

A NEW RECORD OF THE LAND CRAB, *Epigrapsus politus* Heller, 1862 (DECAPODA: GECARCINIDAE) FROM THAILAND, WITH EXPANDED DISTRIBUTION OF *Tuerkayana magnum* (Ng and Shih, 2014) IN PANWA CAPE, PHUKET, SOUTHWESTERN THAILAND

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ABSTRACT: A single specimen of the land crab, *Epigrapsus politus* Heller, 1862, collected by hand from the supralittoral zone nearing the cliff of Panwa Cape, Phuket in February 2009, is recorded for the first time in Thailand. The present report is also the first record of the genus in Thailand. Thai Gecarcinidae is now composed of 6 species belonging to four genera. In addition, one of three sympatric taxa of this family from Panwa Cape, a single specimen of *Tuerkayana magnum* (Ng and Shih, 2014), shows expanded distribution from Similan Islands, Tachai Island and Surin Islands, Phang-nga Province and Lee Pae Island, Satun Province to Phuket Island.

Keywords: land crab, new record, Phuket, Andaman Sea, Thailand

INTRODUCTION

Phuket Marine Biological Center (PMBC) is located on the area of a small hill of Panwa Cape, southeastern corner of Phuket Island, southwestern Thailand, comprising sandy beach, rocky shore, shallow-water reef and small mangrove coastal habitats. Almost all of these are the preferred habitats and foraging areas for land crabs (gecarcinids). Land crabs assigned to the family Gecarcinidae are distinguished by their swollen carapace and possess a rhomboidal gap between the third maxillipeds (Ng 1998). Five species from three genera of land crabs have been previously recorded from Thailand, viz. *Cardisoma carnifex* (Herbst, 1796), *Gecarcoidea humei* (Wood-Mason, 1874), *G. lalandii* H. Milne Edwards, 1837, *Tuerkayana hirtipes* (Dana, 1851), and *T. magnum* (Ng and Shih, 2014) (Lundoer 1974; Frith and Alexander 1978; Naiyanetr 2007; Rathbun 1910; Ng and Shih 2014; Lai *et al.* 2017; Guinot *et al.* 2018). Two of these, *C. carnifex* and *G. humei*, were also previously recorded from Phuket (Lundoer 1974; Naiyanetr 2007; Promdam and Sumontha 2008). During the surveying of land crabs of PMBC in 2008–2010, four species were collected and identified, viz. *C. carnifex*, *Epigrapsus politus* Heller, 1862, *G. humei* and *T. magnum*, one

of which *E. politus*, has not been reported earlier from Thailand, and another one, *T. magnum*, has not been reported earlier for Phuket. This paper is to formally report *E. politus* in Thailand for the first time, and additional report *T. magnum* for the national expanded distribution.

MATERIALS AND METHODS

Specimens were detected by visual searching and were collected by hand in the area of PMBC, Panwa Cape, Phuket, southwestern Thailand. Specimens were preserved in 70% ethanol after collection. Measurements were taken using Vernier Calipers, given in millimeters (mm) as carapace width × length. All materials are deposited in the Reference Collection of Phuket Marine Biological Center (PMBC).

TAXONOMY

Family Gecarcinidae MacLeay, 1838

Genus *Epigrapsus* Heller, 1862

***Epigrapsus politus* Heller, 1862**

(Figs. 1, 2)

Epigrapsus politus Heller, 1862: 522; - Turkey 1974: 248, figs. 7, 18; - Ng *et al.* 1998: 78, fig. 6;

2000: 379; - Huet and Poupin 2020: 665, fig. 2.
Nectograpsus politus Heller, 1865: 57, pl. 5 fig. 3.
 (See Huet and Poupin 2020: 661-670, for complete synonymy).

Material examined

PMBC 26128, 1 male (15.6 × 12.7 mm), PMBC, Panwa Cape, Phuket, western coast of Thailand, Andaman Sea, hand collect, coll. R. Promdam and M. Sumontha, 23.02.2009.

