On the identities of *Sesarma obesum* Dana, 1851, and *Sesarma eydouxi* H. Milne Edwards, 1853 (Crustacea, Decapoda, Brachyura, Sesarmidae)

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ABSTRACT
The identities of two poorly known species of Indo-West Pacific sesarmid crabs, which have been referred to the genus *Chiromantes* Gistel, 1848, are clarified. *Sesarma obesum* Dana, 1851, is shown to be a senior synonym of *Metasesarma rousseauxi* H. Milne Edwards, 1853. A neotype from northern Borneo is designated to fix the identity of the species. *Sesarma eydouxi* H. Milne Edwards, 1853, a species supposedly described from Vietnam and not reported there or in the region since its description, is shown to be a junior synonym of the Atlantic species *Sesarma rectum* Randall, 1840; its original provenance almost certainly being incorrect.

KEY WORDS
Crustacea,
Decapoda,
Brachyura,
Sesarmidae,
Sesarma obesum,
Sesarma eydouxi.

RÉSUMÉ
Identités de Sesarma obesum *Dana, 1851, et* Sesarma eydouxi *H. Milne Edwards, 1853 (Crustacea, Decapoda, Brachyura, Sesarmidae).*
Les identités de deux espèces peu connues de crabes Sesarmidae de l'Indo-ouest Pacifique, qui ont été rattachées au genre *Chiromantes* Gistel, 1848, sont clarifiées. Il est démontré que *Sesarma obesum* Dana, 1851, est un synonyme antérieur de *Metasesarma rousseauxi* H. Milne Edwards, 1853. Un néotype du nord de Bornéo est désigné pour fixer l'identité de l'espèce. *Sesarma eydouxi* H. Milne Edwards, 1853, espèce prétendument décrite du Viet-Nam et non revue dans cette région depuis sa description, est démontrée être un synonyme plus récent de *Sesarma rectum* Randall, 1840 de l'Atlantique ; sa provenance originale étant presque certainement incorrecte.

MOTS CLÉS
Crustacea,
Decapoda,
Brachyura,
Sesarmidae,
Sesarma obesum,
Sesarma eydouxi.

INTRODUCTION

The identities of two Indo-West Pacific sesarmid crab species have been particularly difficult. *Sesarma obesum* Dana, 1851 was originally described from Balabac off northern Borneo, but the brevity of the description and small size of the original figure has made its precise identity and proper generic assignment difficult to ascertain. The type material of this species is no longer extant.

Sesarma eydouxi H. Milne Edwards, 1853 was described from Cochin-China (probably present day Vietnam) and was redescribed by de Man (1892). Tesch (1917) also redescribed and figured this species, assigning it to the genus *Holometopus* H. Milne Edwards, 1853 (= *Chiromantes* Gistel, 1848, *fide* Holthuis 1977). Serène (1968) followed Tesch (1917) and listed it under *Holometopus* (= *Chiromantes*). The species, however, has never been collected during the last century and has several characters which are atypical of Indo-West Pacific sesarmid species.

In this paper, the identities and proper systematic placements of the two species are resolved. *Sesarma obesum* Dana, 1851 is shown to be a senior synonym of *Metasesarma rousseauxi* H. Milne Edwards, 1853. *Sesarma eydouxi* H. Milne Edwards, 1853 is a junior subjective synonym of the Atlantic *Sesarma rectum* Randall, 1840, and the original locality data associated with the type is almost certainly incorrect. Measurements provided (in mm) are of the carapace width and length, respectively.

Specimens examined are deposited in the Muséum national d'Histoire naturelle, Paris (MNHN); Academy of Natural Sciences of Philadelphia (ANSP); Zoological Reference Collection of the Raffles Museum, National University of Singapore (ZRC); Senckenberg Museum, Frankfurt am Main (SMF); Museum of Comparative Zoology, Harvard University, Cambridge (MCZ); and US National Museum of Natural History, Smithsonian Institution, Washington DC (USNM).

SYSTEMATICS

Family SESARMIDAE Dana, 1851
Genus *Metasesarma* H. Milne Edwards, 1853

Metasesarma obesum (Dana, 1851) n. comb.
(Figs 1-3)

Sesarma obesum Dana, 1851: 252; 1852: 356, pl. 22, fig. 10.

Metasesarma rousseauxi H. Milne Edwards, 1853: 188; 1854: 158, pl. 10, figs 1, 1a-1c. — Crosnier 1965: 73, figs 116-120. — Ng & Davie 1995: 39.

Metasesarma granularis Heller, 1862: 522.

Metasesarma rugulosa Heller, 1865: 65.

Sesarma obesa – de Man 1887: 643.

Sesarma (*Holometopus*) *obesa* – Tesch 1917: 179.

Sesarma (*Holometopus*) ?*obesum* – Serène 1968: 107.

Chiromantes obesum – Ng & Liu 1999: 229.

