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A New Deep-sea Crab from the Andaman Sea off Thailand

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Abstract A new crab species of the family Parthenopidae is described from the Andaman Sea off Thailand under the name of *Dairoides seafdeci*. It is classified under the genus *Dairoides* STEBBING, 1920, due to general similarity of the carapace, chelipeds and ambulatory legs to two known species, *D. margaritatus* STEBBING, 1920 from South Africa and *D. kusei* (SAKAI, 1938) from Japan, but can be readily distinguished by having peculiarly sculptured carapace and sharply carinated ambulatory legs.

The Department of Fisheries, the Kingdom of Thailand initiated fishery exploration of the Andaman Sea in 1965, and during 1981 a Thai—Japanese—SEAFDEC (the Southeast Asian Fisheries Development Center) joint oceanographic and fishery survey was conducted at depths between 30 and 300 metres. More recently, from August 19 to September 24, 1987, the SEAFDEC training vessel M. V. *Paknam* carried out three topographic surveys and several deep-sea trawl operations at depths of more than 300 metres for the purpose of demonstrating deep-sea fishing methods and the practical use of echosounder and fishfinder equipment to survey the sea-bed. Their results were reported by OISHI & SIRIRAKSOPHON (1988).

In the catches collected during the deep-sea trawl operations on M. V. *Paknam* Cruise No. 79–3/1987 were found two large, conspicuous crabs of dark brick red (cf. ANANPONGSUK, 1989). An extensive research of available literature showed that this species belongs to the genus *Dairoides* of the family Parthenopidae, but differs from two known representatives of the genus, viz, *D. margaritatus* STEBBING from South Africa and *D. kusei* SAKAI from Japan. In the following lines it is to be described as new to science under the name of *D. seafdeci*. The holotype, male, is preserved in the National Science Museum, Tokyo (NSMT), and the paratype, female, in the Kasetsart University Museum of Fisheries (KUMF).

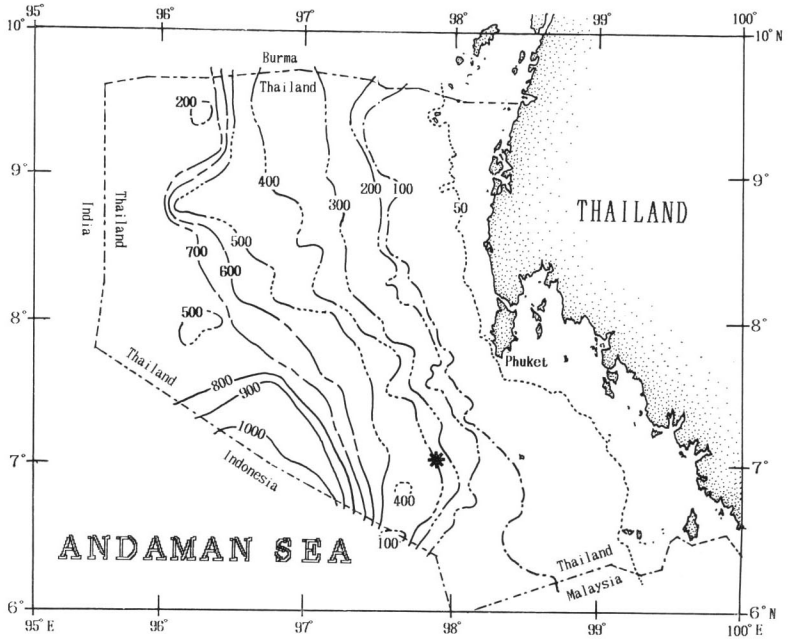

Fig. 1. Map of the Andaman Sea off Thailand, with isobathic lines, showing the sampling station.

Family Parthenopidae

Genus *Dairoides* STEBBING, 1920

Dairoides seafdeci sp. nov.

(Figs. 2–4)

Diagnosis. Carapace thick, subpentagonal or rather rhomboidal in dorsal view, with subdorsal tuberculated epibranchial tooth at each side; dorsal surface covered with symmetrically arranged scab-like plates on regions. Chelipeds heavy, unequal, with tuberculate teeth on margins; in larger chela, fingers each with a large molar like tooth, and immovable finger with a callus on its lower margin. Ambulatory legs slender, with thin margins of meri, carpi and propodi, and with a longitudinal crested ridge on upper surface of each carpus and propodus.

