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FIRST RECORD OF *EPIGRAPSUS POLITUS* HELLER, 1862 FROM
RÉUNION ISLAND (DECAPODA, BRACHYURA, GECARCINIDAE)

BY

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The gecarcinids of the genus *Epigrapsus* are terrestrial crabs of the tropical Indo-West Pacific, with only two species currently accepted (Ng et al., 2008; Naruse et al., 2018; Sasaki, 2019): *Epigrapsus politus* Heller, 1862, type locality Tahiti, and *Epigrapsus notatus* (Heller, 1865), type locality Nicobar Islands. These crabs are the smallest gecarcinids, carapace width (CW) being usually no more than 2-3 cm. They occupy a narrow coastal band, a few metres above the supratidal level. Although being probably common in the Indo-West Pacific, they are rarely reported because of a lack of interest in these crabs as human food, and their discreet way of life, remaining hidden under stones or vegetation during daytime. Here, we report for the first time the presence of *E. politus* on Réunion Island, a significant geographic range extension of this species in the Western Indian Ocean (WIO).

Epigrapsus crabs have been searched in Réunion Island during two dedicated land investigations at the stations mapped on fig. 1. A first investigation was made by the second author (JP) in March-April 2008 on the southwestern coast, between Saint Gilles-Les-Bains and Saint Joseph (fig. 1, circles; details of stations in Poupin, 2009: 116, Annexe 1, stations 1, 2, 6, 7, 10, 14, 16). A second investigation was made in November 2019 on the same coast by the first author (NH) between Saint-Leu and Saint-Philippe (fig. 1, squares) with 8 stations visited (from north to south): (1) Pointe au Sel, (2) Terre Sainte, (3) Grand Bois, (4) Grande Anse, (5) Manapany-Les-Bains, (6) Pointe Cayenne to (7) Piton Babet, and (8) Pointe Marine Vincenzo. *Epigrapsus* crabs were found only during the second investigation and only at Manapany-Les-Bains (fig. 1, black square, 5). A dozen crabs were seen in that place during three successive visits. Two

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Fig. 1. Places prospected for *Epigrapsus* crabs around La Réunion in 2008 (white circles, unnumbered) and 2019 (squares, 1 to 8). *Epigrapsus politus* Heller, 1862 was found only at Manapany-Les-Bains (black square, 5).

specimens were collected for morphological observations: 1 male 13.7×16.2 mm (carapace length $\times$ CW) (fig. 2), and 1 female 15.3×18.7 mm. After observations and macro photographs, they have been deposited and registered in the collection of the Muséum national d'Histoire naturelle, Paris (MNHN-IU-2013-7280).

The crabs were identified as *E. politus*, based on morphological characters presented in Ng et al. (1988, table 1) and in the key to Japanese Gecarcinidae in Ng et al. (2000), including: (a) carapace poorly convex with posterolateral margins converging towards posterior carapace (fig. 2a, b); (b) single low epibranchial notch (fig. 3b); (c) ambulatory legs stout without setae on meri, carpi, propodi (fig. 2a); (d) small size, larger specimen being 15.3×18.7 mm while the largest *E. notatus* can reach 29.6×36.4 mm (Ng et al., 1988). The specimens examined also match well with high definition macro photographs examined for several specimens of *E. politus* collected by JP at Moorea, French Polynesia (10/x/2008) and deposited in the Florida Museum of Natural History, Gainesville, FL (FLMNH, UF15715-718).

Epigrapsus politus resembles, and has been sometimes confused with, *Cyclo-grapsus integer* H. Milne Edwards, 1837, also collected at Manapany-Les-Bains by the first author (NH). The latter is distinguished by: (a) a smaller size (CW