MATERIAL EXAMINED. — **Taiwan.** Pingtung, 22.V.1998, coll. H.-C. Liu, 1 ♂, 2 ♀♀ (ZRC 1998.399); Pingtung, 19.V.1998, coll. H.-C. Liu, 1 ♂ (ZRC 1999.552). — Little Liu-Kiu Island, 1.VIII.1994, coll. H.-C. Liu, C. H. Wang, 1 ♂, 2 ♀♀ (ZRC 1998.479). — Feng Chui-Sa, Pingtung, 24.VI.2002, coll. P. K. L. Ng, 1 ♂ (ZRC).
Guam. Pago Bay, 15-18.IV.2000, coll. P. K. L. Ng, C. H. Wang, 3 ♂♂, 16 ♀♀ (ZRC 2000.583). — Haputo, VIII.2001, coll. P. K. L. Ng, 2 ♂♂, 1 ♀ (ZRC 2001.744). — Dadi Beach, 31.VII.2001, coll. P. K. L. Ng, 2 ♂♂, 1 ovigerous ♀ (ZRC 2001.749).
Tahiti. East of Papeete, 21.XI.1996, coll. G. Paulay, 1 ♀ (ZRC 2000.582); X.2001, coll. H.-C. Liu, 2 ♂♂, 1 ♀ (ZRC).
Australia, Christmas Island. 1939, coll. C. A. Gibson-Hill, 3 ♂♂, 8 ♀♀ (ZRC 1966.12.2.1-10).
Malaysia, Sabah. Pulau Manukan, northern Sabah, 22.VI.2000, coll. C. D. Schubart, 1 ♂, 1 ♀ (ZRC 2000. 1656, 1657).
Indonesia. Pangandaran, 3.III.1963, coll. R. Serène, 9 ♂♂, 4 ♀♀ (ZRC 1971.11.1.1-5), 1 ♂ (ZRC 1971.5.3.1), 1 ♂ (ZRC 1971.11.1.6). — Citerjun, Ujung Kulon, West Java, in leaf litter, 5 m from the shore, 30.VII.1993, coll. C. Stewart, 1 ♂ 15.2 × 13.3 mm, 1 ♀ 15.3 × 13.4 mm (ZRC).

REMARKS

Dana (1851) described *Sesarma obesum* from a specimen originating from an island in Balabac Strait north of Borneo. Serène (1968: 107) in listing this species under *Chiromantes* (as

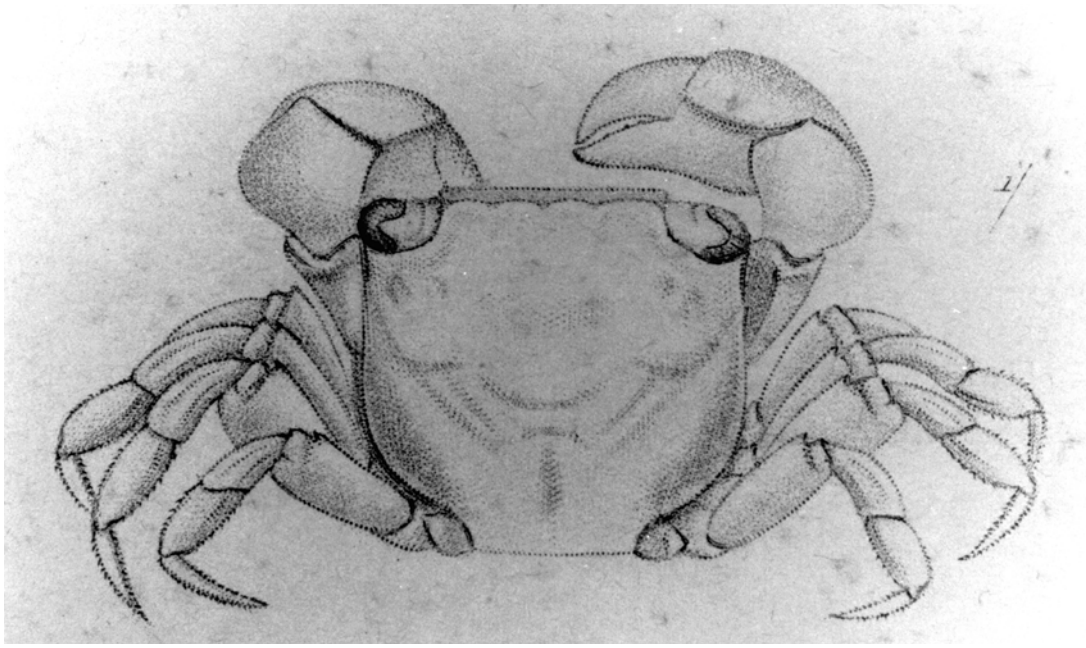

FIG. 1. — *Sesarma obesum* Dana, 1851, original figure, after Dana (1852: pl. 22, fig. 10a).

Holometopus) questioned its systematic position and indicated that it might be referred to *Metasesarma*. The original figure provided of *Sesarma obesum* by Dana (1852: pl. 22, fig. 10) is good (Fig. 1) and confirms that the species should be assigned to *Metasesarma*. The form of the carapace and legs strongly suggests that *Sesarma obesum* Dana, 1851, is identical to *Metasesarma rousseauxi* H. Milne Edwards, 1853. This species is often reported from islands with wide gravel or sandy beaches without rivers or freshwater sources, as is typical for the islands north of Borneo. Numerous specimens of this species from the Indo-West Pacific have been examined, and while the colour varies according to the substrate, the lateral carapace margins of this species are typically straight and subparallel, giving the carapace a squarish appearance. In larger specimens (e.g., the proposed neotype), however, the margins are gently convex.

Specimens identified as *Metasesarma rousseauxi* from an island north of Sabah, relatively close to the type locality of *S. obesum*, the Balabac Islands (not easily accessible nowadays due to political problems) were examined. The material is comparable to the specimen figured by Dana (1852). Therefore, a male specimen from the island off Sabah was selected as the neotype of *Sesarma obesum*, thereby fixing the identity of this poorly known species. The neotype is a male measuring 14.3 × 13.5 mm (ZRC 2000.1656), collected from amongst supralittoral coral rubble on Pulau Manukan, northern Sabah, East Malaysia, Borneo, on 22 June 2000 (Figs 2; 3). This action effectively synonymises *Metasesarma rousseauxi* with *Sesarma obesum*, with the latter name having priority. Furthermore, *Sesarma obesum* is transferred to *Metasesarma*.

