TWO NEW RECORDS OF ANTHIINE FISHES GENUS *PLECTRANTHIAS* (PERCIFORMES: SERRANIDAE) FROM INDONESIA

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ABSTRACT

Three specimens of *Plectranthias retrofasciatus* Fourmanoir and Randall, 1979 and one specimen of *P. randalli* Fourmanoir and Rivaton, 1980 were collected by first author from fish market, Bitung, North Sulawesi on June and September 2010. The specimens were deposited at LBRC-F, the reference collection of LIPI Bitung, Technical Implementation Unit for Marine Biota Conservation, Research Centre for Oceanography, Indonesian Institute of Sciences, Bitung, Indonesia. *Plectranthias retrofasciatus* is closely related to *P. megalophthalmus* and *P. knappi*, in sharing some morphological characters as snout length and interorbital width, while *P. randalli* differs to other species by having a moderate deep body proportion. Initially these species known only from New Caledonia for *P. retrofasciatus* and Chesterfield Islands and southern Taiwan for *P. randalli* respectively. The two species of anthiine fishes collected from Bitung, Indonesia bringing the total number of species of this genus known in Indonesia to six.

Keywords: *Anthinae, Plectranthias retrofasciatus*, *P. randalli*, Serranidae, Sulawes, New record.

INTRODUCTION

The genus *Plectranthias* generally belong to small size species of serranid fish living in hard-bottom habitat and occur in waters beyond scuba-diving depths. Moreover, this genus of fish is not well represented in museum collections which some species were described as a new species from a single specimen or one or two localities (Randall, 1980). In the country where the trawl net is prohibit, the anthiine specimens were normally taken by hook and line operated by fishermen who targeting deep water groupers or deep snappers as *Epinephelus*, *Pristipomoides* and *Etelis*.

After Randall's (1980) revision, 14 new species of *Plectranthias* were described (Randall 1996). Chen and Shao (2002) described a new species of *P. sheni* as a new species from Taiwan, bringing the total number of valid species of this genus to 45. In Indonesia, 4 species of *Plectranthias* were reported by Randall (1980; 1996), Chen and Shao (2002), Allen and Adrim (2003), Fricke and Eschmeyer (2008) as: *P. whiteheadi*, *P. megalepis*, *P. inermis* and *P. anthioides*. The species collected from Bitung, Indonesia bringing the total number of species of this genus known in Indonesia to six.

MATERIALS AND METHODS

Three specimens of *Plectranthias retrofasciatus* and one specimen of *P. randalli* were collected by author from fish market, Bitung, North Sulawesi. Methods of counting and measuring followed Randall and Heemstra (2006) with additional measurements of all spine and rays length of dorsal and anal fins and suborbital width. All measurements were made with digital calipers to the nearest 0.01 mm. Cyanine blue

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was used to examine and count scales. All lengths are reported as standard length (SL) and head length (HL). Institutional codes follow Fricke and Eschmeyer (2008) with additional abbreviations as follow: LBRC-F (The Reference Collection of LIPI Bitung, Technical Implementation Unit for Marine Biota Conservation, Research Centre for Oceanography, Indonesian Institute of Sciences, Bitung, Indonesia). Morphometric data and meristic counts for *P. sheni* and *P. kamii* (Chen and Shao, 2002), *P. helenae* and *P. kamii* (Randall, 1980), *P. pilicieri* (Randall and Shimizu, 1994), *P. megalophthalmus*, *P. retrofasciatus*, *P. rubrifasciatus* (Fourmanoir and Randall, 1979), *P. jothyi* (Randall, 1996) were used as comparison data proportional.

RESULTS

Plectranthias retrofasciatus Fourmanoir and Randall, 1979 (Fig. 1 ; Tabel 1)

Holotype: BPBM 22487, 61.8 mm SL, New Caledonia, Gazelle Pas (near northwest tip of island), 200 m, trap, P. Laboute and G. Bargibant, from M/V "Vauban", 31 August 1978.

