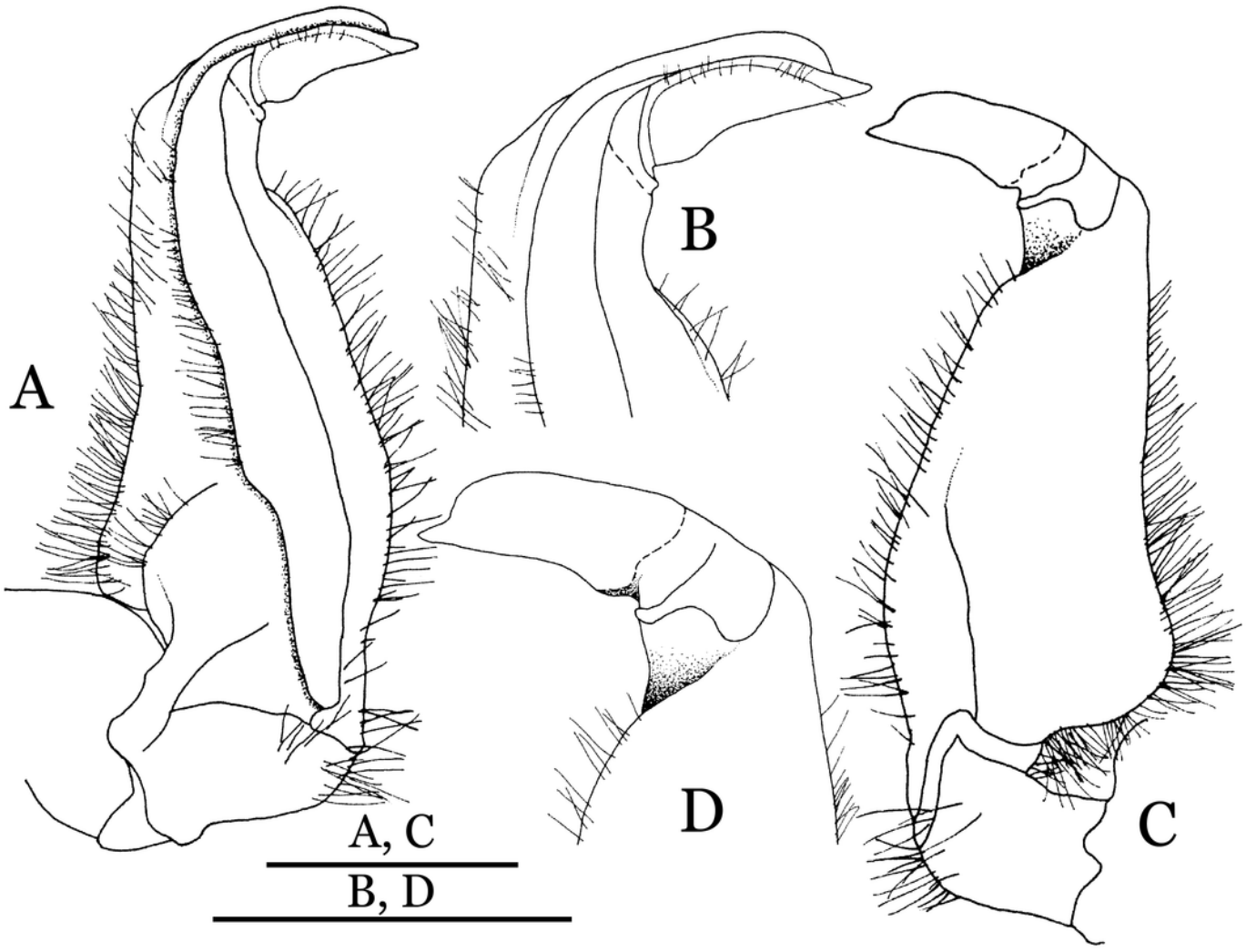

Figure 14

Indochinamon lui sp. n. (Holotype, NCU MCP 2013.0010).

A, overall view; B, cephalothorax, anterior view.

**Note: Auto Gamma Correction was used for the image. This only affects the reviewing manuscript. See original source image if needed for review.*

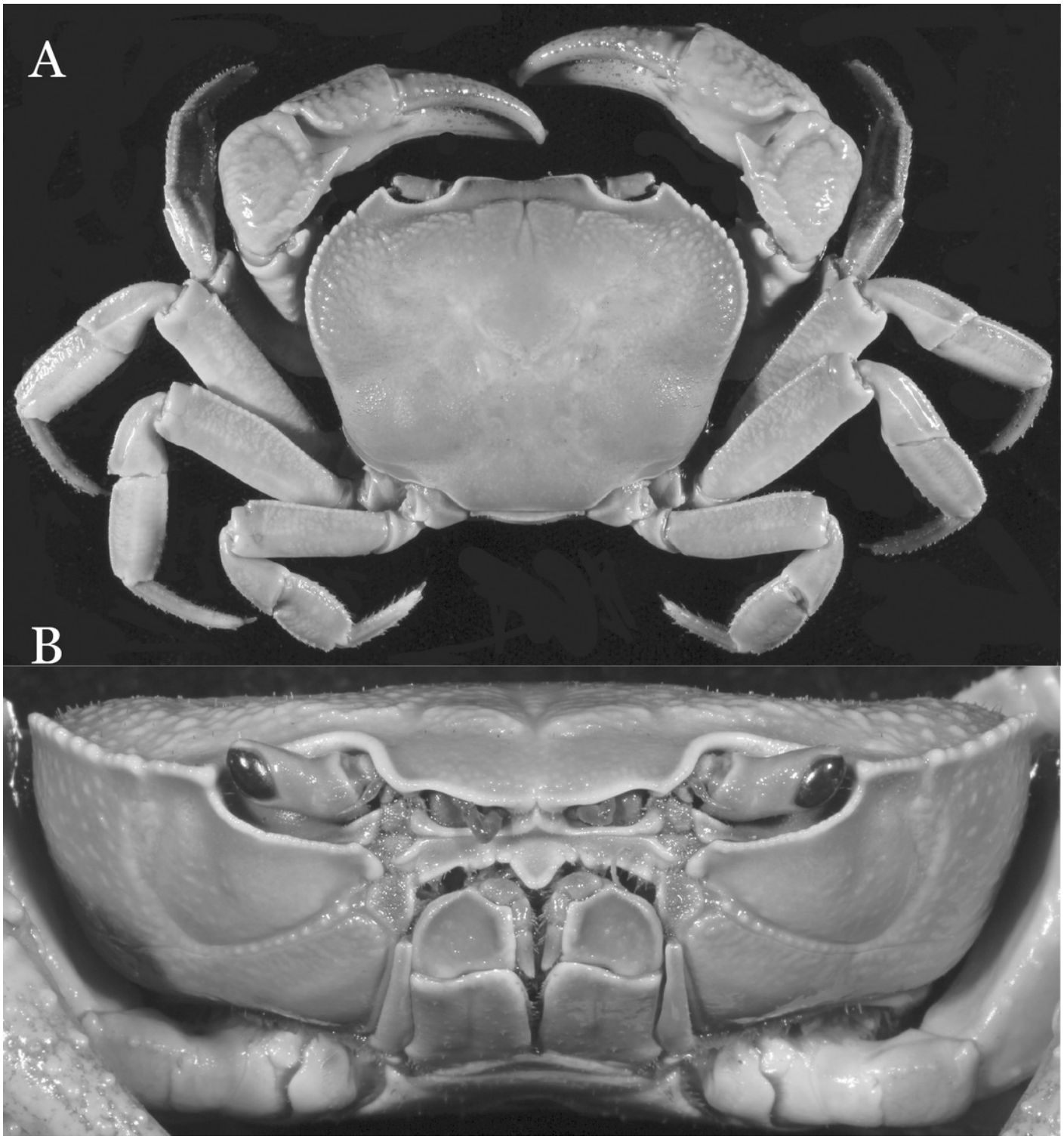
A
B

Figure 15

Indochinamon lui sp. n. (Holotype, NCU MCP 2013.0010).

A, cephalothorax, ventral view; B, right chela, outer view.

