

**SHALLOW-WATER TRAPEZIIDAE AND TETRALIIDAE
(CRUSTACEA: BRACHYURA) OF THE PHILIPPINES
(PANGLAO 2004 EXPEDITION), NEW GUINEA, AND
VANUATU (SANTO 2006 EXPEDITION)**

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ABSTRACT. – The shallow-water trapeziid and tetraliid crabs, symbionts of corals and other colonial anthozoans, from the Philippines, New Guinea, and Vanuatu are listed. A total of 13 species of Trapeziidae and six species of Tetraliidae (two new records) are listed for the Philippines, 15 Trapeziidae (four new records), six Tetraliidae (three new records) for New Guinea, and 12 Trapeziidae (six new records), four Tetraliidae (three new records) for Vanuatu. The number of species in these locations, when compared with the number in adjacent areas, does not support the view that the Indo-Malayan region or the Indo-Australian Archipelago have served as a centre of diversification for these two families.

KEY WORDS. – Crustacea, Brachyura, Trapeziidae, Tetraliidae, Philippines, New Guinea, Vanuatu, coral reefs, biogeography.

INTRODUCTION

This report lists the trapeziids and tetraliid crabs, members of the superfamily Trapezioidea, symbionts of corals and other colonial anthozoans, collected in the Philippines by the PANGLAO 2004 expedition and in Vanuatu by the SANTO 2006 expedition. Also included are trapeziids from northern Papua New Guinea that were made available by S. De Grave (Oxford University Museum of Natural History), a particularly valuable collection since crabs from individual coral colonies of *Pocillopora* were preserved separately. Complementing this information are trapeziids and tetraliids from the Philippines and New Guinea never recorded in the literature that are deposited in the collections of the Muséum National d'Histoire Naturelle, Paris (mostly from the MUSORSTOM 1, 2, and 3 expeditions to the Philippines), United States National Museum, Smithsonian Institution (mostly from the "Albatross" Philippine Expedition of 1908-1909), and the Western Australian Museum. Collections from Vanuatu complement a report on the trapeziids and tetraliids from the Coral Sea (Castro, 1999).

The references given for each of the species listed refer to the known records from the Philippines, New Guinea (Papua New Guinea and western New Guinea, which comprises the Papua and West Papua provinces of Indonesia), and Vanuatu.

The measurements provided are of the carapace length (cl), measured from the middle of the front to the middle of the posterior border of the carapace, and width (cw), measured across the widest breadth of the carapace, in most cases including the anterolateral teeth. The material examined is deposited in the Muséum national d'Histoire naturelle, Paris (MNHN), United States National Museum, Smithsonian Institution, Washington, D. C. (USNM), Florida Museum of Natural History, Gainesville (UF), Western Australian Museum, Perth (WAM), and the Zoological Reference Collection of the National University of Singapore (ZRC).

TAXONOMY

FAMILY TRAPEZIIDAE Miers, 1886

Remarks. – In addition of the 13 species listed here, three deep-water trapeziids have been recorded from the Philippines by Garth & Kim (1983): *Philippicarcinus oviformis* Garth & Kim, 1983, *P. tuberomerus* Garth & Kim, 1983, and *Sphenomerides trapezoides* (Wood-Mason, 1891). The deep-water trapeziids from the Philippines and Vanuatu will be treated in future separate papers and will not be discussed further here.

***Quadrella* Dana, 1851**

Remarks. – Five of the six known species of *Quadrella* are symbionts of alcyonaceans, antipatharians, and gorgonians (see Castro et al., 2004). The exception is *Q. boopsis* Alcock, 1898, a symbiont of dendrophylliid and other ahermatypic corals. In addition to the two species reported here, *Q. boopsis* is known from the Philippines (Galil, 1986b) and Papua New Guinea (Castro, 1999b), *Q. reticulata* Alcock, 1898, from the Philippines (Castro, 1999b), and *Q. serenei* Galil, 1986 (Castro, 1997, as *Q. maculosa* [part]; Castro, 1999a) from Vanuatu.

***Quadrella coronata* Dana, 1852**

(Fig. 1A)

Quadrella coronata Dana, 1852a: 84 (the Philippines).
Quadrella coronata – Estampador, 1959: 86 (list) (the Philippines); Serène & Vadon, 1981: 122 (the Philippines); Galil & Tom, 1990: 112, Figs. 1, 2 (the Philippines); Castro, 1997: 63 (Vanuatu).

Material examined. – **THE PHILIPPINES:** Bohol, Balicasag I., coll. PANGLAO 2004 Expedition: Stn. T4, Panglao I., Bolod, 9°33.0'N 123°48.5'E, 82.3 m, 1 Jun.2004: 1 female with zoeas (photographed) (ZRC 2008.0910); Stn. T9, Panglao I., off San Isidro, 9°33.501'N 123°49.497'E, 117–120 m, 14 Jun.2004: 1 megalopa (photographed) (ZRC 2008.0911); Stn. R73, Balicasag I. reef, coral platform and reef wall, on alcyonacean, 9°30.9'N 123°40.8'E, 2–30 m, 2 Jul.2004: 1 female (photographed) (ZRC 2008.0912); Stn. B38, Balicasag I., entrance of cave, 9°30.9'N 123°40.8'E, 17–18 m, 2 Jul.2004: 1 female (photographed) (ZRC 2008.0913). – “Albatross” Philippine Expedition: Stn. 5356, Balabac Straits, Balabac Lighthouse, 8°6.40'N 117°18.45'E, 107 m, 5 Jan.1908: 1 female (USNM); Stn. 5432, eastern Palawan, Corandagos I., 10°37.50'N 120°12'E, 94 m, 8 Apr.1909: 2 females (USNM). – MUSORSTOM 1: Stn. CP57, 13°53.1'N 120°13.2'E, 96–107 m, 26 March 1976, 1 male, 1 female (MNHN-B16927). – MUSORSTOM 2: Stn. CP8, 13°55'N 120°20'E, 85–90 m, 21 Nov.1980: 1 male, 1 female (MNHN-B14025); Stn. CP47, 13°33'N 122°10'E, 81–84 m, 26 Nov.1980: 2 females (MNHN-B16928). – MUSORSTOM 3: Stn. CP97, 14°00'N 120°18'E, 189–194 m, 1 Jun.1985: 1 female (MNHN-B13922); Stn. CP121, 12°08'N 121°18'E, 73–84 m, 3 Jun.1985: 3 males, 5 females (MNHN-B13918); 1 male (MNHN-B13923); Stn. CP134, 12°01'N 121°57'E, 92–95 m, 5 Jun.1985: 1 male, 3 females (MNHN-B13916). **PAPUA NEW GUINEA:** Bismarck Archipelago, L. Kirkendale coll.: Sabben I., 2°08'S 146°10'E, 3–25 m, 29 Jun.2003: 1 male parasitized by bopyriid (UF 4821); Sisi Liu I., 2.2603°S 146.6728°E, 1–34 m, 29 Jun 2003: 1 male, 1 female (UF 4845); Baluan I., 2°32'S 147°17'E, 3–42 m, 22 Jun.2003: 1 male, 1 female (UF 4873). – Milne Bay, 10°12.26'S 150°54.42'E, on *Chironophthya* (Alcyonacea), G. Paulay coll., 27 May 1998: 1 male (UF 3827). – Samarai I., on *Solencaulon* (Gorgonacea): 1 male, 1 female (UF 5458). **VANUATU:** SANTO 2006: Stn. FR15, Bruat Channel, Perumamasa I., 15°36.6'S 167°09.6'E, 2–26 m, 16 Sep.2006: 2 females (ZRC 2008.0776); Stn. AT41, east of Urélapa I., 15°36.7/37.0'S 167°02.7/02.8'E, 88–118 m, 28 Sep.2006: 3 females (ZRC 2008.0774), 1 male (photographed) (MNHN-B31333); Stn. AT44, north of Urélapa I., 15°36.5'S 167°02.7'E, 86–118 m, 29 Sep.2006: 1 male (MNHN-B31335); Stn. DR88, north of Aoré I., 15°32.1'S 167°11.0'E, 10–35 m, 4 Oct.2006: 1 male (photographed) (ZRC 2008.0775); Stn. AT76, northwest of Malo I., 15°38.7'S 167°03.6'E, 105–135 m, 10 Oct.2006: 1 male (MNHN-B31334).

Remarks. – This appears to be the first time the species is recorded from New Guinea.

