

The Genus *Pseudactea* Serène, 1962 (Crustacea, Decapoda), with Description of a New Species from Central Japan

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Abstract The genus *Pseudactea* Serène, 1962 (Family Xanthidae) is systematically revised based on two known species, *P. multicristata* (Zehntner, 1894) and *P. corallina* (Alcock, 1898), and on a new species named *P. multiareolata*. *Pseudactea multicristata* is recorded for the first time from Japanese waters, extending its geographical range northward to central Japan from the known northernmost locality, Ilocos Sur, Luzon in the Philippines. The new species is apparently closer to *P. multicristata* than *P. corallina* in having the areolated dorsal surface of the carapace, but distinctly differs from it in having the more subdivided dorsal areolae and the regularly convex anterolateral margin, without angulated teeth.

Key words: Xanthidae, new species, *Pseudactea*, central Japan.

During a recent decade of years, we recorded considerable numbers of rare, taxonomically interesting crabs from the west coast of the Kii Peninsula, central Japan, as new to Japanese waters (Takeda & Marumura, 1994, 1995, 1996, 1997a, 2000), and also described two new species of the family Xanthidae (Takeda & Marumura, 1997b). Further studies on the crabs from shallow waters off west coast of the Kii Peninsula revealed the presence of a new xanthid crab of the genus *Pseudactea* Serène, 1962. This genus is represented only by two species, *P. multicristata* (Zehntner, 1894) and *P. corallina* (Alcock, 1898), both of which had been originally referred to the genus *Platypodia* Bell, 1855 due to having the crested anterolateral margin of the carapace and also the crested anterior margins of the ambulatory meri, carpi and propodi. A pair of the specimens at hand is readily distinguished from them by having the more subdivided dorsal surface of the carapace and the regularly convex

anterolateral margin of the carapace, without angulated teeth.

In the following lines is described a new species named *Pseudactea multiareolata*, the type specimens, holotype and paratype, of which are preserved in the National Science Museum, Tokyo (NSMT).

Genus *Pseudactea* Serène, 1962

Pseudactea Serène, 1961 (1962), p. 678.

Pseudactaea: Guinot, 1968, p. 160 (in discussion); Sakai, 1976, p. 454; Serène, 1984, pp. 95 & 97 (in keys), 130.

Type species: *Lophactaea multicristata* Zehntner, 1894, designated by Serène (1984).

Remarks. Following the suggestion by Buitendijk (1941), Serène (1962) established the genus *Pseudactea* to accommodate two species of the genus *Platypodia* Bell, *P. multicristata* (Zehntner, 1894) from the Molluccas and *P. corallina* (Alcock, 1898) from Sri Lanka.

In the original definition, the genus was spelled as *Pseudactea*, and Takeda and Manuel (2000) was of opinion that the genus should be used following the original use, although the name was corrected as *Pseudactaea* in Serène's monograph (1984) which was edited by Dr. A. Crosnier. It is apparent that this name originates from *Actaea*, but in the original description this name was wrongly spelled as *Actea* in all the cases concerned. At present, we spell the genus following the original use.

This genus is characterized by the distinctly crested anterolateral margin and the strongly concave posterolateral margin of the carapace, and the strongly carinate chelipeds and ambulatory legs. The male first pleopod is subtruncated and provided with a bundle of hairs at its apex. Buitendijk (1941) mentioned the differences from the other species of the genus *Platypodia*, as ".....in the shape of the front and anterolateral margin; moreover in both [*Platypodia corallina* and *P. multicristata*] the basal antennal joint is touching, but not clasping, the down-turned edge of the front. The outer surfaces of the joints of the walking legs have crests in both species....." Serène (1962) considered the intermediate systematic position of the new genus *Pseudactea* between the genera *Platypodia* and *Actaea* after the deep discussion and enumerated the differences from them.

