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THE IDENTITY OF *BETTA RUBRA* (TELEOSTEI: OSPHRONEMIDAE) REVISITED, WITH DESCRIPTION OF A NEW SPECIES FROM SUMATRA, INDONESIA

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ABSTRACT. — *Betta rubra* is redescribed based on fresh material and *B. dennisyongi*, new species, is described herein. The new species differs from *B. rubra* in the lateral head and opercle pattern, chin bar pattern, and is distributed more northerly along the West coast of Sumatra. The *Betta rubra* species group is validated and defined herein as well.

KEY WORDS. — taxonomy, labyrinth fish, Indonesia, biodiversity, peat swamp

INTRODUCTION

Betta rubra was originally described by Perugia in 1893, based on 10 specimens (of which only six can now be located, among which is the lectotype illustrated for both right and left sides; Fig. 2A, B) obtained from the Sibolga area (West Sumatra Province; spelt as "Siboga" in the original description) and Lake Toba vicinity (North Sumatra Province; Fig. 2C). Since then, this species did not turn up in any collections and was mentioned only in passing by Volz (1905) and Regan (1910). Regan (1910: pl. 77, Fig. 1), however, published a lithograph of *Betta rubra*, showing the essential details of a preserved fish with distinct barring pattern on the body.

Betta rubra was only mentioned in greater detail in the scientific circles 82 years later by Witte & Schmidt (1992) who commented upon its unique opercular and head colour pattern. It was only illustrated in colour for the first time by Kottelat et al. (1993) based on specimens from the preserved type series from Genova.

Subsequently, there were many speculations as to the real identity of this elusive species (see Tan, 2008). Attempts had been made to collect this species from the Lake Toba area in the North Sumatra Province; however, this may have been the wrong locality. Lake Toba had been formed by extreme volcanic activity, at a scale far exceeding that of Krakatau (Whitten et al., 1987). This lake encompasses 1146 km^2 (an area larger than the island of Singapore) with the recorded depths up to 450 m and is classified as an oligotrophic volcanic lake, being of low nutrient levels. Very few fish, if any, lived in this lake. At present, mainly introduced species of aquacultural interest occur there. On the other hand, the genus *Betta* generally comprises of fish living in slow flowing to stagnant waters, in the lowland areas (Tan & Ng, 2005a). Habitats in which *Betta* can be found in include: hill streams, forest streams, swamp forests, peat swamps, karst pools, and ox-bow lakes. Lake Toba is thus not an appropriate habitat for *Betta*, and probably an erroneous locality.

An opportune examination of specimens at the Bogor Museum (now based at the Indonesian Institute of Science, Cibinong, Jakarta) revealed a small series of five examples of a *Betta* obtained from an area in central Aceh (see Tan & Ng, 2005b). Tan & Ng (2005b) redescribed *Betta rubra* based on the type and above material, and assigned it (tentatively) to the *B. foerschi* group (Tan & Ng, 2005b). No additional information on a living population or locality was forthcoming until very recently. Now, with the availability of a series of fresh specimens from several locations along the western coast of Aceh, it is possible to re-define and validate this species group (see below). From these fresh specimens, it is possible to distinguish two distinct species, one northern (which is the one examined by Tan & Ng, 2005b) and one southern (*B. rubra*). The purpose of the present paper is to re-describe *B. rubra* based on fresh material and describe the new species.

MATERIAL AND METHODS

Fish specimens were obtained with push and scoop nets. Specimens were fixed in formalin and stored in 75% ethanol. All measurements are taken from the left side of body (whenever possible) with a pair of dial calipers (±0.05 mm). Vertebral counts were obtained using a Faxitron

LX60 digital radiography system. Material examined is deposited in the Natural History Museum, London (ex British Museum of Natural History, BMNH); Collection of Maurice Kottelat, Cornol, Switzeland (CMK); Museo Civico di Storia Naturale "Giacoma Doria", Genova (MSNG); Research and Development Centre for Biology (ex Museum Zoologicum Bogoriense), The Indonesian Institute of Sciences (MZB); and the Zoological Reference Collection of the Raffles Museum of Biodiversity Research, National University of Singapore (ZRC). Abbreviations used are SL: standard length, TL: total length, HL: head length, BL: body length.