***Quadrella maculosa* Alcock, 1898**

(Fig. 1B)

Quadrella maculosa – Galil, 1986b: 285, Figs. 5C–F (western New Guinea); Castro, 1997a: 63, Pl. 7B (Papua New Guinea, Vanuatu); 1999b: 37 (western New Guinea); Clark & Ng, 2006: 269, Figs. 1–5 [larvae] (the Philippines).

Material examined. – **THE PHILIPPINES:** Bohol, Balicasag I., off Panglao I., tangle nets of local fishermen, Dec.2003: 1 female (ZRC 2008.0914); Mar.2004: 1 male (ZRC 2008.0915). – MUSORSTOM 2: Stn. CP28, 13°41.3'N 120°50.5'E, 90–110m, 23 Nov.1980, on *Antipathes*: 1 male (MNHN-B16926). – MUSORSTOM 3: Stn. CP31, 11°37'N 121°43'E, 120–122 m, 5 Jun.1985: 1 male, 1 female (MNHN-B13921). **PAPUA NEW GUINEA:** Bismarck Archipelago, L. Kirkendale coll.: New Hanover I., 2°40'S 150°11'E, 3–25 m, 1 Jul.2003: 1 male, 1 female (UF 4817). – Milne Bay, fore reef cave, on black coral, 26 m., G. Paulay coll., 5 Jun.1998: 1 male, 1 female (UF 5393). – Louisiade Archipelago, on black coral, 30–40 m, G. Paulay coll., 6 Jun.1998: 1 male, 2 females (UF 3832); 15–25 m, 6 Jun.1998: 1 male (UF 5388). **VANUATU:** SANTO 2006: Stn. AT42, south east of f Urélapa I., 15°37.5'S 167°02.3'E, 112–148 m, 28 Sep.2006: 3 males (MNHN-B31336).

Remarks. – This is the first time the species is recorded from Vanuatu.

Trapezia Latreille, 1828

Remarks. – In addition to the 11 species listed here, *T. flavopunctata* Eydoux & Souleyet, 1842, is known from western New Guinea (Castro, 1999b).

***Trapezia bidentata* (Forskål, 1775)**

? *Trapezia cymodoce ferruginea* – Gordon, 1934: 59 (western New Guinea).
 ? *Trapezia miersi* – Ward, 1941: 15 (Papua New Guinea).

Material examined. – **THE PHILIPPINES:** Luzon, Lucero, north of Dewey, 16°24.45'N 119°54.25'E, 6–7 m, M. Malay coll., 13 Jul.2004: 2 males (UF 8480). **PAPUA NEW GUINEA:** Madang Province, Hansa Bay, Laing I., S. De Grave coll., Sep.1993: Poc 93/28: 1 male, 1 female (ZRC 2008.0325). **VANUATU:** SANTO 2006: Stn. FR32, Palikulo I., 15°27.9'S 167°14.6'E, 6–45 m, 25 Sep.2006: 1 male, 1 female (MNHN-B31337).

Remarks. – This is the first time the species is recorded from the Philippines and Vanuatu. The record by Gordon (1934) could have also belonged to *T. serenei* Odinetz, 1983, or *T. lutea* Castro, 1997.

***Trapezia cymodoce* (Herbst, 1801)**

(Fig. 1C)

Trapezia cymodoce var. *typica* Ortman, 1893: 482 (Kaiser Wilhelms Land [= Papua New Guinea]).

Trapezia cymodoce (?) – Miers, 1886: 166 (the Philippines).

Trapezia cymodoce – Miers, 1878: 409 (the Philippines); Roxas, 1930: 19 (list) (the Philippines); Gordon, 1934: 59 (western New Guinea); Estampador, 1937: 530 (list) (the Philippines); 1959: 86 (list) (the Philippines); Castro, 1997a: 73, Figs. 2A, B, Pls. 2A, 3A (Vanuatu); 1999b: 46 (the Philippines, western New Guinea).

Trapezia coerulea – Odinetz, 1984: 438 (the Philippines).

Material examined. – THE PHILIPPINES: Bohol, Balicasag I., coll. PANGLAO 2004 Expedition: Stn. M5, Doljo Point north, 9°35.5'N 123°43.3'/123°44.3'E, 0–2 m, 31 May 2004: 1 male, 1 female (ZRC 2008.0866); Stn. B2, Panglao I., Alona reef, reef slope, 9°33.0'N 123°46.5'E, 5 m, 31 May 2004: 1 male (ZRC 2008.0875), 1 female (photographed) (ZRC 2008.0917), 1 pre-adult (photographed) (ZRC 2008.0918), 1 pre-adult (ZRC 2008.0864); Stn. B3, Arco Point, base of reef slope, 9°33.5'N 123°48.6'E, 8 m, 31 May 2004: 1 male (ZRC 2008.0919); Stn. B6, Black Forest, coral patches, 9°31.1'N 123°41.3'E, 12–14 m, 4 Jun.2004: 1 male, 1 female (ZRC 2008.0920), 1 male, 4 females (ZRC 2008.0857), 1 male (ZRC 2008.0921), 1 female (photographed) (ZRC 2008.0922); Stn. S3, Balicasag I., Black Forest, edge of reef platform, 9°31.1'N 123°41.3'E, 6 m, 4 Jun.2004: 1 male (ZRC 2008.0865); Stn. B8, Panglao I., Napaling, subtidal reef platform, 9°37.1'N 123°46.1'E, 3 m, 7 Jun.2004: 1 male (photographed) (ZRC 2008.0923), 1 male (ZRC 2008.0871), 1 pre-adult female (ZRC 2008.0924); Stn. B9, Panglao I., Napaling, caves in the reef wall, 9°33.1'N 123°44.0'E, 8–10 m, 8 Jun.2004: 1 pre-adult female (ZRC 2008.0874); Stn. R26, Pamilacan I., ceiling of small cavern, 9°29.4'N 123°56.0'E, 35 m, 9 Jun.2004: 1 pre-adult female (ZRC 2008.0858); Stn. B11, Pamilacan I., coral rubble, 9°29.4'N 123°56.0'E, 4 m, 11 Jun.2004: 1 female (ZRC 2008.0873); Stn. B12, Panglao I., Doljo Point, reef slope, 9°35.6'N 123°43.2'E, 24–27 m, 14 Jun.2004: 1 male, 2 females, 2 pre-adults (ZRC 2008.0868), 1 male, 1 female, 1 pre-adult female (MNHN-B29741); Stn. B14, Panglao I., Sungcolan Bay, coral rubble, 9°38.5'N 123°49.2'E, 2–4 m, 16 Jun.2004: 1 male (ZRC 2008.0863); Stn. B17, Bingag, reef wall, 9°37.5'N 123°46.9'E, 3–21 m, 19 Jun.2004: 1 female (ZRC 2008.0870); Stn. B19, Pamilacan I., reef slope, 9°29.4'N 123°56.0'E, 17 m, 21 Jun.2004: 1 female (ZRC 2008.0862); Stn. P4, Balicasag I., 23 Jun.2004: 5 males, 6 females (ZRC 2008.0925); Stn. B22, Pamilacan I., coral rubble, 9°29.4'N 123°56.0'E, 15–20 m, 24 Jun.2004: 1 male (ZRC 2008.0861); Stn. B23, Balicasag I., Black Forest, coral rubble, 9°31.1'N 123°41.3'E, 20–25 m, 25 Jun.2004: 2 males, 3 females, 2 pre-adults females (ZRC 2008.0859); Stn. B25, Pamilacan I., reef slope, 9°29.4'N 123°56.1'E, 25 Jun.2004: 1 male, 1 female (ZRC 2008.0867); Stn. B39, Panglao I., outside Pontod lagoon, reef wall, 9°32.8'N 123°42.1'E, 17–25 m, 02 Jul.2004: 1 male (ZRC 2008.0860). – “Albatross” Philippine Expedition: Stn. 5211, Masbate I., Cataingan Bay, 11°58'N 124°01'E, 18 Apr.1908: 1 female (USNM 286051). – Luzon, Balayan Bay, 13°51'N 120°47'E, coll. by zoology students, 27 Aug.1927: 9 males, 5 females (USNM 286050). – MUSORSTOM 2: Cagayan de Oro, Ayntala reef, shore collecting, 12 Dec.1980: 1 male, 2 females (MNHN-B9699), 1 male, 1 female (MNHN-B9700). – Basilan Straits, Sulu Archipelago, *Pele*, B. R. Wilson coll., 12 Feb.1964: 1 male (WAM). **PAPUA NEW GUINEA:** Madang Province, Hansa Bay, Laing I., S. De Grave coll., Sep.1993: Poc 1: 1 male, 1 female (ZRC 2008.0397); Poc 4: 3 pre-adults (ZRC 2008.0333); Poc 5: 1 female (ZRC 2008.0378); Poc 9: 1 male, 1 female (ZRC 2008.0336); Poc 13: 1 male, 2 females (ZRC 2008.0336); Poc 14: 1 pre-adult female (ZRC 2008.0345); Poc 15: 1 male, 1 female (ZRC 2008.0337); Poc 16: 1 male, 1 female (ZRC 2008.0390); Poc 18: 1 male, 2 females, 1 pre-adult female, 4 pre-adults (ZRC 2008.0362); Poc 20: 1 pre-adult (ZRC 2008.0367); Poc 21: 1 male, 1 female (ZRC 2008.0359); Poc 22: 1 male, 1 female (ZRC 2008.0379); Poc 26: 1 male, 2 females (ZRC 2008.0339); Poc 29: 1 female (ZRC