Two known species differ from each other in ornamentation of the carapace; the dorsal surface is deeply sculptured into areolae in *P. multicristata* and only granulated without distinct areolation in *P. corallina*. The general appearance of *P. multicristata* shows, without doubt, close affinity to the species of the subfamily Actaeinae, as *Pseudactea* is keyed out close the genera *Actaeodes* and *Epiactaeodes* in Serène's key (1984).

In the present paper, the third species, *P. multiareolata*, which is apparently closer to *P. multicristata* of two known species, is described from vicinity of the Kii Peninsula, the Pacific coast of central Japan.

Distribution. Indo-West Pacific, from Japan to the western Indian Ocean, sublittoral to 150 m

deep.

Pseudactea corallina (Alcock, 1898)

(Fig. 1A, B)

Lophactaea corallina Alcock, 1898, p. 102; 1899, pl. 36 fig. 6.

Platypodia corallina: Buitendijk, 1941, p. 300, fig. 2a.

Pseudactaea corallina: Serène, 1961 (1962), pp. 679 (in key), 689; Takeda & Koyama, 1974, p. 113, pl. 11 figs. A, B.

Pseudactaea corallina: Guinot, 1970 (1971), p. 1072 (in list); Sakai, 1976, p. 454, pl. 160 fig. 4; Serène & Vadon, 1981, p. 122; Serène, 1984, p. 131, fig. 77, pl. 19 fig. B.

Material examined. Wakayama Pref., Pacific coast of central Japan. — Off Minabe, southwest coast of Kii Penin., 1 ♀ (NSMT-Cr 9460; 11.2×15.5 mm), 26–XI–1985, M. Marumura leg.; Off Shirahama, southwest coast of Kii Penin., 20–40 m deep, 1 ♂, 1 ♀ (NSMT-Cr 14398; 8.5×11.9 mm, 10.5×14.6 mm), 25–X–1989; Off Tanabe Bay, southwest coast of Kii Penin., 30–40 m deep, 1 ♂, 1 ♀ (NSMT-Cr 14399; 9.1×12.4 mm, 10.3×13.7 mm), 19–XI–1999, M. Marumura leg.; Same locality, ♂ (NSMT-Cr 14541; 7.7×11.5 mm), 17–XII–2000, M. Marumura leg.

Remarks. The dorsal surface of the carapace is ill-defined, rather sparingly granulated and pitted, with strongly crested frontal, orbital and anterolateral margins. The crest of the anterolateral margin is divided into four by three closed fissures; the first is regularly convex, the second is weakly angulated in the middle, the third is similar to the second, but much larger, with the angulated part somewhat anteriorly, and the last is angulated at the posterior end. The chelipeds are beautifully sculptured; a petal-like crest is at the distal end of the merus; in the carpus three petaloid granules run along the upper border, and two long curved petaloid crests occupy the most part of the outer surface; the palm is also ornamented with some petaloid granules and armed with many conical ones. In the ambulatory legs each carpus of the first three pairs is provided with two long petaloid crests on the upper surface, the anterior one of which is subdivided into

