First Record of the Gillspot Cardinalfish, *Neamia notula* (Apogonidae) from the Philippines

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ABSTRACT

A single Philippines specimen (28.3 mm standard length) of *Neamia notula* Fraser & Allen, 2001 (Apogonidae), previously recorded from Mauritius, Indonesia, and Japan, was recently discovered in the Smithsonian Museum (USA) collection. The specimen, described herein, constitutes the first record of the species from the Philippines and supports the view that *N. notula* is widely distributed in the Indo-West Pacific.

INTRODUCTION

The apogonid fish genus *Neamia* Smith & Radcliffe in Radcliffe, 1912, characterized by eight first dorsal-fin spines (8th spine barely visible or hidden by skin), a rounded caudal fin, the lateral line extending from the upper end of the gill opening to the caudal-fin base, no palatine teeth and no enlarged caniniform jaw teeth (Hayashi, 2013), is currently represented in the Indo-West Pacific by four valid species (Fraser, 2010) *N. articycla* Fraser & Allen, 2006, *N. notula* Fraser & Allen, 2001, *N. octospina* Smith & Radcliffe, 1912, and *N. xenica* Fraser, 2010. Of the four species, *N. articycla* and *N. octospina* have been recorded from the Philippines (Fraser & Allen, 2001, 2006): *N. articycla* from Luzon, Apo, and Mindanao (Fraser & Allen, 2006); and *N. octospina* from Mactan, Negros Oriental, Apo, Sibutu, Palawan, and Cuyo (Fraser & Allen, 2001). A single specimen of *Neamia* from the Philippines was found in the Museum Support Center of the National Museum of Natural History, Smithsonian Institution, USA. Identified as *N. notula* Fraser & Allen, 2001, the specimen is the only known specimen-based record of the species to date from the Philippines. This paper provides detailed description of the specimen as the first record of *N. notula* from the Philippines.

MATERIALS AND METHODS

Counts and measurements followed Fraser (2005). Measurements were made to the nearest 0.1 mm with needle -point digital calipers under a dissecting microscope. Osteological characters, including vertebral counts, were observed from a radiograph. The formula for the configuration of supraneural bones, anterior neural spines and anterior dorsal-fin pterygiophores followed Ahlstrom *et al.* (1976). The specimen of *N. notula* examined in this study is deposited at the Museum Support Center of the National Museum of Natural History, Smithsonian Institution, Suitland, MD, USA (USNM). Specimens of *N. notula* from Japan and Mauritius were listed in Yoshida & Motomura (2015). Identification of an additional specimen of *N. notula* from Indonesia (deposited at Western Australian Museum as WAM P. 33476, Bali, 08°07′S, 114° 36′E, 3–70 m depth, 8 May 2011, M. Erdmann) was confirmed during this study.

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RESULTS AND DISCUSSION

Neamia notula Fraser & Allen, 2001
(Fig. 1; Table 1)

Neamia notula Fraser & Allen, 2001: 160, Fig. 1a (type locality: Baie de la Petite Riviere, Mauritius); Allen & Erdmann, 2012: 384, unnumbered fig. (Bali, Indonesia); Yoshida & Motomura, 2015: 184, Fig. 1 (Kochi, Kagoshima, and Okinawa prefectures, Japan); Allen *et al.*, 2015: 265, unnumbered fig. (Bali, Indonesia).

Material examined. USNM 169525, 28.3 mm SL, Gulf of Davao, Philippines, 07°06′06″N, 125°40′08″E, 42 m depth, 18 May 1908, RV *Albatross*.

Description. Meristics and morphometrics of the specimen are shown in Table 1. Vertebrae 10 + 14. Formula for

Table 1. Counts and proportional measurements (% of standard length) of *Neamia notula*.