**Note: Auto Gamma Correction was used for the image. This only affects the reviewing manuscript. See original source image if needed for review.*

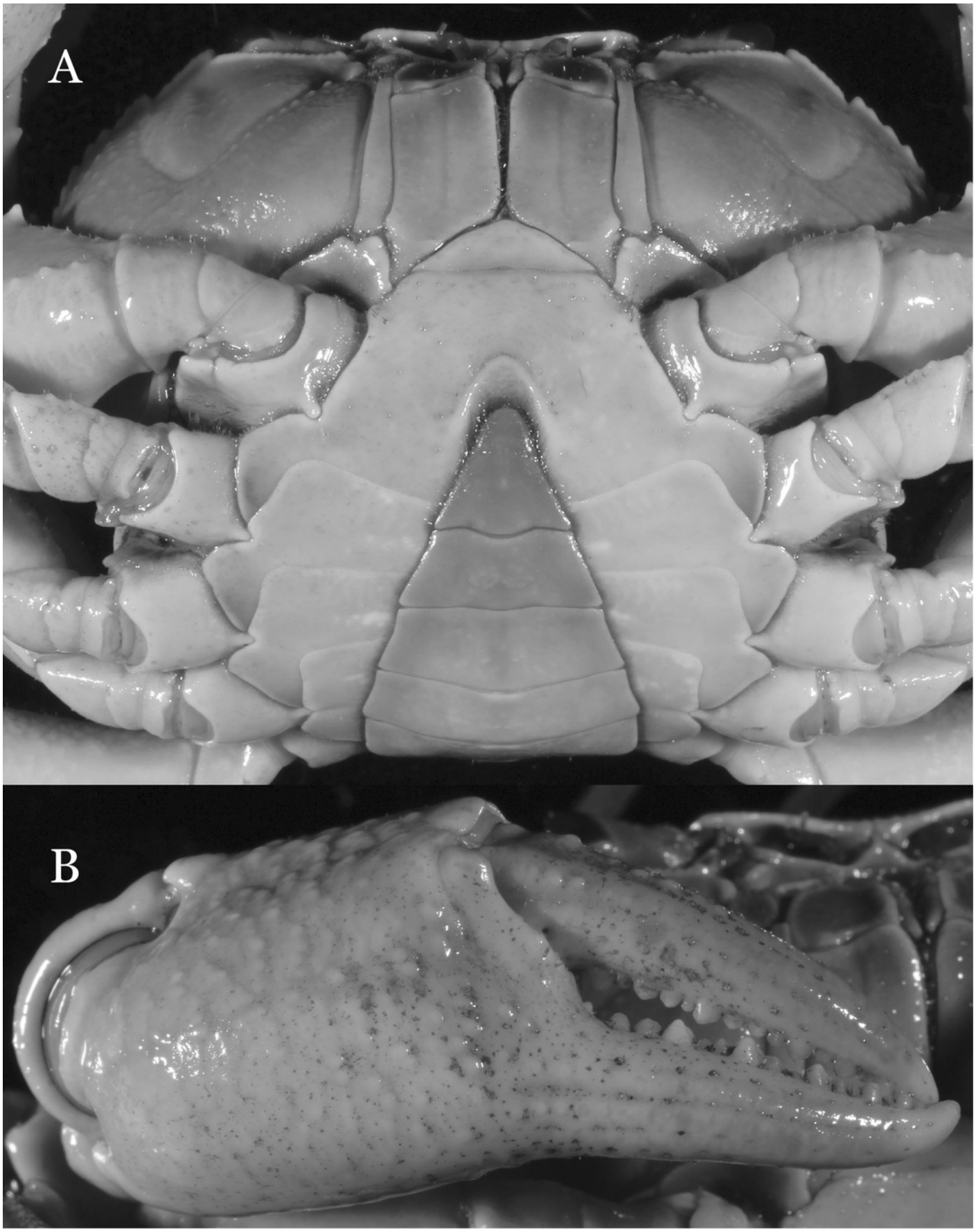
A
B

Figure 16

Indochinamon lui sp. n. (Holotype, NCU MCP 2013.0010).

A–D, left G1; A, ventral view; B, enlarged view of distal portion, ventral view; C, dorsal view; D, enlarged view of distal portion, dorsal view. Scales = 3 mm.

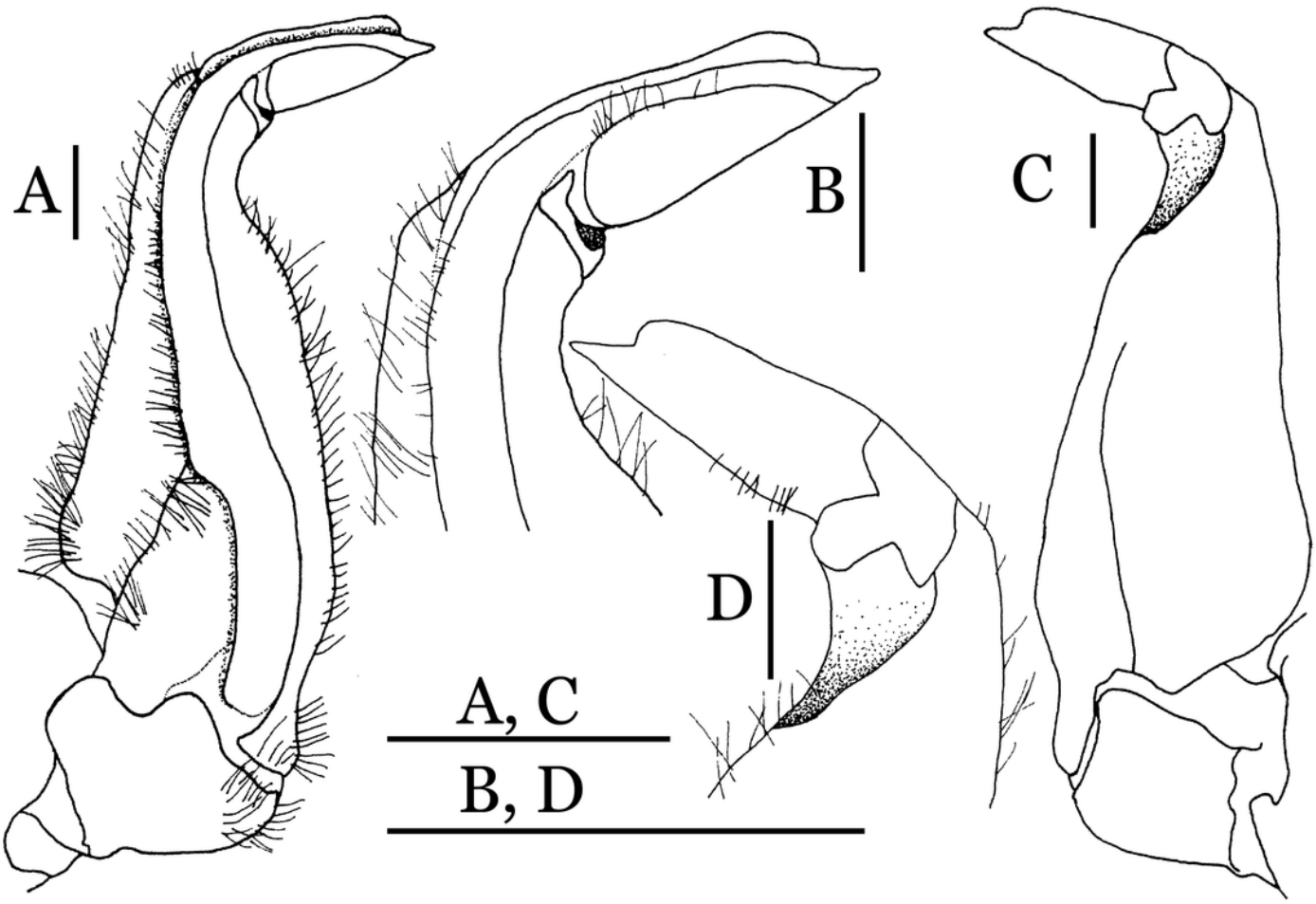

Figure 17

Pararanguna hemicyclius sp. n. (Holotype, NCU MCP 2013.0017).

A, overall view; B, cephalothorax, anterior view.