TAXONOMY

Betta rubra species group

Witte & Schmidt (1992) distinguished *B. rubra* as having a triangular mark below the eye; found in the lowlands of northwestern Sumatra; and size up to 38 mm SL. From the present study, it is clear that *B. rubra* is not allied to the *B. foerschi* group; it deserves its own species group (based on morphology, and molecular data, Rüber, pers. comm.). *Betta rubra* does not have the twin bars on the opercle as observed in living specimens and fresh material (which is one of the characters for *B. foerschi* group). Instead, the opercular pattern consist of an interrupted or continuous black postorbital stripe to the edge or near the edge of opercle with the posterior part of the postorbital stripe enlarging to a bar-like marking (Fig. 1A–D). *Betta rubra* is also sexually dimorphic when mature; males being more colourful and having black bars on the body, whereas females are paler or uniform in colour pattern, with a black stripe on the body and with a distinct white roundish genital papilla.

The *Betta rubra* group can be further defined by the following characters: suborbital stripe below eye always present and broad (2–5 scale rows; equivalent to a triangular mark; Fig. 1); anal fin II–IV, 22–25 (total = 25–27); lateral scales 29–32; both males and females with pointed dorsal and anal fins, rounded caudal fin with extended median rays; mature males with 4–8 broad black lateral bars; females and juveniles with longitudinal black lateral stripe ; found in lowland habitats of northwestern Sumatra; and size up to 42 mm SL.

Betta rubra Perugia, 1893
(Figs. 1A–D, 2A–C, 3A,B, 4)

Betta rubra Perugia, 1893: 242; Volz, 1905: 127 (part), 1907: 127 (part); Regan, 1910: 781, pl. 77, Fig. 1; Witte & Schmidt, 1992: 325; Kottelat et al., 1993: 163, pl. 76; Tan & Ng, 2005a: 58; Tan & Ng, 2005b: 119, Fig. 1a,b (part); Tan, 2008: 5 (part)

Material examined. — **West Sumatra Province** – MSNG 13019a, 1 ex., lectotype, 28.6 mm SL; MSNG 13019, 4 ex., paralectotypes, 26.9–31.4 mm SL; Siboga; E. Modigliani, 1886. **North Sumatra Province** – BMNH 1893.5.29:1, 1 ex., paralectotype, 33.3 mm SL; Lake Toba; E. Modigliani. **Aceh Province** – ZRC 53989, 40 ex., 26.5–42.1 mm SL; CMK 23280, 4 ex., 31.8–35.6 mm SL; Sumatra: Aceh: Kabupaten Aceh Singkil: remnant peat swamp forest near Gosong Telaga, along road Singkil-Subulussalam, outskirts of Singkil town (12 m asl, pH 5.5); T. Sim et al., 19 Apr.2009. ZRC 54000, 1 ex., 34.0 mm SL; Sumatra: southern Aceh, trade material; Ishizu, Feb.2008.

Diagnosis. — *Betta rubra* can be distinguished from *B. dennisyongi* by the following suite of characters: an interrupted black postorbital stripe from posterior of eye to mid-opercle, with a large black bar-like marking on posterior half of opercle not extending to opercle edge (vs. a continuous stripe), leaving a clear cream edge over entire opercle margin (vs. not entire opercel margin); less broad suborbital stripe below eye forming a triangular black mark (2–3 scale rows wide, vs. 4–5); more intense body colouration with smaller interspaces between the black body bars; a greater number of anal-fin rays (mode 27, vs. 25); fewer subdorsal scales (5–5½, vs. 6–7); fewer lateral scales (mode 30, vs. 31); fewer vertebrae (mode 29, vs. 30); shorter dorsal-fin base length (11.0–13.4, vs. 13.0–18.4% SL); and larger maximum size (42.1, vs. 35.4 mm SL).