Material examined: LBRCF 1616, 76.4 mm SL, Girian fish market, Bitung, Indonesia, hook and line, no data on depth, T. Peristiwady, 14 June 2010; LBRCF 1617, 80.7 mm SL, same data as LBRCF 1616; LBRCF 1622, 77.0 mm SL, Girian fish market, Bitung, Indonesia, hook and line, no data on depth, T. Peristiwady, 1 July 2010

Description: Dorsal-fin rays X,16; anal-fin rays III, 7; pectoral-fin rays 14 (uppermost unbranched); lateral-line scales 28-29, highly arched over pectoral region, scales above lateral line to origin of dorsal-fin 2-3; scales below lateral line to origin of anal-fin 10-11; gill rakers 16-17.

Body depth 40.47-41.69 (41.12) % SL; body width 54.72-55.80 (55.24) % body depth; head length 44.68-46.63 (45.68) % SL; snout length 21.81-22.61 (22.28) % HL; orbit diameter 27.14-28.88 (27.79) % HL; interorbital space slightly convex, the least bony width 10.68-11.05 (10.92) % HL; least depth of caudal peduncle 28.83-30.48 (29.58) % HL; caudal peduncle length 42.27-47.36 (47.79) % HL.

Dorsal profile of head nearly straight, forming an angle of about 30° to the horizontal. Mouth terminal, oblique and moderately large, the posterior of maxilla nearly reaching to a vertical rear edge of orbit, upper jaw length 46.07-48.84 (47.55) % HL; a stout canine tooth on each side at front of upper jaw; a close-set pair of canines nearly half way back on each side of lower jaw.

Anterior nostrils with membranes forming a tube in front of eye, posterior nostril obliquely

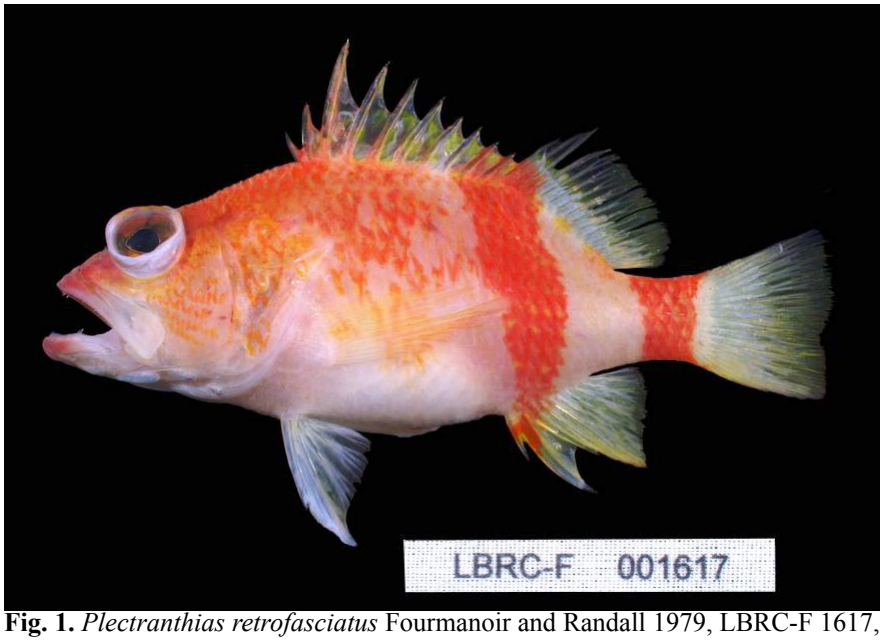

Fig. 1. *Plectranthias retrofasciatus* Fourmanoir and Randall 1979, LBRC-F 1617, 80.72 mm SL

Tabel 1. Table 1. Meristic counts for *Plectranthias retrofasciatus* and *P. randalli* from Bitung, Indonesia. Minimum and maximum measurements and mean value between brackets.

