

Pipefishes of the Syngnathid Genus *Dunckerocampus* (Syngnathiformes: Syngnathidae), with a Description of a New Species from the Indian Ocean.

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Abstract

Dunckerocampus Whitley, 1933, is recognised as valid pipefish genus, rather than a sub-genus of *Doryrhamphus* Kaup, 1856, as treated by Dawson, 1985. A new species, *D. boylei*, with a distinctive broadly-banded pattern is described from the Indian Ocean, bringing the total number of species in the genus to six. Notes and underwater photographs of species occurring sympatric with *D. boylei* are provided.

Zusammenfassung

Die Gattung Whitley, 1933, wird hier als gültig anerkannt und nicht als Untergattung von *Doryrhamphus* Kaup, 1856, gemäß Dawson, 1985. Eine neue Art, *D. boylei*, mit einem deutlichen breitgestreiften Muster, wird aus dem Indischen Ozean beschrieben. Damit erhöht sich die Gesamtzahl der Spezies in dieser Gattung auf sechs. Notizen und Unterwasserfotografien von Arten die mit *D. boylei* zusammenleben werden gebracht.

Résumé

Dunckerocampus Whitley, 1933 est reconnu en tant que genre valide de Syngnathidae plutôt qu'en tant que sous-genre de *Doryrhamphus* Kaup, 1856, comme l'estime Dawson (1985). Une nouvelle espèce, *D. boylei*, caractérisée par un patron à bandes larges, est décrite de l'Océan Indien, portant à 6 le nombre total d'espèces du genre. L'article contient des notes et des photos sous-marines des espèces sympatriques de *D. boylei*.

Sommario

Il *Dunckerocampus* Whitley, 1933, viene riconosciuto come appartenente al genere dei pesci ago, piuttosto che un sub-genere di *Doryrhamphus* Kaup, 1856, come da un trattato da Dawson, 1985. Una nuova specie, *D. boylei*, con una riconoscibile col-

orazione a righe larghe proveniente dall'Oceano Indiano, porta il numero di specie del genere a sei. Esistono informazioni e fotografie subacquee relative alle specie correlate con il *D. boylei*.

Introduction

Whitley (1933) proposed *Dunckerocampus* as a replacement name for *Acanthognathus* Duncker 1912, preoccupied by Mayr 1887 (Insecta: Hymenoptera). In his review of Indo-Pacific pipefishes, Dawson (1985) treated *Dunckerocampus* as one of two subgenera of *Doryrhamphus* Kaup, 1856, but did not explain his change in attitude from the former view that they represented separate genera of the subfamily Doryrhamphinae (Dawson, 1981). As the morphological differences between the two species complexes appear to be more in keeping with differences that distinguish other pipefish genera, the two are here recognised as separate genera.

Dawson (1985) detailed five species in the *Dunckerocampus* complex: *D. baldwini* Herald and Randall, 1972 (Hawaiian Islands), *D. chapmani* Herald, 1953 (New Caledonia), *D. dactyliophorus* (Bleeker, 1853), (Indo-west Pacific), *D. multiannulatus* (Regan, 1903) (Indian Ocean) *D. pessuliferus* Fowler, 1938 (western Pacific). Except for *D. baldwini*, all species have a distinct pattern of alternating dark and pale bands along the body, that differ in width and colour between species. In *Dunckerocampus multiannulatus* and *D. pessuliferus* there are as many as about 80 dark bands, while others have only about 30. Most species inhabit shallow protected reefs, where adults form pairs and are commonly found in large caves or below overhangs of reef above sand. They are active cleaners, removing small crustacean parasites from fishes.

The presence of a sixth species of *Dunckerocampus* was first recognised from a transparency shown to the author for identification. The broadly banded example photographed in Bali clearly differed from any of the five described species in the genus. A review of the literature revealed a photo of a specimen labelled as "*D. dactyliophorus*" (Smith & Heemstra, 1986) with the

same pattern. The specimen in the photograph is now lodged in the J. L. B. Smith Institute and is designated a paratype of *Dunckerocampus boylei* described below. Two more specimens were also located in that collection. In the following description the format and terminology of Dawson (1985) is used. All type-material is housed in the J. L. B. Smith Institute of Ichthyology (RUSI).

***Dunckerocampus boylei* sp. n.**

Broad-banded Pipefish Figs. 1-3.

Holotype: RUSI 056217, male, 142 mm SL, Mauritius, Flic-en-Flac, 20°12'S 57°20'E, Depth 20-95 m. D. Pelicier, 1995.

Paratypes: RUSI 051987, female, 142 mm SL, same data as holotype; RUSI 010090, male, 157 mm SL, Natal, Aliwal Shoal, 27.04.1979. P. Heemstra, J. Randall, G. R. Allen.

Diagnosis

Snout 1.5 in HL; snout depth 9.8-10.0 in snout length; Dark bands on body about double the width of pale interspaces; caudal fin coloured like dark band on caudal peduncle with white horizontal margins.

