

NEW RECORDS OF PALICID CRABS (CRUSTACEA: BRACHYURA: PALICIDAE)
FROM AUSTRALIA

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Eight species of palicid crabs have been identified from Australia. *Parapallicus ambonensis*, *Paliculus kyusyuensis*, *Exopallicus maculatus* and a species close or identical to *Miropallicus vietnamensis* are recorded for the first time in Australia. There are also first records of *Neopallicus jukesii* from Western Australia and *Crossotonotus spinipes* from the Northern Territory and the Cocos (Keeling) Islands. Thirteen species of Palicidae are now known from Australian waters. □ *Palicid crabs, new species, Australia.*

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Little is known about the biology of palicid crabs. Most species are inhabitants of soft sediments in relatively deep water, while some are found in shallow water associated with coarse sediments near coral reefs or with rocky bottoms. All seem to ingest sediment particles. The taxonomy and biogeography of the 43 known species of Indo-west Pacific palicids has been reviewed by Castro (2000).

Castro (2000) recorded 9 palicid species from Australian waters. Material from several Australian museums adds four additional species, increasing the number of Australian species to 13. In addition to the 8 species listed here, 5 were previously recorded from Australia by Castro (2000): *Pseudopallicus investigatoris* (Alcock, 1900), *P. macromeles* Castro, 2000, *P. ohauensis* (Rathbun, 1906), *P. serripes* (Alcock & Anderson, 1895) and *Pleurophricus cristatipes* A. Milne Edwards, 1873.

Abbreviations used: AM, Australian Museum, Sydney; MMUS, MacLeay Museum, University of Sydney; QM, Queensland Museum, Brisbane; WAM, Western Australian Museum, Perth; CL, carapace length; CW carapace width.

Subfamily PALICINAE Bouvier, 1898

Parapallicus Moosa & Serène, 1981

Parapallicus ambonensis Moosa & Serène, 1981
(Fig. 1A)

Parapallicus ambonensis Moosa & Serène, 1981: 29, figs 2a, 3a, pl. 1, fig. D; Castro, 2000: 489, figs 16, 19a, 58.

MATERIAL. QM W16970, 1♀, off Mission Beach, NEQLD, Australia, 17°53' S, 146°51' E, 140-142m, 20.01.1986, CSIRO, R.V. 'Soela'.

REMARKS. This is the first record of the species in Australia. It has been collected from mostly muddy bottoms of the Andaman Sea coast of Thailand, Banda and Coral Seas and off the island of Futuna, southwestern Pacific Ocean (Castro, 2000). Bathymetric range: 80-440m.

Miropallicus Castro, 2000

Miropallicus cf. vietnamensis (Zarenkov, 1968)
(Fig. 1B)

Palicis vietnamensis Zarenkov, 1968: 762, fig. 2A-F.
Miropallicus vietnamensis; Castro, 2000: 522-525, figs 29, 30a, 59, 60f (full synonymy and references).

MATERIAL. QMW25170. Incomplete specimen, North West Shelf, Western Australia, 19°59.1'S 117°49.0'E, beam trawl, 43m, CSIRO, RV *Soela*, stn 3D1BT, 25 June 1983.

REMARKS. The Australian specimen consists of only the anterior border of the carapace of a very small, most probably juvenile, specimen (distance between outer anterior lobes of 0.2 mm). The two orbits, the right supraorbital and suborbital borders and the right basal antennal segment were present. The pterygostomial lobe was missing on both sides. Characteristic of *Miropallicus* are the wide orbits, large eyes with dorsoventrally flattened cornea, very short supraorbital lobes and relatively short suborbital lobes, long and conspicuous postorbital angles with pointed tip directed outward, and a rectangular, slender basal antennal segment that lacks a distal expansion. Unlike the only species so far included in the genus, *M. vietnamensis*, the shallow supraorbital lobes are very wide and have a straight edge, not narrow with rounded tips (Castro, 2000: fig. 22a). The suborbital border

consists of a wide, oblique inner lobe unlike the slightly triangular lobe of *M. vietnamensis* (Castro, 2000: fig. 22b) and a narrow, slightly pointed outer lobe that is similar to that of *M. vietnamensis*. It is possible, however, that the simpler arrangement of both supraorbital and suborbital lobes is only a characteristic of juveniles. There are three small frontal lobes instead of the two in *M. vietnamensis*, a rare situation observed in other palicids and that perhaps results from damage and subsequent regeneration.