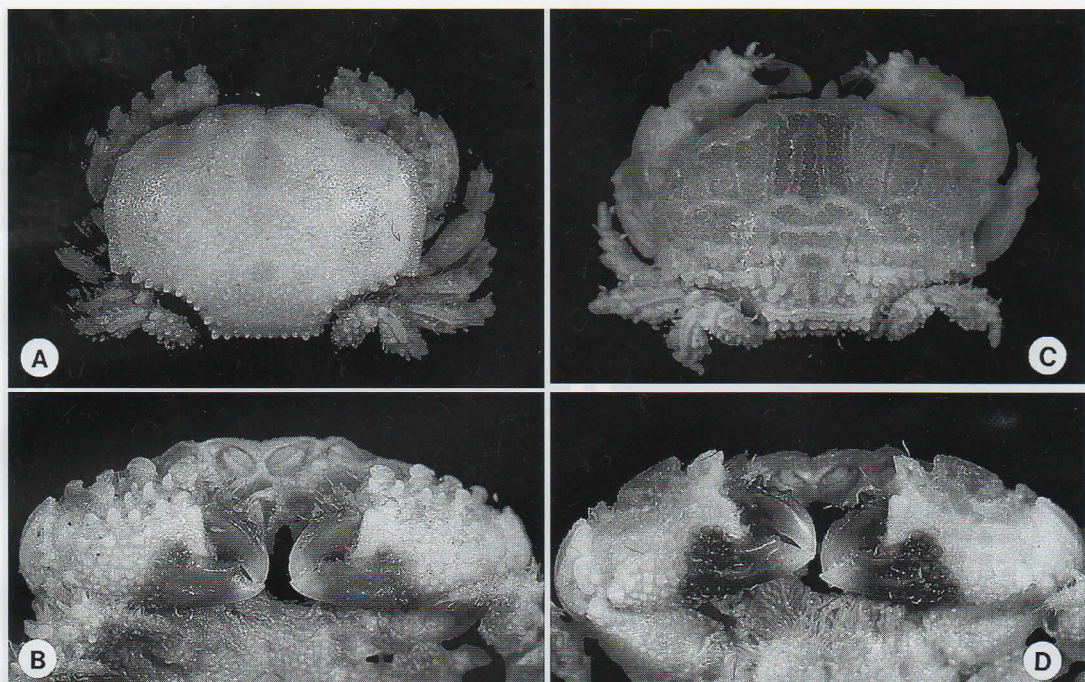


Fig. 1. A, B; *Pseudactea corallina* (Alcock), male (NSMT-Cr 14541; 7.7×11.5 mm). C, D; *Pseudactea multi-cristata* (Zehntner), male (NSMT-Cr 14279; 8.4×11.5 mm).

two by a constriction at distal one third; each propodus has a rounded crest in the middle and a smaller indistinct one at its anterior distal end.

Distribution. Indo-West Pacific from central Japan to Madagascar in the western Indian Ocean through the Philippines, Indonesia and Sri Lanka, although the records of occurrence are rather few. The definite bathymetric records are from 26 to 150 m.

***Pseudactea multiareolata* sp. nov.**

(Figs. 2, 3)

Material examined. Wakayama Pref., Pacific coast of central Japan. — Off Tonda, southwest coast of Kii Penin., 20–30 m deep, holotype, ♀ (NSMT-Cr 14542; 11.2×14.7 mm), paratype, ♂ (NSMT-Cr 14543; 8.1×11.4 mm), 24–XI–1984, M. Marumura leg.

Description. Carapace broadly suboval, 0.76 and 0.71 times longer than broad in holotype and paratype, respectively; anterolateral margin of carapace regularly convex, narrowly crested for

its whole length; crest decorated with a row of pearly granules on its dorsal surface, indistinctly divided into four parts by three very shallow indistinct depressions; posterior end of crest sharply angulated; posterolateral margin strongly convergent toward posterior margin.

Dorsal surface of carapace regularly convex, very distinctly separated into regions by deep furrows; each region furnished with coarse granules, which are fused so as to form narrow ridges on anterior half of dorsal surface; frontal margin indistinctly bilobed, obliquely deflexed, finely granulated; frontal region (1F+2F) O-shaped, continuous with epigastric part (1M) and inner ridge of protogastric region (2M); protogastric region (2M) divided into two parts, viz., inner long, slender ridge and outer V-shaped ridge; mesogastric region (3M) divided into three parts, viz., a long anterior, median ridge and two basal, oblique ridges surrounded each by several granules of good size; metagastric region (4M) composed of a transverse row of several distant granules; cardiac region (1P) longitudinally divided