On the basis of the identification by the late Raoul Serène, Hartnoll (1975: 308, 322) referred specimen(s) from Tanzania with doubt to "*Holometopus obesus*". The whereabouts of these specimens is not known (R. G. Hartnoll pers. comm.). Whether they are what is here identified as *Metasesarma obesum* n. comb. (and *M. rousseauxi*) cannot be ascertained. It is interesting to note, that while the type locality of *M. rousseauxi* is the east coast of Africa (from where it has also

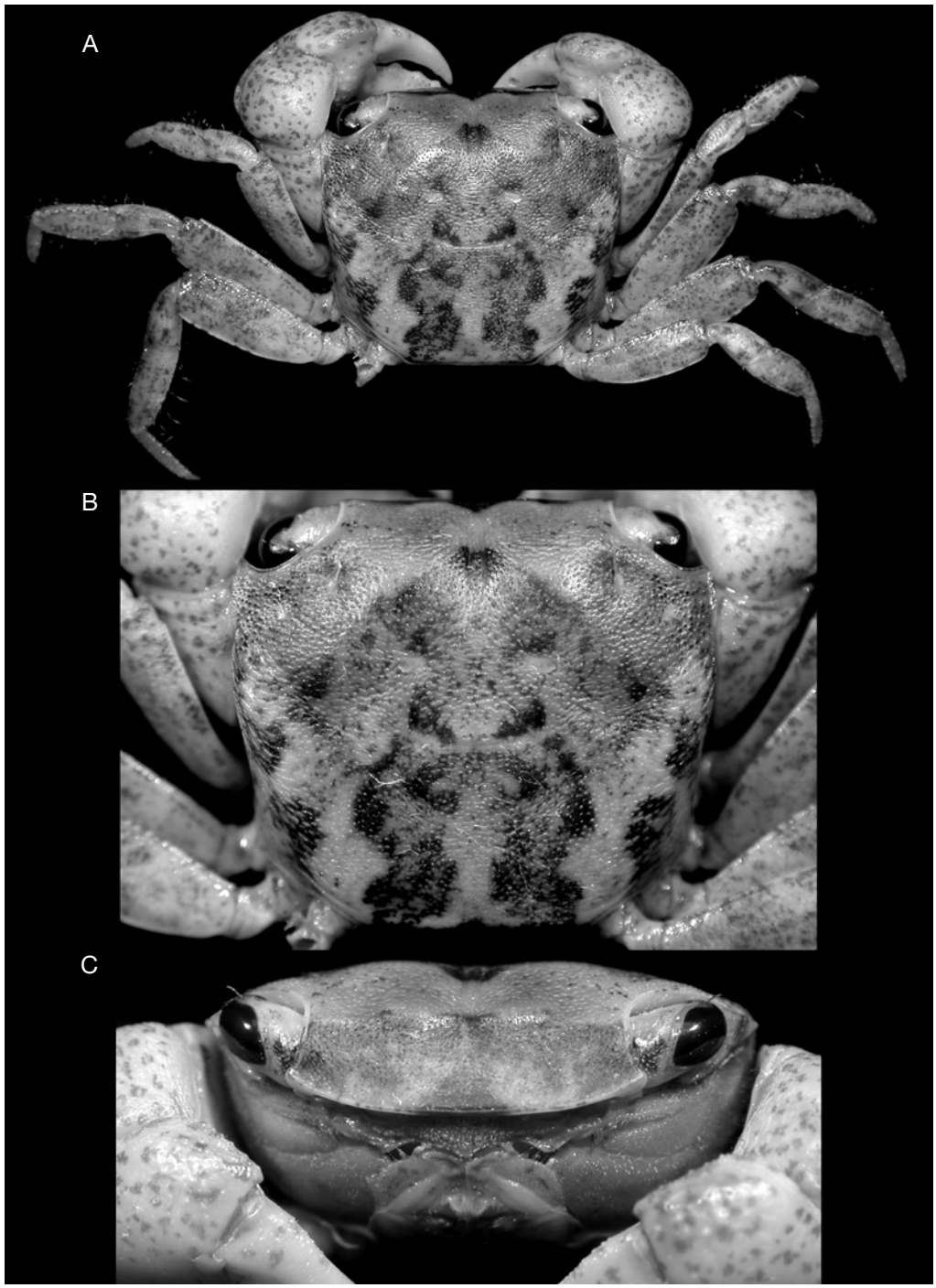

FIG. 2. — *Metasesarma obesum* (Dana, 1851) n. comb., neotype, ♂ 14.3 × 13.5 mm (ZRC 2000.1656), Pulau Manukan, Sabah; **A**, overall view; **B**, carapace; **C**, frontal view.

