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This article is part of the tribute offered by the Brazilian Crustacean Society *in memoriam* of **Michael Türkay** for his outstanding contribution to Carcinology



SHORT COMMUNICATION

On the extant type material of *Cardisoma hirtipes* Dana, 1851, and *Cardisoma obesum* Dana, 1851 (Crustacea: Brachyura: Gecarcinidae)

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ABSTRACT

Two boxes in the U.S. National Museum of Natural History, Smithsonian Institution, were found to contain the dried type material of the land crabs *Cardisoma hirtipes* Dana, 1851, and *Cardisoma obesum* Dana, 1851 (Gecarcinidae). The types of the common Pacific land crab, *C. hirtipes* were believed to have been lost and a neotype had been designated in earlier revisions. *Cardisoma obesum* Dana, 1851 is currently regarded as a junior subjective synonym of *Cardisoma carnifex* (Herbst, 1796).

KEY WORDS

Land crab, type specimens, Dana material, Cardisoma, taxonomy.

Recently, two specimens of gecarcinid crabs were found in the dried collection of the U.S. National Museum of Natural History (USNM), Smithsonian Institution, Washington D.C., which have been forgotten by taxonomists working on this family. The specimens were identified as the types of *Cardisoma hirtipes* Dana, 1851, and *Cardisoma obesum* Dana, 1851. Their features and proportions agree well with the measurements given by Dana (1851) in his original description; and together with the labels, leave no doubt to their identities.

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ΤΑΧΟΝΟΜΥ

Family Gecarcinidae MacLeay, 1838

Genus Discoplax A. Milne-Edwards, 1867

Discoplax hirtipes (Dana, 1851) (Figs. 1–3)

Cardisoma hirtipes Dana, 1851: 253 (for complete synonymy, see Ng and Shih, 2014: 112).

Type material. Lectotype male (58.2 × 47.4 mm) (USNM 2356), "Viti" (= Fiji), ca. 17°48'S 178°00'E, coll. U.S. Exploring Expedition.

Remarks. Cardisoma hirtipes was described by Dana (1851: 253) from "Viti" (= Fiji), who listed only one specimen (sex not specified) measuring 28×22.5 lines (see also Dana, 1852: 376). Dana (1852: 377) redescribed the species, noting that the specimen was a male from the "Feejee Islands". This was apparently

the same specimen figured by him later (Dana, 1855: pl. 24, fig. 2). The line was an English unit of measure that has been variously equivalent to $\frac{1}{10}$, $\frac{1}{12}$, $\frac{1}{16}$ or $\frac{1}{40}$ of an inch (= 25.4 mm). In the older literature, Englishspeaking biologists usually equated a line with $\frac{1}{12}$ of an inch (or 2.1 mm). That would put the dimensions of Dana's male specimen at 58.8×47.3 mm. Evans (1967) had listed a type specimen of the Pacific land crab C. hirtipes (Gecarcinidae) in the Natural History Museum, London (see also Türkay, 1974). Ng and Clark (2014) examined the specimen and argued that this was actually not a type, belonging to another species, Cardisoma carnifex (Herbst, 1796), instead. They commented that since there were no extant types of the species, the neotype male specimen from Fiji designated by Ng and Davie (2012) therefore remained the valid type of *C. hirtipes*.

The present specimen (USNM 2356) is a male 58.2×47.4 mm and agrees well with the size given by Dana (1851): 58.8×47.3 mm. There is no doubt this is the specimen examined and figured by Dana (1851; 1852; 1855). Although Dana (1851; 1852;



Figure 1. Labels associated with the lectotype of Cardisoma hirtipes Dana, 1851. A, box cover; B, label inside box.

1855) mentioned and figured only this one specimen, he did not state it was the holotype or make it clear he only had one specimen (see Ng and Clark, 2014). As such, it is preferable to designate USNM 2356 as the lectotype of *C. hirtipes*.

The present lectotype is interesting as the left male first gonopod (G1) had been detached (Figs. 2D, 3I). The G1 was subsequently rehydrated and was shelved in the wet collections of the USNM (Fig. 3J–M). Who did this is not known as neither the box with the dried body or the bottle with the G1 had any labels to this effect.