Material examined. Andaman Sea off Thailand, 400 m deep (cf. Fig. 1); 1 ♂ (holotype, NSMT-Cr 11072; 97.5 mm in cb—breadth of carapace including epibranchial teeth of both sides, and 74.7 mm in cl—length of carapace including rostrum), 1 ♀ (paratype, KUMF (2) 0038; 97.0×72.3 mm in cb and cl); 7-IX-1987; M. V. *Paknam*.

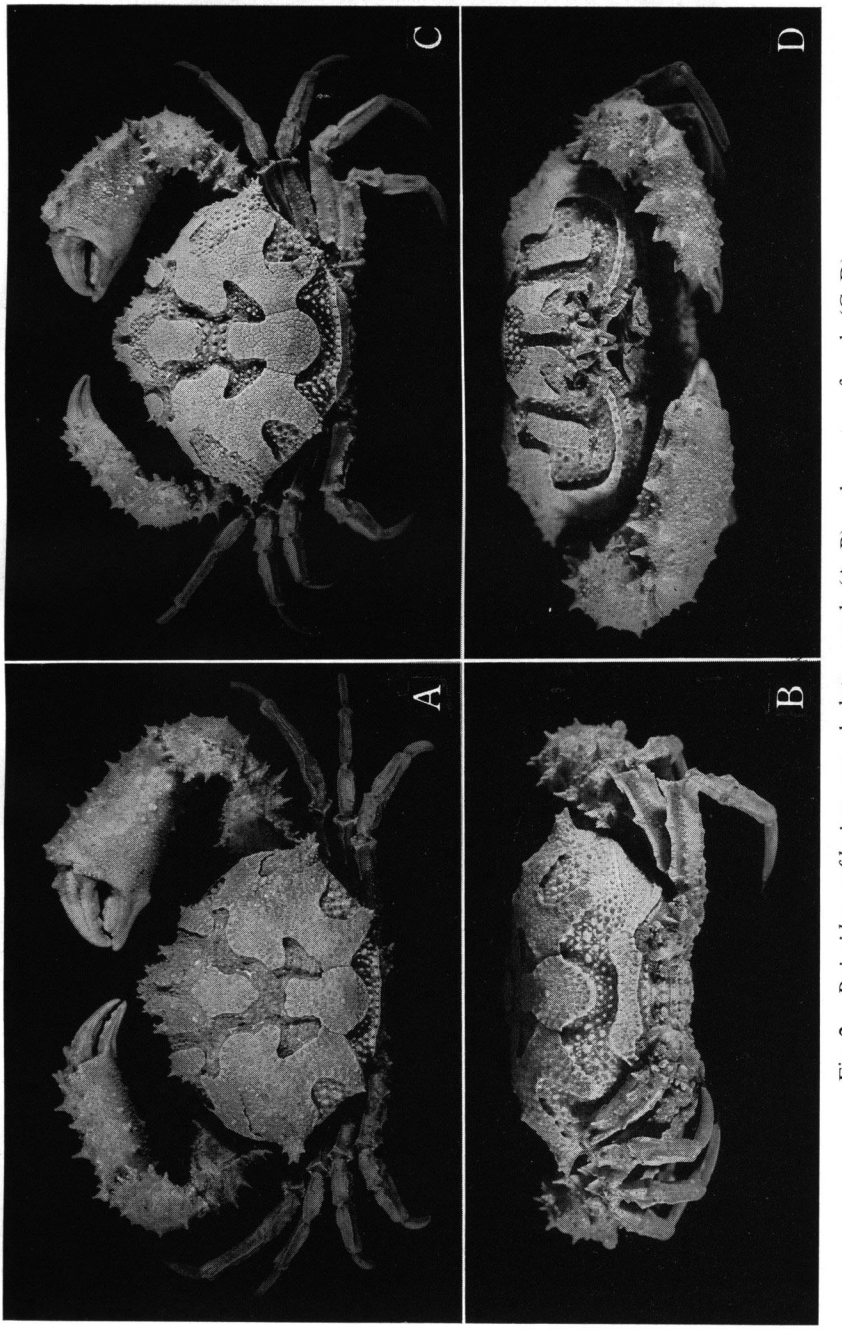

Fig. 2. *Dairoides seafdeci* sp. nov., holotype male (A, B) and paratype female (C, D).