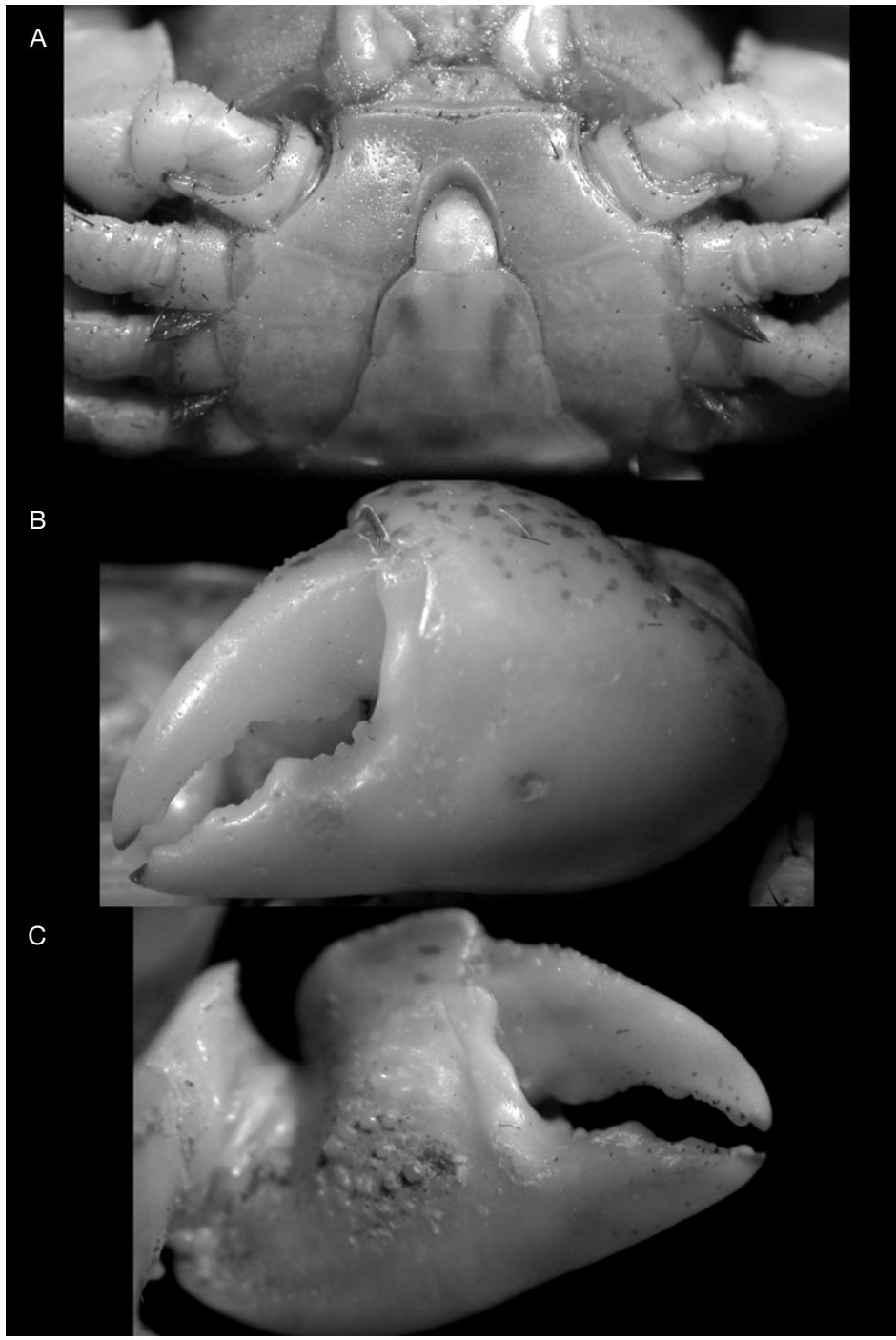

FIG. 3. — *Metasesarma obesum* (Dana, 1851) n. comb., neotype, ♂ 14.3 × 13.5 mm (ZRC 2000.1656), Pulau Manukan, Sabah; **A**, ventral view; **B**, left chela, outer view; **C**, left chela, inner view.

been reported from by Crosnier [1965] and Guinot [1967], Hartnoll (1975: 307) did not find this species in Tanzania, but instead reported "*Holometopus obesus*" from the supralittoral area of a rocky shore. This is precisely the preferred habitat of *M. rousseauxi* (see Ng & Davie 1995). Consequently, Hartnoll's material is considered to be conspecific with what is here defined as *Metasesarma obesum* n. comb.

In any case, the taxonomy of what has been called *Metasesarma rousseauxi* (type locality: Zanzibar), may not be systematically stable (see Tesch 1917: 212; Crosnier 1965: 73; Ng & Davie 1995: 39, for complete synonymy). *Metasesarma granularis* Heller, 1862, and *M. rugulosa* Heller, 1865, are both regarded as junior synonyms of *M. rousseauxi* (see Crosnier 1965; Ng & Davie 1995) and thus now of *M. obesum* n. comb., but considering the extensive range of the species, it is possible that this might be a species complex with more than one species involved. As such, *Metasesarma rousseauxi* may yet prove to be different from *Sesarma obesum*. But on current knowledge, there is little evidence to justify separating these two taxa. As a result, the well known supralittoral *Metasesarma rousseauxi* from the Indo-West Pacific should now be known as *Metasesarma obesum* (Dana, 1851) n. comb. One other *Metasesarma* is known from the Indo-West Pacific, *M. aubryi* (A. Milne Edwards, 1869), a species that normally occurs further inland in forests or close to freshwater habitats (Ng & Davie 1995).

Genus *Sesarma* Say, 1817

Sesarma rectum Randall, 1840
(Figs 4-7)

Sesarma recta Randall, 1840: 123.

Sesarma eydouxi H. Milne Edwards, 1853: 184. — Heller 1865: 64. — de Man 1880: 23; 1887: 643; 1892: 248.

Sesarma müllerii A. Milne Edwards, 1869: 29.

Sesarma (*Holometopus*) *recta* – Tesch 1917: 190.

Sesarma (*Holometopus*) *eydouxi* – Tesch 1917: 150, figs 3, 4. — Serène 1968: 107.

Sesarma (*Holometopus*) *rectum* – Rathbun 1918: 298, pl. 82. — Holthuis 1959: 243, fig. 61, pl. 11, fig. 4. — Chace & Hobbs 1969: 182, fig. 62j.

Sesarma (*Sesarma*) *rectum* – von Hagen 1978: 45, figs 1a, 2a, 3a, 4a, 5a.

Sesarma rectum – von Hagen 1975: 301, fig. 7. — Abele 1992: 15, figs 3b, 4b, 5d, 9. — Schubart *et al.* 1999: 537.

Chiromantes eydouxi – Ng & Liu 1999: 229.

