



<http://dx.doi.org/10.11646/zootaxa.4018.4.3>

<http://zoobank.org/urn:lsid:zoobank.org:pub:A297C919-7B2B-482E-A3FD-97CD53C9B3EB>

## Two new species of family Neotanaidae (Peracarida: Tanaidacea) from the Antarctic and Mid-Pacific Oceans

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### Abstract

Samples collected from the Antarctic (ANDEEP/2002) and Mid-Pacific (BIONOD/2012) Oceans allowed analyses of several specimens of the family Neotanaidae. From these surveys two new species are described: *Neotanais bicornutus* and *Venusticrus thor*. The new material led to a re-diagnosis of *Venusticrus*, and *N. rotermundiae* is now assigned to this genus. The male of *N. bicornutus* shares a number of characters with the "robustus" species group, but differs by having a pleotelson about 1.5 times as wide as long, cheliped carpus about 1.5 times as long as cephalothorax, cheliped propodus with two long dorsal projections, and uropod endopod article 1 with 8–10 fine setae proximal to mid-length on outer margin. The *N. bicornutus* preparatory female differs from all species by a combination of characters including the number of setae on dorsal margin of cheliped carpus (about 15 setae), the uropod attachment slightly posterior to mid-length, uropod basal article about 2.7 times as long as endopod article 1. The female of *V. thor* differs from those of *V. insolitus*, *V. glandurus* and *V. rotermundiae* by the body proportions, the pleon having three lateral setae on epimera, pleon with a blunt ventral keel, pereopodal setation, number of setae on maxilliped endite and basis as well as other characters. Total genomic DNA was extracted from two specimens of *V. thor* and sequences of two genes, i.e., cytochrome oxidase 1 (COI) and ribosomal (28S) were obtained.

**Key words:** *Neotanais*, *Venusticrus*, COI, 28S, ANDEEP, Antarctic, Mid-Pacific

### Introduction

The superfamily Neotanaoidea Sieg, 1980 consists of one family, Neotanaidae Lang, 1956 and is considered one of the largest tanaidacean families, comprised of 51 (with two described herein) species (Anderson 2013; Wi *et al.* 2014, 2015). This family is restricted to deep water and currently holds four genera (*Carololangia* Gardiner, 1975; *Herpotanais* Wolff, 1956a; *Neotanais* Beddard, 1886; *Venusticrus* Gardiner, 1975). Neotanaids are geographically widespread with 24 species originally described from the Pacific and two, four and 19 from the Indian, Antarctic and Atlantic oceans, respectively. Despite the distributional separation, the morphology of the females is highly conservative while the males are polymorphic. This might suggest gene flow or genetic lag between populations (Gardiner 1975) which potentially could be attributed to the higher mobility of this taxon relative to Tanaidomorpha (Larsen 2005).

Before the type genus *Neotanais* was elevated to the family rank by Lang (1956), the genus was first included within the Tanaididae (Beddard, 1886) and later Paratanaididae (Lang, 1949). Afterwards, Sieg (1980) created the suborders Apseudomorpha, Neotanaidomorpha and Tanaidomorpha; he considered Neotanaidomorpha had too many shared characters with both Apseudomorpha and Tanaidomorpha to be placed within either and elevated the taxon to suborder rank.

Recently, Kakui *et al.* (2011) presented a phylogenetic study of the Tanaidacea based on a molecular analysis. Their results showed that the suborder Neotanaidomorpha nested within Tanaidomorpha, with strong support, and it was reduced to superfamily rank. This result conflicts with previous phylogenies based on morphological