Description. — General appearance as illustrated in Figs. 3A,B, 4; meristic and morphometric data of *B. rubra* are listed in Table 1. Body relatively slender (body depth 25.0–28.1% SL), head relatively short (head length 30.4–35.7% SL). Dorsal and anal fins pointed, caudal fin rounded with extended median rays and interradial membrane; dorsal fin placed relatively far back (predorsal length 65.4–73.2% SL); anal-fin base length about half of standard length (52.2–58.3% SL); pelvic fin falcate with first ray long and filamentous (30.7–48.9% SL); pectoral fin rounded. Vertebral count: 9–10 + 18–20 = 27–29 (mode = 29, n = 15). Maximum size: 42.1 mm SL.

Preserved colouration. — See Figs. 2A–C, 3A,B for general appearance. Dorsum of body dark brown to black, lateral reddish, ventrum lighter brown to cream. Dorsum of head brown with black spots sometimes indistinct. Lower lip black. Distinct pre- and postorbital dark-brown to black stripes on head, an interrupted postorbital black stripe from posterior of eye to mid-opercle, with a large black almost bar-like marking on posterior half of opercle not extending to opercle edge, leaving a clear cream edge over entire opercular margin. Broad dark brown to black chin-bar/suborbital stripe present, forming a triangular dark brown to black mark below eye, up to eye diameter in width. Opercle region basal colour brownish to reddish (depending on period of preservation). Male body with irregularly spaced blackish vertical 4–7 bars, restricted to lower half of body; bars prominent on anterior two-thirds of body. Female body dark brownish red, with reddish patches on ventral region. Caudal peduncle spot faint. Fins brownish, sometimes reddish. Dorsal, caudal and anal fins without transverse bars on interradial membrane; with hyaline edge. Pectoral fin hyaline; base black. Pelvic fin reddish.

Live colouration. — See Fig. 4 for general appearance. Basal body colour reddish to brownish. Dorsum darker than ventrum. Dorsum of head with dark brown to black spots.

Mouth with lower lip black. Lower half of iris of eye bright bluish-green. Head and opercle pattern as above; bar-like marking on posterior half of opercle with gold iridescence; opercle edge bright red; rest of opercle region reddish. Body with 4–7 irregularly spaced blackish bars, restricted to lower half of body. Fins reddish. Dorsal, caudal and anal fins with bright bluish-green edge; base of fins with greenish iridescence. Pectoral fin base with an iridescent bluish-green spot. Pelvic fin reddish with greenish flush and green tip.

Field notes. — *Betta rubra* has not been collected since its original description and no authoritative details of its habitat have ever been published in the scientific literature. The present series of fresh material of this species was obtained from a highly disturbed and fragmented environment. The surrounding peat swamp habitat in the Singkil area had already been cleared, apparently for the planting of oil palm. The surrounding peatlands had been drained by ditches and was hot and dry at the time of the visit in 2009 (Fig. 5). The remnant population of *B. rubra* was obtained from a pool of stagnant black water next to an uprooted tree. The pool had no other fish in it. The surface was tepid but the deeper portions cool. Other smaller and shallower water pools were sampled but did not contain any fish. A river nearby was also sampled but did not yield any *B. rubra*.

