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Submission date: 06-Apr-2023 11:41AM (UTC+0800)
Submission ID: 2057220337
File name: JIB_8._Two_new_localities_for_1.pdf (850.73K)
Word count: 1702
Character count: 9475

Int. J. Aquat. Biol. (2021) 9(4): 244-247
ISSN: 2322-5270; P-ISSN: 2383-0956
Journal homepage: www.ij-aquaticbiology.com

Short Communication

Two new localities for *Lobocheilos falcifer* (Valenciennes, 1842) (Teleostei: Cyprinidae), a rare and vulnerable freshwater fish species of Java, Indonesia

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Abstract: *Lobocheilos falcifer* is a rare and vulnerable freshwater fish species from Java, Indonesia and currently listed as Vulnerable (VU) within the IUCN Red List. In 2019, three specimens of *L. falcifer* were collected and photographed on Rawa Pening Lake, Semarang Regency, Central Java Province and Solo River, Karanganyar Regency, Central Java Province as two new localities for this species, extending its distribution in about 80 km to southeast. We also provided the morphological data of this species as well.

Article history:
Received 12 June 2021
Accepted 26 July 2021
Available online 25 August 2021

Keywords: Ahan, Endangered species, Labeoninae, Native species.

Introduction

Lobocheilos Bleeker, 1854 is a cyprinid endemic to Southeast Asia and the western Indonesia archipelago (Borneo, Java and Sumatra) (Rainboth, 1991; Ciccotto and Page, 2016; Ciccotto and Tan, 2018). Two species of *Lobocheilos* viz. *L. lehat* Bleeker, 1858 and *L. falcifer* (Valenciennes, 1842) occur in Java (Fricke et al., 2021), but few information on these species are available, especially on their distribution. *Lobocheilos lehat* is probably extinct (Fricke et al., 2021) considering that it is not sampled since it was first discovered on Parongkalong, West Java Province in 1853 (Kottelat et al., 1993; Kottelat and Tan, 2008), whereas *L. falcifer* is currently listed as a vulnerable species (VU) based on the IUCN Red List Status (Lombantobing, 2019).

Lobocheilos falcifer was reported in the following freshwater localities in Java: Cisadane River, West Java Province (Kottelat and Tan, 2008; Hadiaty, 2011), Wadaslintang Reservoir, Central Java Province (Hasan et al., 2019a), and Tuntang River, Semarang Regency, Central Java Province (Hasan et al., 2019b). In this paper, we reported new records of *L. falcifer* in the Rawa Pening Lake and Solo River, Central Java Province, a range extension of about 80 km southeast from the closest locality where the species was already known.

Materials and Methods

Three specimens of *L. falcifer* (Fig. 1) were collected using cast nets in 2019 in the outlet of the Rawa Pening Lake, and in the upstream of Solo River (Figs. 2, 3). These two sites are located in Semarang Regency and Karanganyar Regency, respectively, at Central Java Province, Indonesia. The specimens were labeled and fixed in 96% ethanol (Hasan et al., 2019). The material was deposited at the Zoology Laboratory, Generasi Biologi Indonesia Foundation (GBI). Morphological identification followed diagnostic characters presented in Kottelat and Tan (2008).

Examined materials (All from Indonesia: Central Java Province): *Lobocheilos falcifer*: GBI0002, 1 male, 161 mm TL, Semarang Regency, Rawa Pening

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DOI: https://doi.org/10.22034/ijab.v9i4.1285

Figure 1. Specimen of *Lobocheilos falcifer* GBI0002. **A.** lateral view of the body. **B**. lateral view of head. **C**. ventral view of head and position of the mouth (Photograph by V. Hasan).

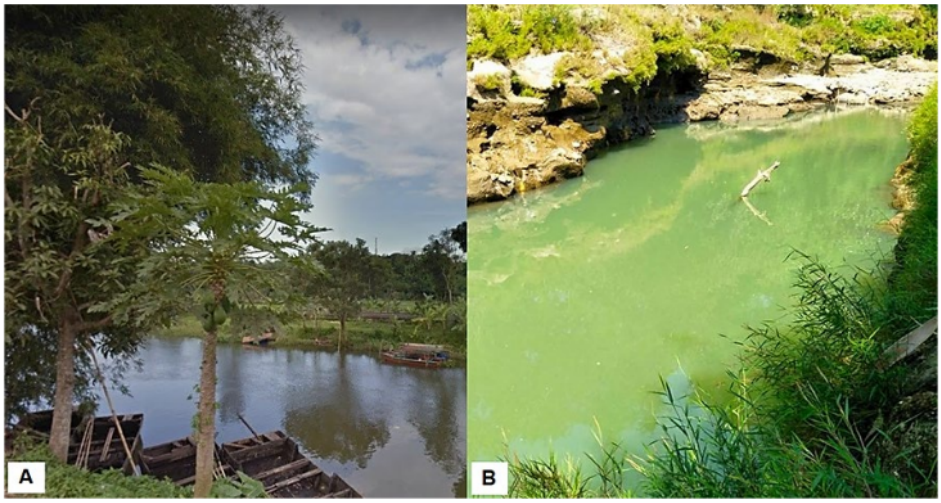

Figure 2. The locations where *Lobocheilos. falcifer* specimens were collected in this work. **A**. Rawa Pening Lake. **B**. Solo River; Central Java province, Java, Indonesia (Photograph by V. Hasan).