Measurement	*Plectranthias retrofasciatus* 3 specimen	*Plectranthias randalli* 1 specimen
As % of standard length		
Standard length	76.36 - 80.72 (78.02)	105.25
Head length	44.68 - 46.63 (45.68)	41.85
Body depth	40.47 - 41.69 (41.12)	44.95
Body width	22.58 - 22.81 (22.71)	18.07
Caudal peduncle depth	13.44 - 13.62 (13.51)	12.50
Caudal peduncle length	19.71 - 21.66 (20.57)	20.00
Predorsal length	41.66 - 43.98 (42.93)	40.47
Preanal length	71.27 - 73.41 (72.36)	72.45
Prepelvic length	38.88 - 41.65 (39.95)	42.61
Dorsal-fin base	53.14 - 53.85 (53.39)	60.69
First dorsal-fin spine	5.53 - 6.73 (6.15)	6.87
Second dorsal-fin spine	9.71 - 12.04 (11.17)	13.46
Longest dorsal-fin spine	20.22 - 22.37 (21.14)	21.41
Tenth dorsal-fin spine	6.88 - 8.49 (7.74)	7.07
Longest dorsal-fin ray	16.89 - 17.70 (17.16)	17.42
Anal-fin base	14.79 - 15.54 (15.28)	17.02
First anal-fin spine	8.55 - 10.29 (9.29)	8.88
Second anal-fin spine	18.12 - 20.84 (19.27)	18.77
Third anal-fin spine	15.46 - 16.03 (15.67)	15.31
Longest anal-fin ray	20.76 - 22.73 (21.87)	20.57
Caudal-fin length	24.05 - 28.27 (25.98)	22.91
Pectoral-fin length	31.49 - 35.83 (34.10)	33.53
Pelvic-fin spine length	16.98 - 17.53 (17.32)	29.32
Pelvic-fin length	25.24 - 25.85 (25.63)	28.30
Caudal-fin concavity	2.60 - 6.09 (4.49)	3.22
As % of head length		
Head length	34.12 - 37.64 (35.65)	44.05
Snout length	21.81 - 22.61 (22.28)	27.31
Orbit diameter	27.14 - 28.88 (27.79)	31.87
Interorbital width	10.68 - 11.05 (10.92)	19.02
Upper jaw length	46.07 - 48.84 (47.55)	48.49

Fig. 2. *Plectranthias randalli* Fourmanoir and Rivaton 1980, LBRC-F 1735, 105,25 mm SL

upward and behind anterior nostril, slightly more than a nostril diameter from bony edge of orbit. opercle with three flat spines, middle one largest and most posterior, slightly closer to lower than upper spine; opercular flap not pointed; posterior edge of preopercle serrated; interopercle and ventral margin of subopercle serrated.

Origin of dorsal-fin over third lateral-line scales; third dorsal-fin spine the longest, 44.20-50.06 (46.32) % HL; fourth spine nearly as long as third; remaining dorsal-fin spines progressively shorter, the tenth 33.00-38.88 (36.61) % third spine; first dorsal-fin soft ray nearly twice as long as last dorsal-fin spine; third dorsal-fin soft ray the longest, 36.21-38.69 (37.58) % HL. Origin of anal-fin beneath second to third base of dorsal-fin ray fin; second anal-fin spine longest, 39.63-46.63 (42.23) %HL; second anal-fin soft ray longest, 44.53-50.88 (47.91) % HL. Caudal-fin emarginated, the caudal-fin concavity 5.58-13.32 (9.86) % HL, upper and lower lobes not forming filaments. Pectoral-fin ray long, 67.53-80.19 (74.73) HL, reaching over a vertical line at base of first anal-fin spine; pelvic-fins not reaching anus, 54.12-57.77 (56.14) % HL.

Color when fresh (Fig. 1): Upper part of head and body pinkish, ventral part of head pale. Posterior part of body with two prominent orange-red bars, anterior bar passing from junction of dorsal-fin notch to anterior part of anal-fin ray, and the second bar on caudal peduncle. Opercle and preopercle scatered with yellow redish blotches. Dorsal-fin spine and anal-fin yellowish. Others fin pale. Base of pectoral-fin with redish blotch. Color after preservation: Body uniformely pale. All fins transparent.