2008.0314); Poc 36: 1 male (ZRC 2008.0376); Poc 92/12: 2 male, 1 female (ZRC 2008.0363); Poc 92/19: 1 male (ZRC 2008.0364); Poc 93/6: 1 male, 1 female, 1 pre-adult (ZRC 2008.0393); Poc 93/10: 1 pre-adult (ZRC 2008.0426); Poc 93/34: 2 males, 2 females (ZRC 2008.0380); Poc 93/40: 1 male, 1 female (ZRC 2008.0386); Poc 93/41: 1 pre-adult (ZRC 2008.0410). – Milne Bay, 2–3 m, G. Pauley coll., 7 Jun.1998: 1 female (UF 3840). **VANUATU:** SANTO 2006: Stn. DB14, Segond Channel, 15°30.9'S 167°11'E, 10–14 m, 13 Sep.2006: 1 female, 2 pre-adults (MNHN-B31338); Stn. FR11, Bruat Channel, southwest of Ratua I., 15°36.9'S 167°10.5'E, 6–33 m, 15 Sep.2006: 1 pre-adult (ZRC 2008.0735); Stn. NR08, southwest of Aoré I., 15°35.7'S 167°07.4'E, 11 m, 15 Sep.2006: 1 male, 3 pre-adults (ZRC 2008.0738), 1 male, 1 female (photographed) (ZRC 2008.0740); Stn. ZR01, Segond Channel, northwest Aoré I., 15°33.1'S 167°09.6'E, 8–35 m, 16 Sep.2006: 11 males, 12 females, 13 pre-adults (ZRC 2008.0737); Stn. FR26, Segond Channel, 15°31.7'S 167°09.5'E, 3–33 m, 21 Sep.2006: 6 males, 9 females, 9 pre-adults (MNHN-B31339), 1 female (photographed) (ZRC 2008.0741); Stn. DB53, Palikulo I., 15°28.8'S 167°15.2'E, 5 m, 22 Sep.2006: 1 female (MNHN-B31340); Stn. DB65, Palikulo I., 15°25.8'S 167°13.0'E, 13 m, 26 Sep.2006: 1 female, 2 pre-adults, (ZRC 2008.0739); Stn. FR35, Mavéa I., 15°22.4'S 167°13.0'E, 45 m, 27 Sep.2006: 1 female (MNHN-B31341); Stn. DB75, southeast of Matevulu, Espiritu Santo I., 15°22.9'S 167°11.9'E, 20 m, 28 Sep.2006: 1 female (ZRC 2008.0736); Stn. FR45, Surunda Bay, 15°27'S 167°13.5'E, 0–7 m, 30 Sep.2006: 1 female (MNHN-B31342); Stn. FR55, Segond Channel, 15°31.4'S 167°14.1'E, 20–31 m, 5 Oct.2006: 1 male (MNHN-B31343).

Remarks. – Early records of *T. cymodoce* could have belonged, at least in part, to *T. bidentata* (Forskål, 1775) or *T. lutea* Castro, 1997.

Trapezia digitalis Latreille, 1828

Trapezia digitalis – Cases & Storch, 1981: 19 (the Philippines); Castro, 1999b: 47 (western New Guinea).

Material examined. – THE PHILIPPINES: “Albatross” Philippine Expedition: Stn. 5174, Jolo I., Jolo, 6 Mar.1908: 1 male (USNM). **PAPUA NEW GUINEA:** Madang Province, Hansa Bay, Laing I., S. De Grave coll., Sep.1993: Poc 7: 1 male, 1 female, 1 pre-adult (ZRC 2008.0373); Poc 8: 1 male, 1 pre-adult (ZRC 2008.0329); Poc 29: 1 male (ZRC 2008.0332); Poc 34: 1 pre-adult (ZRC 2008.0316); Poc 93/14: 1 male, 1 female (ZRC 2008.0387); Poc 93/16: 1 male, 1 female (ZRC 2008.0320); Poc 93/42: 1 pre-adult female (ZRC 2008.0349). **VANUATU:** SANTO 2006: Stn. FR32, Palikulo Bay, 15°27.9'S 167°14.6'E, 6–45 m, 25 Sep.2006: 1 pre-adult female (photographed) (ZRC 2008.1140); Stn. FR35, Mavéa I., 15°22.4'S 167°13.0'E, 45 m, 27 Sep.2006: 1 male (photographed) (ZRC 2008.0926).

Remarks. – This is the first time the species is recorded from Vanuatu.

Trapezia formosa Smith, 1869

Material examined. – PAPUA NEW GUINEA: Madang Province, Madang, south of Rasch Passage, 4–33 m, G. J. Morgan coll., 14 Jun.1987: 2 males, 2 females (WAM C24484).

Remarks. – This is the first time the species is recorded from New Guinea.

***Trapezia guttata* Rüppell, 1830**

(Fig. 1E)

Trapezia davaoensis Ward, 1941: 14, Fig. 27 (the Philippines).
Trapezia guttata – Castro, 1997a: 82, Figs. 2B, 4 (Vanuatu); 1997b: 125 (the Philippines); 1999b: 51 (western New Guinea); Ng et al., 2007: Fig. 141, colour photograph (the Philippines).

Material examined. – **THE PHILIPPINES:** Luzon, Bolinao, 16.4397°N 119.9425°E, 4–9 m, 15 Jul.2004: 1 female (UF 6759) – Bohol, Balicasag I., coll. PANGLAO 2004 Expedition: Stn. B6, Black Forest, coral patches, 9°31.1'N 123°41.3'E, 12–14 m, 4 Jun.2004: 3 male, 2 female (ZRC 2008.0855), 2 male, 1 female (photographed) (ZRC 2008.0928); Stn. S3, Balicasag I., Black Forest, edge of reef platform, 9°31.1'N 123°41.3'E, 6 m, 4 Jun.2004: 1 male, 1 female (MNHN-B29742); Stn. B12, Panglao I., Doljo Point, reef slope, 9°35.6'N 123°43.2'E, 24–27 m, 14 Jun.2004: 2 male, 1 female (ZRC 2008.0856); Stn. B23, Balicasag I., Black Forest, coral rubble, 9°31.1'N 123°41.3'E, 20–25 m, 25 Jun.2004: 1 male, 3 female (ZRC 2008.0853); Stn. B39, Panglao I., outside Pontod lagoon, reef wall, 9°32.8'N 123°42.1'E, 17–25 m, 02 Jul.2004: 1 male, 4 female (ZRC 2008.0854). – “Albatross” Philippine Expedition: Stn. 5107, Luzon, Corregidor Lighthouse, 15 Jan.1908: 1 male, 2 females (USNM). – MUSORSTOM 2: Stn. DR73, 13°55'N 120°22'E, 20–21 m, 30 Nov.1980: 1 male, 2 females (MNHN-B17225). **PAPUA NEW GUINEA:** Madang Province, Madang, Jais Aben, G. J. Morgan coll., 14 Jun.1987: 1 female (WAM C18757); Sek I., 17 Jun.1987: 1 male, 1 female (WAM C18730). **VANUATU:** SANTO 2006: Stn. ZR01, Segond Channel, northwest Aoré I., 15°33.1'S 167°9.6'E, 8–35 m, 16 Sep.2006: 1 pre-adult (ZRC 2008.0756); Stn. FR32, Palikulo I., 15°27.9'S 167°14.6'E, 6–45 m, 25 Sep.2006: 1 male, 1 female (ZRC 2008.0758); Stn. DB65, Palikulo I., 15°25.8'S 167°13.0'E, 13 m, 26 Sep.2006: 2 pre-adults (ZRC 2008.0757).