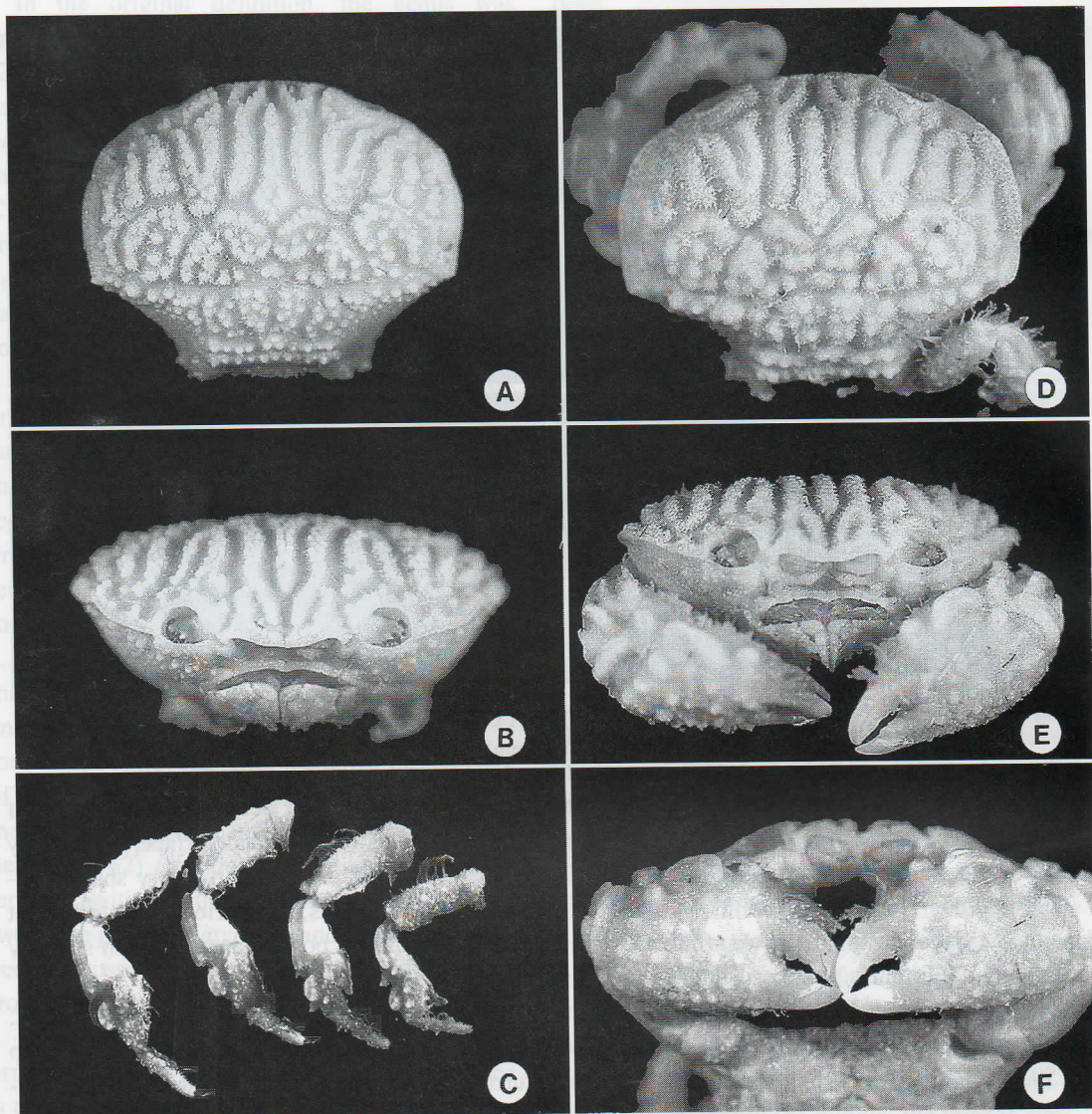


Fig. 2. *Pseudactea multiareolata* sp. nov. A–C; holotype female (NSMT-Cr 14542; 11.2×14.7 mm). D–F; paratype male (NSMT-Cr 14543; 8.1×11.4 mm).

into two clusters of granules; intestinal region (2P) with a transverse row of granules; posterior border of carapace fringed with granules and short hairs; upside-down U-shaped ridge on hepatic and epibranchial regions (1–3L); mesobranchial (4–6L) and metabranchial regions (1–3R) with two rounded clusters of granules.