Distribution: *Plectranthias retrofasciatus* innially was known from New Caledonia and now this species was also recorded from Bitung, North Sulawesi, Indonesia.

Plectranthias randalli Fourmanoir and Rivaton 1980 (Fig. 2 ; Tabel 1)

Holotype (unique): MNHN 1979-0430, Chesterfield Island, western South Pacific, 19°40'S, 158°31'E, depth 300 meters (Fourmanoir and Rivaton, 1980).

Material examined: LBRCF 1735; 105.25 mm SL, Girian fish market, Bitung, Indonesia; 125.12766, 1.43842; hook and line; no data on depth; T. Peristiwady; 24 September 2010;

Description: Dorsal rays X, 16; anal rays III, 7; pectoral-fin ray 14,; lateral-line complete, highly arched over pectoral region, lateral-line scales 37; scales above lateral line to origin of dorsal-fin 7;

rows of large scales between highly arched portion of lateral-line and spinous portion of dorsal-fin 4; scales below lateral line to origin of anal-fin 20½; gill rakers 21.

Body depth 44.95 % SL; body width 40.20 % body depth; head length 41.85 % SL; snout length 27.31 % HL; orbit diameter 31.87 % HL; interorbital space almost flat, the least bony width 19.02 % HL; least depth of caudal peduncle 29.88 % HL; caudal peduncle length 47.79 % HL.

Dorsal profile of head nearly straight, forming an angle of about 40° to the horizontal. Mouth terminal, oblique and moderately large, the posterior of maxilla nearly reaching to a vertical center of orbit, upper jaw length 48.49 % HL; a pair of stout canine tooth on each side at front of upper jaws; a close-set pair of tooth on posterior side of lower jaws.

Anterior nostrils in front of eye with membranes nearly reaching anterior nostril; posterior nostril obliquely upward and behind anterior nostril. opercle with three flat spines, middle one largest and most posterior, slightly closer to lower than upper spine; opercular flap not pointed; posterior edge of preopercle serrated; interopercle and ventral margin of subopercle serrated.

Origin of dorsal-fin over first lateral-line scales; third dorsal spine the longest, 51.15 % HL; third to tenth dorsal spines progressively shorter, the tenth 33.02 % third spine length; first dorsal-fin soft ray more than twice of last dorsal spine length; third dorsal-fin soft ray the longest, 41.61 % HL. Origin of anal-fin beneath anterior soft portion of dorsal-fin; second anal-fin spine longest, second anal-fin soft ray longest, 49.15 % HL. Caudal-fin emarginated, the caudal-fin concavity 7.70 % HL, upper and lower lobes not forming filament. Pectoral ray the long, 80.11 % HL, reaching a vertical line at base of third anal-fin spine; pelvic-fins reaching anus67.63 % HL.

Color when fresh (Fig. 2): Upper part of head and body pinkish, ventral part of head pale. Head and body with three prominent red-orange bars, anterior bar passing from nape crossing eye to below pectoral-fin base, second bar from nape to anterior fourth spine passing behind opercle to posterior part of pectoral-fin base, and the third from seventh dorsal-fin spine to anterior third of dorsal-fin rays to anal-fin; medial of caudal peduncle with red-brown spot. Anterior and posterior of dorsal-fin filament yellowish, anal-fin filament dark brown. Others fin pale. Color after preservation, body uniformely pale. All fins transparent.

Distribution: *Plectranthias randalli* innially was known from Chesterfield Island, western South Pacific. Other location was Taiwan (Lin *et al*., 1994; Chen and Shao, 2002) and now this species was also recorded from Bitung, North Sulawesi, Indonesia.