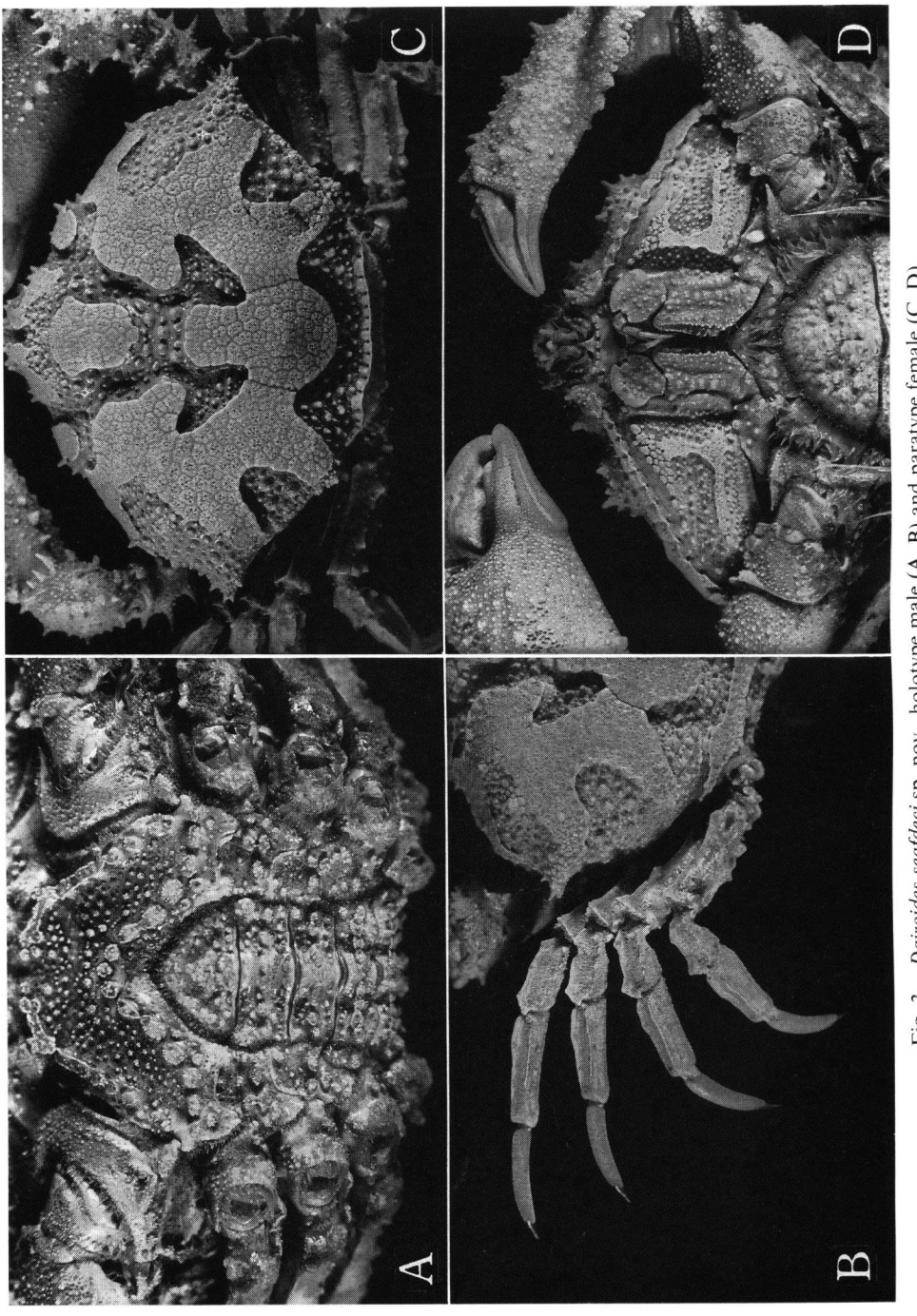

Fig. 3. *Dairoides seafdeci* sp. nov., holotype male (A, B) and paratype female (C, D).