**Note: Auto Gamma Correction was used for the image. This only affects the reviewing manuscript. See original source image if needed for review.*

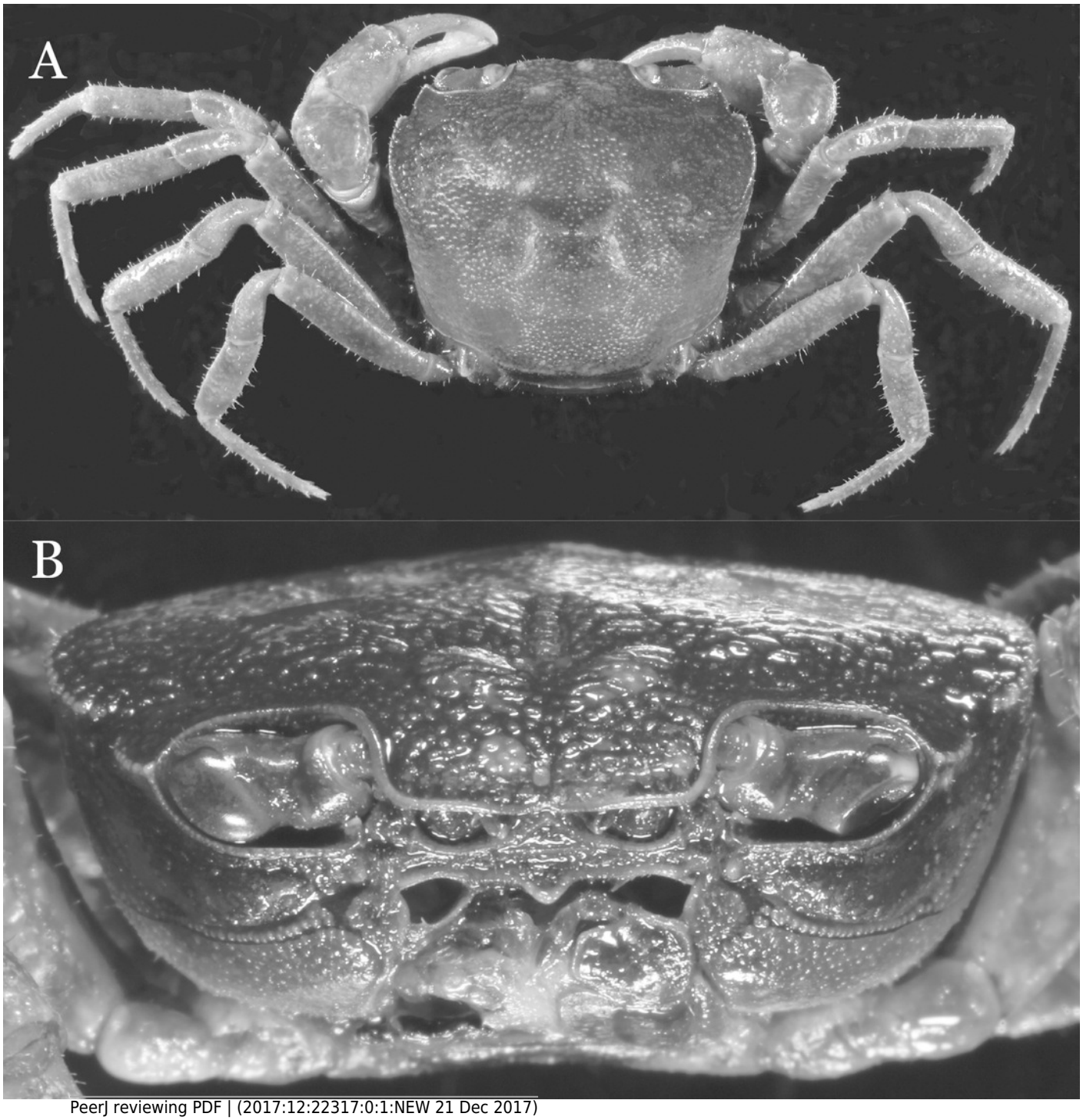

Figure 18

Pararanguna hemicyclius sp. n. (Holotype, NCU MCP 2013.0017).

Cephalothorax, ventral view.

**Note: Auto Gamma Correction was used for the image. This only affects the reviewing manuscript. See original source image if needed for review.*

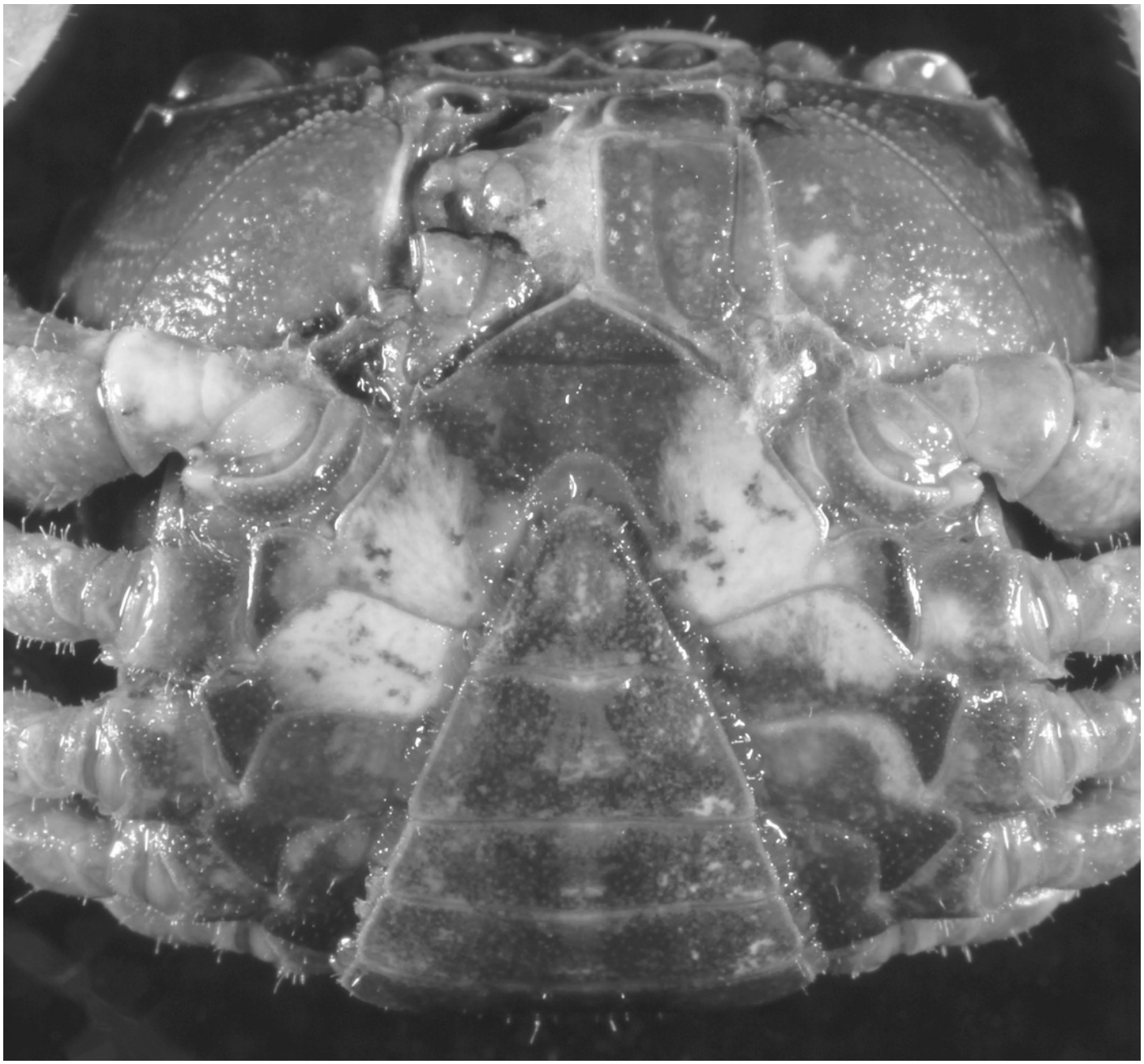

Figure 19

Pararanguna hemicyclius sp. n. (Holotype, NCU MCP 2013.0017).

A–C, right G1; A, ventral view; B, dorsal view; C, lateral view; D, right G2, dorsal view. Scale = 1 mm.