Remarks: Comparing to the other 8 species of *Plectranthias* (*P. sheni*, *P. jothyi*, *P. knappi*, *P. pilicieri*, *P. kamii*, *P. megalophthalmus*, *P. rubrifasciatus* and *P. helenae*) , *P.retrofasciatus* is most closely related to *P. knappi* in almost all measurements except the dorsal-fin base, preanal length and orbit diameter; mean while *P. randalli* closer to *P. jothyi* and *P. sheni* in having the similar persentage of head length, body width, caudal peduncle depth, caudal peduncle length and others measurements (Fig. 3). The color pattern of *P.retrofasciatus* and P. randalli also greatly differs with the others eight species in having prominent red-orange bars on body (Fig. 1, 2). Two of the most notable examples, a large black, often ocellated spot posteriorly on the dorsal fin and a prominent black spot on the fleshy pectoral-fin base, are not only found throughout the Labridae but occur extensively in the Pomacentridae as well (Gomon, 2006).

Data Comparaisons: Chen and Shao (2002): *P. sheni*, NTUM 3723, holotype, 106.7 mm SL, Chungchou fish market, Kaohsiung, southwestern Taiwan, trawled by fishermen, 26 February 1984; NTUM 8690, paratype, 104.2 mm SL, Chungchou fish market, Kaohsiung, southwestern Taiwan, trawled by fishermen, 26 February 1984; NTUM 7006, paratype, 115.1 mm SL, Tashi fish market, Ilan Co., northeastern, Taiwan, 20 May 1986; ASIZP 56173, paratype, 101.2 mm SL, Chungchou fish market, Kaohsiung, 22 May 1987. Randall and Shimizu (1994): *P. pilicieri*, BPBM 34646, holotype, 40.2 mm SL, male, Mauritius, hand net, D. Pelicier, 1990; BPBM 35420, paratype, 29.1 mm SL, same data as holotype; USNM 325539, paratype, 35.6 mm SL, male, same data as holotype; RUSI 37015, paratype, 37.4 mm SL, male, same data as holotype; NSMT-P 45180, paratype, 41.0mm SL, Mauritius, hand net, D.

Pelicier, March, 1991; Chen and Shao(2002): *P. kamii*, ASIZP 60514, paratype, 152.5 mm SL. 21 Mar. 2000. Hobihu, collected by JP Chen; Randall (1980): *P. kamii*, BPBM 19636, holotype, 215 mm SL, male, Ryukyu Islands, Okinawa, Naha fish market, 15 June 1974; BPBM 5845, , 178.5 mm SL, male, Mariana Islands, Guam, Camel Rock, Asan, 183 m, hook and line, I. Ikehara, 4 September 1966; USNM219329, paratype, 191.0 mm SL, Palau Islands, Augulpelu Reef, near vertical dropoff, 270 mm, trap, B.A. Carlson and D. Imose, 1 November 1978; Fourmanoir and Randall (1979): *P. megalophthalmus*, BPBM 22486, holotype, 61.0 mm SL, mature female, New Caledonia, south of Isle of Pines, 360 m, trawl, M/V "Vauban", 13 April 1978; *P. retrofasciatus*, BPBM 22487, holotype, 61.8 mm SL, New Caledonia, Gazelle Pass (near northwest tip of island), 200 m, trap, P. Laboute and G. Bargibant, from M/V "Vauban", 31 August 1978; *P. rubrifasciatus*, BPBM 22513, holotype, 49.0 mm SL, New Caledonia, off Bulari Pass (South of Noumea), 100 m, crab pot, M. Barro, 20 November 1978; Randall (1980): *P. helenae*, BPBM 13957, holotype, 60.5 mm SL, male, Hawaian Islands off north shore of Oahu (21°43.6-40' N, 158°04.1-07.3' W), 119-168 m, 12.5-m shrimp trawl, Townsend Cromwell Cruise 61, Sta. 27, P. Struhsaker, midnight, 17-18 October 1972; CAS40803, paratype, 50.3 mm SL, same data as holotype; USNM 218367, paratype, 53.7 mm SL, same data as holotype; BPBM 21091, paratype, 61.5 mm SL, same data as holotype; Randall (1996): *P. jothyi*, BPBM 30230, holotype, 92.0 mm SL, male, Strait of Malacca, northern part

