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Description of a New Dottyback of the Genus *Pseudochromis* (Pisces: Pseudochromidae) from Western Australia

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ABSTRACT. A new species of *Pseudochromis* (Pseudochromidae) is described on the basis of a single specimen trawled from 80 m at Glomar Shoal, off northern Western Australia. *Pseudochromis reticulatus* n.sp. is separable from other *Pseudochromis* in having the following characters in combination: dorsal rays III,27 (all soft rays branched), anal rays III,15, scales in lateral series 34 to 36, anterior lateral line scales 28 to 30, circumpeduncular scales 16, and caudal fin pointed.

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The coral reef fish family Pseudochromidae is currently divided into four subfamilies (Godkin & Winterbottom, 1985): Pseudochrominae (with nearly 70 species), Pseudoplesiopinae (about 25 species), Anisochrominae (2 species) and Congrogadinae (19 species). Studies of material for a systematic revision of the Pseudochrominae by the senior author have resulted in the discovery of a single specimen representing a new species.

This paper presents a description of the new species, which is here assigned tentatively to the genus *Pseudochromis* Rüppell (1835). Until recently, only one other pseudochromine genus, *Labracinus* Schlegel (1858),

has been generally recognised. Cladistic studies of osteological and other characters by the senior author have provided evidence for the resurrection of *Assiculus* Richardson (1846), *Cypho* Myers (1940 = *Nesiotes* De Vis, 1884) and *Ogilbyina* Fowler (1931) from synonymy with *Pseudochromis*, and the recognition of three new genera (all based on species previously referred to *Pseudochromis*). *Pseudochromis*, with over two thirds of the pseudochromine species, still remains a 'wastebasket' for species which cannot be placed in the other genera. More definite placement of the new species must await the completion of osteological studies which are being pursued in order to refine the generic classification of

the Pseudochrominae.

Methods and Materials

All measurements to the snout tip were to the midanterior of the snout. Standard length (SL) was measured from the snout tip to the middle of the caudal fin base at the vertical through the posterior edge of the dorsal hypural plate. Head length was measured from the snout tip to the dorsal edge of the gill opening with the calipers fitting relatively tightly. Snout length was measured over the shortest distance from the snout tip to the orbital rim without constricting the fleshy margin of the latter. Orbit diameter was measured as its fleshy horizontal length. Predorsal, prepelvic and preanal lengths were measured from the snout tip to the base of the first spine of the relevant fin. Body width was measured at the (post-temporal) pore patch immediately dorsoanterior to the upper edge of the gill opening. Caudal peduncle length was measured from the posterior edge of the base of the last anal fin ray to the ventral edge of the caudal peduncle at the vertical through the posterior edge of the ventral hypural plate. Caudal peduncle depth was measured obliquely between the bases of the last dorsal and last anal fin rays. Measurements of fin elements excluded any filamentous membranes. Caudal fin length was the length of the lowermost of the rays on the upper hypural plate.

The last ray in the dorsal and anal fins is divided at its base and was counted as one ray. The upper ray in the pectoral fins is rudimentary and rotated so that the asymmetrical medial and lateral segments appear to represent two separate rays; these were counted as a single ray. Counts were made of the scales in the dorsoanterior ('anterior') and midlateral ('posterior') lateral lines, and included intermittent non-tubed scales and empty scale pockets. The posterior lateral line count was partitioned into a peduncular (ending with the scale at the hypural margin) and a caudal fin component. Scales in lateral series was defined as the number of scales in the anterior lateral line plus the number of transverse scale rows on the caudal peduncle, the latter count beginning with the transverse row following the last tubed scale in the anterior lateral line and finishing with the transverse row passing through the mid-posterior edge of the hypural plate. Two counts of cheek scales rows were made, one ('scales behind eye') of the vertical rows from the midposterior edge of the orbital rim to the upper edge of the preopercle, the other ('scales to preopercle angle') of the oblique rows from the posteroventral orbital rim to the preopercle angle. Gill raker counts included all rudiments; the angle raker was included in the lower (second) count. Circumorbital pores were counted from the first anterior interorbital pore (the bilateral pore behind the pore immediately dorsoposterior to the posterior nostril) around the orbital rim to the pore associated with the terminal opening of the first infraorbital bone (= lachrymal) (the pore immediately below the posterior nostril). Counts of

preopercular pores were of all pores associated with the preopercle, including those associated with the terminal openings. Posterior interorbital pores are unpaired, median pores positioned in between and usually slightly posterior to the paired (anterior) interorbital pores. Osteological details are based on a radiograph. Other counts and measurements are standard (Hubbs & Lagler, 1958).