Description. Carapace subpentagonal or rather rhomboidal in its outline, with convex anterolateral and straight posterolateral borders. Dorsal surface of carapace rather flattened for its most part, but anterolateral part of each side strongly directed downward to subhepatic and subbranchial regions; scab-like plates of truncated and fused granules on protogastric, hepatic, mesogastric, cardiac, intestinal and branchial regions; each plate ornamented with some minute pits and many microscopical granules surrounded by polygonal network; true dorsal surface, without scab-like plates, armed with subacute conical granules of variable size, which are tipped with many microscopical granules; each protogastric plate extended anteriorly to inner supraorbital angle and laterally along most part of supraorbital border; hepatic plate somewhat like a shoulder-strap, with its inner margin parallel with outer margin of protogastric plate; hepatic margin weakly angulated, armed with one small tubercle and two or three accessory ones; mesogastric plate obtusely angulated toward median groove between anterior extensions of protogastric plates of both sides, convex as a rounded small lobe at posterior median part, and weakly concave at median part of each lateral margin; cardiac plate rounded, subacute at summit, with quadrate anterior expansion, being laterally in contact with branchial plate; intestinal plate developed along posterior margin of carapace; each branchial plate prominent, with two outgrowths oppose to mesogastric and hepatic plates and two deep indentations at base of epibranchial tooth and posterolateral part; anterior part of branchial plate extended toward inner infraorbital angle as a narrow belt along subhepatic margin; similar belt also on subbranchial region, but discontinuous with subhepatic one.

Epibranchial tooth strongly tuberculated, situated subdorsally and weakly directed posteriorly, being armed with small tubercles like true dorsal surface of carapace.

Frontal region strongly directed downward, especially rostral part nearly perpendicularly directed downward; tip of rostrum trifurcate, with the median one curved downward as extention of rostrum and the laterals directed horizontally forward; basal part of rostrum armed dorsally with a conical tooth which is seen as the true rostral margin in dorsal view; a longitudinal cleft to accomodate antennule at each side of rostrum.

Orbit small, orbicular in frontal view. Supraorbital border almost longitudinal for its inner half and concave for its outer half in dorsal view; fringe of minute granules for whole length, with two small notches on outer half; inner angle of supraorbital border armed with two small tubercles, of which the outer is slender and directed obliquely outward and the inner is followed by a tubercle of nearly same size at median subdorsal part of inner half of supraorbital border; external orbital angle stout, directed forward, followed by an obliquely-directed tubercle just at its outer margin. Infraorbital angle armed with a stronger forward-directed tubercle. Orbital hiatus between antennular basal segment and infraorbital angle narrow but distinct for whole length and occupied by peduncular segments of antenna.

Both chelipeds unequal, heavy, but not long in both sexes. Merus flattened for most part of its inner surface, its upper margin being armed with seven sharp, laciniated

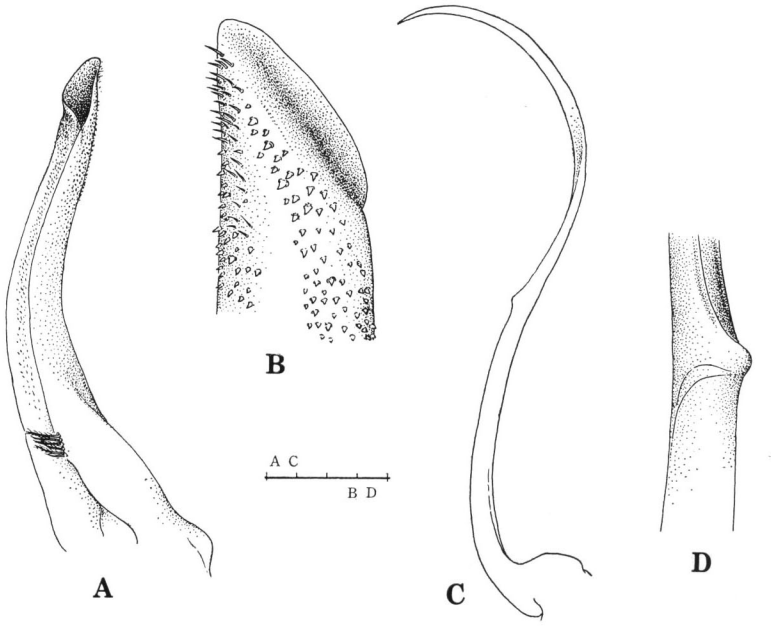

Fig. 4. *Dairoides seafdeci* sp. nov., holotype male, first (A, B) and second (C, D) pleopods of left side in abdominal (A, C) and sternal (B, D) views. Scales in mm.

