

**SCANDARMA SPLENDIDUM, A NEW SPECIES OF TREE-CLIMBING CRAB
(DECAPODA: BRACHYURA: SESARMIDAE)
FROM SARAWAK, MALAYSIA, BORNEO**

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ABSTRACT. – The present study describes a second species of *Scandarma* (Sesarmidae), from Sarawak, Malaysia (Borneo). *Scandarma splendidum*, new species, is differentiated from the only congener, *S. lintou*, by the characters of the carapace, the cheliped, the ambulatory legs, male abdominal segment and male first gonopod. *Scandarma splendidum* can be also differentiated from *S. lintou* by its colouration and large body size.

KEY WORDS. – *Scandarma splendidum*, new species, Sesarmidae, taxonomy, Borneo, tree-climbing crab.

INTRODUCTION

The decapod fauna of Bako National Park in Sarawak has been studied as part of a collaborative project between the Sarawak Forestry Department, Sarawak Museum and the Raffles Museum in Singapore. Ng (1995) reported on the species from a preliminary survey of the area, including a new genus and new species of parathelphusid crab (see also Ng, 1989). Among the material which has yet to be reported upon is an unusual sesarmid crab from the Park. Recent studies have added to our growing knowledge of the Indo-West Pacific Sesarmidae, with several new genera having been established in recent years (e.g. Ng & Liu, 1999; Ng & Schubart, 2002; Schubart et al., 2003). The unusual sesarmid from Bako National Park proves to be a member of one of these new genera, which we here name *Scandarma splendidum*, new species. *Scandarma* Schubart, Liu & Cuesta, 2003, was previously represented only by the type species, *S. lintou* Schubart, Liu & Cuesta, 2003, from southern Taiwan.

Specimens examined are deposited in the Department of Life Science, National Chung Hsing University (NCHUZOO), Taiwan and the Zoological Reference Collection (ZRC), Raffles Museum of Biodiversity Research, National University of Singapore. Measurements provided are of the carapace width (CW) and the carapace length (CL), respectively. The abbreviations G1 and G2 are used for the first and second male gonopods, respectively.

TAXONOMY

SESARMIDAE Dana, 1851

***Scandarma* Schubart, Liu & Cuesta, 2003**

***Scandarma splendidum*, new species
(Figs. 1–3)**

Material examined. – Holotype, 1 male, 19.4 × 18.2 mm, ZRC 2002.0265, Bako National Park, Sarawak, Malaysia, 15 Mar.2002.

Paratypes: 2 males, 19.7 × 18.3 mm, 20.6 × 18.0 mm, ZRC 2007.0102, Bako National Park, Sarawak, Malaysia, 13 Sep.2001.

Comparative material. – *Scandarma lintou* Schubart, Liu & Cuesta, 2003: 1 male, 14.9 × 14.3 mm; 2 females, 14.0 × 13.1 mm, 13.4 × 12.5 mm; NCHUZOO 13119, estuary of Meilun River, Hualien County, Taiwan, coll. H.-T. Shih, 2 Jan.2002; 2 males, 15.2 × 14.4 mm, 13.1 × 12.6 mm, NCHUZOO 13120, Hengchun, Pingtung County, Taiwan, coll. H.-T. Shih, 19 Jun.2002.

Description. – Carapace (Figs. 1, 2a, b) quadrate, dorsal surface glabrous, shiny, slightly convex longitudinally and transversely, regions well defined, margins demarcated as thin cristae. Front prominent, width 0.50–0.51 times fronto-orbital width (n = 3), frontal margin slightly concave medially, deflexed at junction of postfrontal cristae, with two parallel pairs of postfrontal cristae, level with anterior margin of

