



On the identities of *Callianassa bouvieri* Nobili, 1904, *C. maldivensis* Borradaile, 1904, and *C. gravieri* Nobili, 1905 (Crustacea: Decapoda: Callianassidae): a morphometric approach

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Abstract

Recent samplings of callianassid shrimp from various habitats, together with the study of type specimens, show that *Callianassa gravieri* Nobili, 1905 is a junior synonym of *Callianassa bouvieri* Nobili, 1904. *Callianassa maldivensis* Borradaile, 1904, which had been synonymised with the latter, is a separate species. Morphometric analysis of more than 250 specimens of these shrimps, which are assigned here to the genus *Paratrypaea* Komai & Tachikawa, 2008, show that *P. bouvieri* males and females have unequal chelipeds, whereas *P. maldivensis* has males with unequal chelipeds and females with equal chelipeds. In addition, both species differ by the presence/absence and size of a median spine on the posterior telson border. Male *P. bouvieri* and *P. maldivensis* are superficially similar but can be differentiated based on numerous characters of the major chelipeds, which are illustrated here in detail. The two species occur in different habitats, *P. bouvieri* in the intertidal, often near mangroves, *P. maldivensis* usually sublittorally near patchy corals. The importance of size and sex when comparing callianassid species is discussed.

Key words: *Callianassa bouvieri*, *Callianassa maldivensis*, *Callianassa gravieri*, *Paratrypaea*, Red Sea, morphometry, burrowing shrimp

Introduction

Several very similar, small species of *Callianassa* s.l. have been described from the Indo-West Pacific region:

1) *Callianassa bouvieri* Nobili, 1904 from Djibouti in the Gulf of Aden based on a single male with a total length of 15 mm; the holotype is still extant. Subsequent records from the Red Sea include those by Holthuis (1958). Dworschak & Pervesler (1988) found them to be the dominant callianassid in Red Sea mangrove environments. They described their burrow shape and the variations in the shape of the major cheliped. Sakai (1965, 1970) reported this species from Japan (Tomioka, Amakusa; Amami-Oshima, and Tsushima Island) and Thomassin (1978) from Madagascar. Sakai (1999) listed material mentioned by Dworschak & Pervesler (1988), by Sakai (1965), and additional material from Taiwan and Hawaii. Later, it was reported from Socotra Island by Sakai & Apel (2002). Komai & Tachikawa (2008) reported this species recently from the Ogasawara Islands, Japan.

2) *Callianassa maldivensis* Borradaile, 1904 from Hulule, Male Atoll at the Maldives based on a single male with a total length of 19 mm; the holotype still extant. The only subsequent record of this species is that of Pearson (1905) (1 specimen, 24 mm total length) from Sri Lanka. De Man (1928a) mentioned that it is closely related to *C. bouvieri* and described the characters, by which these two *Callianassa* species may be distinguished. Sakai (1999) synonymised this species with *C. bouvieri*.

3) *Callianassa gravieri* Nobili, 1905 from Obock, Gulf of Aden, based on a single female with a total length of 15 mm; the holotype is still extant. Subsequently, a second specimen was reported from Harmil, Red Sea, by Balss (1915), the same redescribed by de Man (1928a). Holthuis (1953) listed two specimens from Onotoa, Gilbert Islands. Further, two specimens were reported from Ghardaque, Red Sea, by Sakai (1999).