



## Five new species of Axiidae (Crustacea: Decapoda: Axiidea) from deep-water off Taiwan, with description of a new genus

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### Abstract

One new genus and five new species of axiid burrowing shrimps are described from deep-waters around Taiwan: *Formosaxius dorsum* n. gen., n. sp.; *Ambiaxius propinquus* n. sp., *Calastacus formosus* n. sp.; *Eiconaxius rubrirostris* n. sp. and *E. kensleyi* n. sp. The new genus, *Formosaxius*, appears closest to *Bouvieraxius* Sakai & de Saint Laurent, 1989 in the arrangement and armature of the gastric carinae on the carapace and the possession of pleurobranchs, but the presence of appendices internae on the third to fifth pleopods readily separates the new genus from *Bouvieraxius*. Affinities of the other four new species are also discussed. This study raises the number of species of Axiidae known from Taiwan to 13.

**Key words:** Crustacea, Decapoda, Axiidea, Axiidae, new genus, new species, Taiwan

### Introduction

Recent phylogenetic studies (Tsang *et al.* 2008; Robles *et al.* 2009) support that the traditional infraorder Thalassinidea is not monophyletic. Four families previously assigned to the superfamily Axioidea, viz., Axiidae, Calocarididae, Eiconaxiidae and Strahlaxiidae, are now placed within a smaller group, infraorder Axiidea de Saint Laurent, 1973, together with the families previously referred to Callianassoidea (Robles *et al.* 2009; De Grave *et al.* 2009). Furthermore, these studies strongly suggest that the two familial taxa, Calocarididae and Eiconaxiidae are subordinated within Axiidae. Finally, Poore & Collins (2009) abandoned the recognition of Calocarididae and Eiconaxiidae as distinct families, placing them in the synonymy of Axiidae. In this study, we follow the classification of Poore & Collins (2009).

The Taiwanese axiid fauna has only been recently known by eight species (Kensley & Chan 1998; Kensley *et al.* 2000; Lin *et al.* 2000; Lin & Komai 2006): *Acanthaxius formosa* Kensley & Chan, 1998, *A. grandis* Kensley & Chan, 1998, *Ambiaxius foveolatus* Kensley, Lin & Yu, 2000, *Calastacus crosnieri* Kensley & Chan, 1998, *Calaxiopsis mclaughlinae* Lin & Komai, 2006, *Calaxius manningi* Kensley, Lin & Yu, 2000, *Calocarides chani* Kensley, Lin & Yu, 2000, and *Oxyrynchaxius japonicus* Parisi, 1917.

Recent deep-sea surveys in Taiwan revealed the presence of five more species of Axiidae. All the five species are new to science and one species even belongs to a new genus. The new axiid genus, *Formosaxius*, which is established to accommodate the new species *F. dorsum* n. sp., shows substantial similarity to *Bouvieraxius* Sakai & de Saint Laurent, 1989, but the presence of appendices internae on the third to fifth pleopods immediately distinguishes the new genus from the latter. Other four new species are: *Ambiaxius propinquus* n. sp., *Calastacus formosus* n. sp., *Eiconaxius rubrirostris* n. sp., and *E. kensleyi* n. sp. All the five species are described and illustrated in detail.