ocular peduncle, inner crista about three times as wide as outer crista, with a short protuberance placed just behind outer crista; H-shaped gastric groove distinct; intestinal region surrounded by shallow, wide hollow. Epistome covered by short setae, posterior border with five projections, median and outer projections longer, lateral border concave. Supraorbital margin laterally-facing J-shaped, margin divided into two cristae near posterior margin of ocular peduncle, anterior crista low but contiguous with orbit, extending as far as second segment of antenna, forming inner orbital tooth at anterior end; infraorbital tooth low, not reaching halfway to outer angle of frontal margin, antenna enters orbit; infraorbital margin narrow with narrow shelf, granulated row on outer extreme of margin; suborbital region with transverse depression along infraorbital margin. External orbital angle pointed, tip slightly directed inwards, lateral margin convex; epibranchial tooth absent or vestigial, but margin crenulate in lateral view, with two rudimentary teeth; lateral margins almost parallel, anterolateral and posterolateral regions separated by very shallow depression, posterolateral region with oblique, narrow rows of tiny tubercles. Eyes (Fig. 2b) well developed, maximum width of cornea wider than and as wide as base of peduncle in dorsal and frontal views, respectively. Third maxilliped with rhomboidal gape between inner margins; merus ovate, as long as ischium; exopod hidden behind endopod in situ, distal end reaching same level with inner extreme of oblique setal row.

Male chelipeds (Fig. 1) subequal; merus with short transverse lines of tubercles on outer surface, dorsal margin granulated, ventral margins denticulate, with distal inner part somewhat



Fig. 1. Live colouration of *Scandarma splendidum*, new species.

foliaceous; carpus without inner angle, dorsal surface covered with short transverse lines of tubercles; manus (Fig. 2c) high, thick, dorsal regions with a line of continuous tubercles from in front of hinge of carpus to distal end of dorsal surface, outer and inner surfaces scattered with granules, outer surface with oblique protuberance from middle to base of immovable finger; immovable finger with large and small teeth on cutting edge, two large teeth on proximal 2/5 and distal 1/4, margin concave between large teeth, ventral margin regularly lined with granules; movable finger incurved, dorsal margin regularly lined with granules, distal granules indistinct; tip of fingers corneous, acute, slightly hoof-like, with wide gape when fingers closed.

Ambulatory legs (Figs. 1, 2d) slender, moderately long, third leg longest when stretched laterally; each coxa with a tuft of setae on anterior surface, setal tuft very distinct in second and third legs; meri with rough dorsal surface, anterior and posterior margins thinly cristate, subdistal angle of anterior margin distinct, mid-dorsal length of third merus 0.75–0.77 times ($n = 3$) as long as CL, distal end reaching level of posterior margin of ocular peduncle when directed anteriorly; carpi with 1, 2, 1, 1 longitudinal ridges on outer, dorsal, ventral, and inner surfaces, respectively, of which inner and ventral indistinct on fourth leg; propodi with oblong cross-section, dorsal surface with embossed reticulation, dactylus with sharp spine on distal end, propodi and dactyli lined with short bristles.

Anterior thoracic sternal plate broadly trigular, lateral margin concave, cristate, granulated. Abdominal segments (Fig. 2e) bell-shaped, fourth segment abruptly narrowed; telson longer than wide, as long as sixth abdominal segment.

First male gonopod, G1, (Fig. 3a–c) stout, short, lateral margins convex medially, subdistal inner margin smoothly curved outwards, subdistal part as wide as subproximal part of G1; tip chitinous, forming narrow “beak”, directed outwards; proximal inner part of dorsal surface with transverse knob, oblique suture continuous from proximal inner knob to chitinous beak. Second male gonopod, G2, (Fig. 3d) relatively long, tip bilobed.

Variation. – The barely discernible epibranchial teeth are more distinct in some specimens, with the anterior tooth larger than the posterior one (e.g. male, CW 19.7 mm, ZRC 2007.0102).

Coloration. – Anterior half of body (chelipeds, third maxillipeds, suborbital to pterygostomial regions and frontal to epibranchial regions) are reddish in colour and the colour varies gradually from deep red anterior inner parts (chelae and third maxillipeds) to orange posterior outer parts. Posterior half of dorsal surface varies from cream to dark khaki with dark purple patterns. Ambulatory legs are dark purple (Fig. 1).