The Australian specimen was collected from 43m depth, whereas *M. vietnamensis* is known from 239-647m from the South China Sea to the Loyalty Islands, southern Coral Sea (Castro, 2000).

Paliculus Castro, 2000

Paliculus kysuyuensis
(Yokoya, 1933)
(Fig. 1C)

Paliculus kysuyuensis Yokoya, 1933: 206, 217, fig. 70.

Paliculus kysuyuensis; Castro, 2000: 527-530, figs 30b, 31, 56 (full synonymy and references).

MATERIAL. QMW15417, 3 ♀, 1 juv. ♀, off Great Barrier Reef, Queensland, 17°21.77'S 146°48.52'E, epibenthic sledge, 296-302m, Cidaris I, stn 42-2, FRV *Franklin*, 15.05.1986; QMW15418, 8 ♀, juv. ♀ (same data as W15417); QMW15415, ♀, off Great Barrier Reef, 17°34.58'S 146°53.21'E, epibenthic sledge, 458-500m, Cidaris I, stn 43-2, FRV *Franklin*, 15.05.1986; QMW15416, ♀, off Great Barrier Reef, 17°55.38'S 147°00.96'E, beam trawl, 295-309m, Cidaris I, stn 46-3, FRV *Franklin*, 16.05.1986.

REMARKS. The conspicuous, salient tubercles along the posterior border of the carapace show