MATERIAL EXAMINED. — **Surinam.** Coll. Hering, 1 ♂ 32.8 × 26.7 mm, holotype of *Sesarma recta* Randall, 1840 (ANSP 3976). — Coquette collections, 12.V.1957, coll. L. B. Holthuis, 1 ♀ (USNM 103276).
"Cochin-China". 1 ♂ 31.2 × 27.2 mm, lectotype of *Sesarma eydouxi* H. Milne Edwards, 1853 (MNHN B10930).
Grenada. Fort Jeudy, 15.VIII.1994, coll. R. Diesel, D. Horst, C. Schubart, 1 ♂ 21.1 × 18.4 mm, 2 ♀♀ 18.0 × 15.5, 16.8 × 14.5 mm (SMF 23248), 1 ♀ 16.5 × 14.3 mm (SMF 23249).
Brazil. Rio Grande do Norte, 1 ♂ 29.9 × 26.8 mm (MCZ 6230). — Rio Paraiba do Norte, 3 ♂♂ 26.4 × 22.9 mm, 17.7 × 15.1 mm, 11.7 × 9.8 mm, 1 ♀ 21.1 × 17.9 mm (MCZ 6231). — Pernambuco, 3 juvenile ♂♂ 14.4 × 12.5 mm, 8.0 × 7.0 mm, 7.4 × 6.4 mm, 1 ♀ 22.8 × 19.1 mm (MCZ 6232). — Sta Clara, 2 ♂♂ 30.8 × 27.5 mm, 23.2 × 20.2 mm, 2 ♀♀ 29.4 × 26.1 mm, 27.8 × 24.4 mm (MCZ 6233). — Rio de Janeiro, 4 ♂♂ 26.0 × 22.0 mm, 29.7 × 25.5 mm, 31.5 × 27.3 mm, 35.4 × 30.4 mm (MCZ 6234). — Florianopolis, 1 ♂ 22.6 × 19.7 mm (MCZ 6235). — Branner-Agassiz Expedition, 1.VIII.1899, 1 ♂, 1 ♀ (USNM 25711). — Santos, Pissaquera, VI.1913, coll. H. Luederwaldt, 2 ♂♂ (USNM 47859). — Rio de Janeiro, Terra de Masahe, I.1912, coll. E. Garbe, 2 ♂♂ (USNM 47862). — Santos, Ilha Casquerinita, VI.1913, coll. H. Luederwaldt, 2 juvenile ♀♀ (USNM 47867). — São Sebastião, 5 ♂♂, 7 ♀♀ (USNM 70986). — São Francisco, 31.X.1925, coll. W. L. Schmitt, 4 ♂♂, 1 ♀ (USNM 71168). — São Paulo, Ubatuba, mangrove at Praia Dura, 30.VIII.1992, coll. F. L. M. Mantelatto, 2 ♂♂ 31.2 × 27.5 mm, 26.0 × 22.8 mm (ZRC 2000.1780). — São Paulo, Ubatuba, mangrove at Praia Dura, III.1997, coll. F. L. M. Mantelatto, 1 ♂ 22.6 × 19.9 mm (SMF 25169).

REMARKS

Sesarma eydouxi was described from Cochin-China but the number of specimens actually available to H. Milne Edwards is not clear. In the MNHN is a type specimen which is here designated as the lectotype of the species (Figs 4; 5).

FIG. 4. — *Sesarma eydouxi* H. Milne Edwards, 1853, lectotype ♂ 31.2 × 27.2 mm (MNHN B10930); **A**, dorsal view; **B**, carapace; **C**, left chela, dorsal view.

FIG. 5. — *Sesarma eydouxi* H. Milne Edwards, 1853, lectotype ♂ 31.2 × 27.2 mm (MNHN B10930); **A**, frontal view; **B**, right chela, dorsal view; **C**, left chela, dorsal view.