Where meristic values were recorded bilaterally, the two counts are separated by a slash; the first value given is the left count. Patterns of insertion of supraneural bones and anterior dorsal fin pterygiophores between neural spines are given as a predorsal formula following Ahlstrom *et al.* (1976). A preanal formula depicting the pattern of insertion of anal fin pterygiophores is also given, where the first slash represents the first haemal spine (i.e., haemal spine of vertebra 11). The holotype is deposited in the Northern Territory Museum, Darwin (NTM).

Pseudochromis reticulatus n.sp.

Figs 1,2

Material examined. HOLOTYPE, NTM S.10821-004, 50.7 mm SL, Western Australia, Glomar Shoal (19°32'S 116°48'E), 80 m, Northern Territory Fisheries, 19 Sept. 1982.

Diagnosis. *Pseudochromis reticulatus* is distinguished from all other pseudochromids in having the following combination of characters: dorsal fin rays III,27, all soft rays branched; anal fin rays III,15; scales in lateral series 34-36; anterior lateral line scales 28-30; circumpeduncular scales 16; second anal fin spine only marginally stouter than third; caudal fin pointed; colour in preservative generally pale pinkish brown, dorsal contour of body with dark greyish-brown reticulations surrounding large pale spots at the base of each scale.

Description. Dorsal fin rays III,27, all soft rays branched; anal fin rays III,15, all soft rays branched; pectoral fin rays 18/19 (upper 2/1, lower 1/2 rays simple, remaining rays branched); pelvic fin rays I,5, all soft rays branched; branched caudal fin rays 8+7; upper procurrent caudal fin rays 6; lower procurrent caudal fin rays 6; scales in lateral series 36/34; anterior lateral line scales 30/28; anterior lateral line terminating beneath dorsal fin soft ray 24/22; peduncular lateral line scales 7/7; caudal fin lateral line scales 1/0; horizontal scale rows between anterior and posterior lateral lines 3/3; horizontal scale rows above anal fin origin 14+1+2/13+1+2; predorsal scales 18; circumpeduncular scales 16; scales behind eye 2/2; scales to preopercle angle 5/5; circumorbital pores 25/24; preopercular pores 12/10; dentary pores 4/4; posterior interorbital pores 1; gill rakers 5+13; pseudobranch lobes 10.

As percentage of SL: head length 23.5; predorsal length 33.1; prepelvic length 33.1; preanal length 59.2; dorsal fin base 60.0; anal fin base 25.4; dorsal fin origin

to pelvic fin origin 26.4; anal fin origin to middle dorsal ray (spines included in ray count) 25.0; snout length 6.1; orbit diameter 10.1; body width 13.0; fleshy interorbital width 5.7; bony interorbital width 3.7; snout tip to retroarticular tip 14.8; caudal peduncle length 13.6; caudal peduncle depth 16.2; first dorsal spine length 3.4; second dorsal spine length 5.9; third dorsal spine length 8.3; first dorsal soft ray length 12.6; fourth last dorsal soft ray length 19.5; first anal spine length 2.0; second anal spine length 4.9; third anal spine length 7.3; first anal soft ray length 11.8; fourth last anal soft ray length 15.2; third pectoral ray length 15.8; pelvic spine length 11.2; second pelvic soft ray length 24.3; caudal fin length 34.7.

Lower lip incomplete, with broad interruption at symphysis; dorsal and anal fins without basal scale sheaths; predorsal scales extend anteriorly to second anterior interorbital pore; operculum with 5 irregular, small, indistinct serrations; denticles of outer

ceratobranchial 1 gill rakers well developed on raker tips only; predorsal formula 0/0/0+2/1+1/1/1/1+1; dorsal fin spines pungent and relatively stout; preanal formula 2/1+1/1/1+1/1/1+1; anal fin spines pungent and relatively stout, the second spine only marginally stouter than the third; pelvic fin spine pungent and moderately stout; second pelvic soft ray longest; caudal fin pointed (rounded, with middle rays extended); vertebrae 10+16; epipleural ribs 14.

Colouration. Live colouration unknown. Preserved colouration: head and body pale pinkish brown becoming slightly darker posteriorly; scattered greyish brown pigment forming an indistinct stripe from behind eye to branchial opening; stripe contacting a less distinct short, curved streak extending around ventroposterior orbital rim; dorsal contour of caudal peduncle and body excluding predorsal contour and nape dark grey-brown; scales of dark area of body each with a large, pale basal



Fig.1. Holotype of *Pseudochromis reticulatus*, NTM S.10821-004, 50.7 mm SL, Glomar Shoal, Western Australia.

