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Parapercis lutevittata, a new cryptic species of *Parapercis* (Teleostei: Pinguipedidae), from the western Pacific based on morphological evidence and DNA barcoding

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Abstract

Parapercis lutevittata **sp. nov.**, a new cryptic species closely related to *Parapercis sexfasciata* (Temminck & Schlegel, 1843), is described from the western Pacific Ocean off Japan and Taiwan based on morphological and molecular evidences. It differs from congeners by having four to five large V-shaped transverse dark-brown bands over the upper side of the body, dorsal fin between the spinous and soft-rayed portions without a prominent notch, a large dark-brown blotch on the pectoral fin base, a large black spot over the caudal fin base, and a dark vertical band below the eye. The new species differs from its sympatric species *P. sexfasciata* in having an additional numerous small black dots on the base of the pectoral fin (versus with only a single large dark blotch in *P. sexfasciata*), small black dots scattered on area between the V-shaped transverse bands, absence of black spots on the base of the dorsal fin ray membrane, and one longitudinal yellow stripe on body sides when in fresh. In addition, the 633 base pairs of the mitochondrial cytochrome *c* oxidase subunit I (CO *I* or COX *I*) gene in DNA barcoding showed a deep 7.9% genetic divergence between these two similar species. The Neighbor-joining algorithm also revealed that the specimens of these two species are clearly separated.

Key words: *Parapercis lutevittata* **sp. nov.,** CO *I*, COX *I*, DNA barcoding, Pinguipedidae, cryptic species

Introduction

The perciform sandperch family Pinguipedidae was formally known as the Parapercidae or Mugiloididae (Rosa & Rosa, 1987; Randall, 2001, 2008). The family includes 79 species of 7 genera (Ho & Shao, 2010). *Parapercis* Bleeker, 1863, is the largest genus in the family, currently comprises 71 valid species (Johnson, 2006; Randall & Yamakawa, 2006; Randall, 2008; Randall *et al.* 2008; Ho & Shao, 2010). The early revision works on this genus have been done by researchers (Cantwell, 1964; Randall, 1984). Randall (2001) listed 22 species of *Parapercis* from the central and western Pacific. Shimada (2002) included 23 species, and recent new species brought to a total of 27 species in Japan (Randall & Yamakawa, 2006; Randall, 2008; Randall *et al.* 2008). Ho and Shao (2010) added one new species from Taiwan. The increasing number of new species of *Parapercis* indicates the potential for discovering new species (Randall *et al.* 2008).

Parapercis is characterized by ctenoid and cycloid scales on the head and abdomen, the upper and lower jaws with a row of curved canines, a band of villiform teeth in the front of the upper jaw, pelvic fins slightly in front of the pectoral fins, four or five dorsal spines and 19–25 soft rays, a truncate or emarginated caudal fin, and one spine on the opercle (Cantwell, 1964; Randall *et al.* 2008).

Within the genus, *Parapercis sexfasciata* (Temminck & Schlegel, 1843) can be distinguished from congeners by having the following characters: dorsal fin between the spinous and soft-rayed portion without a prominent notch, four to five large V-shaped dark-brown bands over the upper side of the body, a large deep-brown or black blotch on the pectoral fin base, one large black spot over the caudal fin base, and a dark vertical band below the eye (Kai *et al.* 2004). It inhabits the sublittoral zone on soft bottoms (Froese & Pauly, 2010) and is distributed from Japan to Taiwan (Shimada, 2002). It was also recorded in Indonesia (Gloerfelt-Tarp & Kailola, 1984). However,

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