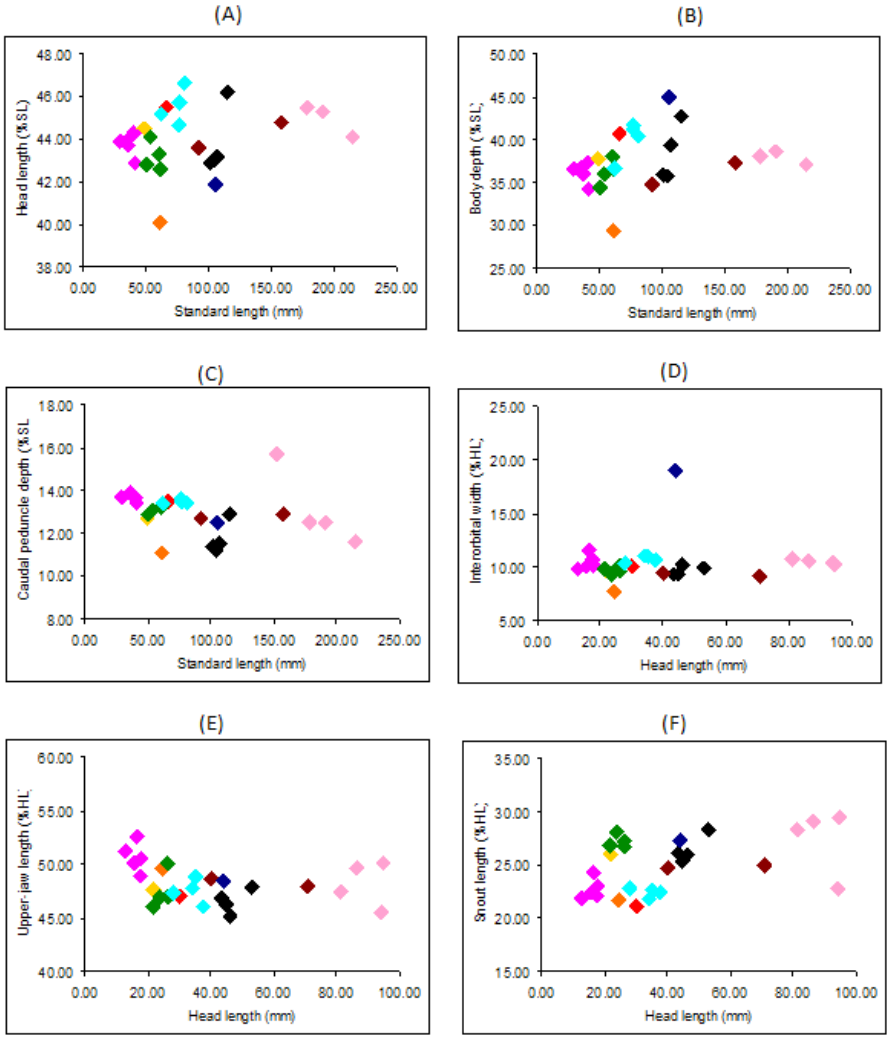

Fig. 3. Ratio of head length (A), body depth (B), caudal peduncle depth (C), interorbital width (D), upper-jaw length and snout length (E) in *P. helenae* (green), *P. jothyi* (brown), *P. kamii* (light pink), *P. knappi* (red), *P. megalophthalmus*

off west coast of Peninsular Malaysia, 180-400 m, trawl, A.A. Jothyi, 14 April 1972; *P. jothyi*, no tag number, paratype, no data of paratype; *P. knappi*, USNM 219865, holotype, 66.0 mm SL, mature female, Philippine Islands, Visayan Sea between northern Negros and Masbate Island, southwest of Caruruan Point (11°38'0" N, 123°52'38" E), 89.7 m otter trawl, "Sting Ray V", L.W. Knapp, 5 June 1978.

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