Diagnosis

Carapace transversely ovate, dorsal surface smooth, glabrous; front broad, not less than one third of carapace width; epigastric cristae very low or almost indiscernible; anterolateral margins often entire. Eyes folding transversely; orbit open; suborbital crest very long. Pterygostomial regions setose. Third maxillipeds squarish, as broad as long; exopod narrow, with vestigial flagellum. Ambulatory legs surface with very scattered setae or glabrous; dactylus with scattered spines. Between bases of second and third pair of walking legs with brush of long setae towards branchial cavity. Male first gonopod relatively elongate, slender, distal part almost straight to distinctly bent interiorly. Colour of carapace dorsal surface is brown to reddish-yellow, ventral is white; chelipeds are pale light brown; ambulatory legs are purple in most parts.

Distribution

Tahiti, Tuamotu, Palmyra, Fiji, Marshall, Caroline Islands, Vanuatu, Pohnpei, Papua New Guinea, Japan, Yap, Palau, Philippines, Taiwan, Indonesia (Sulawesi and northern Sumatra), Christmas Island, Thailand (present record), Nicobar, Maldives, Chagos, and Réunion (Huet and Poupin 2020).

Remarks

This single male specimen (Fig. 1) was collected by hand at night from the supralittoral zones near the cliff of Panwa Cape (Fig. 2). Its characters agree well with the description, figures and in the key of Ng *et al.* (1998; 2000), but they did not describe chelae morphology. Our male specimen showed homochelous chelipeds. This differs from figure of male in Osawa and Fujita (2005: fig. 1), but more recent studies (Hartnoll *et al.* 2017; Doi

et al. 2019) have explained this as polymorphism in chelae of mature males.

This is the first record of *Epigrapsus politus* and its genus in Thailand. When considering the updated geographic distributions map by Huet and Poupin (2020: fig. 4), this present record on Phuket Island is relatively closer to the continent than most other previous records.

E. politus is a small-sized species, and its cryptic life (Guinot *et al.* 2018) may explain that it is a rarely reported species for most of its distribution range, including Thailand. In the future, careful searching in its preferred habitat, the sandy beach with embedded stones (Doi *et al.* 2019), may yield more records to support that southwestern Thailand is within its normal range. However, if the present find was an exceptional record at the limit of its distribution range, maybe the larval dispersal can explain this event. The breeding period of *E. politus* is from August to October (Liu and Jeng 2005), or around the second half of the rainy season. At the time when the larval dispersal would occur, the surface current of the southwest monsoon, moving at a speed of 0.7 m/s (Brown 2007: fig. 4), might just make it possible to transport some larvae from the Andaman Islands to the west coast of Thailand, including Phuket, within 14+ days at about 850 km distance, and then emerging to the terrestrial habitat [larval development in *E. politus* is unknown, however, other Gecarcinidae with planktonic larvae have development times around 20 days (Hartnoll *et al.* 2014)].

Genus *Tuerkayana* Guinot, Ng and Rodriguez Moreno, 2018

Tuerkayana magnum (Ng and Shih, 2014) (Fig. 3)

Cardisoma hirtipes Tweedie, 1947: 35 (part); - Turkey 1974: 229 (part), fig. 12; - Naiyanetr 1998: 95 (list) [not *Cardisoma hirtipes* Dana, 1851].

Discoplax hirtipes - Ng and Guinot 2001: 334, 335 (part); - Naiyanetr 2007: 108 (list, part) [not *Cardisoma hirtipes* Dana, 1851].

Discoplax magna Ng and Shih, 2014: 128, figs. 3, 4, 6D-H, 7, 8, 9D, 11D-K, 12J-L, 13K-O.

Tuerkayana magnum - Guinot *et al.* 2018: 551, 568, figs. 4I, 5M-O, 6E.

(See Ng and Shih 2014: 109-135, for complete synonymy).