teeth, of which the median one is the most prominent and followed by a spiniform tooth at its basal outer part, and the distal one also bears a secondary tooth on its posterior margin; in addition, merus with two sharp spines on its outer surface and two on its distal margin. Carpus with a series of six sharp, laciniated spines on its inner margin and with about ten uniformly arranged tubercles on its outer surface. Larger palm (right side both in holotype and paratype) more or less compressed, becoming higher distally, armed with six spiniform, equidistant teeth on its upper margin, some just at their outside, two or three longitudinal rows of some conical tubercles on its outer surface, and a short row of two or three spiniform teeth at basal median part of its inner surface; smaller palm armed with fewer but larger teeth, both margins being parallel to each other for their whole lengths. Fingers of larger chela very stout, about half as long as palm; both fingers each with a long molar-like tooth; that of movable finger divided into two at distal one-third rather distinctly in holotype and shallowly in paratype; that of immovable finger indistinctly subdivided into subequal three parts in holotype, but nearly undivided in paratype; lower margin of immovable finger with a thick callus for its whole length; fingers of smaller chela normal in shape, with sharp but irregular cutting edges.

Ambulatory legs long and slender. Anterior margin of each merus strongly crested, angulated to form a tooth at its median part and a lobe at its proximal part,

being sharply pointed at its distal end; the median tooth of anterior margin diminishes the size from first to last pair, while a longitudinal row of several tuberculate granules on each upper surface increases the size of granules from first to last pair, and is replaced by a row of some high, thin crests in last pair; upper and lower posterior margins of each merus also thin, with some irregular indentations. Anterior margin of carpus thin, with two humps at distal and proximal parts; upper surface of carpus with a longitudinal ridge, with some indentations in first three pairs and with two or three tubercles in last pair. Anterior margin and upper surface of propodus each with a longitudinal crest; posterior margin of propodus crested only for proximal half of last pair. Dactylus covered with velvet except for horny tip.

Thoracic sternum and abdomen covered with granules of various sizes; basal four segments in both sexes each with a transverse row of several truncated granules; in holotype, male, wide sternum carrying chelipeds fringed with beads of granules.

Etymology. The new species is named after the Southeast Asian Fisheries Development Center (SEAFDEC).

Remarks. The new species is generally close to two known representatives of the genus *Dairoides*, viz, *D. margaritatus* STEBBING from South Africa (STEBBING, 1920; BARNARD, 1950; GUINOT, 1967) and *D. kusei* (SAKAI) from Japan (SAKAI, 1938, 1965, 1976), but apparently distinct from them, with many different features. It is most noteworthy that the carapace is covered with scab-like plates in the new species, and some other differences are noted as follows. The South African species, *D. margaritatus*, is somewhat similar to the new species in its outline of the carapace, but the dorsal surface is thickly covered with tubercles, only with a curved eroded groove delimited the branchial region from the gastric region at each side, and the ambulatory legs are spinous along the anterior margins. On the other hand, the Japanese species, *D. kusei*, is apparently narrower in its proportion of the carapace than in the new species, and much more eroded with many grooves, having also the spinous ambulatory legs.

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Literature Cited

ANANPONGSUK, S., 1989. Report on some offshore demersal resources of the Andaman Sea. *SEAFDEC Training Dept., Res.*, (20): 1–30.

BARNARD, K. H., 1950. Descriptive catalogue of South African decapod Crustacea (crabs and shrimps). *Ann. S. Afr. Mus.*, **38**: 1–837.

GUINOT, D., 1967. Recherches préliminaires sur les groupements naturels chez les crustacés décapodes brachyoures. III. A propos des affinités des genres *Dairoides* STEBBING et *Daira* DE HAAN.

Bull. Mus. natn. Hist. nat., (2) **39**: 540–563.

OISHI, M., & S. SIRIRAKSOPHON, 1988. Report on topographic survey and deep-sea trawl operations in the Andaman Sea. *SEAFDEC Training Dept., Spec. Publ.*, (13): i–iii, 1–33.

SAKAI, T., 1938. Studies on the Crabs of Japan. III. Brachygnatha, Oxyrhyncha. Pp. 193–364, pls. 20–61. Tokyo, Yokendo.

——— 1965. The Crabs of Sagami Bay collected by the Majesty of the Emperor of Japan. Pp. i–xvi, 1–206, 1–92, 1–32, pls. 1–100. Tokyo, Maruzen Co., Ltd.

——— 1976. Crabs of Japan and the Adjacent Seas. Pp. i–xxix, 1–773 (English volume); pp. 1–461 (Japanese volume); pp. 1–16, pls. 1–251 (Plates). Tokyo, Kodansha Ltd.

STEBBING, T. R. R., 1920. South African Crustacea (Part X of S. A. Crustacea, for the marine investigations in South Africa). *Ann. S. Afr. Mus.*, **17**: 231–272, pls. 18–27.