



# Article

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## The *Agononida incerta* species complex unravelled (Crustacea: Decapoda: Anomura: Munididae)

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### Abstract

Squat lobsters from Australia, east Africa, Taiwan, Philippines and the Norfolk Ridge (southwestern Pacific) previously identified as *Agononida incerta* (Henderson, 1888) are redescribed as four new species in addition to the original: *A. africanata*, *A. auscerta*, *A. indocerta* and *A. norfocerta*. *A. rubrizonata* Macpherson & Baba, 2009, also earlier confused with this species, is redescribed. All six species are morphologically distinguishable only on the basis of the shape of the anterolateral lobe of the telson and the shape and setation of the dactyli of pereopods 2–4. The morphological delineation of these species and their taxonomic status are robustly supported by phylogenetic analysis of the partial mitochondrial COI marker. Taken together, subtle morphological differences, geographical distribution patterns and genetic discontinuities have important implications for understanding diversity, systematics and evolution of squat lobsters.

**Keywords:** Crustacea, Anomura, *Agononida*, new species, Indo-West Pacific, mitochondrial genes

### Introduction

The application of molecular data to species differentiation and recognition is increasingly revealing the presence of more species than hitherto acknowledged. Examples can now be found within squat lobsters: four species where previously there was one, *Allogalatea elegans* (Cabezas *et al.* 2011); and three species where only *Uroptychus naso* was recognised previously (Poore & Andreakis 2011). Molecular and morphological data have been combined to reveal numerous new species of *Paramunida* (Cabezas *et al.* 2010). In the case of *Eumunida*, molecular data revealed a cryptic species and the probable synonymy of three others previously separated on morphological grounds (Puillandre *et al.* 2011).

Preliminary DNA analysis of mitochondrial and nuclear genes from a limited number of specimens revealed that munidids collected from the continental slope of Western Australia (McCallum 2011; Poore *et al.* 2008) identified initially as the widespread species *Agononida incerta* (Henderson, 1888) comprised four genealogical lineages. The question arose – which if any of these lineages was *A. incerta* and what do the dozen or so records of this species (see citations in Baba *et al.* 2008 and discussion at end of this paper) from throughout the Indo-West Pacific refer to?

*Agononida* Baba & de Saint Laurent, 1996 can be distinguished from the other 19 genera of the squat lobster family Munididae Ahyong, Baba, Macpherson & Poore, 2010 by the absence of a process on the mesogastric region, presence of dorsal spines and transverse striae, simple spine-like rostrum and supraocular spines, four (rarely two) spines on the anterior transverse ridge of abdominal somite 4, pereopods 1–3 without epipods, pereopods 2–4 with spinose meri and robust setae along the flexor margin of the dactyli, antennal peduncle articles 1 and 2 each with a distomesial spine, the orbit simple, oblique frontal margin, sternite 7 without lateral seta-like spines, absence of gonopod 1 and presence of gonopod 2 in the male. The genus has been diagnosed most recently by Macpherson & Baba (2011). Baba *et al.* (2008) listed 31 species and Macpherson & Baba one more. *Agononida incerta* is the type species.