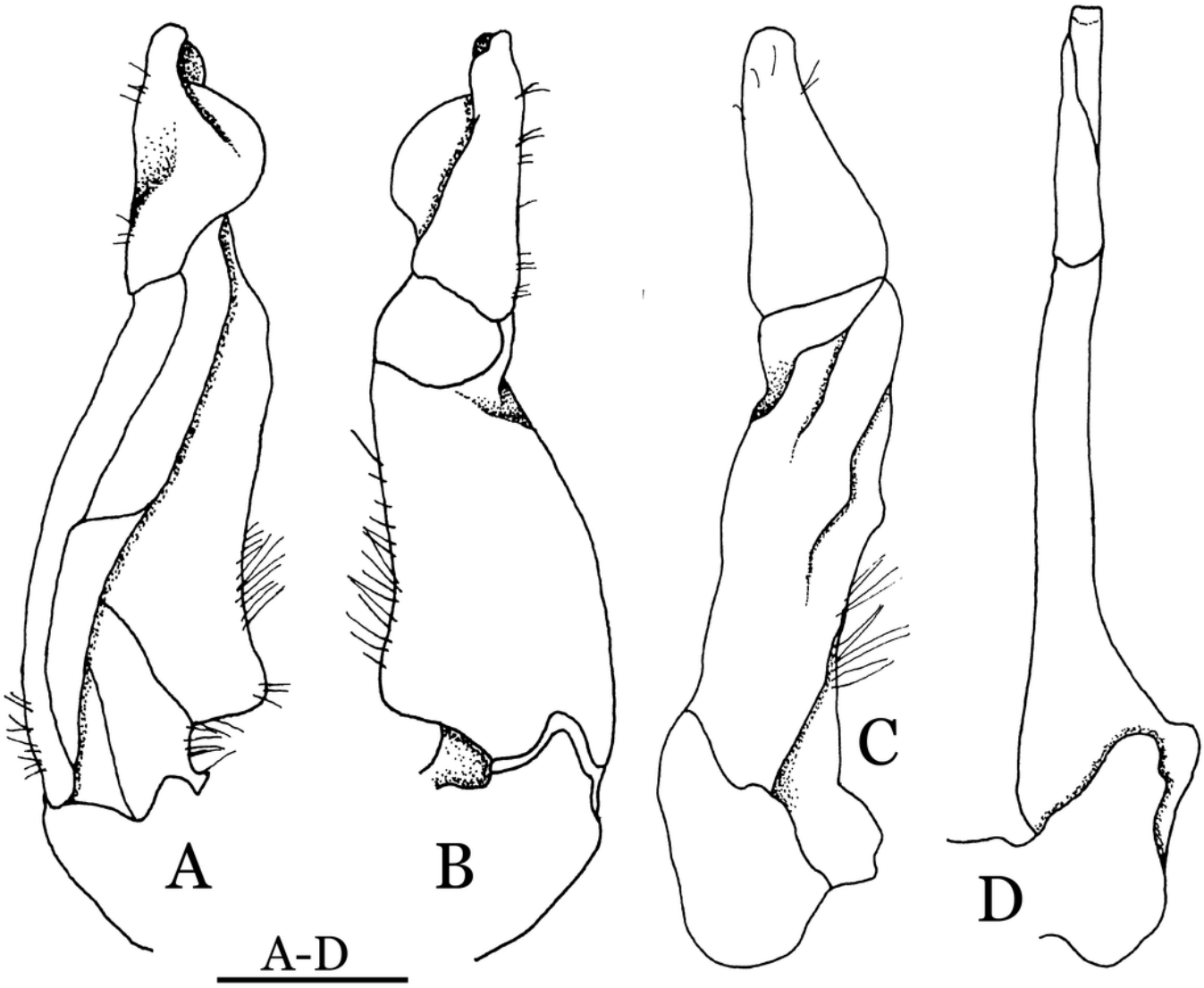

Figure 20

Dorsal views of entire bodies (A–D) and ventral views of G1s (E–H) of comparative species.

A, E, *Pararanguna semilunata* (Dai & Chen, 1984) (Holotype, CB05191 HD8183034); B, F, *Parvuspotamon yuxiense* Dai & Bo, 1994 (Holotype, CB05138 YN 9091116A); C, G, *Potamiscus motuoensis* Dai, 1990 (Holotype, CB05157 XZ6389084); D, H. *Potamiscus yongshengensis* Dai & Chen, 1985 (Holotype, CB05149 HD 8183035).

**Note: Auto Gamma Correction was used for the image. This only affects the reviewing manuscript. See original source image if needed for review.*

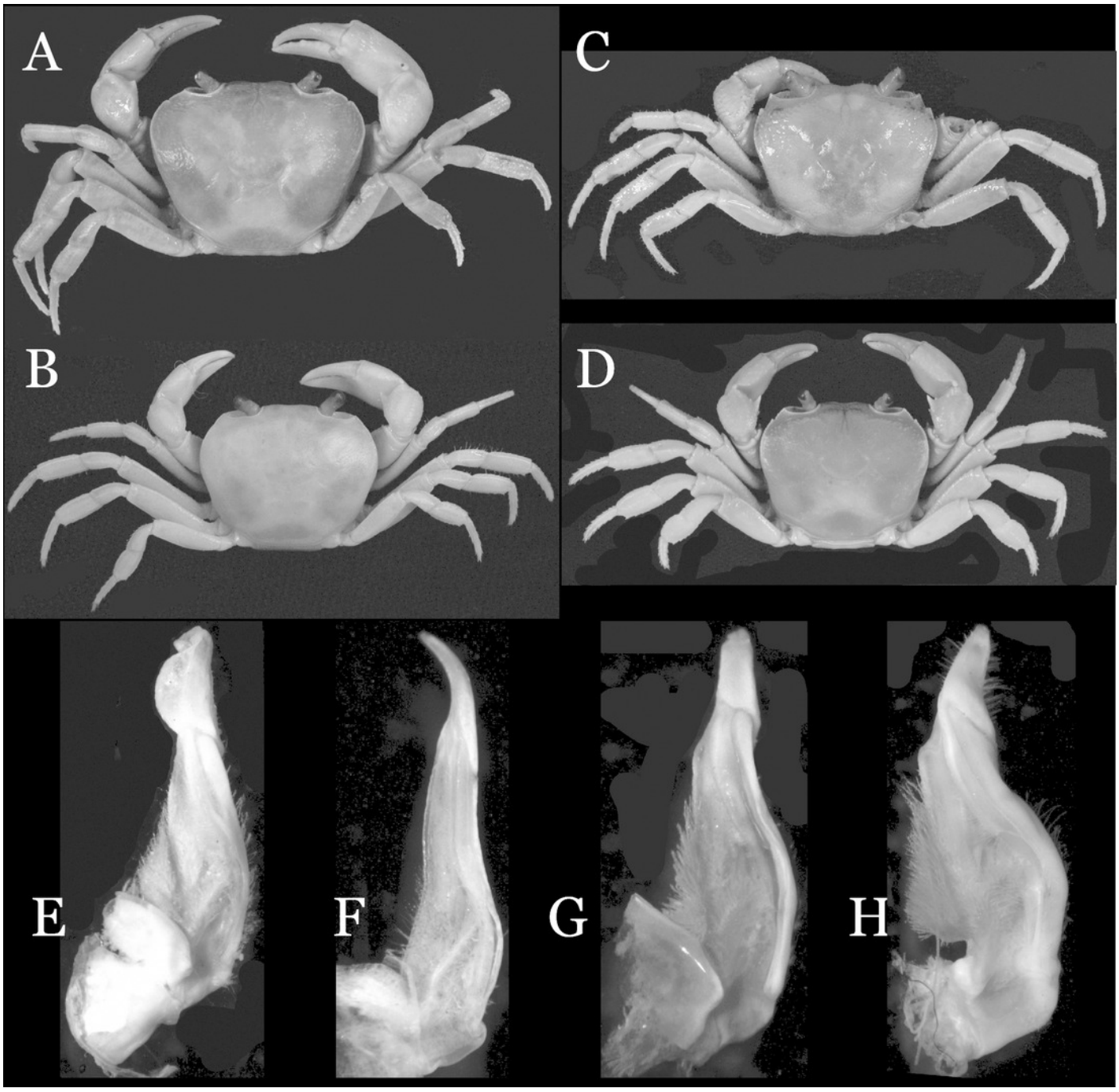
A
C
B
D
E
F
G
H

Figure 21

Parvuspotamon diyuense sp. n. (Holotype, NCU MCP 2013.0020).

A, overall view; B, cephalothorax, anterior view.