Interestingly, Türkay (1974: 233) listed among his material examined for *D. hirtipes* (as a *Cardisoma* Latreille in Latreille, Le Peletier, Serville & Guérin, 1828) as follows: "Südsee, Viti (1 Go/1 des Holotypus von *Cardisoma hirtipes* DANA 1851)". He did not indicate where the specimen was from and which museum it was kept in, and was not discussed anywhere



Figure 2. *Cardisoma hirtipes* Dana, 1851, lectotype male (58.2 × 47.4 mm) (USNM 2356). A, dorsal view of carapace; B, C, frontal view of cephalothorax; D–F, ventral view of of cephalothorax showing thoracic sternum and abdomen. Scale bars = 10.0 mm.

else in his paper. Ng and Clark (2014: 596) was advised by the late Michael Türkay that he had actually not examined the holotype of the species and the type he had referred to was the specimen recorded by Evans (1967). Could the detached G1 in USNM be the one he had actually examined instead and then inadvertently forgot in the ensuing years?

The discovery of the present lectotype means that the neotype selected by Ng and Davie (2012) is now no longer a type specimen. The species is currently classified in the genus *Discoplax* A. Milne-Edwards, 1867 (see Ng and Guinot, 2001; Ng and Shih, 2014).



Figure 3. *Cardisoma hirtipes* Dana, 1851, lectotype male (58.2 × 47.4 mm) (USNM 2356). A, dorsal view of left cheliped; B, dorsal view of right cheliped; C, outer view of right chela; D, outer view of left chela; C, left first ambulatory leg; D, right first ambulatory leg; E, left second ambulatory leg; F, right second ambulatory leg; G, left fourth ambulatory leg; H, right third ambulatory leg; I, sternoabdominal cavity with intact right G1; J, ventral view of left G1; K, distal half of left G1, ventral view (denuded); L, dorsal view of left G1; M, distal half of left G1, dorsal view (denuded). Scale bars: A–H = 10.0 mm; I, J, L = 5.0 mm; K, M = 2.0 mm.

Cardisoma carnifex (Herbst, 1796) (Figs. 4, 5)

Cancer carnifex Herbst, 1796: 163, pl. 41, fig. 1 (for complete synonymy, see Türkay, 1974: 224). *Cardisoma obesum* Dana, 1851: 252.

Type material. 1 carapace (90.6 × 70.0 mm) (USNM 2356), Peacock Island, Tuamotu, 14°30'S 146°18'W, coll. U.S. Exploring Expedition.

Remarks. Cardisoma obesum was described by Dana (1851: 252–253) from "Paumotu" (= Tuamotu) in French Polynesia, and he listed one specimen (sex not

specified) measuring 3.67 by 3 inches (93.2 \times 76.2 mm). Dana (1852: 376) redescribed the species and figured the carapace, noting that it was from Peacock Island in the Paumotu Archipelago, and that the "... only specimen of this species saved from among the many collected, is a carapax." The front of the carapace was figured in Dana (1855: pl. 24, fig. 1). *Cardisoma obesum* is currently regarded as a junior subjective synonym of *C. carnifex* (see Türkay, 1974). The whereabouts of the type of *C. obesum*, was to date not known.

The present specimen (USNM 2356) measures 90.6×70.0 mm and the measurements are slightly smaller from that given by Dana (1851) but this can

United States 23.5 6 National Museum. Type of Oardisome obersom Paymote arch. U.S. Er Er. Cardisoma carnifex (Herbet), 1796 В Cardisoma carnifex (Herbet) obes Chas 2/3.5.6, S. N., Commander. xpl. Exped. aumotous) J. D. Dana.

Figure 4. Labels associated with the lectotype of Cardisoma obesum Dana, 1851. A, box cover; B, C, labels inside box.



Figure 5. *Cardisoma obesum* Dana, 1851, lectotype male (90.6 × 70.0 mm) (USNM 2356). A, dorsal view of carapace; B, frontal view of cephalothorax. Scale bars = 10.0 mm.

easily be explained by the fact that all that is left of the specimen is the carapace and the left side is broken and in poor condition. As thus, there is doubt this is in fact the holotype specimen of *C. obesum*.

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