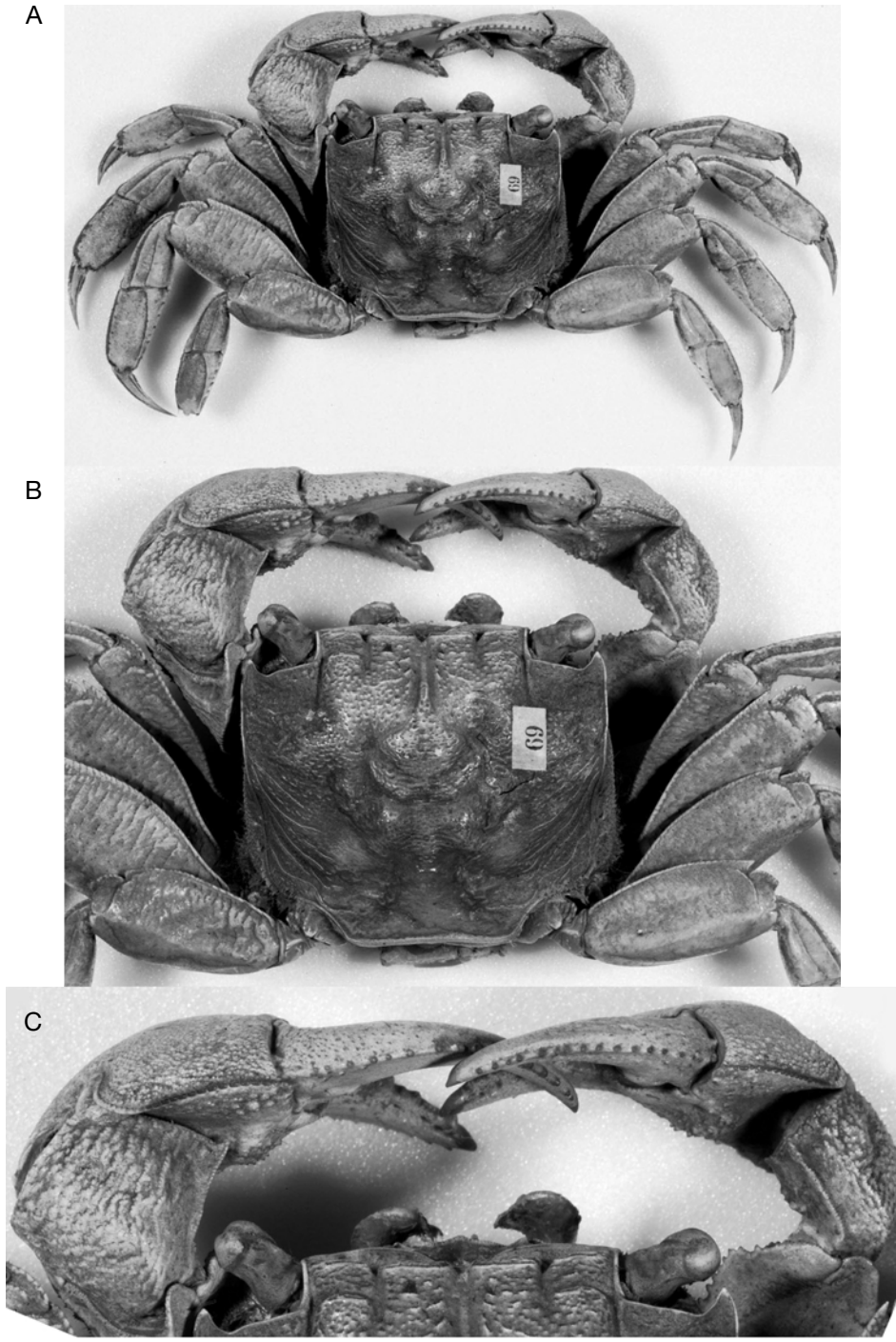

FIG. 6. — *Sesarma rectum* Randall, 1840, holotype ♂ 32.8 × 26.7 mm (ANSP 3976); **A**, overall view; **B**, carapace; **C**, front and chelipeds, dorsal view.

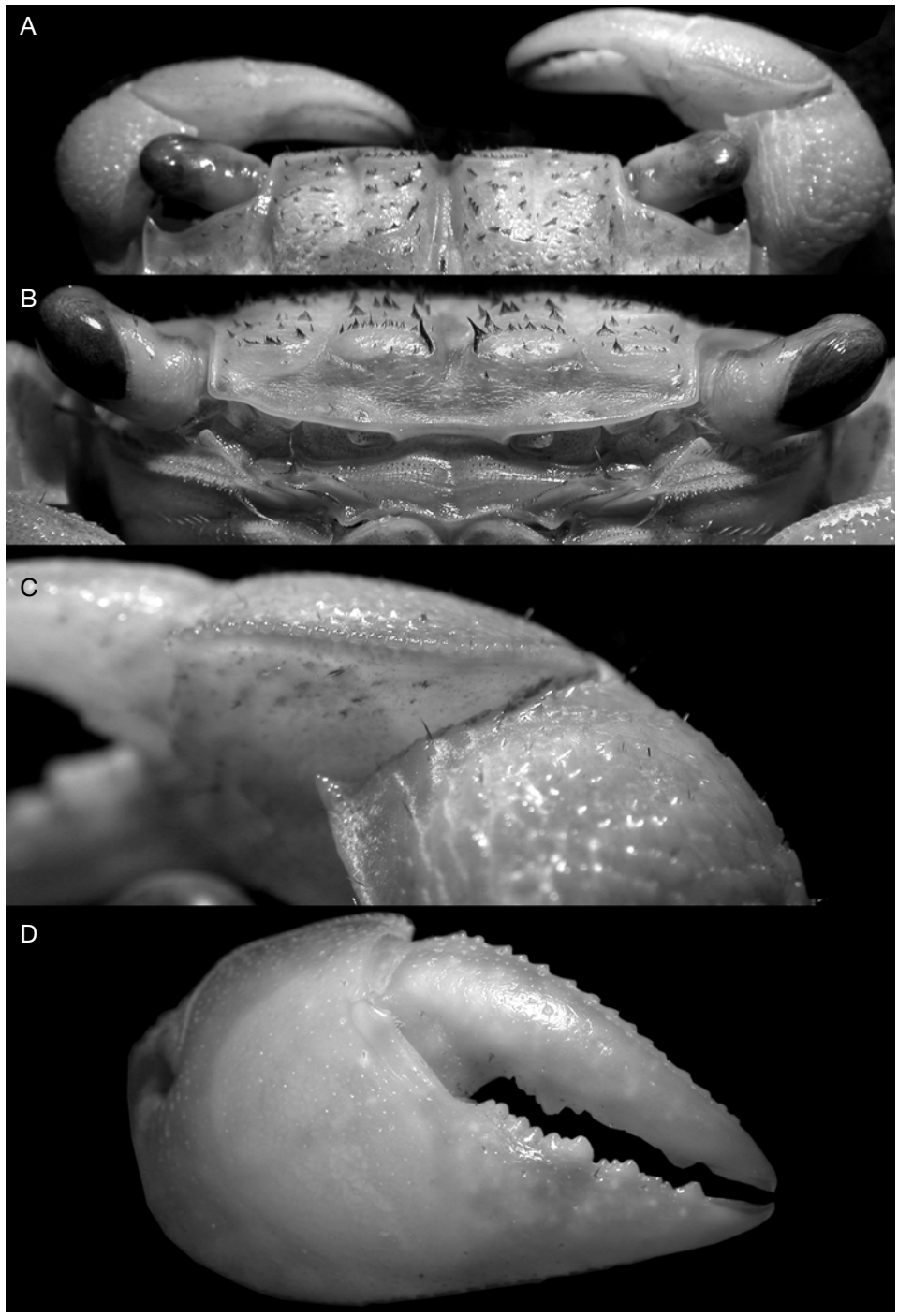

FIG. 7. — *Sesarma rectum* Randall, 1840, ♂ 22.6 × 19.9 mm (SMF 25169); **A**, front, dorsal view; **B**, frontal view; **C**, right cheliped, dorsal view; **D**, right chela, outer view.