**Note: Auto Gamma Correction was used for the image. This only affects the reviewing manuscript. See original source image if needed for review.*

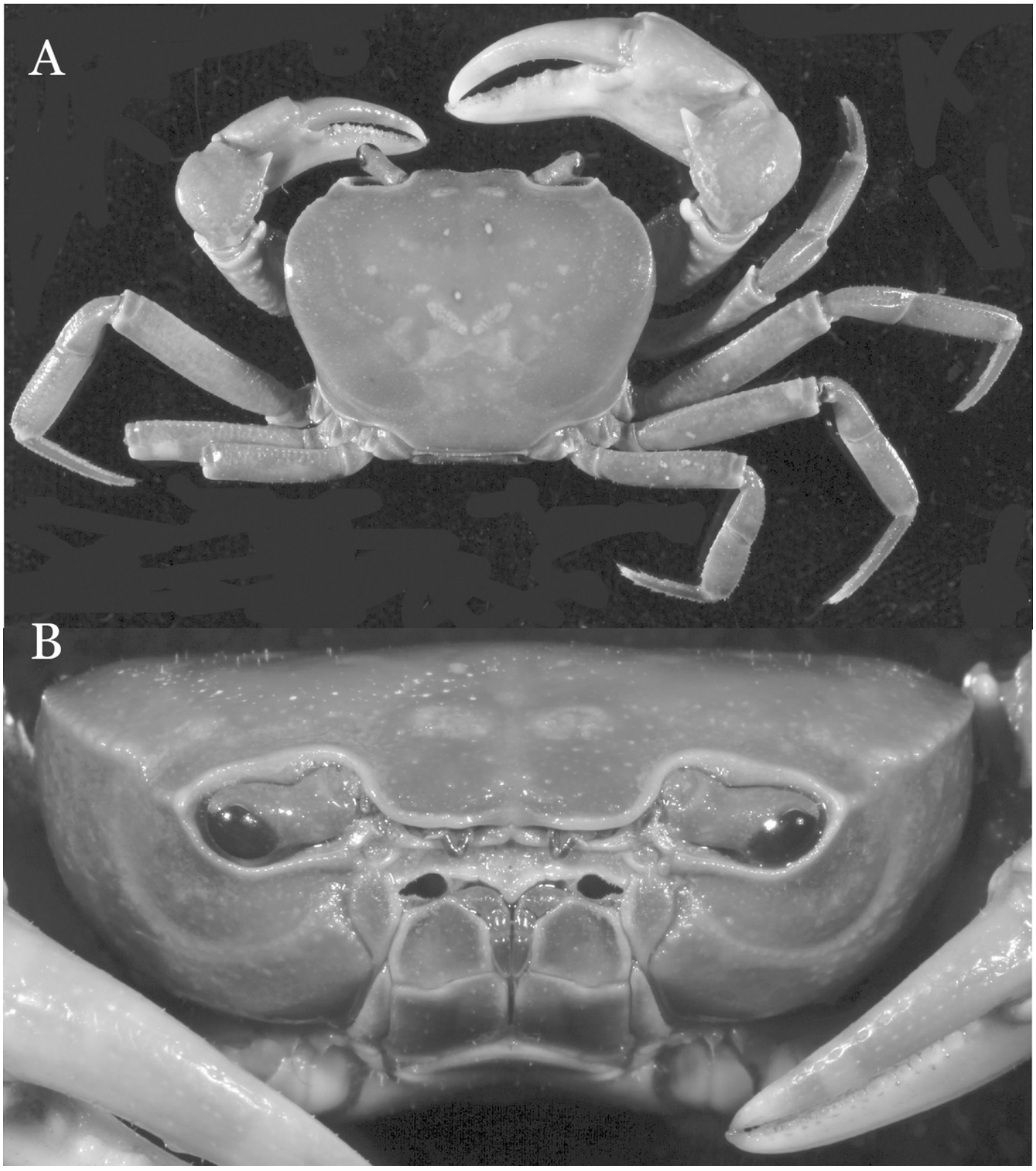
A
B

Figure 22

Parvuspotamon diyuense sp. n. (Holotype, NCU MCP 2013.0020).

A, cephalothorax, ventral view; B, right chela, outer view.

**Note: Auto Gamma Correction was used for the image. This only affects the reviewing manuscript. See original source image if needed for review.*

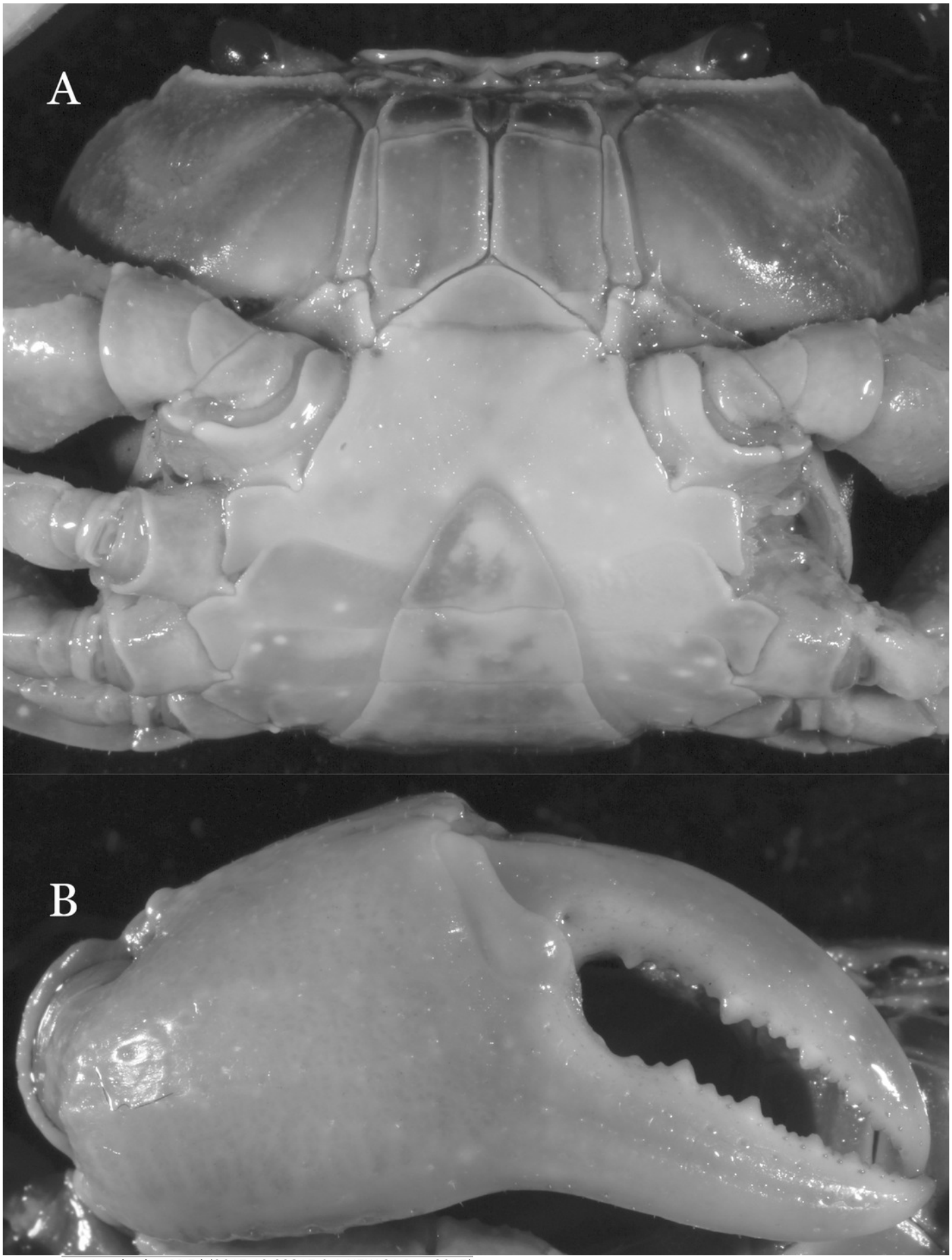
A
B

Figure 23

Parvuspotamon diyuense sp. n. (Holotype, NCU MCP 2013.0020).

A–D, right G1; A, ventral view; B, enlarged view of distal portion, ventral view; C, dorsal view; D, enlarged view of distal portion, dorsal view; E, right G2, dorsal view. Scales = 1 mm.