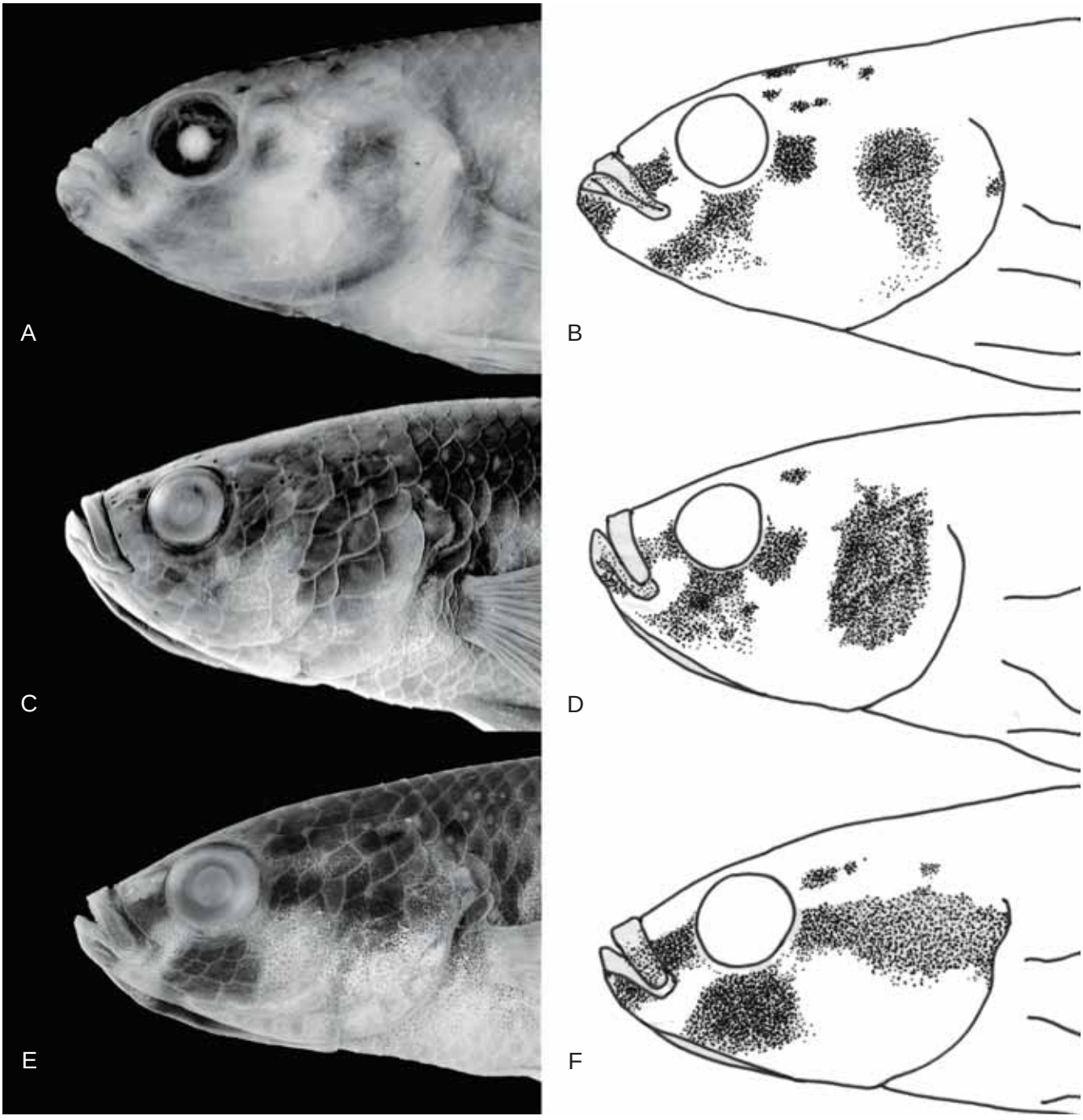

Fig. 1. Comparison of lateral head and opercle pattern, left side with photograph, right side with schematic drawing. A, B, *Betta rubra*, MSNG 13019, lectotype, 28.6 mm SL; C, D, *Betta rubra*, ZRC 53989, 34.0 mm SL male; E, F, *Betta dennisyongi*, MZB 17207, holotype, 27.4 mm SL male.

Distribution. — *Betta rubra* is currently known definitively from the peat swamps in the Singkil area in Aceh; possibly Lake Toba (though possibly erroneous; see earlier Introduction) area near Medan in Sumatra Utara; and Sibolga in northern part of Sumatra Barat (Fig. 6).

Remarks. — See discussion in Tan & Ng (2005a, 2005b) for details of a 1982 series (incorrectly referred to as *B. rubra*) from MZB which belongs to the new species described herein; and the apparent reddish tinge of the original type series. This species has been recorded to be a paternal oralbrooder by aquarist reports and personal observations.

