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To cite this article: V Hasan *et al* 2021 *IOP Conf. Ser.: Earth Environ. Sci.* **679** 012077

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Beardless barb *Cyclocheilichthys apogon* (Valenciennes, 1842) (*Cypriniformes*, *Cyprinidae*): Distribution extension and first record from South Bali

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Abstract. Beardless Barb *Cyclocheilichthys apogon* (Valenciennes, 1842) is a species known from Indonesia, including Borneo, Sumatra, Java, and Madura. This paper provides the first record of *C. apogon* in the Nyanyi River, one of the major rivers in South Bali, thereby extending the species distribution up to 100 km east from the earlier record. The specimens of *C. apogon* were characterized as follows: dorsal fin rays 12; anal fin rays 8–9; pectoral fin rays 17–18; lateral line scales 34–35. A description of detailed morphological characters of a specimen are provided.

1. Introduction

Western Indonesia and several regions in the Southeast Asia were still connected as a single area called Sundaland in the last glacial era, where many blocth rivers were connected to each other, extending from Indochina to the north Bali [1]. Major rises in sea level in the Java Sea and South China Sea occurred in that era divided Sundaland into several archipelagos [2]. This geographical change has resulted in the isolation of several freshwater fishes [3], one of which was the Beardless Barb *Cyclocheilichthys apogon* [4].

Cyclocheilichthys apogon is a freshwater fish native to the Western Indonesia and many regions in the Southeast Asia (Rainboth 1996; Kottelat 2001). In Indonesia, *Cyclocheilichthys apogon* ranged widely in the lakes, reservoirs, and rivers across the Sumatra, Java and Borneo [5,6]. This paper reports the presence of *C. apogon* in the Nyanyi River, Bali Island, and it is expected to increase the knowledge of the previously known distribution range of this species.

2. Materials and methods

Four specimens of *C. apogon* were obtained from local angler during a fieldwork carried out on 11-12 February 2020 on Nyanyi River, South Bali (8°27'51.7"S; 115°00'22.1"E) (Fig. 1). Administratively, the site were located on Tabanan Regency, Bali Island, Indonesia. The fishing gear used by the local angler was a medium hook with bottom with worms as the baits [7].



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Figure 1. Nyanyi River, South Bali, showing the location where *Cyclocheilichthys apogon* were collected.

3. Results and discussion

The four live specimens of *C. apogon* had a total length between 91 and 142 mm and weight between 66.4 and 198 gram (Fig. 2). All of them were used as preserved specimens in 10% formalin solution according to [8] and deposited at the Zoology Laboratory, Generasi Biologi Indonesia Foundation (GBI0051).

3.1 Identification

Cyclocheilichthys apogon is distinguished from the other species of *Cyclocheilichthys* by no barbels in snout but there are conspicuous folds of the skin above upper lip. Other specific characters of the four preserved specimens are as follows: dorsal fin rays 12; anal fin rays 8; pectoral fin rays 17; lateral line scales 34; head pointed, lips are swollen; dorsal deeply concave; anal concave; caudal forked. Coloration in fresh specimen: yellowish silver, upper parts are brown, and each scale has a black spot at the base; vertical fins have brownish colours, the others more or less hyaline. There is a black blotch at the caudal peduncle.



Figure 2. Specimen of *Cyclocheilichthys apogon* collected on Nyanyi River, South Bali.

3.2 Distribution

The presence of *C. apogon* in the Nyanyi River, South Bali, is the first record of this species beyond its type locality (mainland of Sumatra, Borneo, Java) [5], Madura Island [4], and represents the easterly extension of previously known distribution about 280 km (Figure 3).

The record of *Cyclocheilichthys apogon* in the Nyanyi River, South Bali, is the first record of this species in outside the mainland Sumatra, Borneo, Java dan Madura Island. For a native species, new records are important contributions for understanding species diversity and biogeography [9,10,11] [12,13]. The new record of *C. apogon* helped to improve the knowledge of the species as it extends the distribution range of the species further east. The discovery of *C. apogon* on South Bali could be caused by the Nyanyi River was being connected to East Sunda River at last glacial era [14,15], then being cut off and isolated due to rising sea levels. Besides geological factors, the spread of freshwater fishes outside the mainland could occur due to human introduction factors [16,17,18,19,20].

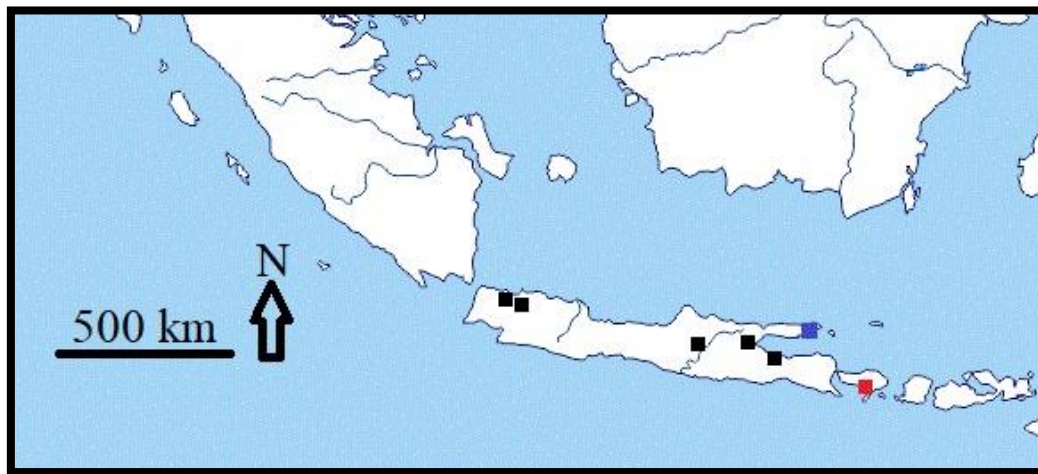


Figure 3. Known distribution of *Cyclocheilichthys apogon*. Black square are the previous records of the species in the mainland Java. Blue square is the previous record of the species in the Madura Island. Red square is the recent record on Nyanyi River, South Bali.

4. Conclusion

Cyclocheilichthys apogon is a Sundaland native fish that is not only spread on Sumatra, Borneo and Java, but this fish also exists on the South Bali whose position is at the eastern end of Java. The presence of *C. apogon* in Bali Island added to the data on the distribution of native fish in Indonesia.

5. References

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6. Acknowledgments

We thank the editor and reviewers for their insightful comments, a local angler and Mrs. Dewa Ayu Angga Pebriani as our guide, and the Ministry of Finance Indonesia for funding our research (no. 20160221035555).