Heller (1865) subsequently reported this species from Madras (India), and de Man (1880) recorded it on the basis of specimens from an unknown provenance (measurements of largest male 33.0 × 27.0 mm), and he subsequently redescribed the type (de Man 1892). Tesch (1917) redescribed in detail the specimens of de Man (1880), and made a telling comment: "This species is exceedingly alike *Ses. recta* Randall of America, and I own to be at a loss to indicate any important point of difference between the two species" (Tesch 1917: 153).

Sesarma rectum was described from Surinam, and *S. muellerii* (type locality: Brazil, 30.0 by 27.0 mm) is now generally regarded as its junior synonym (for detailed synonymy, see Tesch 1917: 190; Abele 1992: 15; for recent distribution records, see Schubart *et al.* 1999). Photographs of *Sesarma rectum*, a dried type specimen in the Philadelphia Museum (Fig. 6), and *S. eydouxi* (Figs 4; 5) were compared, and only minimal differences were observed, confirming that the two species are synonymous. The holotype of *Sesarma rectum* has chelae with 15 more or less evenly spaced dactylar tubercles, whereas the lectotype of *S. eydouxi* has 14 (Figs 4C; 5B, C; 6B, C). In both cases, the tubercles have corneous tips which are slightly pointing distally (see also Abele 1992: fig. 4b with only 12 tubercles; fig. 9 with 14 tubercles, 14-16 tubercles in text). The upper surface of the chelar palm of both type specimens has a continuous ridge of unpectinated tubercles (Figs 4C; 5C; 6C; 7C), a typical character for the American species of *Sesarma* s.s. (see von Hagen 1978; Abele 1992: fig. 2e). The chelar carpus of both types is characterised by a triangular tooth at the inner distal corner and a coarsely granulated outer surface (Figs 4C; 7C). The lectotype of *S. eydouxi* has a slight indication of an anterolateral tooth, without forming a real notch or tooth (Fig. 4A, B). In the original description, H. Milne Edwards (1853: 184) refers to it as: "Carapace rugueuse, pubescente et obscurément bidentée de chaque côté". The indicated tooth is not as evident in the type of *S. rectum* (Fig. 6B), but also known from this species: "Slight emargination present, indicated by ridge below angle with second stronger ridge below first" (Abele 1992: 15, fig. 9). The types of *S. rectum* and *S. eydouxi* also agree in the presence of two rows of setae delimiting the epistomial Verwey's groove (Figs 5A; 7B) (see von Hagen 1978; Abele 1992: fig. 2d), in the shape of the frontal lobes, and in the particularly broad meri of the walking legs (Figs 4A; 6A) (meri of fourth walking leg less than twice as long as wide). Based on the measurements taken for us in Paris and Philadelphia, the carapace shapes of the two type specimens appeared to differ substantially. Maximum carapace width divided by maximum carapace length resulted in a ratio of 1.23 for *S. rectum* and 1.15 for *S. eydouxi*. Re-measurement of the photographed carapaces, however, revealed a ratio of 1.13 for both types. The measurements obtained by de Man (1892) for the type of *S. eydouxi* (31.25 × 26.25 mm) resulted in a ratio of 1.19. The discrepancies in the original ratio for *S. rectum* could be because the width and/or length measurements were taken in a different manner by the ANSP staff.

In summary, the two species are here regarded as synonymous and that the original locality data of *S. eydouxi* must be incorrect. In fact, numerous collections from around that area and Southeast Asia in general have never uncovered a species even resembling *S. rectum*. The record of "*S. eydouxi*" from Madras (India) by Heller (1865: 64) will need to be rechecked – it is not *S. eydouxi* as presently defined. As indicated by von Hagen (1978) and genetically confirmed by Schubart *et al.* (1998a), *S. rectum* clearly belongs to *Sesarma* s.s., despite the absence of an anterolateral tooth. The genus *Sesarma* presently contains 16 species, all from the American Atlantic and eastern Pacific (Abele 1992; Schubart *et al.* 1998b).

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Johnston (MCZ) and Karen Reed (USNM) loaned material of *Sesarma rectum* from their respective museums. Elana Benamy, Gary Rosenberg and Albert M. Greenfield (Digital Imaging Center of the Academy of Natural Sciences of Philadelphia) are being thanked for making available measurements and digital photographs of the holotype of *Sesarma rectum*.

REFERENCES

ABELE L. G. 1992. — A review of the grapsid crab genus *Sesarma* (Crustacea: Decapoda: Grapsidae) in America, with the description of a new genus. *Smithsonian Contributions to Zoology* 527: 1-60.

CHACE F. A. JR. & HOBBS H. H. JR. 1969. — The freshwater and terrestrial decapod crustaceans of the West Indies with special reference to Dominica. *Bulletin of the United States National Museum* 292: 1-258.

CROSNIER A. 1965. — Crustacés Décapodes, Grapsidae et Ocypodidae. *Faune de Madagascar* 18: 1-143, pls 1-11, text-figs 1-260.

DANA J. D. 1851. — Conspectus crustaceorum quae in orbis terrarum circumnavigatione, Carolo Wilkes e classe Reipublicae Foederatae Duce, lexit et descripsit J. D. Dana. Crustacea Grapsoidea, (Cyclometopa, Edwardsii). *Proceedings of the Academy of Natural Sciences of Philadelphia* 5: 247-254.

DANA J. D. 1852. — *Crustacea*, Part I. *United States Exploring Expedition, During the Years 1838, 1839, 1840, 1841, 1842, under the Command of Charles Wilkes, U.S.N.* 13 (2): 686-1618. C. Sherman, Philadelphia. Atlas [1855]. Vol. 14, 27 p., pls 1-96.

GISTEL J. N. F. X. 1848. — *Naturgeschichte des Tierreichs für höhere Schulen*. Stuttgart, xvi + 216 p., pls 1-32.