***Trapezia lutea* Castro, 1997**

(Fig. 1D)

Trapezia cymodoce – Cases & Storch, 1981: 19, Fig. 3 (the Philippines).
Trapezia lutea Castro, 1997a: 84, Figs. 2C, D, 3, Pls. 2C, 5A (the Philippines); 1999b: 52 (western New Guinea).

Material examined. – **THE PHILIPPINES:** Bohol, Balicasag I., coll. PANGLAO 2004 Expedition: Stn. B3, Arco Point, base of reef slope, 9°33.5'N 123°48.6'E, 8 m, 31 May 2004: 1 male (ZRC 2008.0849); Stn. B8, Panglao I., Napaling, subtidal reef platform, 9°37.1'N 123°46.1'E, 3 m, 7 Jun.2004: 1 female (ZRC 2008.0931); Stn. B11, Pamilacan I., coral rubble, 9°29.4'N 123°56.0'E, 4 m, 11 Jun.2004: 1 male, 1 female (MNHN-B29743); Stn. R43, Bohol I., Cortes Takot, isolated coral plateau, 9°41.3'N 123°49.5'E, 3–41 m, 13 Jun.2004: 1 pre-adult (ZRC 2008.0850). – “Albatross” Philippine Expedition: Stn. 5109, Luzon, Corregidor Lighthouse, 15 Jan.1908: 2 males, 1 female (USNM); Sulu Archipelago, 19 Feb.1908: 1 female (USNM); Stn. 5174, Jolo I., Jolo, 6 March 1908: 1 female (USNM); Stn. 5462, Luzon, Lagonoy Gulf, Palag Bay, 2–8 m, 16 Jun.1909: 1 female (USNM 65327); no data, 1907-08: 1 female (USNM 65328). – Luzon, Balayan Bay, 13°51'N 120°47'E, coll. by zoology students, 27 Aug.1927: 1 male, 1 female (USNM). – MUSORSTOM 2: Stn. DR73, 13°55'N 120°22'E, 20–21m, 30 Nov.1980: 1 male, 2 females (MNHN-B16925). – MUSORSTOM 3: Stn. DR104, 13°56'N 120°22'E, 13 m, 1 Jun.1985: 1 male (MNHN-B13919). **PAPUA NEW GUINEA:** Madang Province, Hansa Bay, Laing I., S. De Grave coll., Sep.1993: Poc 1: 1 pre-adult female (ZRC 2008.0388); Poc 4: 1 pre-adult (ZRC 2008.0409); Poc 6: 1

male, 1 female (ZRC 2008.0372); Poc 7: 1 male, 1 female (ZRC 2008.0374); Poc 18: 1 female (ZRC 2008.0356); Poc 24: 1 male (ZRC 2008.0400); Poc 25: 1 female (ZRC 2008.0365); Poc 27: 1 male (ZRC 2008.0342); Poc 29: 1 male, 2 females (ZRC 2008.0318); Poc 33: 1 male, 1 female (ZRC 2008.0353); Poc 34: 1 male, 2 females (ZRC 2008.0319); Poc 35: 1 male, 1 female (ZRC 2008.0394); Poc 39: 1 male, 1 female, 1 pre-adult female (ZRC 2008.0338); Poc 92/12: 1 male, 1 female (ZRC 2008.0370); Poc 92/31: 1 male, 1 female (ZRC 2008.0405); Poc 92/37: 1 male, 1 female (ZRC 2008.0348); Poc 93/16: 2 males, 2 females (ZRC 2008.0321); Poc 93/28: 1 male, 1 female (ZRC 2008.0324); Poc 93/41: 1 male, 1 female (ZRC 2008.0344); Poc 93/42: 1 female (ZRC 2008.0346). – Bismarck Archipelago, Massong I., 1°57.36'S 146°28.55'E, 3–30 m, L. Kirkendale coll., 28 Jun.2003: 1 male, 1 female (UF 5346). **VANUATU:** SANTO 2006: Stn. DB08, east Aoré I., 15°34.6'S 167°13.8'E, 12 m, 12 Sep.2006: 1 male (ZRC 2008.0766), 1 female (photographed) (ZRC 2008.0760); Stn. ZR01, Segond Channel, northwest Aoré I., 15°33.1'S 167°9.6'E, 8–35 m, 16 Sep.2006: 1 male (ZRC 2008.0759), 1 male (photographed) (MNHN-B31348); Stn. FR26, Segond Channel, 15°31.7'S 167°09.5'E, 3–33 m, 21 Sep.2006: 1 female (MNHN-B31347); Stn. DR55, Palikulo I., 15°28.8'S 167°15.2'E, 3–7 m, 22 Sep.2006: 1 male (MNHN-B31345); Stn. DB53, Palikulo I., 15°28.8'S 167°15.2'E, 5 m, 22 Sep.2006: 1 male, 3 females (ZRC 2008.0931), 1 female (MNHN-B31350); Stn. FR32, Palikulo I., 15°27.9'S 167°14.6'E, 6–45 m, 25 Sep.2006: 1 male, 1 female (ZRC 2008.0761); Stn. DB65, Palikulo I., 15°25.8'S 167°13.0'E, 13 m, 26 Sep.2006: 1 male (MNHN-B31346); Stn. DB71, south Turtle I., 15°21.6'S 167°12.5'E, 7 m, 27 Sep.2006: 1 male, 1 female (MNHN-B31349); Stn. DB86, northeast Malo I., 15°38.5'S 167°15.1'E, 13 m, 04 Oct.2006: 1 male (MNHN-B31344); Stn. FB64, Tangoa I., 15°35.4'S 166°59.2'E, 4 m, 10 Oct.2006: 4 males (ZRC 2008.0932), 1 male, 3 females (ZRC 2008.0763); Stn. FB72, Elia I., 15°36.1'S 166°58.5'E, 16 m, 12 Oct.2006: 3 males, 3 females, 2 pre-adults (ZRC 2008.0765).

Remarks. – This is the first time the species is recorded from Vanuatu.

***Trapezia plana* Ward, 1941**

Trapezia plana Ward, 1941: 14, Fig. 28 (the Philippines); Castro, 2002: 364 (the Philippines).

Material examined. – **PAPUA NEW GUINEA:** Madang Province, Hansa Bay, Laing I., S. De Grave coll., Sep.1993: Poc 93/13: 1 male, 1 female (ZRC 2008.0384).

Remarks. – This is the first time the species is recorded from New Guinea.

***Trapezia rufopunctata* (Herbst, 1799)**

(Figs. 1F, 2A)

Trapezia rufopunctata – Roxas, 1930: 19 (list) (the Philippines); Estampador, 1937: 531 (list) (the Philippines); 1959: 86 (list) (the Philippines); Galil & Lewinsohn, 1985: 209, Figs. 1–5 (the Philippines).

Material examined. – **THE PHILIPPINES:** “Albatross” Philippine Expedition: station 5109, Corregidor Lighthouse, 15 Jan.1907: 1 male, 1 female (USNM 285914). **PAPUA NEW GUINEA:** Madang Province, Madang, south of Rasch Passage, 4–33 m, G. J. Morgan coll., 21 Jun.1987: 1 male, 1 female (WAM C18751); 28 Jun.1987:

1 female (WAM C18741). VANUATU: SANTO 2006: station ZR04, Segond Channel, northwest Aoré I., 15°33.1'S 167°09.6'E, 0–45 m, 17 Sep.2006: 1 pre-adult male (photographed) (MNHN-B31351); station FR26, Segond Channel, 15°31.7'S 167°09.5'E, 3–33 m, 21 Sep.2006: 1 male, 2 females (MNHN-B31352).

Remarks. – This is the first time the species is recorded from New Guinea and Vanuatu.

Trapezia septata Dana, 1852
(Fig. 2C)

Trapezia septata (var. ?) Dana, 1852b: 260 (the Philippines).
Trapezia areolata – Ortmann, 1893: 482 (Kaiser Wilhems Land [= Papua New Guinea]); Roxas, 1930: 19 (list) (the Philippines); Estampador, 1937: 531 (list) (the Philippines); 1959: 86 (list) (the Philippines).

