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Contemporary distribution records of yellow finned Barb *Mystacoleucus marginatus* (Valenciennes, 1842) in Brantas Basin, Indonesia

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ABSTRACT

Mystacoleucus margintas, a native freshwater fish in family Cyprinidae, is known from parts of Southeast Asia and Western Indonesia. We provide a brief description of earlier reports of this species in the Brantas basin, East Java province, the second longest river in Java island. The specimens of *M. Marginatus* were characterized as follows: dorsal fin rays 12; ventral fin rays 9; pectoral fin rays 14-15; anal fin rays 11-12.A description of detailed morphological characters of a specimen are provided.

Key words: Cyprinid, Freshwater fish, Distribution, Java

Introduction

Indonesia archipelago has a large diversity of freshwater fish species. Found as many as 1218 species from 84 families including 1172 native species of 79 families and 630 species are endemic (Kottelat *et al*., 1993). One of the native species cyprinid inthe Western Indonesia is Yellow finned barb *Mystacoleucus marginatus* Valenciennes, 1842 (Nelson, 2006; Weber and deBeaufort, 1916). *Mystacoleucus marginatus* is a family of cyprinidae with specific characteristics that have horizontal spines in front of the dorsal finand has a bright yellow fin color (Roberts, 1989; Rainboth, 1996).

Besides in Western Indonesia, researchers had noted that *M. marginatus* was a found in Indochina (Yang *et al*., 2010; Zheng *et al*., 2016), Malaysia (Ikhwanuddin *et al*., 2017) and Thailand (Kottelat, 2013). Especially in Java, *M. marginatus* was spread in the Brantas basin, East Java (Dahruddin *et al*., 2016). However, the existence of *M. marginatus* in the all part of Brantas basin has not been recorded. The purpose of this study is to provide information about contemporary distribution of *M. margintaus* in

Brantas basin, East Java.

Materials and Methods

The fish sampling and description of the study sites

We conducted a random sampling survey of the fish diversity in the Karangkates and Wlingi reservoir in Blitar regency, Brantas river in Kediri regency, Rolak Songo dam in Mojokerto regency, Porong river site 1 and 2 in Sidoarjo regency and Mas river in Surabaya city. All sampling sites are located in East Java province, Indonesia (Fig. 1). Specimens of *M. marginatus* were obtained from a local fishermen during a fieldwork carried out on 2 June-14 July, 2019. We collected specimens using cast-nets. We also obtained specimnes from local fishermen, who used traditional fish traps.

Fig. 1. Karangkates Reservoir, one of the fishing site of *Mystacoleucus marginatus* in the Brantas basin, East Java.

Fish identification

In order to ensure the validity of the species, the morphological features analysis of *Mystacoleucus marginatus* was carried out based on Kottelat *et al.*, (1993), Roberts (1989) and Weber and deBeaufort (1916).

Results

Specimens collection

The twenty four live specimens of *Mystacoleucus marginatus* had a total length between 11 and 19 cm. Four (4) of them were used as preserved specimens in 7% formalin solution (Jayaram, 2010) and deposited at the Ichthyology Laboratory, Brawijaya University, Malang, Indonesa (IL.Mm.VI. 2019). The remaining twenty two (22) were kept as livestock at the Fish Reproduction Laboratory, Brawijaya University, Malang Indonesia (Fig. 2). The live individuals were transported in plastic bags with oxygen (Piper *et al.*, 1982).

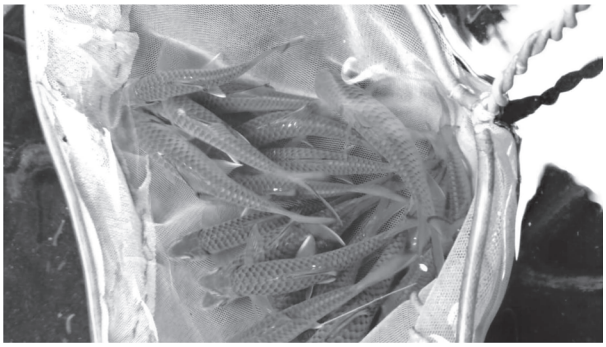

Fig. 2. Live Stockof *Mystacoleucus marginatus* captured on 2 June-14 July 2019 in Brantas basin, East Java.