Betta dennisyongi, new species
(Figs. 1E,F, 7A,B, 8A,B)

Betta rubra (non-Perugia) – Tan & Ng, 2005b: 119, Figs. 1a,b (part); Tan, 2008: 6 (part); Schindler & van der Voort, 2012: 23.

Material examined. — (all from Aceh Province) – Holotype: MZB 17207, 27.4 mm SL male; Sumatra: Aceh: Kabupaten Nagan Raya: Lamie, Alue Rayeuk, stream along road Meulaboh-Blangpidie; brown water stream at rubber estate (57 m asl, pH 6.1); T. Sim et al., 16 Apr.2009.
Paratypes – MZB 17208, 4 ex., 22.0–23.5 mm SL; ZRC 53990, 19 ex., 10.1–28.0 mm SL; same locality as holotype. ZRC 53991, 25 ex., 13.2–33.0 mm SL; Sumatra: Aceh: Kabupaten Aceh Barat Daya: Alue Labi, stream through oil palm estate along road Meulaboh-Blangpidie; T. Sim et al., 16 Apr.2009. ZRC 53995, 7 ex., 19.0–33.5 mm SL; CMK 23281, 4 ex., 27.9–31.4 mm SL; Sumatra: Aceh, Aceh Barat, stream flowing through padi fields at Cot Mane, Kreung Babah Rot drainage; H. H. Ng et al., 2 Jun.2010.

Non-type material examined. — (all from Aceh Province) – ZRC 53992, 2 ex., 19.2–29.4 mm SL; Sumatra: Aceh: Kabupaten Aceh Singkil: Trumon, hill stream along road Subulussalam-Singkil (11 m asl, pH 7.0); T. Sim et al., 18 Apr.2009. ZRC 50871, 2 ex., 25.6–29.5 mm SL; Aceh Selatan area; H. Ishizu, Feb.2007. MZB 4784, 3 ex., 23.4–35.0 mm SL; ZRC 42497, 2 ex., 33.4–35.4 mm SL; Sumatra: Aceh Barat, Alur Sungai Iamueselatan; H. B. Munaf & M. Toha, 13 Dec.1982. ZRC 51378, 7 ex., 24.1–28.3 mm SL; Sumatra: southern Aceh, trade material; Ishizu, Feb.2008.

Diagnosis. — *Betta dennisyongi* can be distinguished from *B. rubra* by the following suite of characters: a continuous black postorbital stripe extending up to opercle edge (vs.

Fig. 2. *Betta rubra*: A, MSNG 13019a, lectotype, 28.6 mm SL, left side; B, lectotype, right side, Sibolga; C, BMNH 1893.5.29:1, paralectotype, 33.3 mm SL, Lake Toba.

Fig. 3. *Betta rubra*: A, ZRC 53989, 34.0 mm SL male; B, ZRC 53989, 37.9 mm SL female; freshly collected specimens from southern Aceh.

Fig. 4. *Betta rubra* live male specimen from southern Aceh (from same series as ZRC 53989, not preserved).

Fig. 5. Fragmented peat swamp locality in Singkil where a remnant population of *B. rubra* was collected (2009).

interrupted stripe); broad suborbital stripe below eye forming a triangular black mark (4–5 scale rows wide, vs. 2–3); less intense body colouration with wider interspaces between the black body bars; fewer anal-fin rays (mode 25, vs. 27); a greater number of subdorsal scales (6–7, vs. 5–5 ½); a greater number of lateral scales (mode 31, vs. 30); a greater number of vertebrae (mode 30, vs. 29); longer dorsal-fin base length (13.0–18.4, vs. 11.0–13.4% SL); and smaller maximum size (35.4 vs. 42.1 mm SL).

