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Abstract

Investigation of shallow reef habitats around Australia revealed an extremely rich tanaid (Crustacea: Tanaidacea: Tanaidae) fauna. A total of 21 species in the family are now recognised from the Australian continent and Tasmania—about one-third of tanaids known worldwide. In this study, 15 species are diagnosed, including a new genus, *Austrotanais* g. sp., and twelve new species, *Austrotanais rileyi* **n. sp.**, *Sinelobus barretti* g. sp., *Zeuxoides lasti* **n. sp.**, *Zeuxoides lauriebourqueae* **n. sp.**, *Zeuxoides mawbeyi* **n. sp.**, *Zeuxo russi* **n. sp.**, *Zeuxo belli* **n. sp.**, *Zeuxo kirkmani* **n. sp.**, *Zeuxo odohertyae* **n. sp.**, *Zeuxo mooneyi* **n. sp.**, *Zeuxo shepherdi* **n. sp.** and *Pancoloides moverleyi* **n. sp.** Keys are provided to local genera and species.

Key words: Tanaidaceans, tanaids, systematics, new genus, new species, *Austrotanais, Hexapleomera, Pancoloides, Sinelobus, Tanais, Zeuxo, Zeuxoides*, Tasmania

Introduction

Tanaidomorph tanaidaceans comprise a cosmopolitan group of small peracarid crustaceans (Sieg 1980a) that occur from intertidal flats to the deep sea in a wide range of benthic habitats including reefs, soft-sediments, mangroves, and macroalgal and seagrass beds (Brandt 1997; Sheridan 1997; Stoner 1983). In many areas tanaidomorphs occur in very high local abundance, with densities exceeding 50,000 m^2 in some situations (Edgar 1990; Modlin & Harris 1989), providing a major food source for fishes (Nagelkerken *et al.* 2000; Platell *et al.* 1998) and constituting an important trophic linkage in food webs.

Despite their abundance and local diversity, tanaidomorphs are taxonomically poorly known in Australia, albeit with greatly increasing taxonomic interest over the past decade. Surveys of macrobenthos often report species, but taxa are typically categorised at the family or generic level, and such determinations are often incorrect (personal observations). In the present study, recent collections of tanaidaceans from around Australia for one ubiquitous family (Tanaidae) are described.

The family Tanaidae comprises a diverse and apparently monophyletic group that was reviewed worldwide in an extensive monograph by Sieg (1980b). The taxonomy of this complex family nevertheless remains somewhat problematic, in part because many new species have been discovered since that review was published, and also because of idiosyncrasies in methods applied by Sieg (1980b). While Sieg (1980b) considered all 39 taxa known at the time, this total likely represents a small (<20%) proportion of extant species. Moreover, Sieg (1980b) redescribed some species without mentioning locality of animals illustrated, a problem compounded by a paucity of discussion in his monograph on variation in taxonomic characters within species, which in some cases was likely considerable. Because some 'species' may in fact represent complexes of cryptic species (Graham Bird, pers. comm.), matches with illustrations of Sieg (1980b) can rarely be unequivocally regarded as matches with the nominal species unless type material is also referenced. Amongst others, this uncertainty pertains to *Hexapleomera robusta, Sinelobus stanfordi* and *Tanais dulongii*, species that were recorded by Sieg (1980b) from Australia.

An additional problem in our taxonomic understanding of the family Tanaidae relates to the particular morphological characters regarded by Sieg (1980b) as most important in his system of classification. Some of these characters vary with growth of individuals and also between animals within populations, including the relative length of antennule article 1 and article 2, form and number of accessory setae associated with the mandibular lacinia mobilis, number of pleopod setae, and, in particular, the number of uropod articles (Larsen & Wilson 1998).

Unfortunately a comprehensive review of the phylogeny of tanaids, which should include genetic analysis and re-examination of type material in overseas institutions, was beyond the time and means of the present author. Consequently, many issues remain unresolved in the current study of Tanaidae, which is based on specimens obtained from inshore waters around the Australian continent and Tasmania.