Antennules folded nearly transversely, interantennular septum not very broad, basal antennular joint not reaching edge of front.

Supraorbital and infraorbital margins and regions carinated, fringed with small granules.

Both chelipeds equal, robust; each merus covered with granules of good size, provided with a smooth crest in parallel with base of carpus; posterior border of merus crested, hairy; anterior border of merus fringed with granules; distal part of lower border of merus expanding roundly above lower border of carpus; upper and outer surfaces of carpus armed with two small and

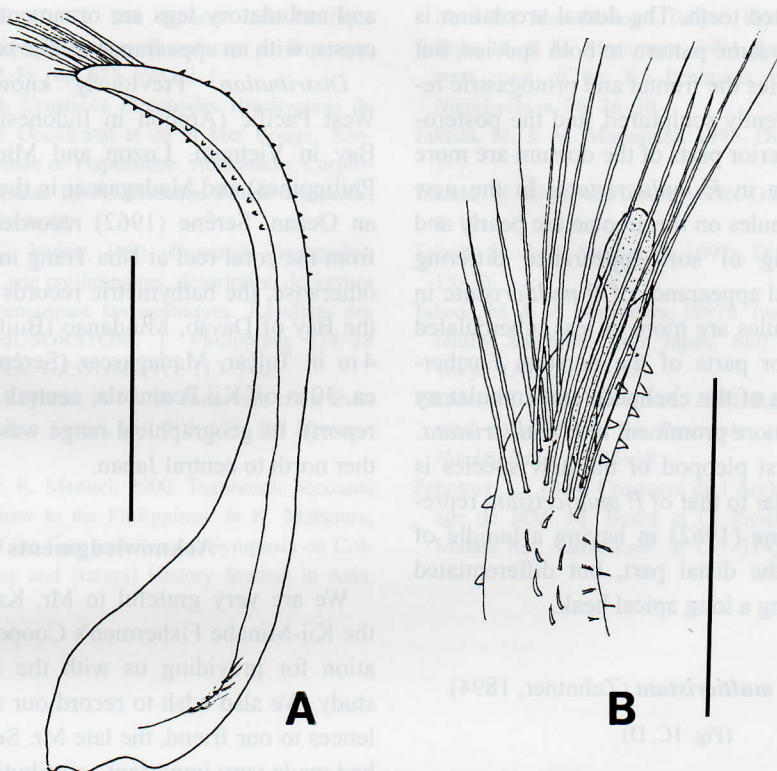


Fig. 3. *Pseudactaea multiareolata* sp. nov., paratype male. Right first pleopod in abdominal (A) and sternal (B) views, respectively. Scales: A=1 mm, B=0.5 mm.

three large crests and some prominent granules, and also with an additional crest in parallel with base of palm; inner surface of carpus sparsely granulated; palm with a large and some small granulated crests and some granules on upper border; outer surface of palm coarsely granulated, granules becoming linear in arrangement, sharper and larger toward upper part; inner surface granulated near upper border; fingers furnished with long shaggy hair and some conical teeth at base of outer border, cutting edge of each finger with four or five blunt teeth, horn-shaped at tip.

Ambulatory legs flattened, hairy, anterior and posterior borders being fringed with long hairs and teeth; distal parts of meri sharply crested; outer surface of each carpus of first three pairs with two parallel crests and some granules; carpus of last pair armed only with one crest; outer surface of each propodus with a crest and some

granules; outer surface of each dactylus covered with short hairs and two granules.