Diagnosis

Several specimens collected on East Java were identified as *Mystacoleucus marginatus* (Fig. 3). Detailed morphological characters are as follows: Body compressed, dorsal profile ascending and slightly convex. Snout and upper part of head provided with pores, diminishing in size backwards. Posteriorbarbels at corner of mouth shorter than eye. Dorsal slightly emarginate, fourth spinewith its flexible portion not much longer than head, strongly serrated behind. Ventralssubequal to pectorals,their hind bordersquare, not reaching anal. Axillary scale of ventrals muchdeveloped. Pectorals nearly equal to head. Anal truncate. Caudal deeply forked,the lobes pointed, much longer than head. Body silvery, upper surface brownish,base of scales with a semi-

Fig. 3. Specimen of *Mystacoleucus marginatus* caught on 2 June 2019 from the Karangkates reservoir, East Java province.

lunar dark transverse band. Marginof dorsal and caudal blackish. All fins are bright yellow. Due to environmental factors, fin radius variation of specimens was detected in the present study (Turan *et al*., 2004) (Table 1).

Distribution

As for the distribution of *Mystacoleucus marginatus*, the specieswas found to distributed in the Brantas basin of both the upstream and downstream (Fig.4). *Mystacoleucus marginatus* is more available in the upstream than downstream. During sampling, we have obtained 21 specimens in the upstream, whereas in the downstream only 3 specimens (Table 2).

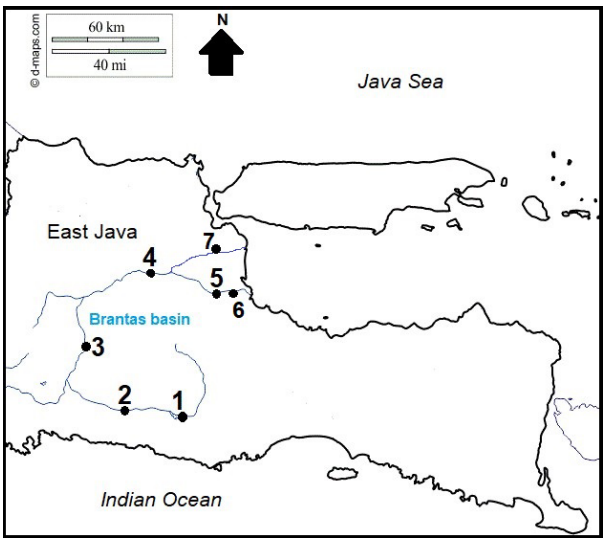

Fig. 4. Contemporary distribution records of *Mystacoleucus marginatus* in the Brantas basin.

The distribution of *Mystacoleucus marginatus* in uppsteam could be due to several factors, one of which is a pollution factor (Jones and Reynolds, 1997). In general theconditions of rivers in Java, upstream of the river is dominated byforest and agriculture areas so that the condition is relatively more stable compared to the downstream that passes through big cities. Like most cyprinid fish, *M. marginatus* is intolerant of extreme environmental changes (Risjani *et al*., 2012).

However, need more extensive research on the current conditions of the distribution of *Mystacoleucus marginatus* in the East Java, which was a further distance such as Bengawan Solo basin or several rivers in Madura island Island, north of East Java. For a native fish, contemporary distribution records are important contributions for understanding species diversity and biogeography, especially for conservation purposes (Vidthayanon, 2012).

Conclusion

Mystacoleucus marginatus is a Indonesia native fish that is spread on the all part of Brantas basin and this species more exists in the upstream than downstream. It is posibly that the environment quality of

Table 1. Comparison of fin radius of specimens from East Java with specimens from the study of Weber and de Beaufort (1916)

Parameter	*Mystacoleucus marginatus*	
	Freshwaters East Java	Weber and de Beaufort (1916)
Min-Max	Min-Max	
Dorsal fin rays	11-12	12
Ventral fin rays	9	9
Pectoral fin rays	14	14-15
Anal fin rays	11-12	11-12

Table 2. Location of *Mystacoleucus marginatus* was found in East Java fresh waters

No	Name of location	Position	Number	Coordinate
1	Karangkates reservoir	Upstream	4	8°10′05"S; 112°28′37"E
2	Wlingi reservoir	Upstream	11	8°08′28"S; 112°14′49"E
3	Brantas river	Middle stream	4	7°51′05"S 111°59′48"E
4	Rolak Songo dam	Middle stream	2	7°26′42"S 112°27′54"E
5	Porong river site 1	Downstream	1	7°33′25"S; 112°40′26"E
6	Porong river site 2	Downstream	-	7°32′43"S; 112°43′16"E
7	Mas river	Downstream	1	7°18′32"S; 112°42′45"E

the upstream have better than the downstream. The contemporary distributin records of *M. marginatus* in the Brantas basin added to the data on the distribution of native fish in Indonesia, especially in East Java.

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