



Two species of *Nemertopsis* (Nemertea: Hoplonemertea: Monostilifera) living in association with *Capitulum mitella* (Crustacea: Cirripedia: Thoracica: Lepadomorpha)

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Abstract

Two species of the monostiliferous hoplonemerteans, *Nemertopsis quadripunctata* (Quoy & Gaimard, 1833) and *Nemertopsis mitellicola* sp. nov., are reported from Shirahama, Wakayama, Japan, based on material obtained among the gooseneck barnacle, *Capitulum mitella* (Linnaeus, 1767). Redescription of *Nemertopsis quadripunctata* provides some anatomical features not reported in previous literature; these include: the rhynchodaeum opening to the dorsal portion of the oesophagus in front of the brain, and the oesophagus leading farther anteriorly to open subterminally to the exterior as a mouth; mid-dorsal vessel entering the rhynchocoel to form a single vascular plug; and the epidermis possessing a small pit in cross section, the pit being antero-posteriorly continuous, forming a complete sagittal furrow in the post-cerebral region of the body for at least 1 cm in length. *Nemertopsis mitellicola* sp. nov. differs from all the congeners in having a spirally sculptured central stylet, lateral diverticula on the intestinal caecum, and a cephalic patch, from which two longitudinal dorsal stripes extend backward.

Key words: symbiosis, invertebrates, taxonomy, systematics

Introduction

The phylum Nemertea at present contains about 1200 species (Gibson 1995). Nemerteans are basically free-living, though at least 40 species have been reported as living symbiotically with other animals; host organisms include anthozoans, echinurans, bivalves, cirripedes, decapods, solasterid asteroids, and ascidians (Jensen & Sadeghian 2005). With cirripedes, two nemertean species of the genus *Nemertopsis* are known to exhibit a symbiotic relationship: *N. quadripunctata* (Quoy & Gaimard, 1833), living in stalked barnacles (*Capitulum mitella* and *Lepas* sp.), rarely on the outer surface of the barnacles or on rocks adjacent to them, so far reported from Ambon (Quoy & Gaimard 1833), Hong Kong (Gibson 1990), and Japan (Iwata 1954); and *N. tetraclitophila* Gibson, 1990, hitherto only reported from Hong Kong (Gibson 1990; 1997), found in the mantle cavity of the balanomorph barnacle, *Tetraclita squamosa squamosa* (Bruguère, 1789).

The monostiliferous hoplonemertean genus *Nemertopsis* Bürger, 1895 was established without type designation for two nominal species, *Nemertes peronea* Quatrefages, 1846 and *Nemertopsis tenuis* Bürger, 1895. The type species of the genus was subsequently fixed by Friedrich (1955) as *Nemertes peronea* Quatrefages, 1846, which had been synonymized with *Polia bivittata* Delle Chiaje, 1841 by Bürger (1904). In addition to the two cirripede-symbiotic species, *N. quadripunctata* and *N. tetraclitophila*, the genus contains four free-living species: *N. bivittata* (Delle Chiaje, 1841); *N. exilis* Coe, 1947; *N. flavida* (McIntosh, 1874); and *N. gracilis* Coe, 1904 [including a varietal form named as *bullocki* by Coe (1940)].