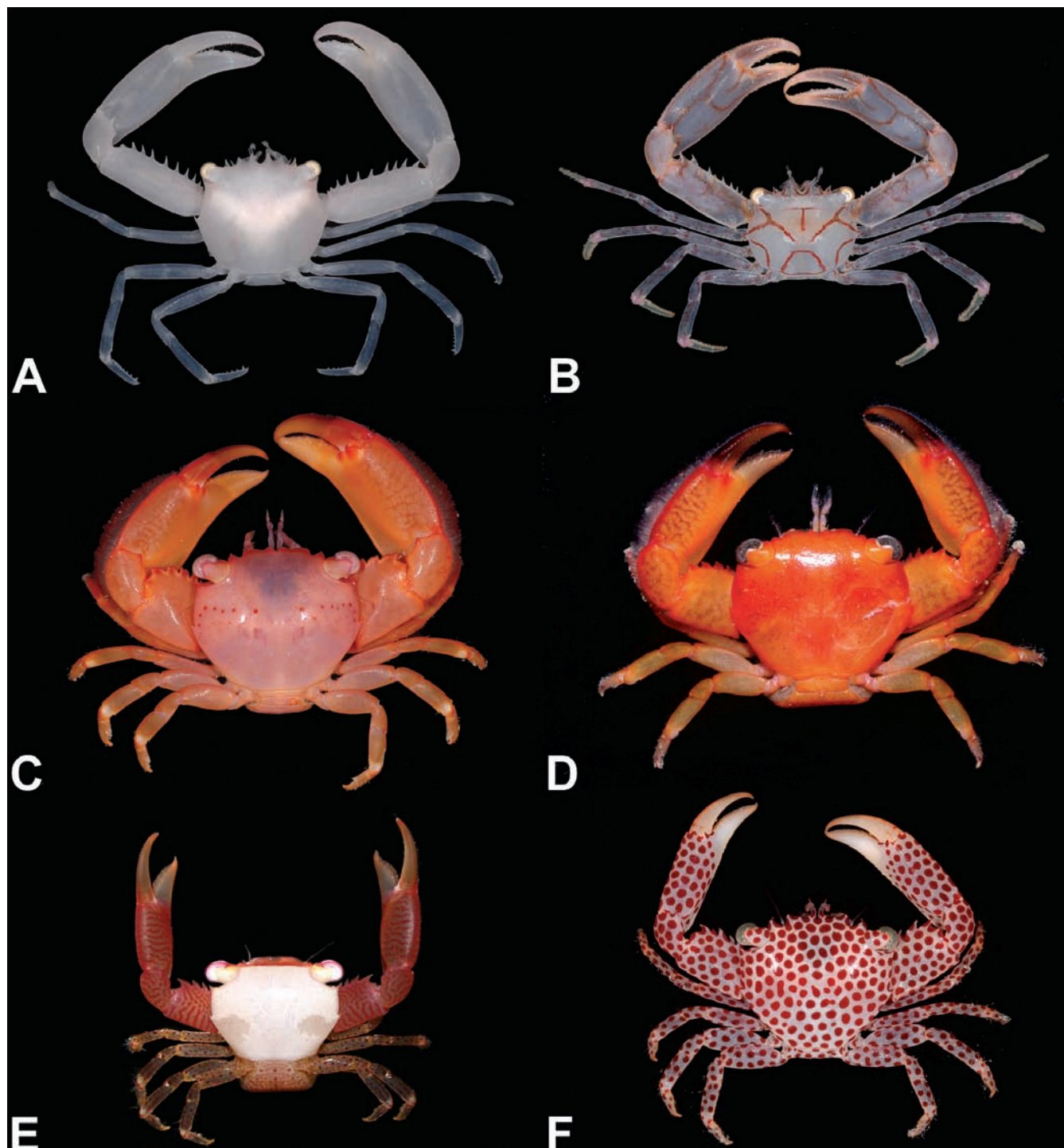


Fig. 1. A, *Quadrella coronata* Dana, 1852, male (cl 7.4 mm, cw 8.9 mm), MNHN-B31333, SANTO 2006, Vanuatu; B, *Quadrella maculosa* Alcock, 1898, male (specimen photographed in the field [station AT42]; not available), SANTO 2006, Vanuatu; C, *Trapezia cymodoce* (Herbst, 1801), female (cl 10.0 mm, cw 12.1 mm), ZRC 2008.0741, SANTO 2006, Vanuatu; D, *Trapezia lutea* Castro, 1997, female (specimen photographed in the field [station B3]; not available), PANGLAO 2004, Philippines; E, *Trapezia guttata* Rüppell, 1830, female (specimen photographed in the field [station B4]; not available), PANGLAO 2004, Philippines; F, *Trapezia rufopunctata* (Herbst, 1799), male (specimen photographed in the field [station DR74]; not available), SANTO 2006, Vanuatu.

Trapezia cymodoce areolata – Gordon, 1934: 59 (western New Guinea).

Trapezia reticulata – Odinetz, 1984: 444 (the Philippines).

Trapezia septata – Castro, 1997a: 82, Figs. 2B, 4 (Vanuatu); 1997b: 54 (western New Guinea). – Castro et al., 2004: 53 (the Philippines).

Material examined. – **THE PHILIPPINES:** Bohol, Balicasag I., coll. PANGLAO 2004 Expedition: Stn. B8, Panglao I., Napaling, subtidal reef platform, 9°37.1'N 123°46.1'E, 3 m, 7 Jun.2004: 1 female (photographed) (ZRC 2008.0933); Stn. B11, Pamilacan I., coral rubble, 9°29.4'N 123°56.0'E, 2–4 m, 11 Jun.2004: 1 female (ZRC 2008.0848). – “Albatross” Philippine Expedition: Stn. 5109, Luzon, Corregidor Lighthouse, 15 Jan.1908: 1 female (USNM), 1 female (USNM). – Luzon, Balayan Bay, 13°51'N 120°47'E, coll. by zoology students, 27 Aug.1927: 1 female (USNM). – MUSORSTOM 2: Stn. 73, 13°55'N 120°22'E, 30 Nov.1980: 1 male, 1 female (MNHN-B17224); Stn. DR73, 13°55'N 120°22'E, 20–21 m, 30 Nov.1980: 1 male, 1 female (MNHN-B17224). – MUSORSTOM 3: Stn. DR104, 13°56'N 120°22'E, 13 m, 1 Jun.1985: 1 male (MNHN-B17222). **PAPUA NEW GUINEA:** Madang Province, Hansa Bay, Laing I., S. De Grave coll., Sep.1993: Poc 4: 1 pre-adult (ZRC 2008.0328); Poc 6: 1 male, 1 female (ZRC 2008.0371); Poc 8: 4 male, 1 female, 1 pre-adult (ZRC 2008.0330); Poc 10: 1 male, 1 female (ZRC 2008.0335); Poc 18: 1 pre-adult male (ZRC 2008.0358); Poc 24: 1 male (ZRC 2008.0399); Poc 27: 1 male, 1 female (ZRC 2008.0341); Poc 29: 2 males, 2 females, 1 pre-adult (ZRC 2008.0313); Poc 33: 2 pre-adults (ZRC 2008.0407); Poc 34: 1 male, 3 females (ZRC 2008.0317); Poc 39: 1 male, 1 female (ZRC 2008.0354); Poc 92/12: 1 male, 1 female (ZRC 2008.0391); Poc 92/31: 1 male (ZRC 2008.0357); Poc 92/38: 1 male (ZRC 2008.0368); Poc 93/14: 1 male, 1 female (ZRC 2008.0398); Poc 93/16: 1 male, 2 females, 2 pre-adults (ZRC 2008.0322); Poc 93/22: 1 male, 1 female, 1 pre-adult male (ZRC 2008.0361); Poc 93/41: 1 pre-adult (ZRC 2008.0410); Poc 93/42: 1 male, 1 female, 2 pre-adults (ZRC 2008.0369). **VANUATU:** SANTO 2006: Stn. DB08, east Aoré I., 15°34.6'S 167°13.8'E, 12 m, 12 Sep.2006: 1 male (MNHN-B31353), 1 male (photographed) (ZRC 2008.0771); Stn. FR06, northwest Tutuba I., 15°32.6'S 167°16.9'E, 3–37 m, 13 Sep.2006: 1 male (ZRC 2008.0770), 1 female (MNHN-B31354); Stn. FR07, north Tutuba I., 15°32.5'S 167°16.9'E, 3–32 m, 13 Sep.2006: 1 female (photographed) (ZRC 2008.0762); Stn. FR11, Bruat Channel, southwest of Ratua I., 15°36.9'S 167°10.5'E, 6–33 m, 15 Sep.2006: 1 pre-adult (ZRC 2008.0744); Stn. NR08, southwest of Aoré I., 15°35.7'S 167°07.4'E, 11 m, 15 Sep.2006: 4 males, 2 females, 2 pre-adults (MNHN-B31355), 2 males, 2 females, 2 pre-adults (ZRC 2008.0743); Stn. ZR01, Segond Channel, northwest Aoré I., 15°33.1'S 167°9.6'E, 8–35 m, 16 Sep.2006: 1 pre-adult (ZRC 2008.0768); Stn. FR26, Segond Channel, 15°31.7'S 167°09.5'E, 3–33 m, 21 Sep.2006: 1 male, 2 females (MNHN-B31356); Stn. FR32, Palikulo I., 15°27.9'S 167°14.6'E, 6–45 m, 25 Sep.2006: 1 female (ZRC 2008.0742); Stn. FR35, Mavéa I., 15°22.4'S 167°13.0'E, 45 m, 27 Sep.2006: 1 male (MNHN-B31357); Stn. DB71, south Turtle I., 15°21.6'S 167°12.5'E, 7 m, 27 Sep.2006: 1 female (MNHN-B31358); Stn. DB75, southeast of Matevulu, Espiritu Santo I., 15°22.9'S 167°11.9'E, 20 m, 28 Sep.2006: 2 females (ZRC 2008.0764); Stn. LD08, between Santo and Malparavu Is, 15°22.3'S 167°11.3'E, 2–4 m, 28 Sep.2006: 1 male (ZRC 2008.0769); Stn. DB80, Bruat Channel, 15°37.1'S 167°07.5'E, 18 m, 2 Oct.2006: 1 female (MNHN-B30766); Stn. FB61, Port Benier, Aoré I., 15°34.4'S 167°12.6'E, 2–3 m, 07 Oct.2006: 1 female (photographed) (ZRC 2008.0767); Stn. FB64, Tangoa I., 15°35.4'S 166°59.2'E, 4 m, 10 Oct.2006: 1 male (MNHN-B31359), 1 pre-adult (ZRC 2008.0772); Stn. FB72, Elia I., 15°36.1'S 166°58.5'E, 16 m, 12 Oct.2006: 4 males, 2 females (MNHN-B31360).

