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Coastal Talitridae (Amphipoda: Talitroidea) from north-western Australia to Darwin with a revision of the genus *Cochinorchestia* Lowry & Peart, 2010

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Abstract

Three species of coastal talitrids are reported from north-western Western Australia: *Australorchestia tantabiddyensis* sp. nov., from Tantabiddy Rockholes Cave, Cape Range National Park; *Talorchestia dampieri* sp. nov. from Roebuck Bay, Broome and Cygnet Bay, King Sound; and *Tropicorchestia derbyensis* gen. et sp. nov. from Derby, King Sound. Five species are reported from west of Darwin, Northern Territory: *Cochinorchestia lindsayae* sp. nov.; *Cochinorchestia metcalfeae* sp. nov.; *Floresorchestia limicola* (Haswell, 1880); *Microrchestia ntensis* sp. nov.; and *Tropicorchestia glasbyi* sp. nov. The genus *Cochinorchestia* Lowry & Peart, 2010 is revised: *Orchestia notabilis* of Griffiths, 1973 is assigned to the new species *Cochinorchestia murrumbene* sp. nov. from Mozambique; *Orchestia* sp. of Ledoyer, 1979 is assigned to the new species *Cochinorchestia poka* sp. nov. from Ambon, eastern Indonesia; and *Orchestia notabilis* of Ledoyer 1986 is assigned to the new species *Cochinorchestia tulear* sp. nov. from south-western Madagascar. *Microrchestia* sp. of

Bussarawich 1985 appears to be an undescribed species of *Cochinorchestia* from Thailand. We introduce the term *virgula dentata* to describe the highly modified tip of antenna 2 in talitrid amphipods and propose a theory for the age and current distribution of the family.

Key words: Crustacea, Amphipoda, Talitridae, *virgula divina*, northern Australia, Mozambique, Madagascar, taxonomy, new genus, new species

Introduction

Until now nine species of Talitridae have been reported from tropical Australia. Serejo & Lowry (2008) reported *Australorchestia occidentalis* Serejo & Lowry, 2008 from the Cape Range National Park in north-western Australia. Haswell (1880) and Serejo (2009) reported *Floresorchestia limicola* (Haswell, 1880), as *Chelorchestia limicola*, from the Queensland coast and the Great Barrier Reef, *Talorchestia terraereginae* Haswell, 1880 from Torres Strait, the Great Barrier Reef and northern Queensland and *Talorchestia spinipalma* Dana, 1852 from northern-eastern Queensland. Lowry & Peart (2010) reported *Microrchestia watsonae* Lowry & Peart, 2010 from Lizard Island, Queensland. Lowry & Springthorpe reported *Floresorchestia australis* Lowry & Springthorpe, 2009c from Darwin, Northern Territory, *Floresorchestia poorei* Lowry & Springthorpe, 2009b from Cocos (Keeling) Islands, Western Australia, *Talorchestia brucei* Lowry & Springthorpe, 2009a from Darwin, Northern Territory and *Floresorchestia serejoae* Lowry & Springthorpe (2015) from Cooktown, northern Queensland. During the Circum-Australian Amphipod Project (CAAP) a survey in King Sound, north-western Australia, revealed three additional talitrid species described here as *Australorchestia tantabiddyensis* **sp. nov.**, *Talorchestia dampieri* **sp. nov.** and *Tropicorchestia derbyensis* **gen. et sp. nov.**

In recent surveys by Kristin Metcalfe in the Darwin area, Northern Territory, five talitrid species were discovered: *Cochinorchestia lindsayae* **sp. nov.**; *Cochinorchestia metcalfeae* **sp. nov.**; *Floresorchestia limicola* (Haswell, 1880); *Microrchestia ntensis* **sp. nov.** and *Tropicorchestia glasbyi* **gen. nov., sp. nov.**

There are currently 16 species of coastal talitrids known from tropical Australia.

Virgula divina

In talitrid amphipods, the final articles of the flagellum of antenna 2 often fuse to form a conical structure encircled with overlapping serrate setae (fig. 22). In at least one taxon, *Cochinorchestia lindsayae* **sp. nov.**, the distal articles are not fused and the serrate setae form an apical clump on the final minute article (fig. 5). Dahl (1973) described this structure in detail for *Platorchestia platensis* (Krøyer, 1845) and *Deshayesorchestia deshayesii* (Audouin, 1826) and concluded that they were chemosensory setae which probably played an ‘important part in orientation, for when the amphipods are walking they are continually probing the surface of the ground with the tips of their antennae’. We propose to call this derived talitrid character the *virgula divina*, Latin for divining rod. We do not know the function of the *virgula divina*. We suspect it could be used to detect food or to determine moisture levels in the sand.

Post-Gondwanan Talitrids

Talitrids have very limited powers of dispersal and for the most part appear to be confined to the land mass where they evolved. Their main means of wide-spread dispersal is passive movement on shifting tectonic plates. However within continents or across plate boundaries they are capable of considerable movement. There is almost no overlap between genera living in the northern hemisphere (post-Laurasia) and the southern hemisphere (post-Gondwana). Only in cases such as *Talorchestia* Dana, 1852 where the docking of the Australian Plate, the Eurasian Plate and the Indian Plate allowed north-south and east-west movement across plate boundaries and the docking of the African and Eurasian Plates which allowed *Africorchestia* Lowry & Coleman, 2011 to move north into western Europe and genera such as *Talitrus* Bosc, 1802 and *Britorchestia* Lowry & Bopiah, 2012 to move south and west along the northern African Mediterranean coast less than 5 mya, since the Messinian Salinity Crisis. An earlier