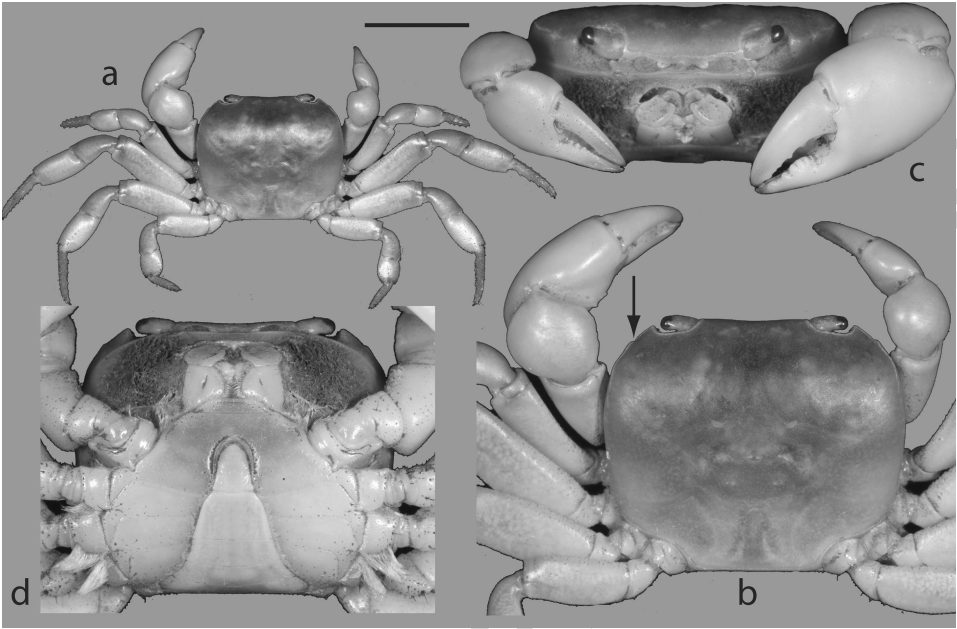


Fig. 2. Habitus of *Epigrapsus politus* Heller, 1862, male 13.7 × 16.2 mm (MNHN-IU-2013-7280): a, whole animal, dorsal view; b, carapace dorsal view with indication of low epibranhial notch (arrow); c, cephalothorax, frontal view; d, ventral view with aspect of male abdomen. Scale bar: a, 10 mm; b, c, d, 5 mm.



Fig. 3. *Epigrapsus politus* Heller, 1862 biotope at Réunion Is. (Manapany-Les-Bains). The crab was observed exclusively inside the dotted oval line, about 5 m away from the highest sea level, in a place with pebbles covered with creeping vine Convolvulaceae, *Ipomoea pes-caprae* (L.) R. Br., 1818, and grass.

about 1 cm versus about 2 cm for *E. politus*); (b) an oblique setose ridge on the meri and ischia of the third maxillipeds; (c) no teeth on the anterolateral margin of the carapace; (d) red eyes (but this character is sometimes also observed in *E. politus*); and (e) posterior margins of carapace subparallel to slightly diverging backward. It also lives closer to the sea in the intertidal zone and it moves much faster than *E. politus*, being more difficult to catch in the field (JP personal field notes in French Polynesia).

At Manapany-Les-Bains, specimens of *Epigrapsus politus* were seen about 5 m far from the higher sea level on a very limited place, staying on a wet earthy ground under pebbles that were covered with creeping vine, Convolvulaceae (*Ipomoea pes-caprae* (L.) R. Br., 1818) and grass (fig. 3). The associated fauna includes unidentified insects (crickets and ants) and a gastropod of the family Ellobiidae (*Melampus* sp.), rarely found in Réunion and perhaps part of the crab's diet? Terrestrial decapods commonly associated to the same biotope in Réunion (Poupin, 2009) are *Coenobita rugosus* H. Milne Edwards, 1837, *Geograpsus crinipes* (Dana, 1851) and *G. grayi* (H. Milne Edwards, 1853). The crabs were seen only during daytime (around 5 p.m.) by fine weather and calm sea, and not during other visits made at night or with bad weather with rough sea and big swell. They are probably not recent settlers in Réunion, because already observed in 2016 at the same station but not identified at that time (NH, field notes). *Epigrapsus politus* seems, however, uncommon on the island and was not retrieved in any others places prospected in 2019, despite careful attention paid to its preferred biotope.

The taxonomic history and previous geographic records of *Epigrapsus* species are recapitulated herein, limited to contributions where specimens were examined and/or with photographs. A few unpublished records are also included for the first time for *E. politus* from G. Paulay and students' collections in the western and central Pacific (FLMNH, 2020). All these places of observations are mapped on fig. 4.

***Epigrapsus politus* Heller, 1862**

Epigrapsus politus Heller, 1862: 522, French Polynesia (Tahiti).

