

Tanaidacea (Crustacea; Peracarida) from chemically reduced habitats—the hydrothermal vent system of the Juan de Fuca Ridge, Escabana Trough and Gorda Ridge, northeast Pacific

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Table of contents

Abstract	1
Introduction	2
Material and methods	3
Systematics	4
Suborder Tanaidomorpha Sieg, 1980b	4
Superfamily Tanaoidea Lang, 1949	4
Family Tanaidae Dana, 1849	4
Genus <i>Protanais</i> Sieg, 1980a	4
<i>Protanais ligniamator</i> n. sp.	6
Superfamily Paratanaoidea Lang, 1949	21
Family Indet	21
Genus <i>Armaturatanais</i> Larsen, 2005	21
<i>Armaturatanais trispinipodus</i> n. sp.	22
Acknowledgments	24
Literature cited	27
Appendix 1. Station list	29
Appendix 2. Microhabitat	31
Appendix 3. Additional tanaidaceans found at the vent site	32

Abstract

The tanaidacean fauna from hydrothermal vents habitats on the Juan de Fuca Ridge, Escabana Trough, Gorda Ridge and from experimental wood deployments, is examined. The material revealed species belonging to the genera; *Armaturatanais*, *Meromonakantha*, *Neotanais*, *Pseudotanais*, *Protanais*, *Typhlotanais*, and an undescribed typhlotanid genus. The tanaidacean

fauna was almost exclusively dominated by *Protanais*, which in turn was almost exclusively found on recovered wood blocks. Most species are new to science and the species *Armaturatanaeis trispinipodus* n. sp. and *Protanais ligniamator* n. sp. are described. New information on tanaidacean ontogenetic variation is given for *Protanais ligniamator*.

Key words: Tanaidacea, hydrothermal vents, wood deployments, Juan de Fuca Ridge, Escabana Trough, Gorda Ridge, development, *Protanais*, *Armaturatanaeis*

Introduction

This paper is the first in a series of taxonomic papers on tanaidacean fauna in chemically reduced habitats (hydrothermal vents, cold seeps, mudvolcanoes) from around the world. In this particular study, the fauna of the hydrothermal vents system in the Juan de Fuca Ridge, N.E. Pacific, is examined and the new taxa described.

The Juan de Fuca Ridge, located off the Oregon and Vancouver coasts, has been studied for almost 50 years for its geological properties (Cox *et al.* 1964). The ridge and its accessory ridges, vent systems were discovered in 1983 and quickly became a focus for biological research (Tunnicliffe *et al.* 1985) and this interest has lasted to the present day. The Juan de Fuca Ridge vent field is among the best studied of the worlds vent system due to its proximity to urban centers and thus is easier and cheaper to reach than most other systems. The depth varies between 1450 meter at the Axial Seamount down to 3270 meter at the southern part of the Gorda Ridge.

The last decade has yielded remarkable results in the description of seep and (particularly) vent animals. Small crustaceans have been largely ignored, with the copepods being a noticeable exception (Humes & Dojiri 1980; 1981; Humes 1987; 1990; Heptner & Ivanenko 2002; Ivanenko & Ferrari 2003).

Not much is known about the tanaidaceans from chemically reduced habitats. Only a few reports exist of tanaidaceans from hydrothermal vents. Tunnicliffe *et al.* (1998) listed two species of *Leptognathia* from the Fiji–Lau system but did not cite who identified these specimens or where these were deposited. One species is listed as *L. ventralis* Hansen, 1913, but this is likely to be a misidentification as *L. ventralis* was described from Greenland (Hansen 1913) and it is unlikely to be present in a vent near Fiji.

Van Dover *et al.* (1990) reported finding *Neotanaeis* from the Escabana Trough. These specimens were apparently found in tubes fouling the tubes of giant tubeworms. The location of this material remains unknown and its identity could thus not be verified. However, this is also likely to be a misidentification as species *Neotanaeis* are not known to construct tubes. These specimens are more likely to belong to *Protanais* (which are common in the area as seen see below; do construct tubes; and superficially resemble *Neotanaeis* due to their large size, shiny, white and heavily calcified cuticle, and long uropods).