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# Four palaeonemerteans (Nemertea: Anopla) from a tidal flat in middle Honshu, Japan

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## Abstract

Four species of palaeonemerteans, including *Carinina plecta* sp. nov., *Callinera nishikawai* sp. nov., *Hubrechtella ijimai* comb. nov., and *Hubrechtella kimuraorum* sp. nov., are described from the Pacific coast of Honshu Island, Japan. The genus *Coeia* Takakura, 1922 is considered to be a subjective junior synonym of *Hubrechtella* Bergendal, 1902. *Carinina plecta* sp. nov. can be distinguished from other congeners by possessing a rhynchocoel wall principally composed of interwoven circular and longitudinal muscle fibres, a condition similar to that in another palaeonemertean genus, *Carinoma*, as well as certain members in the Hoplonemertea. *Callinera nishikawai* sp. nov. possesses a remarkable stylet-like apparatus in the proboscis, a feature that has never been reported for any other palaeonemertean. The characteristic 'tail' in *Hubrechtella* (= *Coeia*) *ijimai* comb. nov. can be regarded as a heterochronic retention of the structure that appears only in juveniles of other congeners. *Hubrechtella kimuraorum* sp. nov. has a broad U-shaped blood lacuna in the foregut region before it ramifies into a vascular plexus.

**Key words:** 3D-reconstruction, DeltaViewer, Bergendal's region, taxonomy

## Introduction

Nemerteans in the order Palaeonemertea are exclusively marine benthic dwellers, currently considered to comprise a paraphyletic group on the basis of recent molecular phylogenetic studies (Sundberg *et al.* 2001; Thollesson & Norenburg 2003). Ninety species of palaeonemerteans have previously been described worldwide (Gibson 1995, 1997, 2002; Senz 1997, 2000; Chernyshev 1999, 2002, 2003; Gibson & Sundberg 1999; Cantell 2001), twelve of which have been reported from Japanese waters (Takakura 1898, 1922; Yamaoka 1940; Iwata 1951, 1952, 1954a, b, 1957; Senz 1997; Shimomura *et al*. 2001). The present paper describes three new and one previously described palaeonemertean spe-

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