Nectograpsus politus Heller, 1865: 57, pl. 5 fig. 3, French Polynesia (Tahiti).

Epigrapsus politus — Miers, 1886: 266, Vanuatu (Api =? Epi Is.). — Ortmann, 1894: 703, Fiji, Papua New Guinea (Kaiser WilhelmsLand). — De Man, 1895: 79, Indonesia (Atjeh = Aceh, Sumatra), Micronesia (Ponape = Pohnpei). — Alcock, 1900: 444, Andaman and Nicobar. — Rathbun, 1902: 126, Maldives (Fadiffolu Atoll). — Tesch, 1918: 133, Indonesia, Flores Sea (Tanah-Djampeah = Pulau Tanahjampea Is.). — Sandler, 1923: 26, fig. 1, Papua New Guinea (Bertrand Island = Tarawai Is.). — Ward, 1942: 51, 108, Chagos archipelago (Salomon Atoll). — Holthuis, 1953: 34, Marshall Islands (Arno Atoll), Society Islands, Tahiti (Taravao). — Forest & Guinot, 1961: 162, fig. 176, Indonesia (Atjeh), Tuamotu (Hikueru). — Türkay, 1974: 248, figs. 7, 18, Sumatra (Atjeh), Papua New Guinea (Bertrand Is.), Micronesia (Ponape = Pohnpei), Society (Tahiti; types), Tuamotu (Hikueru). — Tavares, 1989: 36, Tahiti (types). — Poupin,