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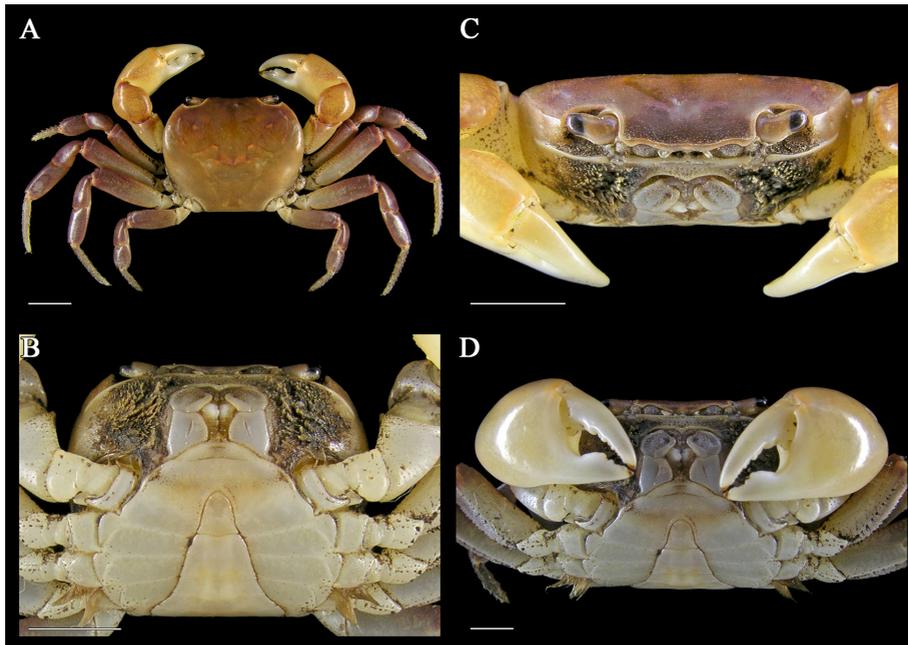


Figure 1. *Epigrapsus politus* Heller, 1862, male (15.6 × 12.7 mm) (PMBC 26128): A, dorsal view of whole animal; B, ventral view; C, frontal view; D, fronto-ventral view with outer view of chelae. Live colours. Scale = 5 mm.

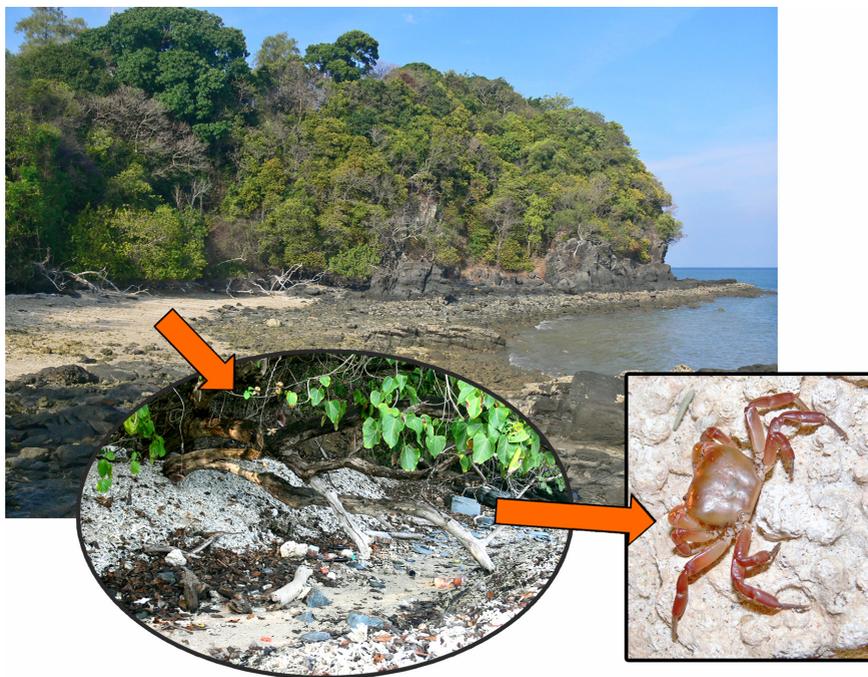


Figure 2. Habitat of *Epigrapsus politus* Heller, 1862 at PMBC, Panwa Cape. The crab was collected from the supralittoral zones of the dead coral fragment beach, underneath a large piece of them, under the tree shade, nearing the cliff.

