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Systematic revision of the pennellid genus *Creopelates* Shiino, 1958 (Copepoda: Siphonostomatoida) and the proposal of a new genus

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Abstract

The parasitic copepod *Creopelates floridus* Shiino, 1958 (Siphonostomatoida: Pennellidae) is redescribed based on post-metamorphic adult females in the collection of the Imperial Majesty of Japan deposited in the National Museum of Nature and Science, Tsukuba (NSMT), Japan. Five new species of pennellid copepods are described based on postmetamorphic adult females from marine actinopterygian fishes newly collected in littoral waters of Japan and the Philippines, in the western North Pacific. The copepods and their hosts are as follows: *Creopelates hosinoi* **n. sp.** from *Bryaninops yongei* (Davis & Cohen) (Perciformes: Gobiidae); *C. shirakawai* **n. sp.** from *Diancistrus fuscus* (Fowler) (Ophidiiformes: Bythitidae); *C. lubangenesis* **n. sp.** from *Gobiodon rivulatus* (Rüppell) (Perciformes: Gobiidae); *Nagasawanus akinohama* **n. gen. et n. sp.** from *Trimma grammistes* (Tomiyama) (Perciformes: Gobiidae); *N. snufkini* **n. gen. et n. sp.** from *T. tevegae* Cohen & Davis. The total number of valid species contained in the genus *Creopelates* is now five. *Nagasawanus* **n. gen.** is distinguishable from other pennellid genera by the following features: antennary processes and cephalic lobes rounded without branched fringes, neck region without processes, maxilla with claw-like terminal segment lacking spinules. Keys to the genera of Pennellidae and to the species of *Creopelates* and *Nagasawanus* **n. gen**. are also provided.

Key words: parasitic copepods, pennellid, mesoparasite, goby, SCUBA diving

Introduction

The Pennellidae Burmeister, 1835 (Copepoda: Siphonostomatoida) is one of the major families of parasitic copepods on marine fishes. The family contains about140 species 22 genera (e.g., Boxshall & Halsey, 2004; Boxshall & Walter 2014; Castro-Romero, 2014), most of which are mesoparasites (Kabata 1979; Boxshall & Halsey 2004). Several species, e.g., *Lernaeocera branchialis* (Linnaeus, 1767), are known to infest commercially important fishes, and they have been well studied (e.g., Kabata 1970, 1981, 1984). On the other hand, pennellid copepods have been also described from non-commercial fishes, e.g., small coastal fishes and deep-sea fishes (e.g., Shiino 1956, 1958; Izawa 1970, 1977; Kabata 1972; Blasiola 1979; Boxshall 1986). Very few faunal studies of the pennellids of non-commercial fishes have been undertaken so the species richness of this family is poorly known. As a result of recent surveys in Japanese waters, seven new species of pennellids have been described from small coastal fishes (Uyeno & Nagasawa 2010a, b; Uyeno 2013).

The pennellid genus *Creopelates* Shiino, 1958 which currently includes two species is a mesoparasite of marine actinopterygian fishes (Shiino 1958; Uyeno & Nagasawa 2010b). Shiino (1958) described *C. floridus* Shiino, 1958 from *Zalanthias kelloggi* (Jordan & Evermann) (= *Z. azumanus*) (Perciformes: Serranidae) based on postmetamorphic adult females collected from Sagami Bay, North Pacific Ocean, Japan, and he established *Creopelates* based on this species. However, some appendages of the copepod were not described in the original description. A second species, *C. nohmijimensis* Uyeno & Nagasawa, 2010, was described based on postmetamorphic adult females from *Priolepis borea* (Snyder) (Perciformes: Gobiidae) caught in the Seto Inland Sea, Japan.

In this paper, *C. floridus* is redescribed based on the type series and the diagnosis of *Creopelates* is redefined. Five new species of pennellids are described based on newly collected specimens in littoral waters of Japan and the Philippines. Additionally, a new pennellid genus, *Nagasawanus* **n. gen.**, is established.

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