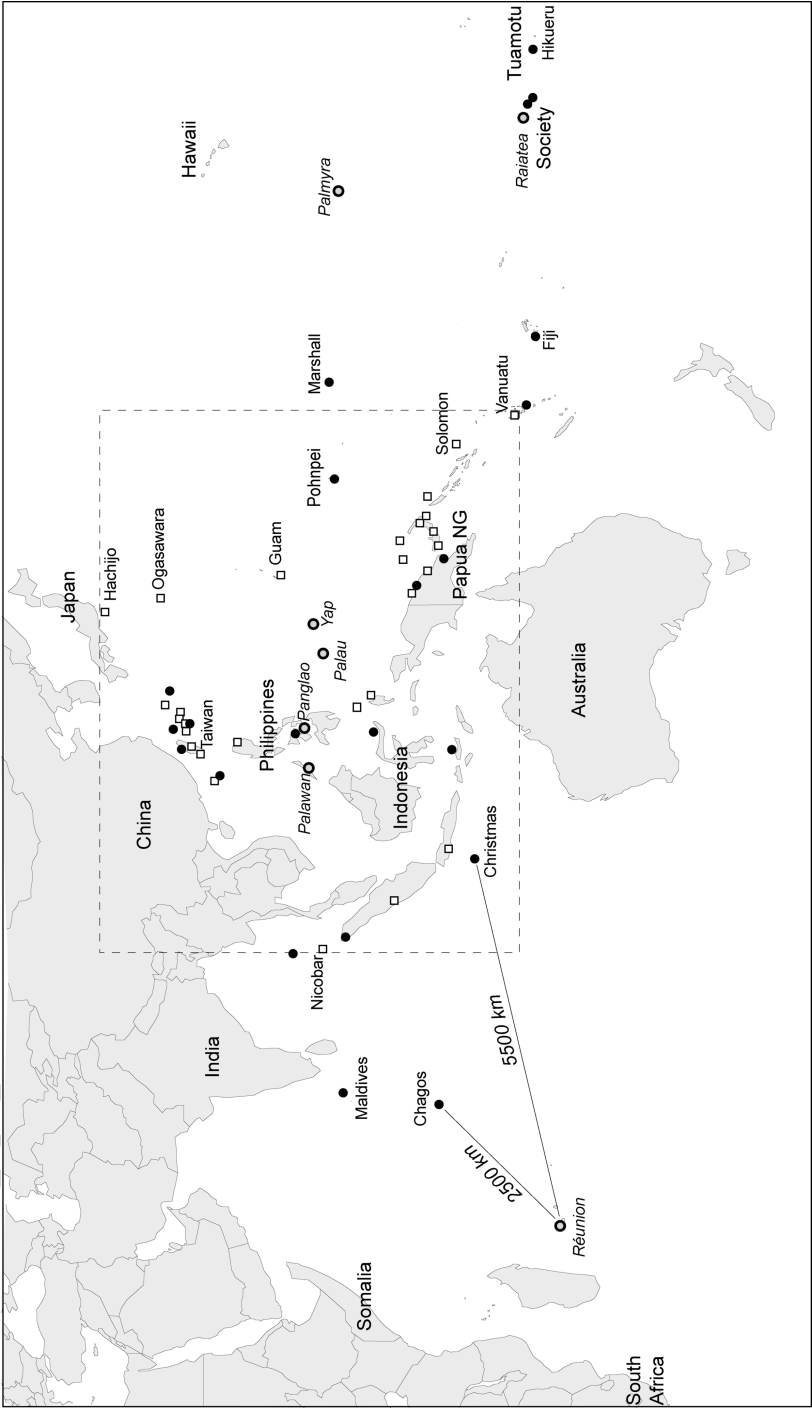


Fig. 4. Geographic distributions of *Epigrapsus politus* Heller, 1862 (circles) and *E. notatus* (Heller, 1865) (squares). New recorded places for *E. politus* are in *italics*, with grey spots, from west to east: Réunion, Palawan, Panglao, Palau, Yap, Palmyra, and Raiatea. Black lines indicate distances (in km) between Réunion and previous records in the central (Christmas Is.) and eastern (Christmas Is.) Indian Ocean. The dashed rectangle indicates the known geographic range of *E. notatus*.

1994: 55, fig. 51, pl. 6d, Tuamotu (Hikueru), Indonesia (Atjeh). — Ng et al., 1998: 82, Tahiti (types), Papua New Guinea (Bertrand Is. = Tarawai Is.). — Ng et al., 2000: 380, Christmas Is., Japan (Ryukyus), Papua New Guinea (Bertrand Is.), Tahiti (types). — Cuesta et al., 2002: 1672, Indonesia (Sulawesi), Taiwan (Pingtung, Hsiang-Chiao-Wan). — Osawa & Fujita, 2005: 59, Japan (Okinawa). — Orchard, 2012: 152, Christmas Is. (colour photos). — Guinot et al., 2013: 284, Indonesia (Atjeh). — Shih, 2013: 110, Dongsha Island (colour photos). — Hartnoll et al., 2017: 933, fig. 5, Society (Moorea), Micronesia (Ponape = Pohnpei), Indonesia (Sumatra). — Ng et al., 2017: 97, fig. 10e-f (comprehensive references for Taiwan; colour photos). — Guinot et al., 2018: 551, Indonesia (Atjeh). — Naruse et al., 2018: 210, tab. 1, Philippines (Cebu, Kawasan), Taiwan. — Sasaki, 2019: 12684 (taxonomy and comprehensive references). — Toyota et al., 2019: 192-193, Ryukyus (Okinawa Is.; colour figs.). — FLMNH, 2020, additional museum collections in: Philippines (Panglao, UF8899, Palawan, UF8844), Palau (Ngarchelong, UF4995), Micronesia (Yap, UF2355), Line Islands (Palmyra Atoll, UF10591, 10875), Society Island (Raitea, UF2221; Moorea, UF1434, 1521, 15715-718, 10086, 34900; Tahiti, UF1406, 2215).

***Epigrapsus notatus* (Heller, 1865)**

Grapsodes notatus Heller, 1865: 58, pl. 5 fig. 2, Nicobar. — Miers, 1877: 136, Papua New Guinea (Duke of York Is.). — De Man, 1887: 160, Indonesia, Moluccas (Morotai Is.). — Alcock, 1900: 442, Nicobar.

Mystacocarcinus crenidens Hilgendorf, 1888: 29, Bismarck Archipelago (New Ireland, Carteret 'Harbour' =? Carteret Is.)

Epigrapsus (Grapsodes) notatus — Sandler, 1923: 27, fig. 2, pl. 5(20) photos 3, Papua New Guinea (Bertrand Is. = Tarawai Is.).

Epigrapsus (Grapsodes) notatus punctatus Sandler, 1923: 28, Papua New Guinea (Bertrand Is. = Tarawai Is.; Liebliche Is. = Arawa Is.).

Epigrapsus (Grapsodes) wolffi Sandler, 1923: 28, fig. 3, pl. 6(21) photos 4, Papua New Guinea (Lamassa).

