Species Diversity **20**: 141–151
25 November 2015
DOI: 10.12782/sd.20.2.141

A New Species of *Thyone* (Echinodermata: Holothuroidea: Dendrochirotida: Phyllophoridae) from Wakayama, Japan

Yusuke Yamana[1,3], Atsushi Hirai[2], and Kentarou Hirashima[1]

[1] *Wakayama Prefectural Museum of Natural History, Funo 370-1, Kainan, Wakayama 642-0001, Japan*
E-mail: yamanamako@gmail.com
[2] *Susami Crustacean Aquarium, Esumi 808-1, Susami, Nishimuro, Wakayama 641-3142, Japan*
[3] *Corresponding author*

(Received 11 January 2015; Accepted 27 October 2015)

A new phyllophorid sea cucumber, *Thyone susamiensis* sp. nov., is described from the intertidal zone of the south coast of Wakayama Prefecture, western Japan. It is distinguished from the most of its congeners by the absence of ossicles in the body wall. *Thyone susamiensis* has only rosette-like ossicles in the introvert, where table-like ossicles are usually observed in other *Thyone* species. The usual table-like ossicles were observed only in the peri-oral skin in *T. susamiensis*. Among congeners, this condition has been reported only in *Thyone flindersi* O'Loughlin, Barmos, and VandenSpiegel, 2012. However, *T. flindersi* occasionally has table-like ossicles in the anal appendages, where *T. susamiensis* usually only has rod-like ossicles. The general body colouration and the shape of the calcareous ring are also distinctive, separating species *T. susamiensis* from *T. discolor* Sluiter, 1901, *T. roscovita* Hérouard, 1889, and *T. venusta* Selenka, 1867, species for which detailed description of ossicles are lacking.

Key Words: Holothuroidea, Dendrochirotida, Phyllophoridae, *Thyone susamiensis* sp. nov., new species, Japan.

Introduction

The dendrochirotid sea-cucumber genus *Thyone* Oken, 1815 (type species: *Holothuria fusus* Müller, 1776) is one of the oldest in the class Holothuroidea and has a complicated nomenclatural history. Names established in Oken (1815–1816), including *Thyone*, were once ruled to be unavailable since the works did not strictly follow the Principle of Binominal Nomenclature (International Commission on Zoological Nomenclature [ICZN] 1956). While Jaeger (1833) subsequently made the dendrochirotid *Thyone* available, Lesson (1830) had earlier erected an aspidochirotid holothurian genus with the same name: *i.e.*, the aspidochirotid *Thyone* Lesson, 1830 had precedence over the dendrochirotid *Thyone* Jaeger, 1833. Despite the above ICZN ruling, however, *Thyone* has been in prevailing usage in the sense of Dendrochirotidae, rather than Aspidochirotidae. This prompted Paulay and O'Loughlin (2012) to ask the ICZN to make *Thyone* Oken, 1815 available under its plenary power. Recently, a ruling on Paulay and O'Loughlin's (2012) Case 3598 was published as OPINION 2367 (ICZN 2015) to make *Thyone* Oken, 1815 an available and valid name within the Dendrochirotidae, thereby maintaining current usage in accordance with Article 82.1 of the International Code of Zoological Nomenclature (ICZN 1999).

Being the most speciose genus in the class Holothuroidea, *Thyone* is problematic not only nomenclaturally, but also taxonomically. Oken's (1815) original diagnosis was quite simple, based on the number of expansible tentacles (10) and the shape of the composite calcareous ring (thin and tubular). Because this combination of features applies to many other holothurians even in different families (*e.g.*, species in the sclerodactyliid genus *Havelockia* Pearson, 1903), a number of species once placed in *Thyone* have been transferred to other taxa, such as *Stolus* Selenka, 1867. Still, 61 species and two subspecies are currently contained in *Thyone* (Paulay 2014), many of which require scrutiny to ascertain their precise taxonomic placement.

Although no full redescription of the type species, *T. fusus* (Müller, 1776), has been published, detailed information concerning some of its features was provided by Madsen (1941). According to this and other publications, many of the currently recognized species of *Thyone* share certain common features, which are presently understood as defining features of the genus: 10 tentacles comprising eight large and two small (ventral) ones; a long, tubular composite calcareous ring, in which the anterior first piece of each radial and inter-radial element is broad with anterior projections, more posterior to which a mosaic pattern of 1–3 rows of pieces is usually formed; a bifid posterior part of the radial elements, usually with the beginning of the fork situated posterior (sometimes barely anterior) to the rear end of the adjacent inter-radial element; one Polian vesicle and one (sometimes two) stone canals; pedicels covering the entire body; no pedicels on the introvert; the body elongate and cylindrical or tapered towered both ends; multi-perforate plate-like ossicles or rosette-like ossicles in the tentacles; and usually two-pillared table-like ossicles in the body wall (these sometimes lacking).

The following six nominal species of *Thyone sensu lato* have been reported from Japanese waters: *Thyone benti* Deichmann, 1937 from Sagami Bay (Kuramochi 2006); *T. bicornis* Ohshima, 1915 from Suruga Bay (Ohshima 1915);