	This study	Yoshida & Motomura (2015)
	Philippines	Japan and Mauritius
	USNM 169525	*n* = 6
Standard length (SL, mm)	28.3	24.4–38.3
Counts		
Dorsal-fin rays	VIII-I, 9	VIII-I, 9
Anal-fin rays	II, 8	II, 8
Pectoral-fin rays	14	14
Pelvic-fin rays	I, 5	I, 5
Gill rakers	2 + 12 = 14	2 + 11–12 = 13–14
Pored lateral-line scales	23	23
Scales above lateral line	2	2
Scales below lateral line	6	6
Predorsal scales	4	4
Circumpeduncular scales	12	12
Measurement (% of SL)		
Body depth	—	33.6–39.3
Head length	42.0	39.4–45.8
Eye length	11.0	11.4–12.7
Snout length	8.8	8.1–9.0
Interorbital width	6.4	6.0–7.0
Upper-jaw length	21.9	19.6–22.3
Caudal-peduncle depth	15.9	13.9–17.1
Caudal-peduncle length	—	20.4–23.0
1st dorsal-fin spine length	3.2	2.7–3.2
2nd dorsal-fin spine length	10.2	7.8–11.4
3rd dorsal-fin spine length	17.7	15.6–18.4
4th dorsal-fin spine length	16.3	16.1–17.4
1st spine length of 2nd dorsal fin	10.2	9.6–10.2
1st anal-fin spine length	2.5	2.1–3.5
2nd anal-fin spine length	9.2	8.9–11.3
Pectoral-fin length	23.3	20.9–25.0
Pelvic-fin length	24.7	23.8–24.8

supraneural bones, anterior neural spines and anterior dorsal pterygiophores /00/0–1/1+1/1/1/1/1/1/1.

Body oval, moderately deep, compressed; deepest at origin of first dorsal fin. Dorsal profile of head and body convex from snout tip to caudal-fin base. Ventral profile of head and body convex from lower-jaw to end of caudal-fin base. Caudal peduncle moderately deep. Head large, compressed. Eye large, rounded. Mouth moderate in size, oblique, forming angle of *ca*. 30° to horizontal axis of body. Posterior tip of maxilla extending slightly beyond a vertical through anterior margin of pupil. Upper-jaw length less than half head length. Lower jaw projecting. No enlarged caniniform teeth on jaws. Villiform teeth in 5–7 rows on both upper and lower jaws, 3–4 rows on vomer, absent on palatines. Anterior nostril a short tube with oval opening, uppermost margin above level of ventral margin of pupil. Posterior nostril oval, opening vertically, uppermost margin below level of dorsal margin of eye. Posterior margins of preopercle and opercle smooth. Gill rakers slender, moderately long, but shorter than gill filaments. Lateral line well developed, extending from upper end of gill opening to caudal-fin base.

Origin of first dorsal fin posterior to vertical through pectoral-fin base; third spine longest. Posterior end of membrane behind last dorsal-fin spine posterior to vertical through posterior tip of depressed pelvic fin. Origin of second dorsal fin anterior to vertical through anal-fin origin; all dorsal-fin soft rays branched, first soft ray longest. Posterior end of second dorsal-fin base posterior to vertical through origin of anal fin. Anal-fin origin below base of first soft ray of second dorsal fin; second spine longer then first. Origin of pelvic fin anterior to vertical through uppermost part of pectoral-fin base. Pectoral fin extending beyond vertical through posterior end of membrane behind last dorsal-fin spine. Posterior tip of depressed pelvic fin extending beyond vertical through seventh spine base of first dorsal fin.

Coloration of preserved specimen (Fig. 1). Head and body pale, a large blotch with associated narrow dorsal stripe on opercle. First dorsal fin translucent with blackish distal margin. Second dorsal fin translucent with a narrow blackish stripe. Other fins translucent.

Remarks. The Philippines specimen was identified as *Neamia notula* on the basis of the following combination of characters: eight first dorsal-fin spines (8th dorsal-fin spine hidden by skin); 14 pectoral-fin rays; four pre-dorsal-fin scale rows; pectoral-fin length 23.3% SL; a large brown blotch on opercle, with a narrow brown stripe dorsally (Fraser & Allen, 2001; Yoshida & Motomura 2015). However, the eye length (11.0% SL) of the Philippine specimen (28.3 mm SL) differed slightly from those of six specimens from Mauritius and Japan (24.4–38.3 mm SL) given by Yoshida & Motomura (2015: Table 1) [11.4–12.7% SL (mean 12.1% SL)], apparently representing intraspecific variation.

Neamia notula was originally described by Fraser & Allen (2001) on the basis of three specimens collected from Mauritius. Allen & Erdmann (2012) subsequently reported the species from Bali, Indonesia, based on an underwater photograph (photographed specimen deposited at Western Australian Museum as WAM P. 33476; this study), and Yoshida & Motomura (2015) reported it from Japan on the basis of three specimens. The present specimen from the Gulf of Davao, only the eighth collected example of the species, represents the first record of *N. notula* from the Philippines.

Figure 1. Preserved specimen of *Neamia notula* (28.3 mm SL) collected from Gulf of Davao, Philippines (USNM 169525).

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