



Article

Revision of *Garthiella* Titgen, 1986 (Crustacea: Decapoda: Brachyura: Xanthidae), with description of a new subfamily and a new species from the central Philippines

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Abstract

Examination of the holotype and other specimens of the type species of *Garthiella* Titgen, 1986, *G. aberrans* (Rathbun, 1906), reveals that this genus must be excluded from Chlorodiellinae Ng & Holthuis, 2007, due to the absence of the diagnostic morphological features of the subfamily such as spoon-tipped chelae, prominent dactylo-propodal locks on the ambulatory legs, and subdistal teeth on the ambulatory dactyli. Garthiellinae **subfam. nov.** is therefore established for this genus, as molecular and morphological evidence show that it cannot be classified in any other subfamily of Xanthidae MacLeay, 1838. A new species of *Garthiella* from the Bohol Sea, central Philippines, is also described. *Garthiella sikatuna* **sp. nov.** can be distinguished from *G. aberrans* by its relatively flatter and less granular carapace, more pronounced and curved anterolateral teeth, longer and more slender pereopods and by the form of the male first gonopods.

Keywords: Crustacea, Brachyura, Xanthidae, Garthiellinae, *Garthiella*, Bohol Sea, PANGLAO 2004, Philippines, Hawaiian Islands, French Polynesia

Introduction

Rathbun (1906: 859) described *Chlorodopsis aberrans* from Modu Manu (= Nihoa) in the Northwestern Hawaiian Islands. She remarked that this species was unusual for *Chlorodopsis* A. Milne-Edwards, 1873 (= *Pilodius* Dana, 1852; see Ng *et al.* 2008) as it had “sharp fingers”, in reference to the tips of the dactylus and pollex of the chelae, which are characteristically spoon-tipped in this genus. She nevertheless retained it in *Chlorodopsis* citing morphological similarities with another species, *C. woodmasoni* Alcock, 1898 (= *Pilodius spinipes* Heller, 1861; see Ng *et al.* 2008). Edmondson (1925, 1946, 1962) later reported additional material from Johnston Island, southwest of the Hawaiian islands, and followed Rathbun’s classification. Serène & Nguyen (1958, 1959; usually incorrectly cited as “Serène & Luom”) were the first to comment that *C. aberrans* may not be a true member of the genus, stating that *C. aberrans* is: “... seule espèce dont les doigts des chelipèdes se terminent en pointes aiguës; ce caractère devrait même en principe exclure l’espèce du genre” (Serène & Nguyen 1958: 91). They did not undertake any formal taxonomic action on this matter, however, and Serène (1984: 235, 239) continued to include this species in his key to *Pilodius*. Titgen (1986: 56, 57) eventually established a new genus, *Garthiella*, for this species, remarking that it differed adequately from *Pilodius* by the pointed fingers of the chelae and by the different morphology of the male first gonopod (whereas all known *Pilodius* had “the chelipeds with the fingers hollowed at the tip”, and that the “reduced beak at the tip of the gonopod of *Garthiella aberrans* is not like the larger, fuller beaks of species of *Pilodius*”). He also mentioned that while the orbital hiatus in *Pilodius* is not generally wide, it is quite wide in *Garthiella*. It is understood from his remarks that he considers *Pilodius* and *Garthiella* to be closely related. Ng *et al.* (2008), in their list of the extant crabs of the world, classified *Garthiella* in Chlorodiellinae.

The position of *Garthiella* in Chlorodiellinae has been unchallenged until recently, when Lai *et al.* (2011: fig. 1), in their study on the systematics of the xanthid crabs, produced a molecular phylogenetic tree (using four genes) that showed that *Garthiella*, i.e., *G. aberrans* and *Garthiella* sp. nov. (= *G. sikatuna* **sp. nov.**), was excluded from a well supported clade containing *Chlorodiella* Rathbun, 1897, *Cyclodius* Dana, 1851 and *Pilodius* (i.e.,