Description. — General appearance as illustrated in Figs. 7A,B, 8A,B; meristic and morphometric data of *B. dennisyongi* are listed in Table 1. Body relatively slender (body depth 23.1–28.5% SL), head relatively short (head length 29.9–37.1% SL). Dorsal and anal fins pointed, caudal fin rounded with extended median rays and interradial membrane; dorsal fin placed relatively far back (predorsal length 64.0–69.2% SL); anal-fin base length about half of standard length (47.2–58.4% SL); pelvic fin falcate with first ray long and filamentous (28.0–40.6% SL); pectoral fin rounded. Vertebral count: 9–11 + 19–20 = 29–30 (mode = 30, n = 20). Maximum size: 35.4 mm SL.

Preserved colouration. — See Fig. 7A,B for general appearance. Dorsum of body dark brown, lateral cream with reddish patches, ventrum cream. Dorsum of head brown with black spots. Mouth with lower lip black. Distinct pre- and postorbital black stripes on head, a continuous postorbital black stripe from posterior of eye to opercle edge, posterior half of stripe deeper. Black chin-bar/suborbital stripe present, forming a triangular dark brown to black mark below eye; as wide as or wider than eye diameter. Opercular region brown to cream. Male body with 5–8 irregularly spaced blackish vertical bars, restricted to mid-section and lower half of body; bars prominent on anterior three-quarters of body. Female – body with dark brown stripe nearly continuous to caudal fin base, interrupted by caudal peduncle black spot. Caudal peduncle spot faint. Fins light reddish-brown. Dorsal, caudal and anal fins without transverse bars on interradial membrane, with hyaline edge. Pectoral fin hyaline, base blackish. Pelvic fin reddish.

Live colouration. — See Fig. 8A,B for general appearance. Basal body colour reddish to brownish. Dorsum darker than ventrum. Dorsum of head with dark brown to black spots. Mouth with lower lip black. Lower half of iris of eye bright bluish. Head and opercle pattern as above; posterior

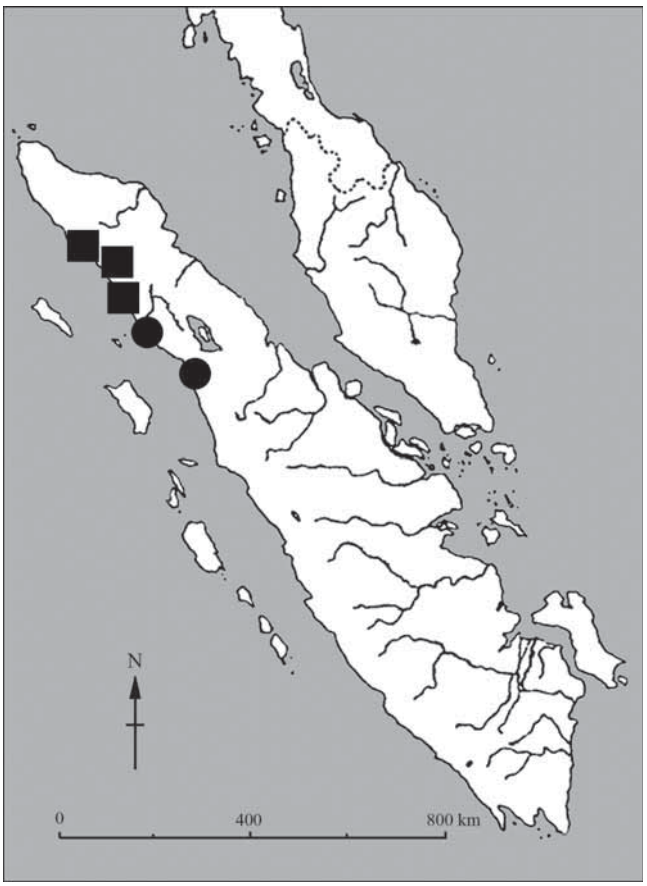

Fig. 6. Map of Sumatra showing distribution of *Betta rubra* (round symbols) and *B. dennisyongi* (square symbols).

Fig. 7. *Betta dennisyongi*: A, MZB 17207, holotype, 27.4 mm SL, male; B, ZRC 53990, paratype, 30.0 mm SL female; central Aceh.