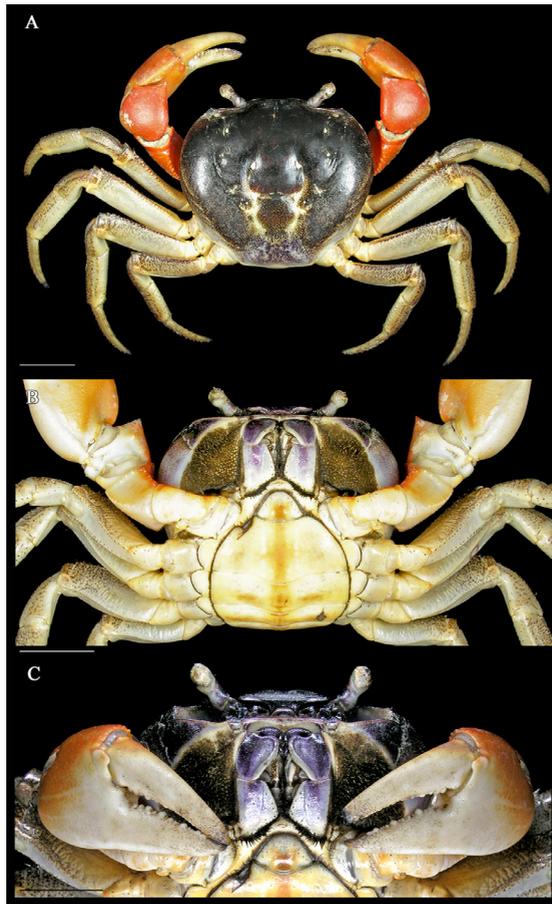


Figure 3. *Tuerkayana magnum* (Ng and Shih, 2014), female (65.1 × 57.9 mm) (PMBC 26123): A, dorsal view of whole animal; B, ventral view; C, fronto-ventral view with outer view of chelae. Live colours. Scale = 20 mm.

Material examined

PMBC 26123, 1 female (65.1 × 57.9 mm), PMBC, Panwa Cape, Phuket, western coast of Thailand, Andaman Sea, hand collect, coll. U. Satapoomin, 12.18.2009.

Diagnosis

Carapace transversely ovate, surface smooth. Front narrow, about a quarter of carapace width. Anterolateral margins entire. Eyes folding transversely. Pterygostomial and sub-branchial regions setose. Exopod of third maxilliped with distinct flagellum. Males with two equally enlarged and elongated chelae; fingers of large male flatten laterally, blade-like from dorsal view; fingers of smaller male and also female more cylindrical. No brush of long setae towards branchial cavity between

bases of second and third pair of walking legs. Ambulatory legs lined with stiff setae. Male first gonopod relatively slender; male abdomen relatively slender. Colour of dorsal surface of adult carapace is brown to greyish-brown or dark violet; ventral is orangish-white to yellow; third maxilliped with most parts purple; chelipeds are orange to red, fingers are white.

Distribution

Nicobar Islands, Thailand, Indonesia and Christmas Island (Indian Ocean) (Ng and Shih 2014).

Remarks

Ng and Shih (2014) revised *Discoplax hirtipes* (Dana, 1851) species-group using morphological and

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genetic data. They recognized three geographically rather distinct species (*D. hirtipes*, *D. celeste* Ng and Davie, 2012, and *D. magna* Ng and Shih, 2014) and identified “*D. hirtipes*” recorded from the Andaman Sea coast as *D. magna* Ng and Shih, 2014 instead. Recently, Guinot *et al.* (2018) established the genus *Tuerkayana* Guinot, Ng and Rodríguez Moreno, 2018 for the abovementioned “*Discoplax hirtipes* species-group” and *D. rotunda* (Quoy and Gaimard, 1824). *Tuerkayana magnum* has been previously reported from localities in Thailand including Similan Islands, Tachai Island, and Surin Islands, Phang-nga Province and Lee Pae Island, Satun Province (Naiyanetr 1998; 2007; Ng and Shih 2014). The present specimen (Fig. 3)

becomes the first record of *T. magnum* from Phuket Island. Unfortunately, the present individual was found walking alone in the area around the office of PMBC which is situated on a hill about 15 m above sea level, which is most likely far from its burrow, so the details of its burrowing habitat is unknown.

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