Pterygostomial region, third maxilliped and anterior half of sternum thickly pubescent, granulated; in both of holotype and paratype, abdomen covered with short hairs and granules; epimeral surface of carapace with granules which become larger towards lateral border of carapace. Male first pleopod strongly curved outward at distal two thirds, with a bundle of long hairs at distal part; a narrow, deep cleft at distal part of sternal surface.

Etymology. The specific name is derived from the dorsal areolation of carapace.

Remarks. The new species is much closer to *Pseudactaea multicristata* (Zehntner) than to another representative of the genus, *P. corallina* (Alcock), in having the distinctly areolated carapace, but readily distinguished from it by the regularly convex anterolateral border of the carapace

without angulated teeth. The dorsal areolation is basically of the same pattern in both species, but in the new species the frontal and protogastric regions are differently sculptured, and the posterolateral and posterior parts of the dorsum are more subdivided than in *P. multicristata*. In the new species the granules on the areolae are pearly and smaller, making of soft appearance differing from the rugged appearance of *P. multicristata* in which the granules are more or less tuberculated on the posterior parts of the dorsum. Furthermore, the crests of the chelipeds and ambulatory legs are much more prominent in *P. multicristata*.

The male first pleopod of the new species is somewhat similar to that of *P. multicristata* represented by Serène (1962) in having a bundle of long hairs at the distal part, but differentiated from it by having a long apical beak.

Pseudactea multicristata (Zehntner, 1894)

(Fig. 1C, D)

Lophactaea multicristata Zehntner, 1894, p. 144, pl. 7 fig. 7.

Platypodia multicristata: Buitendijk, 1941, p. 307, fig. 2b.

Pseudactea multicristata: Serène, 1961 (1962), pp. 679 (in key), 684, figs. 1, 2, pl. 1 fig. A; Takeda & Manuel, 2000, p. 155, fig. 3B.

Pseudactaea multicristata: Guinot, 1968, p. 160, fig. 12; Serène, 1984, p. 131, pl. 19 fig. A.

Material examined. Wakayama Pref., Pacific coast of central Japan.—Off east of Cape Shiono-misaki, southernmost place of Kii Penin., ca. 30 m deep, ♂ (NSMT-Cr 14279; 8.4×11.5 mm), 12–XII–1991, S. Nagai leg.

Remarks. As shown in Fig. 1C, the dorsal surface of the carapace is deeply sculptured with linear furrows into the ridge-like regions that are covered with pearly granules of good and variable sizes. The granules are more or less tuberculated on the posterior parts and margin of the dorsum. The anterolateral margin of the carapace is divided into four teeth with three shallow depressions, last three of them being angulated at tips; the last tooth is especially strongly angulated and directed posterolaterally. The chelipeds

and ambulatory legs are ornamented with many crests, with an appearance of fine sculpture.

Distribution. Previously known from the West Pacific (Ambon in Indonesia, Nha Trang Bay in Vietnam, Luzon and Mindanao in the Philippines) and Madagascar in the western Indian Ocean. Serène (1962) recorded this species from the coral reef at Nha Trang in Vietnam, and otherwise, the bathymetric records are 23 fms in the Bay of Davao, Mindanao (Buitendijk, 1941), 4 m in Tuléar, Madagascar (Serène; 1984), and ca. 30 m off Kii Peninsula, central Japan (present report). Its geographical range was extended further north to central Japan.