Epigrapsus villosus Ng, 2002: 1220, figs. 1-3, Guam. — Ng et al., 2008, 215, fig. 160, Vanuatu.

Epigrapsus sp. 1 (n. sp., Ng) — Paulay et al., 2003: 494, Guam (type of *E. villosus*).

Epigrapsus notatus — Tesch, 1918: 134, Indonesia, 'Talaud' = Talaud Is. (Lirung). — Sakai, 1955: 200, Japan (Hachijo Is.). — Türkay, 1973a: 105, figs. 1, 3, Nicobar (type of *E. notatus*), figs. 2, 4, 5-6, Papua New Guinea (type of *E. wolffi*). — Türkay, 1974: 251, figs. 6, 9, 19, Nicobar, Indonesia (Talaud Is.), Papua New Guinea (Bertrand Is. = Tarawai Is., type of *E. punctatus*; Lamassa, New Ireland; St. Matthias = Mussau Is.; Liebliche Is. = Arawe Is.; Admiralty Is. = Manus Is.), Salomon (Steward Is.); Japan (Bonin Is. = Ogasawara Is.). — Sakai, 1976: 678, fig. 373, Japan (Hachijo Is.). — Türkay, 1977: 157, Carteret 'Harbour' =? Carteret Is., type of *Mystacocarcinus crenidens*. — Tavares, 1989: 36, Indonesia (western Sumatra), Papua New Guinea (Bismarck Archipelago). — Takeda, 1994: 218, colour photo 5, Ryukyus (Ishigaki Is.). — Ng et al., 1998: 72, figs. 1-5, Taiwan (fig. 3, colour photo). — Ng et al., 2000: 379, Ryukyus (Ishigaki Is.), 380, Papua New Guinea (Nagada). — Lee, 2001: 141, Taiwan (colour photo). — Cuesta et al., 2002: 1672, Taiwan (Hengchun, Hualien). — Ng, 2002: 1224, Guam. — Paulay et al., 2003: 494, Guam. — Liu & Jeng, 2005: 135, Taiwan (Hengchun). — De Grave et al., 2009: 109, fig. 7G, Taiwan (colour photo). — Shih, 2013: 108, Dongsha Is. (colour photos). — Hartnoll et al., 2017: 933, Taiwan (Kenting). — Ng et al., 2017: 97 (comprehensive references for Taiwan). — Guinot et al., 2018: 551, Taiwan (Hsiang-Chiao-Wan). — Naruse et al., 2018: 210-212, tab. 1, Indonesia (west Java), Philippines (Cagayan, Palau Is.), Taiwan, Japan (Ryukyus), Guam (including type of *E. villosus*), Vanuatu. — Sasaki, 2019: 12683 (taxonomy and comprehensive references). — Toyota et al., 2019: 190-191, Ryukyus (Ishigaki Is.; colour figs.).

The new record of *Epigrapsus politus* in Réunion significantly extends its geographic range in the WIO, 2500 km away from Chagos Is. and 5500 km far

from Christmas Is (fig. 4). For the time being this is the only WIO place where the crab has been found. No other record has been retrieved despite a thorough search in previously published contributions (mentioning Gecarcinidae) for the following places: central and western India (Trivedi et al., 2018; without Andaman & Nicobar); Seychelles (Haig, 1984); Red Sea (Holthuis, 1977); Somalia (Vannini & Valmori, 1981); Mozambique and South Africa (Türkay, 1973b; Emmerson, 2016); Comoros (Fourmanoir, 1954), Mayotte (Bouchard et al., 2013), Scattered Is. (Poupin et al., 2013a-b; Poupin, 2016; Poupin et al., 2018), and Madagascar (Türkay, 1974).

The discreet way of life of *Epigrapsus politus* suggests, however, that it has been potentially overlooked in other WIO places. It could probably be discovered in the future in neighbouring islands such as Mauritius, Rodrigues, Madagascar, Scattered Is., Mayotte, and Comoros, when its preferred biotope is more carefully investigated. In Mayotte, for example, Bouchard et al. (2013) have reported the sesarmid crab *Metasesarma obesum* (Dana, 1851), another discreet species that has been shown to co-occur with *E. politus* in Okinawa (Osawa & Fujita, 2005). This suggests that *E. politus* is perhaps also present in Mayotte.

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