

A new record of semi-terrestrial crab, *Neosarmatium laeve* (A. Milne-Edwards, 1869) (Decapoda: Sesarmidae) from Taiwan

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Abstract

Six species of the sesarmid crab genus *Neosarmatium* Serène and Soh, 1970 has been recorded Taiwan previously. One additional species, *N. laeve* (A. Milne-Edwards, 1869) is newly recorded in present study. The species is similar to *N. indicum* in life color, but differs by the morphology of carapace and male cheliped and mature size. The morphology, distribution, ecological notes are provided. A key to all seven species occurred in Taiwan is also provided.

Key Word: Sesarmid crabs, *Neosarmatium*, new record, Taiwan

Introduction

The Indo-Pacific sesarmid crab genus *Neosarmatium* Serène and Soh, 1970 is known to comprise many species of terrestrial and semi-terrestrial crabs, with 19 species recognized in the genus (Ng, et al., 2008; Ragionieri et al., 2012). In Taiwan, there are six species reported in earlier literature. Table 1 concludes all species recorded from Taiwan and their references. Horikawa (1940) firstly listed

Neosarmatium meinerti (De Man, 1887) from Kaohsiung, south-eastern Taiwan. Ng et al. (1997) added four species from south-eastern Taiwan, namely *N. fourmanoiri* Serène, 1973, *N. indicum* (A. Milne-Edwards, 1868), *N. punctatum* (A. Milne-Edwards, 1873) and *N. rotundifrons* (A. Milne-Edwards, 1869) and give the diagnostics feature and ecological notes to *N. meinerti*. Lately, Narure et al. (2006) reported one more species, *N. smithi* (H.

Table 1. Checklist of Taiwanese *Neosarmatium*.

Species	Literature Cited
<i>N. asiaticum</i>	Horikawa, 1940*; Sakai, 1941*; Lin, 1949*; Dai et al., 1986 [§] ; Dai and Yang, 1991 [§] ; Davie, 1994 [§] ; Ng, et al., 1997 [§] ; Ng, et al., 2001 [§] ; Ragonieri et al., 2012; Li and Chou, 2013; Lee et al., 2013
<i>N. fourmanoiri</i>	Ng, et al., 1997; Ng, et al., 2001; Li and Chou, 2013; Lee et al., 2013
<i>N. indicum</i>	Ng, et al., 1997; Ng, et al., 2001; Li and Chou, 2013; Lee et al., 2013
<i>N. punctatum</i>	Ng, et al., 1997; Ng, et al., 2001; Li and Chou, 2013
<i>N. rotundifrons</i>	Ng, et al., 1997; Ng, et al., 2001; Lee, 2001; Ho, 2003; Li and Chou, 2013; Lee et al., 2013
<i>N. smithi</i>	Narure et al., 2006; Li and Chou, 2013; Lee et al., 2013
<i>N. laeve</i>	This study

*cited as *Sesarma meinerti*; [§]as *Neosarmatium meinerti*.

Milne Edwards, 1853) from Sihcao, Tainan, south-eastern Taiwan and mentions it also has been observed in Tanshui, northern Taiwan. Recently, a revision of *Neosarmatium meinerti* species complex given by Ragonieri et al. (2012) showed the specimens, previously identified as *N. meinerti* from Indonesia and Taiwan belong to a new species, *N. asiaticum* Ragonieri Fratini and Schubart, 2012. The truly *N. meinerti* were only distributed in West Indian Ocean. As a result, there are recorded six species in genus *Neosarmatium* from Taiwan at present.

Here we report one additional species *Neosarmatium laeve* (A. Milne-Edwards, 1869) collected from Pingtung, southern Taiwan. The species is similar to juvenile of *N. indicum* in coloration. Specimens examined are deposited at National Museum of Marine Biology and Aquarium

(NMMBA), Pingtung. Measurements provided are of the carapace width (CW) and the carapace length (CL).

Taxonomy

Sesarmidae Dana, 1851

***Neosarmatium* Serène and Soh, 1970**

***Neosarmatium laeve* (A. Milne-Edwards, 1869)**

(Figs. 1; 2A; 3; 4A, B)

Sesarma laeve – A. Milne-Edwards, 1869: 27.

Neosarmatium ambonensis – Serène and Moosa, 1971: 11, pl.5C, D.