Trapezia serenei Odinetz, 1983

(Fig. 2D)

? *Trapezia cymodoce* var. *dentata* – Estampador, 1937: 531 (list) (the Philippines); 1959: 86 (list) (the Philippines).

Trapezia serenei – Castro, 1997a: 92, Pl. 2F (the Philippines).

Material examined. – **THE PHILIPPINES:** Bohol, Balicasag I., coll. PANGLAO 2004 Expedition: Stn. B8, Napaling, 7 Jun.2004: 1 female (photographed) (ZRC 2008.0935); Stn. B14, Panglao I., Sungcolan Bay, coral rubble, 9°38.5'N 123°49.2'E, 2–4 m, 16 Jun.2004: 1 male, 1 female (ZRC 2008.0847). **PAPUA NEW GUINEA:** Madang Province, Hansa Bay, Laing I., S. De Grave coll., Sep.1993: Poc 1: 1 male (ZRC 2008.0381); Poc 2: 1 male, 1 female (ZRC 2008.0396); Poc 4: 1 male, 1 female (ZRC 2008.0327); Poc 8: 5 males, 3 females (ZRC 2008.0334); Poc 10: 1 pre-adult female (ZRC 2008.0331); Poc 11: 1 male, 1 female (ZRC 2008.0392); Poc 14: 1 male, 1 female (ZRC 2008.0385); Poc 17: 1 male (ZRC 2008.0402); Poc 24: 1 male, 1 female (ZRC 2008.0401); Poc 27: 1 male (ZRC 2008.0340); Poc 28: 1 male, 1 female (ZRC 2008.0350); Poc 29: 1 male (ZRC 2008.0312); Poc 30: 1 male (ZRC 2008.0404); Poc 34: 1 male (ZRC 2008.0315); Poc 92/12: 2 males, 1 female (ZRC 2008.0360); Poc 92/38: 1 male, 1 female (ZRC 2008.0377); Poc 93/9: 1 male, 1 female (ZRC 2008.0383); Poc 93/10: 1 male, 1 female (ZRC 2008.0395); Poc 93/16: 2 males, 1 female (ZRC 2008.0323); Poc 93/41: 1 male, 1 female (ZRC 2008.0343). **VANUATU:** SANTO 2006: Stn. FR26, Segond Channel, 15°31.7'S 167°09.5'E, 3–33 m, 21 Sep.2006: 1 male (ZRC 2008.0734); Stn. FB61, Port Benier, Aoré I., 15°34.4'S 167°12.6'E, 2–3 m, 07 Oct.2006: 1 male, 1 female (MNHN-B31361).

Remarks. – This is the first time the species is recorded from New Guinea and Vanuatu. Philippine records of *T. cymodoce* var. *dentata* listed by Estampador (1937) could have belonged to *T. bidentata* (Forskål, 1775), *T. lutea* Castro, 1997, or *T. serenei* Odinetz, 1983.

Trapezia tigrina Eydoux & Souleyet, 1842

(Fig. 2B)

Trapezia wardi – Cases & Storch, 1981: 18 (the Philippines).

Trapezia tigrina – Galil & Lewinsohn, 1984: 166, Fig. 1 (the Philippines); Castro, 1999b: 55 (western New Guinea).

Material examined. – **THE PHILIPPINES:** Bohol, Balicasag I., coll. PANGLAO 2004 Expedition: Stn. R59, Momo Beach, 2–20 m, 22 Jun.2004: 1 female (ZRC 2008.0936); Stn. B11, Pamilacan I., coral rubble, 9°29.4'N 123°56.0'E, 4 m, 11 Jun.2004: undet. sex (exoskeleton) (ZRC 2008.0937); Stn. D9, Pamilacan I., 9°30.0'N 123°55.3'E, coral and white sand, 2–4 m, 11 Jun 2004: 1 female (photographed) (ZRC 2008.0938); Stn. R47, Panglao I., Sungcolan, reef wall, 9°38.8'N 123°49.2'E, 4–25 m, 16 Jun.2004: 1 male, 1 female (MNHN-B29744); Stn. P4, Balicasag I., 23 Jun.2004: 1 male, 1 female (ZRC 2008.0939). – “Albatross” Philippine Expedition: Stn. 5109, Corregidor Lighthouse, 15 Jan.1907: 1 male, 1 female (USNM 286024); Stn. 5386, southwestern Luzon I., Ragay Bay, 10 Mar.1909: 1 male, 1 female (USNM). – Luzon, Balayan Bay, 13°51'N 120°47'E, coll. by zoology students, 27 Aug.1927: 2 females (USNM). **PAPUA NEW GUINEA:** Madang Province, Hansa Bay, Laing I., S. De Grave coll., Sep.1993: Poc 1: 1 pre-adult (ZRC 2008.0382); Poc 3: 1 male, 1 female (ZRC 2008.0351); Poc 15: 1 pre-adult (ZRC 2008.0408); Poc 17: 1 male (ZRC 2008.0403); Poc 18: 1 male, 1 female, 1 pre-adult female (ZRC 2008.0352); Poc 21: 1 female, 1 pre-adult (ZRC 2008.0375); Poc 92/19: 1 male, 1 female

(ZRC 2008.0355); Poc 93/28: 1 pre-adult (ZRC 2008.0326); Poc 93/40: 1 male, 1 female (ZRC 2008.0389). **VANUATU**: Stn. FR26, Second Channel, 15°31.7'S 167°09.5'E, 3–33 m, 21 Sep.2006: 1 pre-adult male (photographed) (ZRC).

Remarks. – *Trapezia tigrina* is found throughout most of the Indo-West Pacific region but this is its first record from Vanuatu and the Coral Sea region. The specimen from Vanuatu (cl 4.1 mm, cw 5.4 mm; ZRC; Fig. 2B) is a pre-adult but it can be distinguished from a pre-adult *T. rufopunctata* also from Vanuatu that has similar orange-red dots and is almost identical in size (cl 4.3 mm, cw 5.5 mm; MNHN-B31351; Fig. 2A) by having short, rounded frontal teeth and microscopic granules on the lower margin of the cheliped propodus (more prominent, acute frontal teeth and two rows of thick, teeth-like granules along the lower margin of the cheliped propodus in *T. rufopunctata*; see Galil & Lewinsohn, 1985; Castro, 1997b).