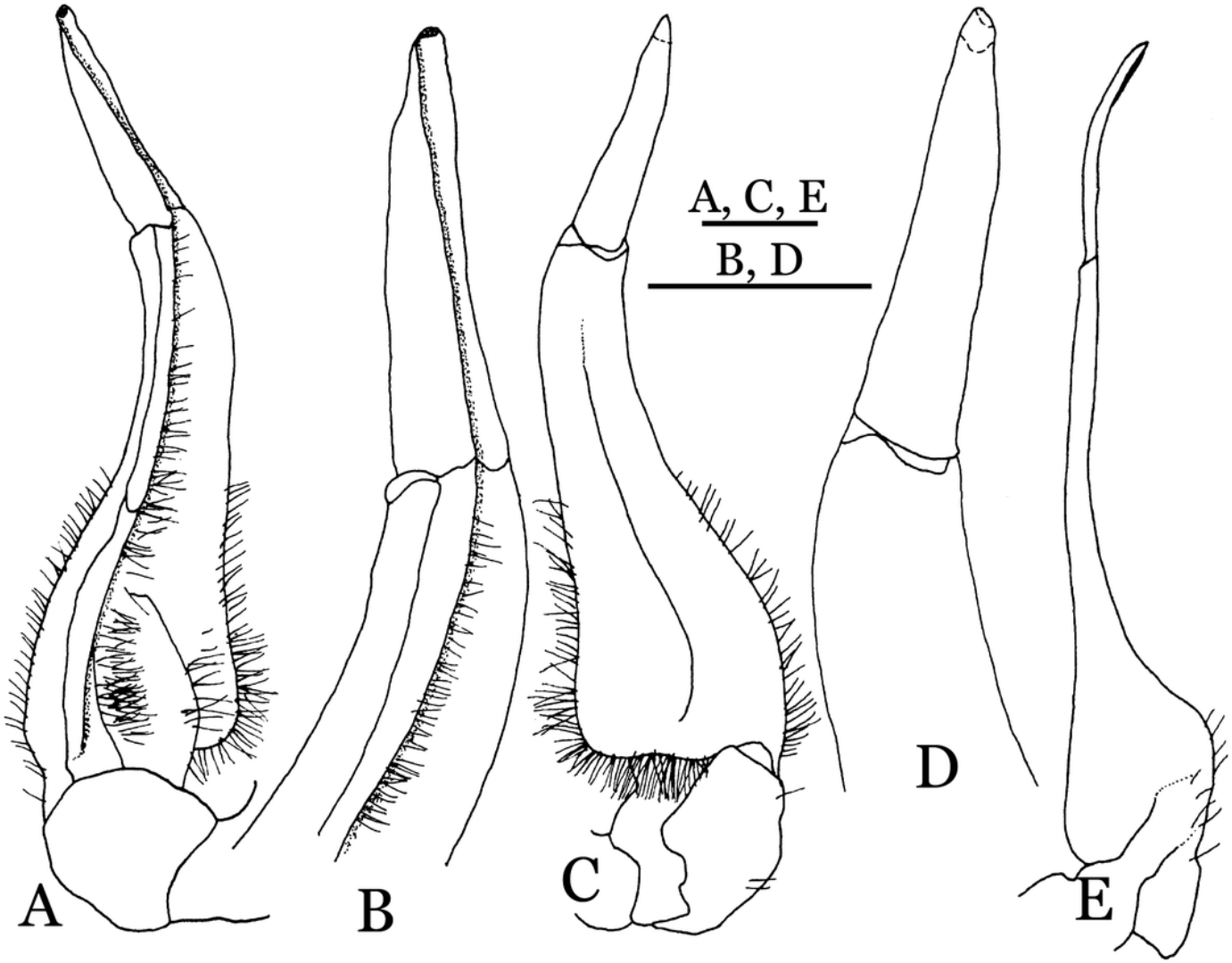

Figure 24

Potamiscus fumariatus sp. n. (Holotype, NCU MCP 2013.0024).

A, overall view; B, cephalothorax, anterior view.

**Note: Auto Gamma Correction was used for the image. This only affects the reviewing manuscript. See original source image if needed for review.*

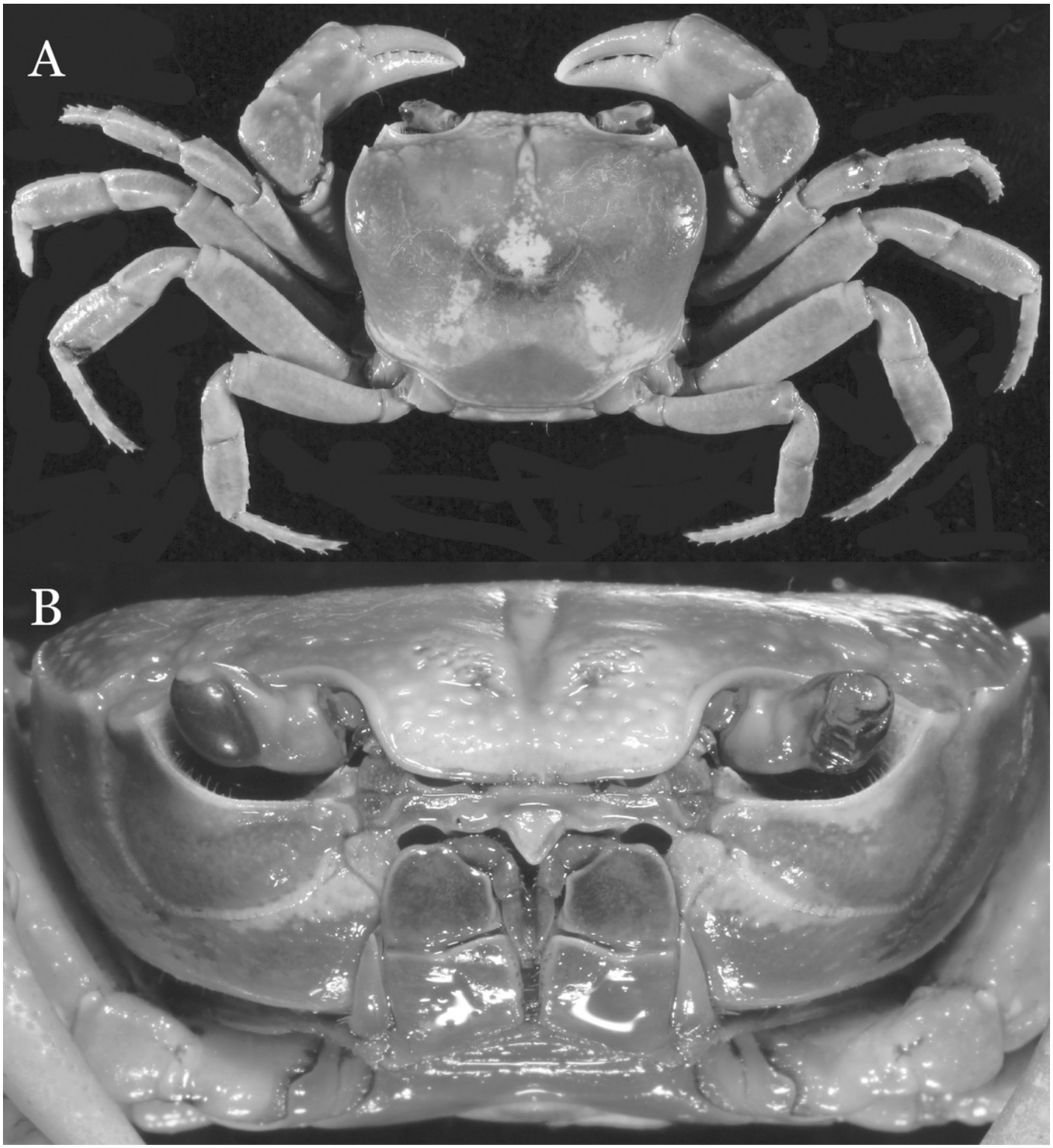
A
B

Figure 25

Potamiscus fumariatus sp. n. (Holotype, NCU MCP 2013.0024).

A, cephalothorax, ventral view; B, right chela, outer view.