Neosarmatium aequifrons – Serène, 1977: 758-759, figs. 62-64.

Neosarmatium laeve – Davie, 1994: 50; figs. 1A, B; 8; 17; Schubart and Ng, 2002: 29; Ng, et al., 2008: 222 (listed); Nagai et al. 2011: 26, figs. 2f, 4g, h; Japanese Association of Benthology, 2012: 197.



Fig. 1. *Neosarmatium laeve* (NMMBCD4281).



Fig. 2. Ventral view of similar size of *Neosarmatium laeve* (A, CW. 10.3×8.1mm, NMMBCD4069) and *N. indicum* (B, CW. 10.9×8.8mm, NMMBCD4070).

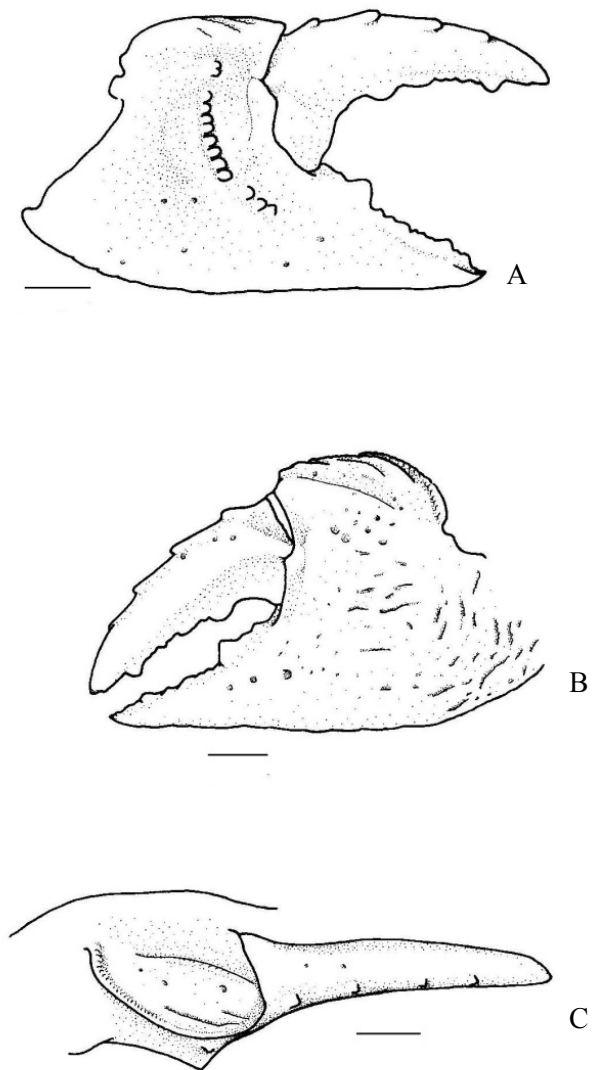


Fig. 3. Left Male cheliped of *Neosarmatium laeve* (NMMBCD4069).
A, inner surface; B, outer surface; C, dorsal view. Scale bars:
1mm.



Fig. 4. Overall views of genus *Neosarmatium* occurred from Taiwan.
A, B, *N. laeve*, A, dorsal view; B, frontal view; C, *N. asiaticum*; D, *N. fourmanoiri*; E, *N. indicum*; F, *N. punctatum* (photo: H. C. Liu, specimens deposited in National Taiwan Museum, TMCD 3206); G, *N. rotundifrons*; H, *N. smithi* (photo: P. H. Ho).

Material examined

♂: 11.8×9.5mm; 2♀♀: 12.0×9.5mm, 12.3×9.6mm, 25 Mar. 2014 (NMMBCD4068); 2♂♂: 13.0×9.9mm, 10.8×8.7mm; 3♀♀: 10.3×8.1mm, 9.2×7.2mm, 7.8×6.5mm, 21 Apr. 2014 (NMMBCD4069); 2♂♂: 13.4×10.2mm; 12.4×9.9mm; ♀: 10.9×8.8mm, 19 May 2014 (NMMBCD4281), mouth of Paoli stream, Checheng, Pingtung, southern Taiwan, coll. J. J. Li.