TETRALIIDAE Castro, Ng & Ahyong, 2002

Remarks. – No tetraliids were collected by S. De Grave in Papua New Guinea since only *Pocillopora* corals were sampled and tetraliids are normally restricted to species of *Acropora*.

Tetralia Dana, 1851

Tetralia aurantistellata Trautwein, 2007

(Fig. 2E)

Tetralia aurantistellata Trautwein, 2007: 3, Pl. 2, Pl. 6A, Pl. 7A, Pl. 8A (the Philippines).

Material examined. – **VANUATU**: SANTO 2006: Stn. FR20, east Aoré I., Aimbué Bay, 15°33.1'S 167°12.4'E, 3–52 m, 19 Sep.2006: 4 males, 3 females, 1 pre-adult (MNHN-B31321), 1 male, 1 female (ZRC 2008.0777); Stn. DB65, Palikulo I., 15°25.8'S 167°13.0'E, 13 m, 26 Sep.2006: 2 pre-adult males, 1 pre-adult female (ZRC 2008.0778); unknown Stn., 22 Sep.2006: 2 pre-adults (ZRC 2008.0940).

Remarks. – This is the first time the species is recorded from Vanuatu. It was previously known from the Philippines, Loyalty Is, and Fiji (Trautwein, 2007).

Tetralia cincipes Paul'son, 1875

Tetralia cincipes – Galil, 1986b: 97, Figs. 1-3 (the Philippines); Castro, 1997a: 64 (Papua New Guinea).

Material examined. – **THE PHILIPPINES**: “Albatross” Philippine Expedition: Stn. 5473, eastern Luzon, Rapu Rapu I., 13°24'S 124°02'E, 3–4 m, 22 Jun.1909: 3 males, 2 females (USNM 65329).

Tetralia glaberrima (Herbst, 1790)

? *Tetralia glaberrima* – Gordon, 1934: 60 (western New Guinea); Garth & Kim, 1983: 711 (the Philippines).

Tetralia fulva – Galil, 1988: 62 (western New Guinea); Castro, 1997a: 65, Pl. 1C (Vanuatu).

Tetralia aurantistellata – Ng et al., 2007: Fig. 139, colour photograph (the Philippines).

Material examined. – **THE PHILIPPINES**: Luzon, Pangasinan Province, Trinchera, 16.3957°N, 119.9015°E, 4–9 m, M. Malay coll., 21 Jul.2004: 1 male (UF 6746). – “Albatross” Philippine Expedition: Sulu Archipelago, Marongas Is., near Jolo, 19 Feb.1908: 3 males, 1 female (USNM). **VANUATU**: SANTO 2006: Stn. DR03-CF11, Second Channel, 15°31.0'S 167°15.8'E, 2–30 m, 10 Sep.2006, 1 female (photographed) (MNHN-B31322); Stn. DB08, east Aoré I., 15°34.6'S 167°13.8'E, 12 m, 12 Sep.2006: 1 male (photographed) (ZRC 2008.0782); Stn. FR07-HH07, north Tutuba I., 15°32.5'S 167°16.9'E, 3–32 m, 13 Sep.2006: 1 male (photographed) (MNHN-B31327); Stn. ZR01, Second Channel, northwest Aoré I., 15°33.1'S 167°9.6'E, 8–35 m, 16 Sep.2006: 4 males, 2 females (ZRC 2008.0783); Stn. DB33, east Aoré I., 15°34.7'S 167°13.8'E, 14–25 m, 18 Sep.2006: 1 male (MNHN-B31325); Stn. FR26, Second Channel, 15°31.7'S 167°09.5'E, 3–33 m, 21 Sep.2006: 1 female (ZRC 2008.0781); Stn. DB65, Palikulo I., 15°25.8'S 167°13.0'E, 13 m, 26 Sep.2006: 1 female, 2 pre-adults, (MNHN-B31326); Stn. DB71, south Turtle I., 15°21.6'S 167°12.5'E, 7 m, 27 Sep.2006: 1 male (ZRC 2008.0784); Stn. FB56, northeast Tangisi I., 15°35.2'S 167°02.1'E, 3–18 m, 07 Oct.2006: 1 female (MNHN-B31323); Stn. FB64, Tangoa I., 15°35.4'S 166°59.2'E, 4 m, 10 Oct.2006: 1 male (MNHN-B31324); Stn. FB72, Elia I., 15°36.1'S 166°58.5'E, 16 m, 12 Oct.2006: 1 male (ZRC 2008.0780); unknown Stn. 22 Sep.2006: 1 male, 1 female, 2 pre-adults (ZRC 2008.0941).

Remarks. – The records from western New Guinea by Gordon (1934) and the Philippines by Garth & Kim (1983) could have belonged to any of the other species of *Tetralia* and *Tetraloides* originally grouped under *T. glaberrima*.

Tetralia nigrolineata Serène & Pham, 1957

(Fig. 2F)

Material examined. – **THE PHILIPPINES**: Bohol, Balicasag I., coll. PANGLAO 2004 Expedition: Stn. B16, Panglao I., Bingag, coral rubble, 9°37.6'N 123°47.3'E, 20 m, 17 Jun.2004: 1 male (ZRC 2008.0852); Stn. B36, Panglao I., north of Doljo, 9°35.9'N 123°44.5'E, 24 m, 01 Jul.2004: 1 male (ZRC 2008.1141). – “Albatross” Philippine Expedition: eastern Luzon, Rapu Rapu I., 22 Jun.1909: 1 male, 1 female (USNM 260873). **PAPUA NEW GUINEA**: Madang Province, Madang, Jais Aben, G. J. Morgan coll., 14 Jun.1987: 1 female (WAM C18756); Wongat I., 5–23 m, 17 Jun.1987: 1 male, 1 female (WAM C18739). **VANUATU**: SANTO 2006: Stn. FR20, east Aoré I., Aimbué Bay, 15°33.1'S 167°12.4'E, 3–52 m, 19 Sep.2006: 2 males, 4 females, 1 pre-adult (ZRC 2008.0779); Stn. DR50, west Malo I., 15°38.7'S 167°05.2'E, on unidentified alcyonacean, 10–17 m, 21 Sep.2006: 1 pre-adult (photographed) (ZRC 2008.0243); Stn. FR26, Second Channel, 15°31.7'S 167°09.5'E, 3–33 m, 21 Sep.2006: 1 male (MNHN-B31328); Stn. DB65, Palikulo I., 15°25.8'S 167°13.0'E, 13 m, 26 Sep.2006: 1 male, 1 female (MNHN-B31331); Stn. DB71, south Turtle I., 15°21.6'S 167°12.5'E, 7 m, 27 Sep.2006: 1 pre-adult (MNHN-B31329); Stn. DB77, Palikulo I., 15°27.9'S 167°14.7'E, 42–45 m, 29 Sep.2006: 1 male, 1 female (MNHN-B31330); unknown Stn., 22 Sep.2006: 1 male, 1 female (ZRC 2008.0943).

Remarks. – This is the first time the species is recorded from the Philippines, New Guinea, and Vanuatu. The collection of a small pre-adult on an alcyonacean (Fig. 2F) instead of *Acropora*, the normal host of *Tetralia*, suggests that the host specificity of the megalopa is not necessarily a strict one. The alcyonacean appears to be undescribed species of Melithaeidae.

***Tetralia rubridactyla* Garth, 1971**

Tetralia rubridactyla – Castro, 1999b: 42 (Papua New Guinea).
Tetralia cf. *rubridactylus* – Ng et al., 2007: Fig. 138, colour photograph (the Philippines).