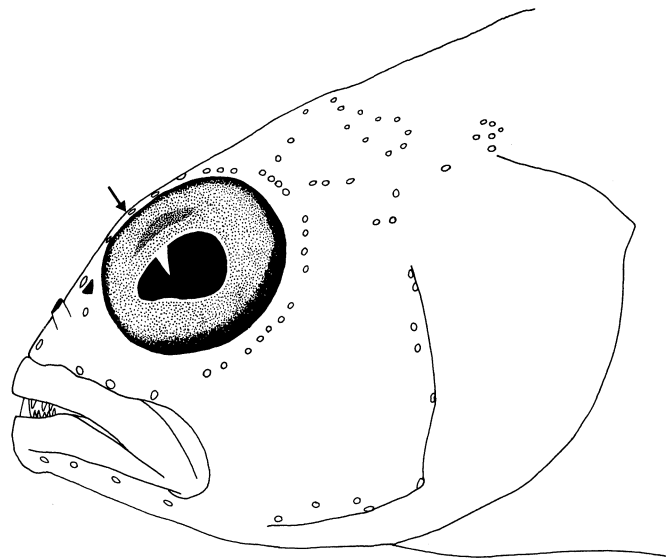


Fig.2. Diagram of the head of *Pseudochromis reticulatus* showing the distribution of cephalic lateralis pores. Arrow indicates anterior termination of predorsal scales.

spot (forming, in combination with background colouration, dark reticulations), these continuing ventrally onto pale area of body but becoming less distinct; dorsal fin white anteriorly on spinous portion, dusky hyaline posteriorly; each inter-radial membrane behind second soft ray with a short, dark grey-brown basal oblique stripe, these becoming indistinct posteriorly; anal fin dusky grey; caudal fin dusky brown with whitish upper and lower borders; pectoral and pelvic fins hyaline.

Remarks. The specific name *reticulatus* is from the Latin meaning netted or net-like and refers to the pattern of dark markings on the dorsum of the holotype. The gender is masculine.

Pseudochromis reticulatus is known only from the holotype trawled in relatively deep water (80 m) at Glomar Shoal off Western Australia. The range of the species is almost certainly more extensive, although the majority of pseudochromids have relatively narrow distributions when compared with other marine fishes (e.g., only one of seven Red Sea *Pseudochromis* ranges south into the Gulf of Aden). Other pseudochromins are relatively cryptic in behaviour, being closely associated with rock and/or coral reefs; the new species is probably no exception. The obvious logistic problems associated with collecting active, cryptic species at depths greater than about 50 or 60 m no doubt contribute heavily to the lack of further specimens of the species, despite, for example, recent demersal trawling at appropriate depths off north-western Australia by CSIRO Fisheries and Oceanography.

Determination of the relationships of *Pseudochromis reticulatus* to other species is at present difficult owing to the poor understanding of the osteology of the species (at present restricted to the few details which can be discerned either from an radiograph of the holotype or from external examination) and to the general confusion of relationships within *Pseudochromis*. However, it is possibly most closely related to a group of species including *P. andamanensis* Lubbock (1980), *P. marshallensis* Schultz (1953), *P. pylei* Randall & McCosker (1989) and at least two undescribed species from throughout the eastern Indian and western Pacific Oceans. Species of this 'complex' – which may not be monophyletic – are characterised by the following: outer ceratobranchial 1 gill rakers with well-developed denticles on raker tips only, all or most dorsal soft rays branched in adults, and a preserved colour pattern consisting of pale spots (one per scale; yellow, orange or red in life) at least dorsally on the body. *Pseudochromis reticulatus* is readily distinguished from all of these species in having 27 dorsal soft rays (versus 24–26 in the remaining species, although rarely 27 in *P. marshallensis* which otherwise has a strongly modal count of 25), second anal spine only marginally stouter than third (versus usually much stouter) and a pointed caudal fin (versus rounded, truncate or emarginate).

The new species may possibly be confused in the field with *Pseudochromis quinquedentatus* McCulloch (1926), which is also known from trawled specimens from off

the coast of north-western Australia. However, *P. quinquedentatus* is readily distinguished in having a rounded to truncate or emarginate caudal fin (depending on the size of the specimen), several large conspicuous opercular serrations, anterior heads of the palatine tooth patches directed medially behind the posterolateral arms of the vomerine tooth patch (versus more-or-less in line with the posterolateral arms in *P. reticulatus*), and a colour pattern consisting of dark grey or brown scale spots dorsally on the anterior part of the body and the nape.

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