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Literature

- Alcock, A., 1898. Materials for a carcinological fauna of India. No. 3. The Brachyura Cyclometopa. Part I. The family Xanthidae. *J. Asiat. Soc. Bengal*, **67**: 67–233.
- Alcock, A., 1899. *Illustrations of the Zoology of the Royal Indian Marine Survey Ship Investigator, under the command of commander T. H. Heming, R.N.* Crustacea, part VII, pls. 36–45.
- Buitendijk, A. M., 1941. Biological results of the Snellius Expedition. XIII. On some Xanthidae, chiefly of the genus *Platypodia* Bell. *Temminckia*, **6**: 295–312 pl. 4.
- Guinot, D., 1968. Recherches préliminaires sur les groupements naturels chez les Crustacés Décapodes Brachyours. V. Établissement d'un caractère évolutif: l'articulation ischio-mérale des chélipèdes. *Bull. Mus. Natn. Hist. Nat.*, Paris, (2), **40**: 149–166.
- Guinot, D., 1970 (1971). Ditto. VIII. Synthèse et bibliographie. *Ibid.*, **42**: 1063–1090.
- Sakai, T., 1976. *Crabs of Japan and the Adjacent Seas*. Kodansha Ltd., Tokyo, xxix+773 pp. (English)/461 pp. (Japanese)/16 pp.+251 pls. (Plates).

- Serène, R., 1961 (1962). Les espèces Indo-Pacifique d'*Actea* et celles des genres *Pseudactea* et *Banareia*. *Bull. Soc. Zool. Fr.*, **86**: 673–693, pl. 1.
- Serène, R., 1984. Crustacés Décapodes Brachyours de l'Océan Indien Occidental et de la Mer Rouge. Xanthoidea: Xanthidae et Trapeziidae. Addendum: Carpilidae et Menippidae by A. Crosnier. *Faune Trapicale*, (24): 1–349, pls. 1–48.
- Serène, R., & C. Vadon, 1981. Crustacés Décapodes: Brachyours. Liste préliminaires, description de formes nouvelles et remarques taxonomiques. Résultats des Campagnes MUSORSTOM. I. Philippines (18–28 Mars 1976). *Mém. ORSTOM*, (91): 117–140.
- Takeda, M. & Y. Koyama, 1974. On some rare crabs from Kii Province. *Res. Crust.*, (6): 103–121. (In Japanese and English.)
- Takeda, M. & M. R. Manuel, 2000. Taxonomic accounts of rare crabs new to the Philippines. In K. Matsuura, Proceedings of the First and Second Symposia on Collection Building and Natural History Studies in Asia. *Natn. Sci. Mus. Monogr.*, Tokyo, (18): 149–162.
- Takeda, M. & M. Marumura, 1994. Rare crabs from the west coast of the Kii Peninsula, central Japan (I). *Nankiseibutu*, **36**: 26–30.
- Takeda, M. & M. Marumura, 1995. Ditto (II). *Ibid.*, **37**: 1–7.
- Takeda, M. & M. Marumura, 1996. Ditto (III). *Ibid.*, **38**: 4–10.
- Takeda, M. & M. Marumura, 1997a. Ditto (IV). *Ibid.*, **39**: 15–20.
- Takeda, M. & M. Marumura, 1997b. Two new crabs of the family Xanthidae from Japan. *Bull. Natn. Sci. Mus.*, Tokyo, (A), **23**: 97–106.
- Takeda, M. & M. Marumura, 2000. Rare crabs from the west coast of the Kii Peninsula, central Japan (V). *Nankiseibutu*, **42**: 35–38.
- Zehntner, L., 1894. Crustacés de l'Archipel Malais. Voyage de MM. M. Bedot et C. Pictet dans l'Archipel Malais. *Rev. Suisse Zool.*, **2**: 135–214, pls. 7–9.

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Genus *Pseudactea* Serène, 1962

Pseudactea Serène, 1961 (1962), p. 678.

Pseudactea (Alcock, 1893, p. 180 (in discussion); Sakai, 1976, p. 424; Serène, 1962, pp. 95 & 97 (in keys), 230.

Type species: *Lophactaea multicristata* Zehntner, 1894, designated by Serène (1962).

Remarks: Following the suggestion by Huismidijk (1941), Serène (1962) established the genus *Pseudactea* to accommodate two species of the genus *Platypodia* Bell, *P. multicristata* (Zehntner, 1894) from the Maldives, and *P. corallina* (Alcock, 1893) from Sri Lanka.