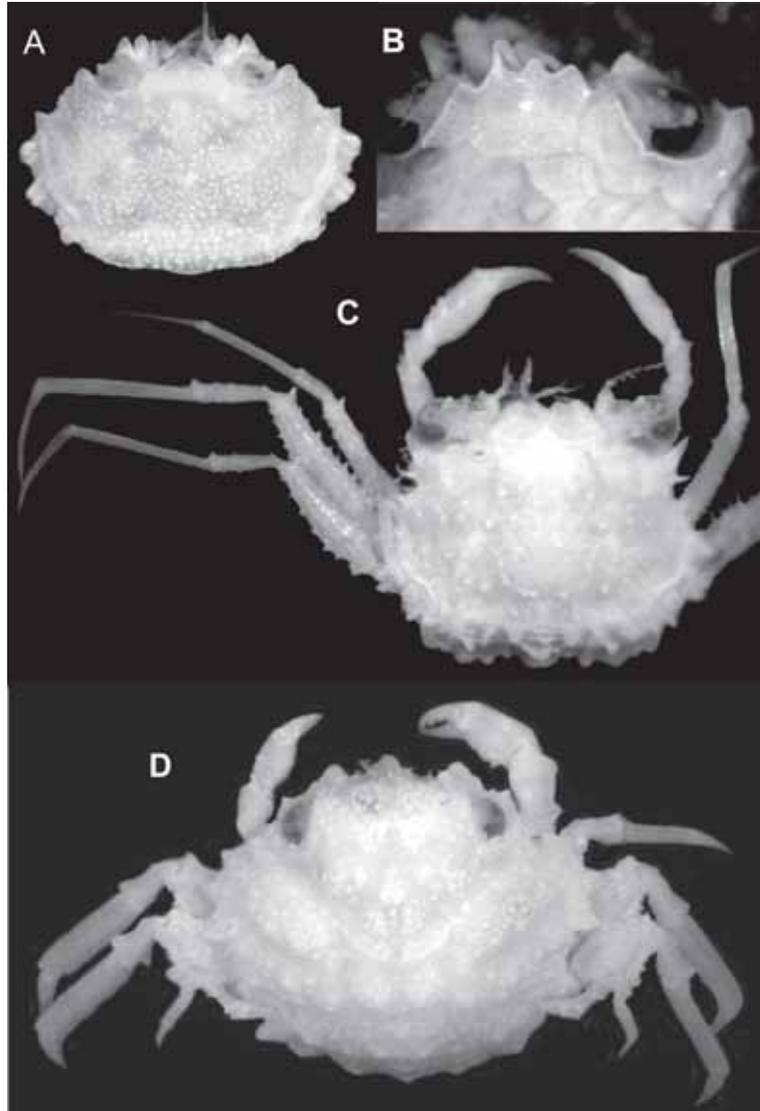


FIG. 1. A, *Parapaliculus ambonensis* Moosa & Serène, 1981, ♀ (QM W16970); B, *Miropaliculus* cf. *vietnamensis* (Zarenkov, 1968), incomplete specimen (QMW25170); C, *Paliculus kysuyuensis* (Yokoya, 1933), ♀ (QMW15415); D, *Exopaliculus maculatus* (Edmondson, 1930), ♂ (QMW25171).

noticeable differences in size and shape, varying from short and broad to narrow and more acute. Dorsally the carapace has short, rounded tubercles, as in specimens studied by Castro (2000). These tubercles, however, were not shown in the illustration (Castro, 2000: fig. 23a).

The species is known from sandy bottoms at depths of 30-710m in relatively few locations in

the Indian Ocean (Madagascar) and from Japan to Wallis Island in the southwestern Pacific (Castro, 2000). This is the first record from Australia.

Exopalicus Castro, 2000
Exopalicus maculatus (Edmondson, 1930)
 (Figs 1D, 2)

Palicus maculatus Edmondson, 1930: 15, figs 6a-g, pl. 1, fig. C.
Exopalicus maculatus; Castro, 2000: 546-548, figs 37d, 38, 56, 61b (full synonymy and references).

MATERIAL. QMW25171, ♂, Lady Elliott I., Bunker Group, Queensland, 24°07'S 152°43'E, coral reef near lighthouse, night dive, P. Davie & D. Potter, 14 Aug. 1985.

REMARKS. The presence of *Exopalicus maculatus* in eastern Australia confirms its wide distribution, having been known only from the Hawaiian and Marshall islands in the Pacific and Réunion in the western Indian Ocean (Castro, 2000). It has been collected in Guam (Castro, unpubl. data). As in most of the material from Hawaii and Réunion, the Queensland specimen was collected from a hard substrate in shallow water at night.

The live Australian specimen showed two large pairs of orange spots on a cream to light-yellow carapace (Fig. 2). There were irregular, red-brown markings along the anterior and posterior borders of the carapace. The legs were banded red-brown.

Neopalicus Moosa & Serène, 1981
Neopalicus jukesii (White, 1847)

Cymopolia jukesii White, 1847: 338, pl. 2, fig. 1.
Neopalicus jukesii; Castro, 2000: 554-558, figs 39b, 40b-c, 41c, 49, 61c (full synonymy and references).