Habitat. – The species was observed live by the second author as well as by other colleagues in Malaysia. The species is wholly nocturnal, coming out only well after sunset

and has been observed to climb shrubs and small trees to a height of two metres. Most (over a dozen) were observed on plants near streams or puddles, although a few (two or three) were found up to 10 metres from any water source. The animals appear to be hiding among or more likely, at the base of the plants during the day, emerging only at night to feed. Most of the forest floor was densely covered with

leaves and scattered small shrubs, often with a network of roots. Several specimens were observed feeding on the edges of the leaves and on the flowers. One was feeding on an unidentified insect (probably a grasshopper). In most aspects, the ecology and behaviour of *S. splendidum* is similar to that of the type species from Taiwan.

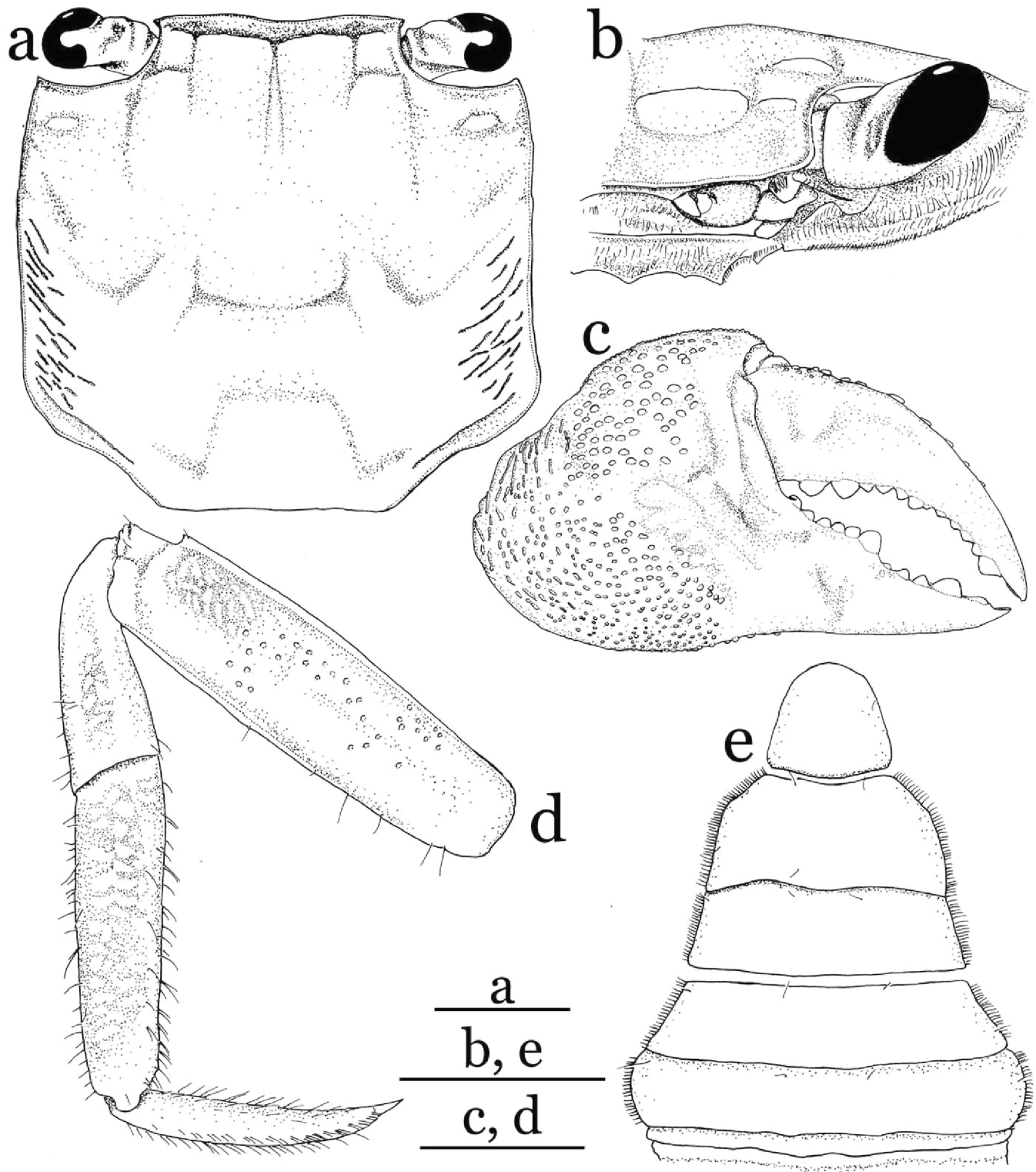


Fig. 2. *Scandarma splendidum*, new species: a, carapace, dorsal view; b, carapace, frontal view; c, chela; d, third ambulatory leg; e, abdomen with telson. All figures are of holotype (ZRC 2002.0265, CW 19.4 mm). Scale bars = 5.0 mm.