Lake, outlet of the lake, 7°18'23"S; 110°26'37"E, V. Hasan, 10 Nov. 2019. — GBI0003, 1 female, 176 mm TL, Semarang Regency, Rawa Pening Lake, outlet of the lake, 7°18'23"S; 110°26'37"E, V. Hasan, 10 Nov. 2019. — GBI0004, 1 male, 168 mm TL, Karanganyar Regency, Solo River, upstream of the river, 7°47'06.0"S; 110°57'07.0"E, V. Hasan, 5 Dec. 2019.

Results and Discussions

Lobocheilos falcifer (Valenciennes, 1842) (Fig. 1)

New records: See examined material section.

Identification: Some morphometric and meristic data of the specimens examined here are presented in Table 1. Specimens collected on Rawa Pening Lake and Solo River (Fig. 1) were identified as *L. falcifer* based on the following diagnostic features proposed by Kottelat and Tan (2008), listed below.

Lobocheilos falcifer is distinguished from the other species of *Lobocheilos* occurring in Borneo, Sumatra,

Table 1. Morphometric and meristic data of *Lobocheilos falcifer*.

Morphometric data (mm)	Present study			Kottelat and Tan (2008)
	GBI0002	GBI0003	GBI0004	
Total length	161.0	176.0	168.0	136.8
Standard length	134.0	143.0	137.0	115.1
Head length	25.0	25.9	25.5	25.8
Snout length	12.2	12.5	12.2	12.0
Pre dorsal length	50.4	60.0	50.7	44.7
Pre ventral length	60.2	60.5	60.3	51.3
Pre anal length	95.0	100.0	95.0	75.0
Meristic data				
Dorsal-fin rays	11	11	11	12
Pectoral-fin rays	16	17	16	17
Ventral-fin rays	9	9	9	9
Anal-fin rays	8	8	8	8
Caudal-fin rays	16	16	17	17

Figure 3. Distribution of *Lobocheilos falcifer* in Java. Black rhombus are the previous records of the species on Cisadane River (West Java Province), Wadaslintang Reservoir (Central Java provnce), and Tuntang River (Central Java Province). Black aquares are the new records of this study, on Rawa Pening Lake and Solo River (Central Java Province).

and Java by the combination of the following features: no dark blotch on caudal peduncle; 30–31+2–3 lateral line scales; body uniformly silver and greenish on top of head to caudal peduncle in life and fresh specimens; faint mid–lateral strip in life and fresh specimens and all fins membranes colorless in life and fresh specimens. Our identification was confirmed by Tan Heok Hui (Lee Kong Chian Natural History Museum, Singapore).

The discovery of *L. falcifer* from the Rawa Pening Lake and Solo River (Figs. 2, 3), both in Java, are new records for this rare and vulnerable species, extending its distribution in about 80 km to the southeast from the previous closest record (Fig. 3). There are several studies on freshwater fishes in Indonesia that are limited to a single or few rivers. In Sumatra, Kottelat and Tan (2008) recorded *L. ixocheilos* Kottelat & Tan, 2008 on Batang Hari Basin, and then Iqbal et al. (2017) *L. ixocheilos* on Musi Basin, being sampled in two localities separated by more than 150 km. New

records of endemic species are an important contribution for the understanding of species diversity and biogeography, among other biological topics (Hasan and Islam, 2020; Hasan et al., 2021).

Acknowledgments

We thank Pedro Bragança (South African Institute for Aquatic Biodiversity, South Africa) for the English language review, Generasi Biologi Indonesia Foundation and Andik Setiawan as our guide; and the Ministry of Finance Indonesian as the Scholarship Program sponsor and for funding our research (no. 20160221035555). FPO thanks Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brasil (CAPES - Finance Code 001), and Fundação de Amparo à Pesquisa e ao Desenvolvimento Científico e Tecnológico do Maranhão (FAPEMA) for providing the financial and infrastructure support to carry out his scientific research. Finally, we thank Tan Heok Hui from Lee Kong Chian Natural History Museum, Singapore for confirming the specimens identification.

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