GUINOT D. 1967. — La faune carcinologique (Crustacea Brachyura) de l'océan Indien occidental et de la mer Rouge. Catalogue, remarques biogéographiques et bibliographie, *in* Réunion de Spécialistes C.S.A. sur les Crustacés, Zanzibar 1964. *Mémoires de l'Institut fondamental d'Afrique Noire, Ifan-Dakar* (77), 1966 (1967): 237-352.

HAGEN H.-O. VON 1975. — Klassifikation und phylogenetische Einordnung der Lautäußerungen von Ocypodiden und Grapsiden (Crustacea, Brachyura). *Zeitschrift für Systematik und Evolutionsforschung* 13: 300-316.

HAGEN H.-O. VON 1978. — The systematic position of *Sesarma* (*Sesarma*) *rectum* Randall and a new definition of the subgenus *Sesarma* (Brachyura, Grapsidae). *Crustaceana* 34 (1): 45-54.

HARTNOLL R. G. 1975. — The Grapsidae and Ocypodidae (Decapoda: Brachyura) of Tanzania. *Journal of Zoology* 177: 305-328.

HELLER C. 1862. — Neue Crustaceen gesammelt während der Weltumseglung der K. K. Fregatte *Novara*. *Verhandlungen der kaiserlich-königlichen zoologisch-botanischen Gesellschaft in Wien* 12: 519-528.

HELLER C. 1865. — Crustaceen, *in* Reise der Oesterreichischen Fregatte *Novara* um die Erde in den Jahren 1857, 1858, 1859 unter den Befehlen des Commodores B. von Wüllerstorf-Urbair. *Zoologischer Theil. Zweiter Band* 3 (1): 1-280, 25 pls.

HOLTHUIS L. B. 1959. — The Crustacea Decapoda of Suriname (Dutch Guiana). *Zoologische Verhandelingen* 44: 1-296, pls 1-11.

HOLTHUIS L. B. 1977. — The Grapsidae, Gecarcinidae and Palicidae (Crustacea: Decapoda: Brachyura) of the Red Sea. *Israel Journal of Zoology* 26: 141-192.

MAN J. G. DE 1880. — On some species of the genus *Sesarma* Say and *Cardisoma* Latr. *Notes Leyden Museum* 2 (5): 21-36.

MAN J. G. DE 1887. — Übersicht der Indo-pacifischen Arten der Gattung *Sesarma* Say nebst einer Kritik der von W. Hess und E. Nauck in den Jahren 1865 und 1880 beschriebenen Decapoden. *Zoologische Jahrbücher, Abtheilung für Systematik, Geographie und Biologie der Thiere* 2: 639-722.

MAN J. G. DE 1892. — Carcinological studies in the Leyden Museum, No. 6. *Notes Leyden Museum* 14 (36): 225-264, pls 7-10.

MILNE EDWARDS A. 1869. — Notes sur quelques nouvelles espèces du genre *Sesarma* (Say). *Nouvelle Archives du Muséum d'Histoire naturelle* 5: 25-31.

MILNE EDWARDS H. 1853. — Mémoires sur la famille des Ocypodiens, suite. *Annales de Sciences naturelle*, *Zoologie* (Paris) sér. 3 (Zoologie) 20: 163-228, pls 6-11 [reprinted in the undated *Mélanges carcinologiques*: 129-196].

MILNE EDWARDS H. 1854. — Notes sur quelques Crustacés nouveaux ou peu connus conservés dans la collection du Muséum d'Histoire naturelle. *Archives du Muséum d'Histoire naturelle* 7: 145-192, pls 9-16 [reprinted in the undated *Mélanges carcinologiques*].

NG P. K. L. & DAVIE P. J. F. 1995. — The terrestrial sesarmine crabs of the genera *Metasesarma* and *Geosesarma* (Crustacea: Decapoda: Brachyura: Grapsidae) of Ujung Kulon, West Jawa, Indonesia. *Tropical Biodiversity* 3: 29-43.

NG P. K. L. & LIU H.-C. 1999. — The taxonomy of *Sesarma tangi* Rathbun, 1931 and *S. stormi* de Man, 1895 (Crustacea: Decapoda: Brachyura: Grapsidae: Sesarminae), with establishment of a new genus for *S. stormi*. *Zoological Studies* 38 (2): 228-237.

RANDALL J. W. 1840. — Catalogue of the Crustacea brought by Thomas Nuttall and J. K. Townsend, from the west coast of North America and the Sandwich Islands, with descriptions of such species as are apparently new, among which are included several species of different localities, previously existing in

the collection of the Academy. *Journal of the Academy of Natural Science of Philadelphia* 8: 106-147, pls 1-5.

RATHBUN M. J. 1918. — The grapsoid crabs of America. *United States National Museum Bulletin* 97: 1-461, 161 pls.

SCHUBART C. D., DIESEL R. & HEDGES S. B. 1998a. — Rapid evolution to terrestrial life in Jamaican crabs. *Nature* 393: 363-365.

SCHUBART C. D., REIMER J. & DIESEL R. 1998b. — Morphological and molecular evidence for a new endemic freshwater crab, *Sesarma ayatum* sp. n., (Grapsidae, Sesarminae) from eastern Jamaica. *Zoologica Scripta* 27 (4): 373-380.

SCHUBART C. D., HORST D. & DIESEL R. 1999. — First record of *Sesarma rectum* Randall (Brachyura, Grapsidae, Sesarminae) from the Lesser Antilles. *Crustaceana* 72 (5): 537-538.

SERÈNE R. 1968. — The Brachyura of the Indo Pacific Region, *in* Prodromus for a check list of the non-planctonic marine fauna of South East Asia. *Singapore National Academy of Science* Special Publication 1: 33-112.

TESCH J. J. 1917. — Synopsis of the genera *Sesarma*, *Metasesarma*, *Sarmatium* and *Clistocoeloma*, with a key to the determination of the Indo-Pacific species. *Zoologische Mededelingen* 3: 127-260, pls 15-17.

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