Comparative material

Neosarmatium indicum,
♂: 10.9×8.8mm; ♀: 9.9×7.7mm, 21 Apr. 2014 (NMMBCD4070), Paoli stream estuary, Checheng, Pingtung, southern Taiwan, coll. J. J. Li.

Diagnosis

Carapace smooth, lateral margin slightly convergent; bearing a single prominent epibranchial tooth (fig. 1). Frontal border straight and postfrontal lobes faintly indicated (figs. 1; 4A, B). Inner surface of palm of male cheliped with prominent vertical granular crest (fig. 3A); outer edge of upper border of palm with a granular longitudinal rim (figs. 3B, C); superior margin of dactyl with 4 distinct, distally directed tubercles (figs. 3A-C). Meri of walking legs broad, anterior borders convex, with acute subdistal spine. Carapace brownish to purplish black, with stripes and spots. Chelipeds red, brownish

in female.

Ecology

In Taiwan, *Neosarmatium laeve* inhabits in muddy slope near estuarine area, with less tidal-influence. *Neosarmatium indicum* and *Perisesarma bidens* can be found sympatrically.

Distribution

Eastern Indonesia, Solomon Island, Seychelles (Davie, 1994; Schubart and Ng, 2002), Ryukyus, Japan (Nagai et al. 2011; Japanese Association of Benthology, 2012) and newly recorded from southern Taiwan.

Remarks

Neosarmatium laeve is the smallest species in this genus (Davie, 1994; Schubart and Ng, 2002). The species is similar to juveniles of *N. indicum* in coloration but differs by: (1) Carapace flattened in *N. laeve*, convex in *N. indicum*. (2) In male cheliped, upper margin of movable finger has 4 distally tubercles in *N. laeve*, rather than 2 in *N. indicum*. (3) Between the same size (CW 10.9mm) of *N. laeve* and *N. indicum*, the male palm of cheliped is swollen in *N. laeve*, narrower in *N. indicum* (figs. 2A, B).

Davie (1994) had mentioned: The photographs of the holotypes of *N. aequifrons* (Davie, 1994, figs. 8A, B), *N. laeve* (Davie, 1994, figs. 8C-E) and *N. ambonensis* (Serène and Moosa, 1971,

pl.5C, D) show no points of difference, and the close geographical proximity of their type localities, supports the synonymy.

**Key to species of *Neosarmatium*
Seréne and Soh, 1970**

1. Carapace flat, lateral margins straight, without clear antero- and posterolateral separation. Small size (CW less than 15mm in adult) -----
----- *N. laeve* (Figs. 4A, B)
- Carapace swollen, lateral carapace margins sinuous, antero- and posterolateral margins relatively clearly demarcated. Large size (CW exceed 15mm in adult) ----- 2
2. Dactylus of male cheliped without strong chitinous teeth on dorsal margin, bearing small chitinous spinules ----- 3
- Dactylus of male cheliped with 2 to 5 strong chitinous teeth on dorsal margin ----- 4
3. Chelar dactylus spinules numerous, not confined to a single row-----
----- *N. fourmanoiri* (Fig. 4D)
- Chelar dactylus confined to a single row -----
----- *N. asiaticum* (Fig. 4C)
4. Dactylus of male cheliped with 4 or 5 teeth on dorsal margin-----
----- *N. rotundifrons* (Fig. 4G)
- Dactylus of male cheliped with 2 or 3 teeth on dorsal margin----- 5
5. Carapace 1.1times broader than long, with numerous tufts and a few lines of soft setae----- *N. smithi* (Fig. 4H)

- Carapace 1.3 times broader than long, glabrous----- 6
- 6. Inner surface of manus lacks a distinct transverse granular crest-----
----- *N. indicum* (Fig. 4E)
- Inner surface of manus with a distinct transverse granular crest-----
----- *N. punctatum* (Fig. 4F)

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臺灣新紀錄種光滑新脹蟹(十足目：相手蟹科)

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摘 要

新脹蟹屬蟹類過去臺灣記錄過六種，本文記載另一種光滑新脹蟹。此種蟹類的體色與印度新脹蟹極為相似，可由頭胸甲、雄性螯足形態與成熟體型來區分。本文記錄本種的形態、分布、生態，並提供台灣產七種新脹蟹屬蟹類之檢索資料。

關鍵詞：相手蟹、新脹蟹、新紀錄、臺灣