Distribution. – *Scandarma splendidum*, new species, is known only from Bako National Park, Sarawak, Malaysia and nearby areas. Specimens have been observed by the second author at Camp Permai near the Park.

Etymology. – From the Latin ‘*splendidus*’ meaning brilliant or shining, alluding to beautiful coloration of the new species. The name is used as an adjective.

Remarks. – *Scandarma splendidum* is clearly different from *S. lintou* by its distinctly larger body size; *S. splendidum* reaches up to CW 20.6 mm (vs. maximum CW of *S. lintou* is 15.2 mm). *Scandarma splendidum* can also be distinguished from *S. lintou* by its relatively wider front (0.50–0.51 times fronto-orbital width vs. 0.45–0.48 times), the quadrate shape of the external orbital angle with the tip pointed and lateral margin slightly convex (vs. tip acute, lateral margin concave),

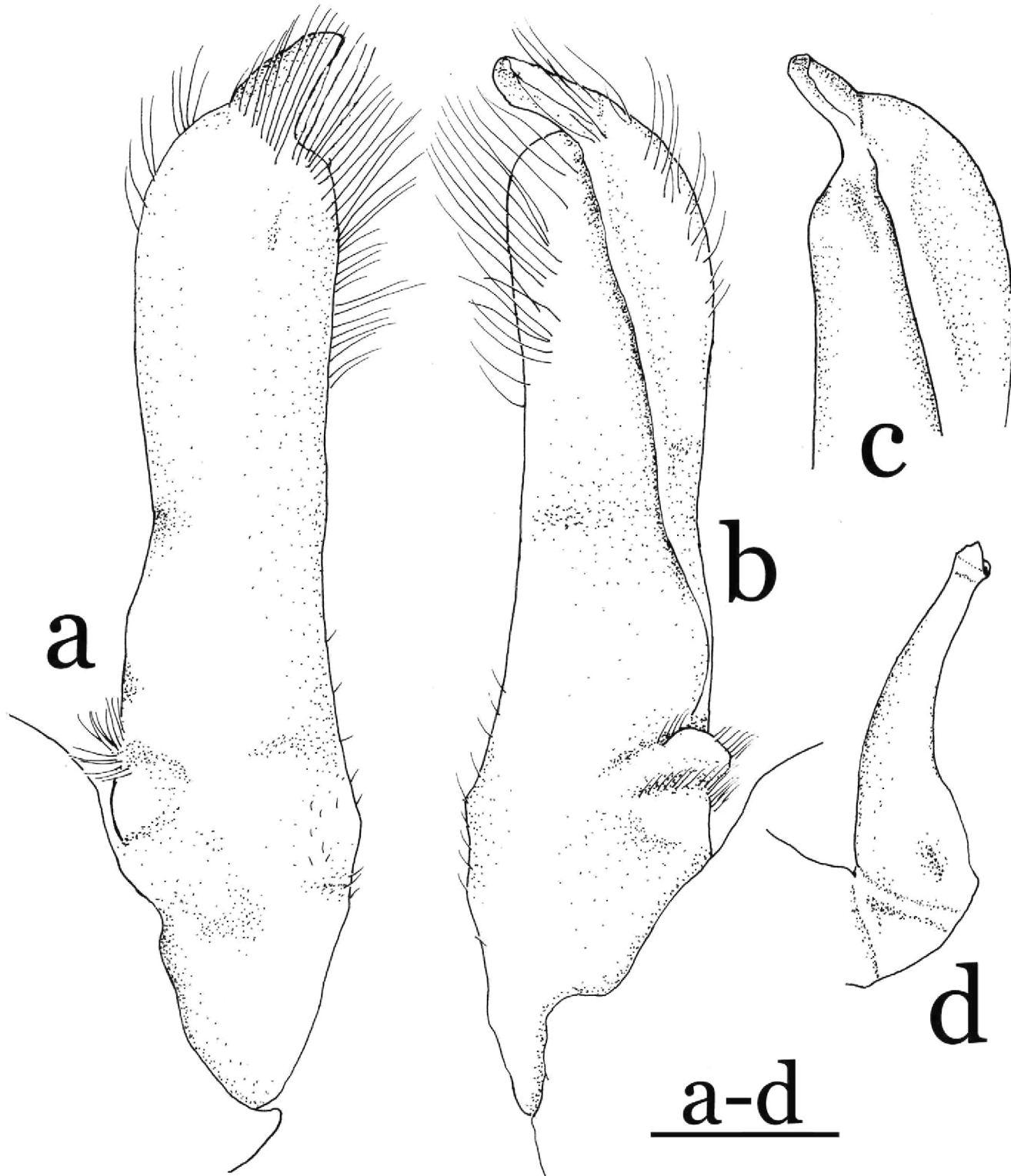


Fig. 3. *Scandarma splendidum*, new species: a, G1, ventral side; b, G1, dorsal side; c, distal part of G1, dorsal side (setae removed); d, G2. All figures are of holotype (ZRC 2002.0265, CW 19.4 mm). Scale bars = 1.0 mm.

the external margins of the cheliped fingers being lined by fewer larger, regularly separated granules (vs. many more smaller granules), relatively shorter ambulatory legs (e.g. third ambulatory merus length 0.75–0.77 times CL, distal end reaching level of lower margin of ocular peduncle vs. third merus length 0.83–0.88 times CL, distal end reaching beyond level of frontal margin), the male fourth abdominal segments being abruptly convergent distally (vs. gently convergent distally), the subdistal inner margin of the G1 being smoothly curved outwards, with the width of the subdistal part as wide as the subproximal part (vs. subdistal inner margin convex, with the subdistal part wider than the subproximal part), and the narrow chitinous distal