**Note: Auto Gamma Correction was used for the image. This only affects the reviewing manuscript. See original source image if needed for review.*

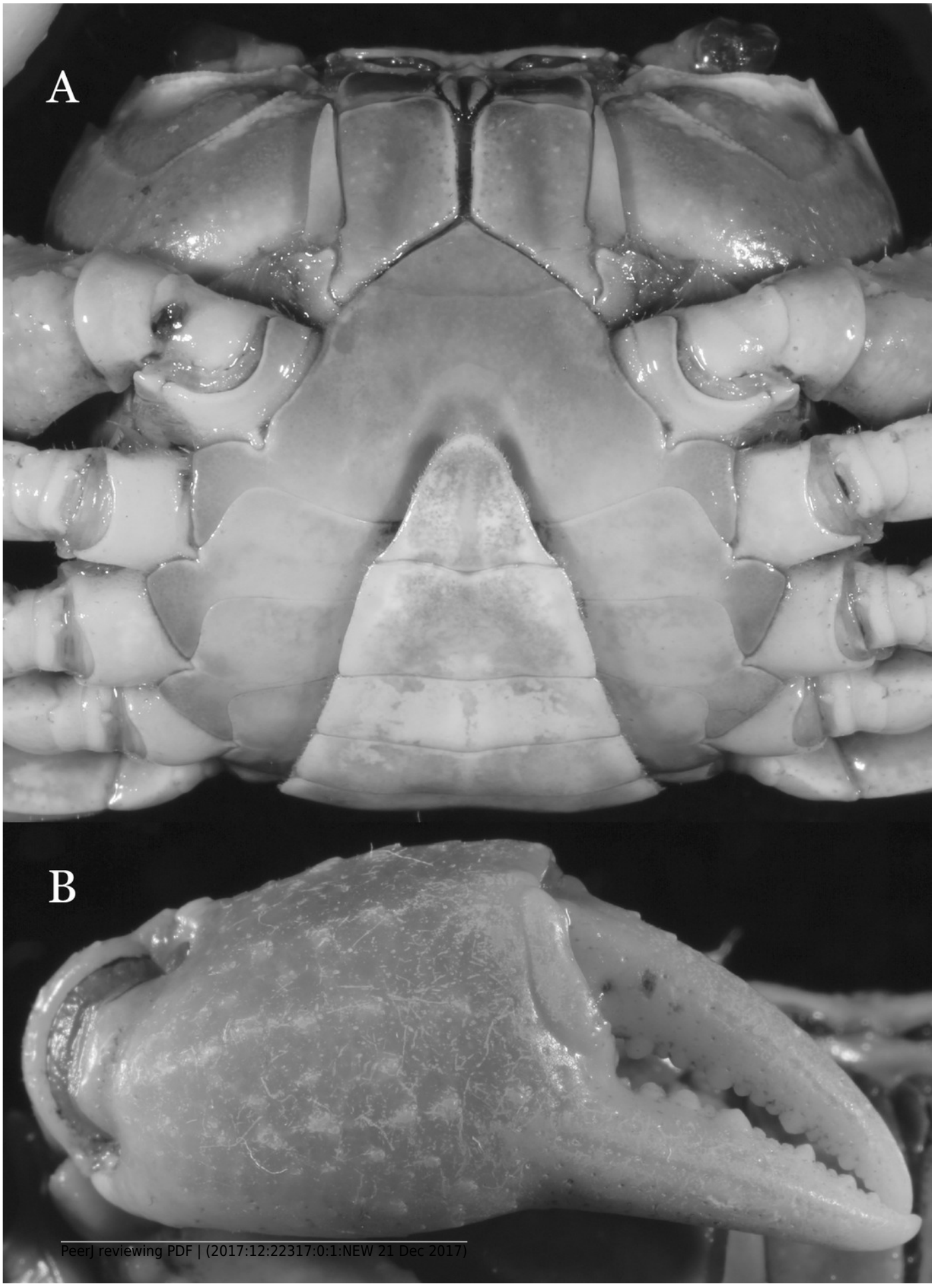
A
B

Figure 26

Potamiscus fumariatus sp. n. (Holotype, NCU MCP 2013.0024).

A–D, left G1; A, ventral view; B, enlarged view of distal portion, ventral view; C, dorsal view; D, enlarged view of distal portion, dorsal view; E, left G2, dorsal view. Scales = 1 mm.

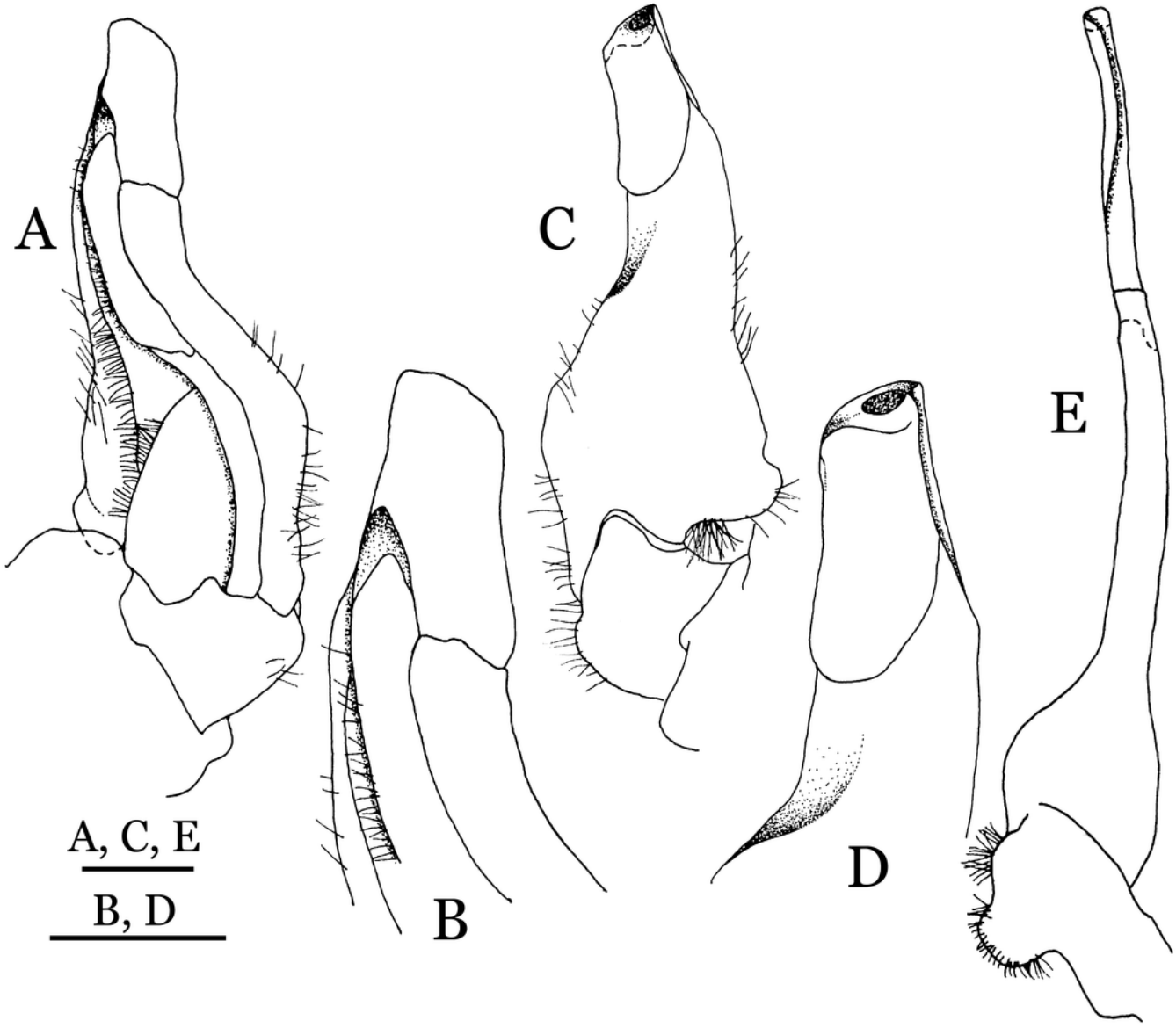

Figure 27

Potamiscus crassus sp. n. (Holotype, NCU MCP 2013.0025).

A, overall view; B, cephalothorax, anterior view.