Description

Rings 17+20 (17-18+20-22), total 37-39; dorsal fin rays 21 (1 paratype with 20); subdorsal rings 0.5+3 (0-1+3-3.5); pectoral fin rays 20 (1 paratype with 19 on one side); head length 4.5 in standard length; snout length 1.5 in head length; snout depth 9.9 (9.8-10.0) in snout length.

Coloration. Alternating bands of reddish brown and white along the entire length, including snout and caudal fin. Each dark band with blackish margins, darkest dorsally, shading to paler red or brown ventrally and fading on undersides. Snout with narrow banding, coloured like those on the body, or a long brown lateral streak with three or more elongated black blotches, pale-whitish along dorsal ridge in some individuals. Dark band over interorbital and one over opercle, followed by about 9 bands on trunk that are broadest, with last one below dorsal fin, and about 7-12 narrower bands on tail. Dorsal fin clear.

Caudal fin red to brown with broad black posterior margin and broad white margin on upper and lower edges.

Etymology

Named *boylei* for Bill Boyle, a keen underwater fish-photographer who brought the species to the attention of the author.

Remarks

Because of its morphology and low number of dark bands, this pipefish was first reported as *Doryrhamphus dactyliophorus*. *Dunckerocampus dactyliophorus* however appears to be restricted to the Pacific Ocean between Australia, Japan and Samoa. The African records of *D. dactyliophorus* are based on specimens of *D. boylei* and there is no other evidence that *D. dactyliophorus* occurs in the Indian Ocean. The black and white photo of a juvenile *D. dactyliophorus* in Smith's Seafishes (page 449: 145.7) is of a specimen from the Philippine Islands. Photographs taken in the Red Sea of *D. boylei* suggest that records of *D. dactyliophorus* from there appear to be based on this species as well.

Dunckerocampus boylei is sympatric with three other members of the genus. It is readily distinguished from the other species by its colour pattern and also occurs in deeper water. The shallowest an individual was seen was at 25 m in Bali. In the Indian Ocean *D. boylei* occurs with *D. multiannulatus* (Fig. 4) which is readily distinguished by its numerous narrow bands and is rarely found in depths over 25 m. In Bali, *D. boylei* is sympatric with two species: the shallow dwelling *D. dactyliophorus* (Fig. 5) with narrower bands, a distinctive caudal fin and a depth range of about 1-15 m, and *D. pessuliferus* (Fig. 6), that has narrow yellow bands and a depth range of about 6 - 25 m.

Distribution

Only known from type localities, Tulamben, on the north coast of Bali, Indonesia and Red Sea. Due to deep water habitat it is rarely collected and may be expected to be wide-ranging in the Indian Ocean and adjacent waters.



Fig. 1. *Dunckerocampus boylei*. RUSI 010090, paratype, male, 157 mm SL, Natal, Aliwal Shoal. Photo by John E. Randall.



Fig. 2. *Dunckerocampus boylei*, Tulamben, Bali, Indonesia. Depth about 25 m. This species is readily distinguished from the other members of the genus by its broad dark bands, and unique caudal fin colour pattern. The closed caudal fin shows the orange-brown as another band, and white tips separated by black. The white on the dorsal ridge of the snout, maybe a male characteristic. This photograph represented the first record of this species for Indonesia. Photo by Bill Boyle.



Fig. 3. *Dunckerocampus boylei*, Tulamben, Bali, Indonesia. Depth about 25 m. The caudal fin shows the diagnostic pattern for this species: a broad black posterior margin with distinctive white upper and lower tips. Photograph by Takamasa Tonzuka.



Fig. 4. *Dunckerocampus multiannulatus*, Maldives. Depth about 4 m. The species is readily recognised by the narrow banding. The large caudal fin is similar to that of the species below, but lacks the central white spot. This species is most common at shallow depths, but ranges to 35 m. It has not yet been found in the same area as *Dunckerocampus boylei*, but is widespread in the Indian Ocean ranging eastward to Sumatra.



Fig. 5. *Dunckerocampus dactyliophorus*, Tulamben, Bali, Indonesia. Depth about 6 m. This is the most commonly observed species in the West Pacific. It usually occurs in pairs, but in some sheltered bays may congregate in large numbers. Juveniles are often in small groups. This species is rarely found in depths over 20 m. The colour of the dark bands varies from reddish-brown to black, but the caudal fin is typically coloured as shown in the photograph.



Fig. 6. *Dunckerocampus pessuliferus*, Tulamben, Bali, Indonesia. Depth 25 m. This is a juvenile about 12 cm TL. Juveniles generally have a proportionally larger caudal fin, but the colour pattern shown is diagnostic of the species. In adults the yellow central spot and upper white margin is more defined. This species reaches about 16 cm TL, and ranges from North Western Australia to Malaysia (Borneo) and the Philippine Islands.

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