projection (vs. proportionately wider). Colouration of *S. splendidum* also clearly differs from that of *S. lintou*. *Scandarma splendidum* has a reddish anterior half of body and cream to dark khaki posterior half of dorsal surface carapace (vs. yellowish brown dorsal surface of carapace with bright yellow line of posterolateral margin) (present study; Schubart et al., 2003)

ACKNOWLEDGEMENTS

The staff and rangers of Bako National Park have been kind in our initial and subsequent studies of the decapod fauna of Bako National Park by the second author and his associates over the years. The Sarawak Museum (notably Charles Leh) and the staff from the Sarawak Biodiversity Centre (Kuching) have also helped us greatly with various aspects of our work for which we are most grateful. We also thank T. M. Leong, Dr. I. Das and P.-H. Ho for their help with this study.

LITERATURE CITED

- Ng, P. K. L., 1989. *Terrathelphusa*, a new genus of semiterrestrial freshwater crabs from Borneo and Java (Crustacea: Decapoda: Brachyura: Sundathelphusidae). *Raffles Bulletin of Zoology*, **37**: 116–131, Colour Plates 2A, B.
- Ng, P. K. L., 1995. The freshwater crabs and prawns (Crustacea: Decapoda) of Bako National Park, Sarawak, Malaysia, with descriptions of one new genus and three new species. *Raffles Bulletin of Zoology*, **43**(1): 181–205.
- Ng, P. K. L. & H.-C. Liu, 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.
- Ng, P. K. L. & C. D. Schubart, 2002. *Haberma nanum*, a new genus and new species of mangrove crab (Crustacea: Decapoda: Brachyura: Sesarmidae) from Singapore. *Raffles Bulletin of Zoology*, **50**(2): 437–442.
- Schubart, C. D., H.-C. Liu & J. A. Cuesta, 2003. A new genus and species of tree-climbing crab (Crustacea: Brachyura: Sesarmidae) from Taiwan with notes on its ecology and larval morphology. *Raffles Bulletin of Zoology*, **51**(1): 49–59.