**Note: Auto Gamma Correction was used for the image. This only affects the reviewing manuscript. See original source image if needed for review.*

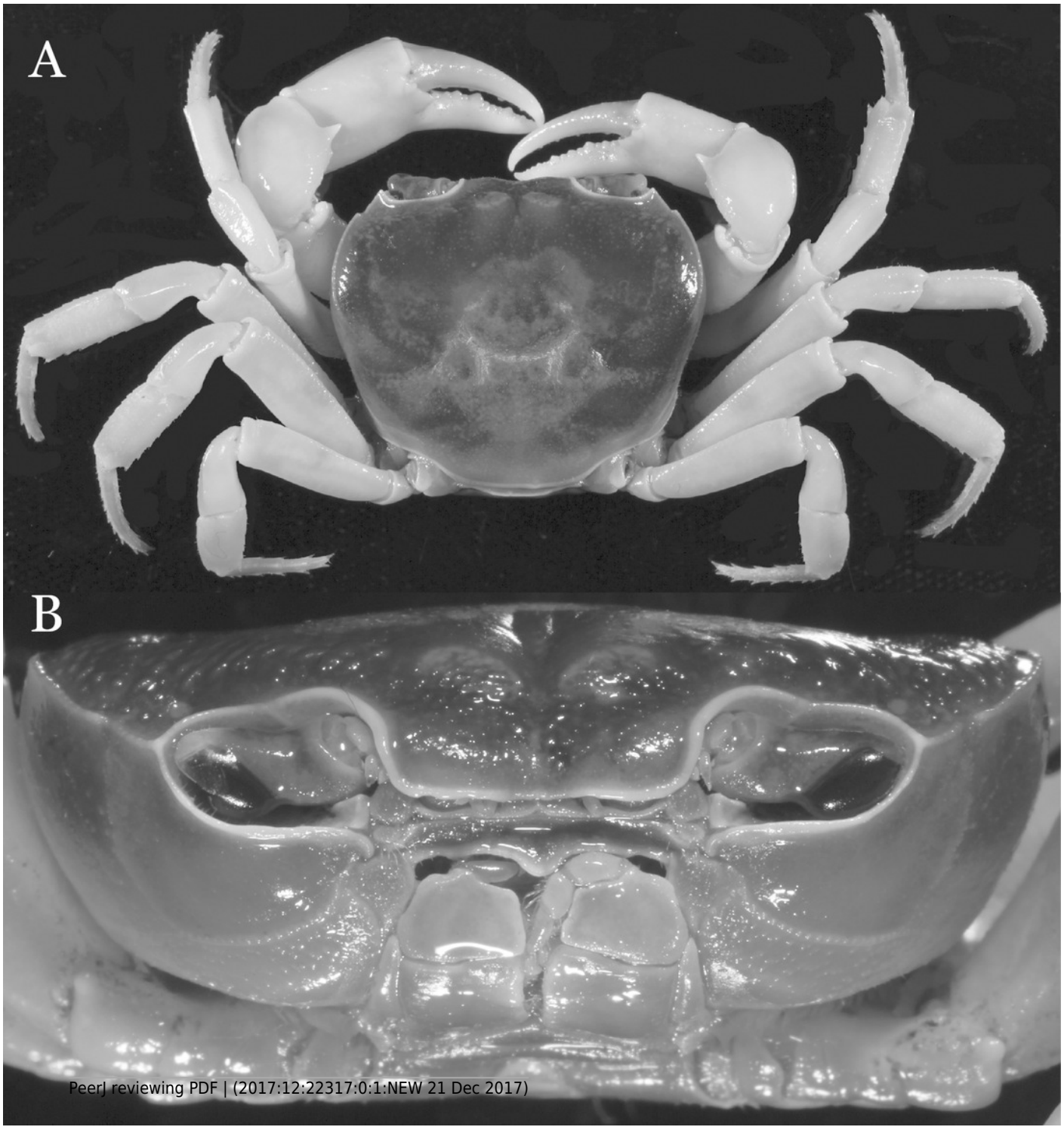

Figure 28

Potamiscus crassus sp. n. (Holotype, NCU MCP 2013.0025).

A, cephalothorax, ventral view; B, left chela, outer view.

**Note: Auto Gamma Correction was used for the image. This only affects the reviewing manuscript. See original source image if needed for review.*

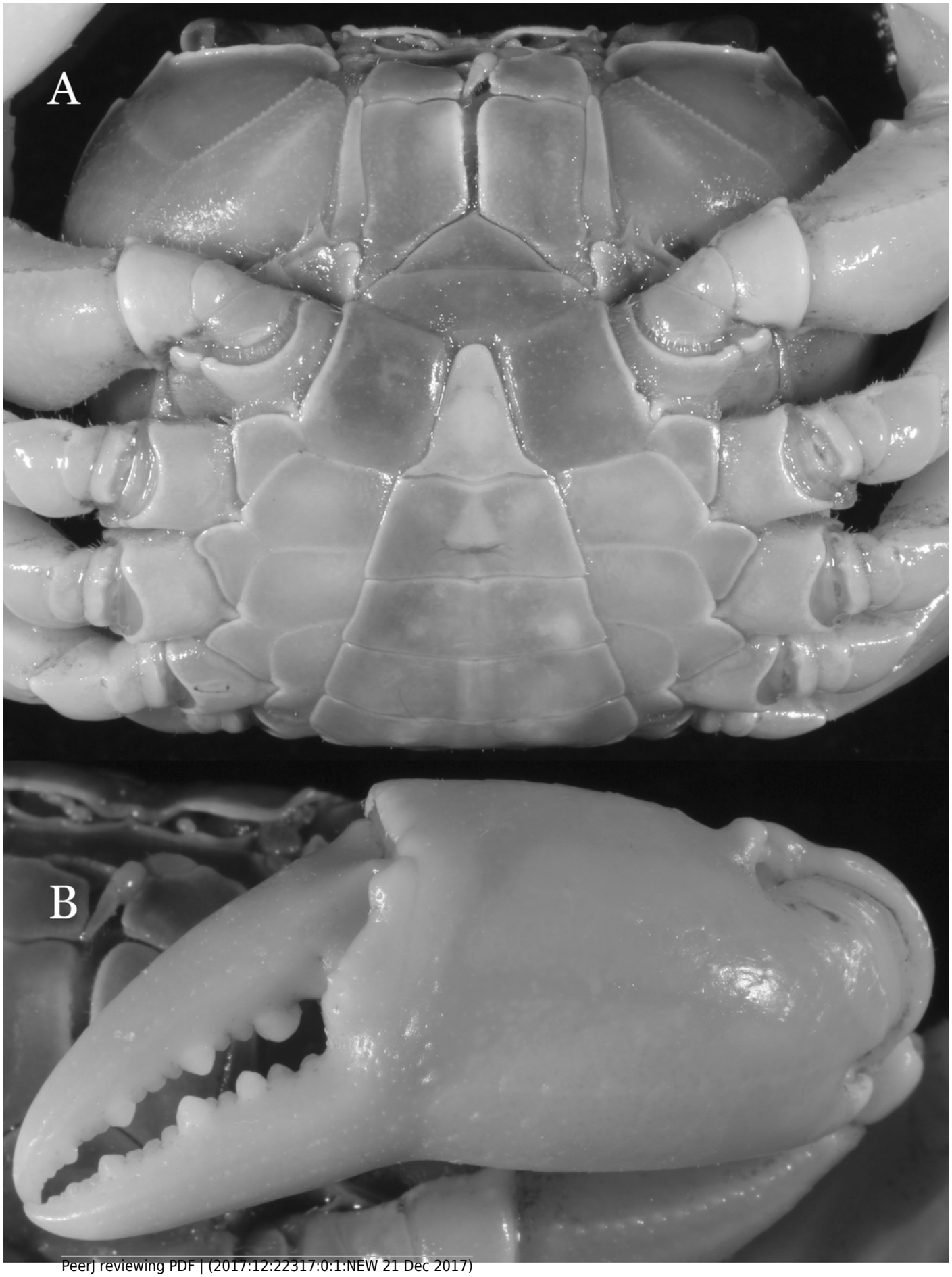
A
B

Figure 29

Potamiscus crassus sp. n. (Holotype, NCU MCP 2013.0025).

A–D, right G1; A, ventral view; B, enlarged view of distal portion, ventral view; C, dorsal view; D, enlarged view of distal portion, dorsal view; E, right G2, dorsal view. Scales = 3 mm.