Fig. 8. *Betta dennisyongi*: A, ZRC 50871, 29.5 mm SL male, colouration in life; B, same specimen, acclimatised colouration.

Table 1. Meristics and morphometric data of *Betta rubra* and *B. dennisyongi*

	Betta rubra **Type series**	***Betta rubra*** **Fresh material**	***Betta dennisyongi*****, new species**
Sample size	5	10	15
SL (mm) Meristics	26.4–30.0	35.3–42.5	25.6–34.0
Anal fin rays	II–IV, 22–23 (mode 25 or 26)	III, 23–25 (mode 27)	II–III, 22–24 (mode 25)
Dorsal fin rays	I, 8	I, 7–8 (mode I, 8)	I, 8
Subdorsal scales	5–5½	5–5½ (mode 5)	6–7 (mode 6½)
Transverse scales at dorsal-fin origin	9½	9½	9½
Lateral scales	29–31 (mode 29 or 30)	29–31 (mode 30)	30–32 (mode 31)
Lateral scale at dorsal-fin origin	15–16 (mode 15)	13–16 (mode 15)	15–16 (mode 15)
Lateral scale at anal-fin origin	7	6–8 (mode 7)	6–8 (mode 7)
Predorsal scales	23	21–23 (mode 23)	23–24 (mode 23)
Postdorsal scales Morphometrics – % SL	10–11 (mode 11)	10–11 (mode 10)	10–11 (mode 11)
Total length	134.9–143.0	132.9–153.7	132.6–150.6
Body length	66.7–67.3	68.0–72.5	65.2–72.3
Predorsal length	65.7–73.2	65.4–68.5	64.0–69.2
Postdorsal length	20.1–22.9	19.8–24.9	14.4–25.4
Caudal peduncle depth	16.9–19.3	16.6–18.1	14.2–18.3
Preanal length	42.0–48.0	44.5–48.2	44.4–50.2
Head length	33.0–35.7	30.4–34.7	29.9–37.1
Body depth at dorsal-fin origin	25.0–27.8	26.4–28.1	23.1–28.5
Pelvic fin length	30.7–38.4	37.3–48.9	28.0–40.6
Anal-fin base length	52.2–58.3	52.4–57.5	47.2–58.4
Dorsal-fin base length	12.5–13.4	11.0–13.3	13.0–18.4
Orbit diameter	8.3–9.2	6.8–8.5	7.9–10.5
Postorbital length	19.0–21.3	16.6–19.6	15.4–20.3
Interorbital width	9.9–11.0	9.5–12.2	9.2–11.2
Snout length % HL	7.0–7.6	6.2–7.6	6.3–8.1
Orbit diameter	23.4–26.8	22.5–27.2	24.3–30.2
Postorbital length	55.7–62.1	53.5–58.7	51.7–58.2
Interorbital width	28.9–33.3	29.5–23.6	20.0–26.1
Snout length % BL	19.6–23.0	19.2–23.6	20.0–26.1
Head length	49.4–53.0	41.9–50.8	42.6–56.9
Dorsal-fin base length	18.7–19.9	16.2–18.8	19.4–25.6

half of opercle reddish or yellowish-brown with gold and bluish iridescence; opercle edge brighter red. Body with irregularly spaced blackish vertical 5–8 bars, restricted to lower half of body. Fins reddish. Dorsal caudal and anal fins with bright bluish-green edge; base of anal fin with bluish iridescence. Pectoral fin base with an iridescent bluish-green spot/crescent. Pelvic fin reddish with bluish flush and blue tip.

Field notes. — It appears that *Betta dennisyongi* occupies lowland hillstream and acid water swamp habitats. It occurs in clear to brown-water habitats, from secondary forest to plantation and farmland environments. A typical acid-water habitat is illustrated in Fig. 9, in which remnant swamp forest vegetation still persisted (in the form of the aroid *Lasia* with the larger upward-pointing arrow-shaped leaves). Syntopic fish species included: *Osteochilus jeruk*, *Rasbora jacobsoni*, *R. kluetensis* (Cyprinidae); *Nemacheilus tuberigum* (Nemacheilidae); *Mystus punctifer* (Bagridae); and *Ompok brevirictus*, *Kryptopterus piperatus* (Siluridae).