MATERIAL. North West Shelf, Western Australia, CSIRO, RV *Soela* (64 stations between 19°03.0'S, 119°02.4'E and 20°01.2'S, 116°57.6'E, 36-82m depth, epibenthic sledge or beam trawl, from 8.12.1982 to 30.10.1983): QMW25123, 2 juv. ♀; QMW25134, ♂; QMW25110, 2 ♀; QMW25126, ♂; QMW25144, 2 ♂; QMW25138, juv. ♀; QMW25139, 2 ♂; QMW25116, ♂; QMW25146, ♂; QMW25115, ♀; QMW25124, juv. ♀; QMW25133, ♂; QMW25127, ♀; QMW25156, 2 ♀; QMW25160, unsexed juv.; QMW25125, ♀; QMW25154, 2 ♀; QMW25132, ♂; QMW25166, ♀; QMW25129, juv. ♀; QMW25155, 2 juv. ♀; QMW25162, ♂; QMW25111, ♂ ♀; QMW25147, ♂ incomplete specimen; QMW25114, ♂ ♀; QMW25117, 7 ♂ 3 ♀ juv. ♀; QMW25141, ♂ 2 unsexed juv.; QMW25135, juv. ♀; QMW25140, ♀; QMW25131, juv. ♀; QMW25106, ♂ 2 ♀; QMW25158, ♂ 2 ♀; QMW25145, ♂; QMW25163, ♂ 3 juv.; QMW25120, juv. ♀; QMW25130, juv. ♀; QMW25157, 3 ♀ juv. ♀ 2 unsexed juv.; QMW25159, ♂ 2 ♀; QMW25148, ♂ 5 unsexed juv., 2 incomplete specimens; QMW25165, juv. ♂ 2 ♀; QMW25152, damaged specimen; QMW25167, 2 ♀; QMW25128, 3 ♀; QMW25108, 2 ♂ 3 ♀ 5 juv. ♀; QMW25164, ♂ 2 juv.; QMW25161, ♂ 2 juv. ♀ 15



FIG. 2. *Exopalicus maculatus* (Edmondson, 1930), ♂ (QMW25171) showing pattern of live colouration.

unsexed juv.; QMW25118, ♀; QMW25168, 2 ♂ 2 ♀; QMW25153, 2 ♂ juv. ♀; QMW25169, 5 ♀; QMW25109, ♀; QMW25112, ♂ juv. ♀; QMW25119, 10 ♂ 26 ♀ 3 juv. ♀; QMW25151, 4 ♂ ♀ juv. ♀ 32 unsexed juv.; QMW25149, ♂ 3 juv. ♀ 6 unsexed juv., 2 damaged specimens; QMW25107, 4 ♂ 3 ♀ juv. ♀; QMW25137, 2 juv. ♀ 3 unsexed juv., 2 incomplete specimens; QMW25143, 2 ♂ juv. ♀; QMW25122, ♀; QMW25121, 16 ♂ 5 ♀ 4 juv. ♀; QMW25136, 7 ♂ ♀ 4 juv. ♀ 3 incomplete specimens; QMW25142, 3 unsexed juv.; QMW25113, ♂ ♀ juv. ♀; QMW25150, ♀ juv. ♂ juv. ♀ damaged specimen. WAM-C27188, ♀ Dampier Archipelago, 1.4 miles ESE of Tish Point, Rosemary I., 20°30.48'S 116°36.53'E, rake-box dredge, 9-10m, sandy mud, 26.07.1999; QMW17431, 2 ♀, Gulf of Carpentaria, 15°57.6'S 138°41.8'E, beam trawl, 25m, FRV *Southern Surveyor*, stn 94, 11.12.1991; AMP10524, ♂, Hayman I., Whitsunday Group, Queensland, 20°03'S 148°53'E, 9m, F.A. McNeill, Jan. 1934; AMP19525, ♂ 2 ♀, Whitsunday Group, Black I., near Langford, Nov. 1969.

REMARKS. The large number of juveniles collected (as small as CL 0.18mm, CW 0.27mm) permits their description for the first time. Anterior lobes are more salient than in the larger individuals. Anterolateral teeth are similarly more pointed and salient, the most anterior ones being the largest; the third and most posterior teeth are smallest and are absent in the smallest individuals. The carapace is nearly smooth.

N. jukesii ranges across the Indian Ocean to the western Pacific (southern Japan to the Coral Sea) in mostly coarse sand at depths of 10-146m.

Palicoides Moosa & Serène, 1981
Palicoides whitei (Miers, 1884)

Cymopolia whitei Miers, 1884: 551, pl. 49, figs C, c.
Palicoides whitei; Castro, 2000: 565-568, figs 42b, 43b-c, 50, 61e (synonymy and references).

