



***Metabetaeus* Borradaile, 1899 revisited, with description of a new marine species from French Polynesia (Crustacea: Decapoda: Alpheidae)**

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Abstract

The alpheid shrimp genus *Metabetaeus* was previously known from two species associated with anchialine pools and caves, *M. minutus* (Whitelegge, 1897) and *M. lohena* Banner & Banner, 1960. In the present study, a somewhat unusual, coral reef inhabiting species of *Metabetaeus*, *M. mcphersonae* n. sp., is described based on one male and three female specimens collected off Moorea, Society Islands, French Polynesia. A detailed diagnosis of *Metabetaeus* is provided for the first time, accommodating characters of all three species. Distribution ranges are updated for *M. minutus*, recorded for the first time from Sulawesi and Christmas Island in the Indian Ocean, and for *M. lohena*, recorded for the first time from Rapa Nui (Easter Island). A key to the species of *Metabetaeus* is also provided.

Key words: Caridea, Alpheidae, shrimp, *Metabetaeus*, new species, Pacific Ocean, French Polynesia, Indian Ocean, new records

Introduction

The alpheid genus *Metabetaeus* Borradaile, 1899 presently includes only two Indo-West Pacific species, *M. minutus* (Whitelegge, 1897) and *M. lohena* Banner & Banner, 1960. The type species, *M. minutus*, is currently known from several localities in the central and western Pacific (Whitelegge 1897; Borradaile 1899; Banner & Banner 1960; Hayashi 1996), while *M. lohena* is known with certainty only from Hawaii, although an unconfirmed record exists from Indonesia (Banner & Banner 1960, 1985). Both *M. minutus* and *M. lohena* are associated exclusively with anchialine environments, such as lava pools, anchialine caves, or brackish crevice-rich tide-pools or bomb craters on uplifted eroded platforms in mangrove swamps (Banner & Banner 1960; Holthuis 1963, 1973; Saavedra *et al.* 1996; Hayashi 1996; see also Anker 2009). However, Banner & Banner (1983) also reported upon several incomplete specimens of *Metabetaeus* sp. collected from the outer reef front off Tuléar, Madagascar; the identity of these ecologically very disparate specimens has remained enigmatic until now perhaps (see below).

The original generic diagnosis of *Metabetaeus* (Borradaile 1899), based on Whitelegge's material of "*Betaeus minutus*" from Funafuti, was very brief. The combination of morphological features listed for *Metabetaeus* by Borradaile (1899) is found in several other alpheid genera. Coutière (1899) provided additional remarks on *Metabetaeus* based on his own examination of several specimens sent to him by Borradaile, discussing in detail a possible relationship between *Metabetaeus minutus* and *Alpheopsis aequalis* Coutière, 1896. Both Borradaile (1899) and Coutière (1899) remarked on the presence of peculiar, large dark-brown spots at the base of the incisor process of each mandible; Coutière suggested that these spots mark an area containing symbiotic zooxanthellae. Banner & Banner (1960), in their description of *M. lohena*, did not provide a diagnosis of *Metabetaeus*, but instead underlined its ecological distinctiveness and described in detail the predatory behaviour of *M. lohena*. All subsequent reports of *Metabetaeus* in the literature deal either with this genus' presumed unusual ecology and/or new records of *M. minutus* (Holthuis 1963, 1973; Banner & Banner 1983, 1985; Saavedra *et al.* 1996; Hayashi 1996; Anker 2009).