Distribution. — *Betta dennisyongi* is currently known only from west coast of central Aceh, from Meulaboh to lowland hill streams before Singkil (Fig. 6).

Etymology. — This species is named for Dennis Yong Ghong Chong, a distinguished and knowledgeable naturalist well experienced in many facets of tropical Southeast Asian fauna and flora with an avid interest in labyrinth fishes. He has accompanied the author on many trips and shared many interesting stories, tips and gastronomic delights.

Remarks. — Since the rediscovery of *Betta rubra* in 2007–2008, this species had been sporadically available in the ornamental fish trade. Breeding reports of this species were available showing it to be a paternal oral brooder. A casual image search through the world wide web has revealed many websites with photographs of '*B. rubra*', either on breeding reports or sales. Many of these images posted as *B. rubra* actually show *B. dennisyongi*, judging from the opercular pattern; although some do illustrate true *B. rubra*. A series of *B. rubra* specimens from the trade was received in 2008 by kind donation through Ishizu (ZRC 51378, ZRC 54000), which based upon present information, turn out to be a mix of both species. It appears that this mix could be a result of: i) mixing of specimens obtained from different locations either by the collectors themselves or at the middle-man level; ii) possible syntopic populations in probably human-disturbed habitats.

There are two lots of specimens (ZRC 53989 and ZRC 53992) obtained from Aceh Singkil region; but each lot belonging to a different species. The two habitats are very different and could reflect habitat segregation or a natural boundary/extent of distribution of the two taxa. The series ZRC 53989 identified as *B. rubra* was obtained from peat swamp habitat (presently extirpated due to habitat modification for oil palm plantations), with deep peat deposits and typical black water (pH 5.5). The series ZRC 53992 identified as *B. dennisyongi* was obtained from a relatively fast flowing clear water (pH 7.0) lowland hill stream, with a sandy bottom and steep clay banks. The fish specimens were obtained from submerged leaf litter and found not to be abundant. In comparison, the main type series ZRC 53990 (*B. dennisyongi*) was obtained from submerged leaf litter and bank vegetation from a brown-water habitat (pH 6.0) which had slow flowing water over a mud-clay substratum.

Fig. 9. Type locality of *Betta dennisyongi*, remnant swamp-forest habitat in central Aceh (2009).

DISCUSSION

Tan & Ng (2005a, 2005b) reported on the elusive fighting fish species *Betta rubra*, but had only access to the original type series and a small series of specimens from MZB. Due to lack of a large series of fresh specimens, many details were lacking and their conclusions were preliminary. With the availability of the present material, it is now possible to distinguish two distinct species of *Betta rubra*-like fighting fishes and establish their distributional ranges along the western coast of Aceh in northern Sumatra. *Betta rubra* and *B. dennisyongi* can also be clearly separated from the *B. foerschi* group and should be recognized in their own distinct species group, the *B rubra* group.

Schindler & van der Voort (2012) redescribed *B. rubra* based on a small series of wild caught trade material without precise locality data and proposed the *B. rubra* species group. However, they did not have access to any type material or a substantial series of wild collected material with locality data. Thus their conclusions were premature. This type of publication using aquarium specimens with dubious locality information is not informative and scientifically of little value and should therefore be discouraged. Schindler & van der Voort's specimens actually are not *B. rubra*, but belong to *B. dennisyongi* judging from their published figures of preserved material (Schindler & van der Voort, 2012: 23, Figs. 1, 2); moreover, their figures of living material most likely represents a mix of both species.

The coastal basins of the northwestern part of Sumatra have been considered by Lumbantobing (2010) to represent a distinct ichthyofaunal province and contain many other endemic taxa. The discovery of the present new species adds support to this distinctiveness. It would not be surprising that more new discoveries will be made in time to come once this area is further explored.

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