MATERIAL. MMUS-C2139, ♂, Darnley I., Queensland, 9°35'S 143°46'E, W.J. MacLeay, HMS Chevert, 7-8.08.1875; QMW9896, juv. ♀, 15km NW Lizard I., Queensland, 14°35.3'S 145°23'E, 27m, mud and shell substrate, Commonwealth Northern Prawn Survey, stn IB/14, FV *Markwell Explorer*, Sept. 1979.

REMARKS. The species is known across the Indian Ocean to the western Pacific (southern Japan to the Coral Sea) (Castro, 2000). It inhabits coarse sand at depths of 7-70m.

Subfamily CROSSOTONOTINAE Moosa & Serène, 1981

Crossotonotus A. Milne Edwards, 1873

Crossotonotus compressipes A. Milne Edwards, 1873

Crossotonotus compressipes A. Milne Edwards, 1873: 259; Castro, 2000: 571-574, figs 44, 51 (full synonymy and references).

MATERIAL. MMUS-C2138, ♂, Darnley I., Queensland, 9°35'S 143°46'E, W.J. MacLeay, H.M.S. *Chevert*, 7-8.08.1875; MMUS-C2137, ♀ (data as for MMUS-C2138); QMW12488, juv. ♀, Dugong I., Torres Strait, 10°31'S 143°04'E, reef flat, low tide, Queensland Fisheries Service, 17.07.1974.

REMARKS. The dorsal surface of the female (QMW12488: CL 8.6mm, CW 9.4mm), although preserved for almost 26 years showed a dark-brown, irregular pattern on a light background.

C. compressipes, although rarely collected, is known from southern Japan to Samoa (Castro, 2000). It appears to be restricted to hard bottoms in shallow water.

Crossotonotus spinipes (De Man, 1888)

Pleurophricus spinipes De Man, 1888: 344, pl. 15, figs 1, 1a-c.

Crossotonotus spinipes; Castro, 2000: 574-578, figs 45, 46, 51, 61f (full synonymy and references).

Crossotonotus brevimanus; Morgan, 1992: 47.

Manella brevimana; Springthorpe & Lowry, 1994: 94.

MATERIAL. WAM-C19675, ♂, juv. ♂, SW end of Horsburgh I., Cocos (Keeling) Islands, to 30m, G.J. Morgan, 16.02.1989; WAM-C197573, juv. ♀, Cocos (Keeling) Islands, C.W. Bryce & F.E. Wells, 17.02.1989; WAM-C20595, ♂ juv. ♀, SW of Descartes I., Kimberley region, Western Australia, coral reef, G.J. Morgan, KIRÉ 1991, stn 22, 19.08.1991; QMW24154, juv. ♀, Gove Peninsula, Northern Territory, 12°10'S 136°50'E, N. Coleman, Feb. 1993; AM-P19434, juv. ♀, Mandora Point, Darwin, Northern Territory, 12°27'S 130°50'E, under rock at low tide, N. Coleman, 23.11.1972; QMW22451, juv. ♀, NE end of East Herald Cay, Coringa-Herald Nature Reserve, Queensland, 16°56'S 149°11'E, lagoon, 24m, Royal Geographic Society of Queensland Herald Cay Expedition, P. Davie & M. Preker, 27.06.1997; QMW25172, juv. ♂, Masthead I., Queensland, 23°32'S 151°44'E, pontoon, night dive, 9m, P. Davie & D. Potter, 11.02.1986; QMW1505, ♂, Mud I., Moreton Bay, Queensland, 23°32'S 150°51'E, V.F. Collin, 16.07.1942; QMW21895, juv. ♀, Lamont Reef, Capricorn Group, 23°36'S 152°03'E, 10m, N. Coleman, Sept. 1992.

REMARKS. The carapace of a very large male (QM1505: CL 27.6mm, CW 33.8mm) was atypical for the species. The anterior lobes were not bent upward and the tips of the anterolateral teeth were less pointed than is usual.

The species is widely distributed in the Indo-west Pacific except the southeastern Pacific (Castro, 2000). It is restricted to hard bottoms and known from the intertidal to 146m.

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