Material examined. – PAPUA NEW GUINEA: Madang Province, Tab I., G. J. Morgan coll., 14 Jun.1987: 1 male, 3 females (WAM

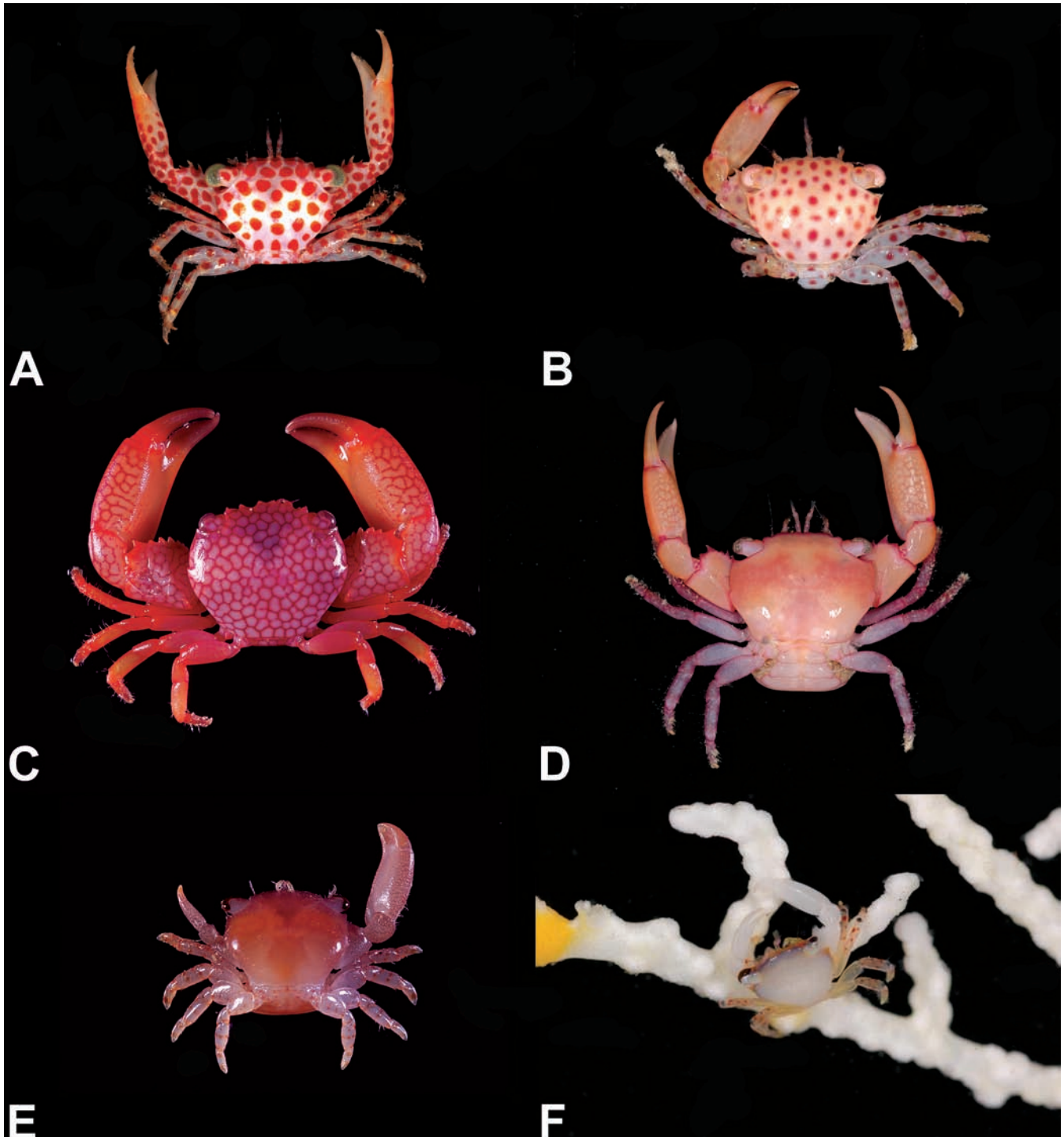


Fig. 2. A, *Trapezia rufopunctata* (Herbst, 1799), pre-adult (cl 4.3 mm, cw 5.5 mm), MNHN-B31351, SANTO 2006, Vanuatu; B, *Trapezia tigrina* Eydoux & Souleyet, 1842, pre-adult (cl 4.1 mm, cw 5.4 mm), ZRC, SANTO 2006, Vanuatu; C, *Trapezia septata* Dana, 1852, male (specimen photographed in the field [station B11]; not available), PANGLAO 2004, Philippines; D, *Trapezia serenei* Odinetz, 1983, male (specimen photographed in the field [station DB29]; not available), SANTO 2006, Vanuatu; E, *Tetralia aurantistellata* Trautwein, 2007, female (specimen photographed in the field [station S15]; not available), PANGLAO 2004, Philippines; F, *Tetralia nigrolineata* Serène & Pham, 1957, pre-adult (cl 2.0 mm, cw 2.6 mm) on an alcyonacean, ZRC 2008.0243, SANTO 2006, Vanuatu.

Table 1. Geographical distribution of shallow-water species of Trapeziidae and Tetraliidae in the Indo-Malayan region, Coral Sea, and adjacent regions.

	The Philippines	Taiwan ¹	Indonesia ²	New Guinea ³	Vanuatu	New Caledonia ⁴	Northern Australia ⁵
<i>Quadrella</i>	4	2	4	4	3	2	3
<i>Trapezia</i>	10	13	13	12	9	11	10
<i>Tetralia</i>	5	4	4	4	4	5	6
<i>Tetraloides</i>	1	2	1	2	1	2	2

¹Ng et al. (2001) and unpublished data.

²Castro (1996b); not including Papua and West Papua provinces.

³Papua New Guinea and western New Guinea (Indonesian provinces of Papua and Western Papua).

⁴Revised list of Ng & Richer de Forges (2007); including Loyalty Is.

⁵Castro & Titelius (2007), Poore et al. (2008); including Queensland and Western Australia to Dampier Archipelago.

C18736). – **VANUATU**: SANTO 2006: Stn. FR07, north Tutuba I., 15°32.5'S 167°16.9'E, 3–32 m, 13 Sep.2006: 1 male, 1 female (photographed) (MNHN-B31332).

Remarks. – This is the first time the species is recorded from Vanuatu.

Tetraloides Galil, 1986

Tetraloides heterodactyla (Heller, 1861)

Material examined. – **PAPUA NEW GUINEA**: Madang Province, Tab I., G. J. Morgan coll., 14 Jun.1987: 1 male (WAM C18734).

Remarks. – This is the first time the species is recorded from New Guinea.

Tetraloides nigrifrons (Dana, 1852)

Tetraloides nigrifrons – Castro, 1997a: 72, Pl. 1F (Vanuatu).

Material examined. – **THE PHILIPPINES**: Luzon, near Mariveles, A. M. Reese coll.: 1 female (USNM). **PAPUA NEW GUINEA**: Madang Province, Tab I., G. J. Morgan coll., 14 Jun.1987: 1 female (WAM C18737).

Remarks. – This is the first time the species is recorded from the Philippines and New Guinea.

BIOGEOGRAPHICAL IMPLICATIONS

The geographical distribution of shallow-water Trapeziidae (i.e. excluding species of *Calocarcinus*, *Philippicarcinus*, and *Sphenomerides*) and Tetraliidae (Table 1) does not support the view that the Indo-Malayan region or the Indo-Australian Archipelago have served, as in reef corals (e.g. Hoeksema, 2007) and coral reef organisms (e.g. Reaka et al., 2008), as a centre of diversification for these two families (see Castro, 2000b). There is no clear decrease in the number of species thus far recorded from the Philippines and Indonesia in a northern (Taiwan) or southern (northern Australia) direction as well as in a southwestern direction along the Coral Sea

arch formed by New Guinea, Vanuatu and New Caledonia. There are actually more shallow-water species of Trapeziidae in French Polynesia than in the Indo-Malayan region due to the higher number of peripheral endemics, a total of four species (Castro, 2000b). A species of *Trapezia* appears to be endemic to Taiwan. The only possible exception of a decrease in species diversity away from the Indo-Malayan region is *Quadrella*, four species of which are found each in the Philippines, Indonesia, and New Guinea, but three each in Vanuatu, and northern Australia and two each in Taiwan and New Caledonia.

An analysis of the biogeography of trapezoid crabs of southern Viet Nam using cluster analysis (Marin & Spiridonov, 2007) showed that the Viet Nam assemblage of species was more related to that in the Indian Ocean rather than to those in neighbouring areas. It was speculated that there are no clear faunal subdivisions for the Indo-West Pacific trapezioids and that factors affecting local coral reef communities are instead more influential.

The number of species thus far listed from all of the locations that were studied and those elsewhere has been obviously influenced by the frequency of collection as well as by the methodology used in sampling the coral hosts and in the identification of the coral crabs. A more rigorous collection of corals and other colonial anthozoans, particularly in the Philippines and Vanuatu, will undoubtedly reveal additional species of both trapeziids and tetraliids.

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