Description of Silver Barb *Barbonymus gonionotus* (Bleeker, 1849) (Cypriniformes: Cyprinidae) From Madura Island, Indonesia

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Abstract. *Barbonymus gonionotus*, a fish species in the family Cyprinidae, is known from Western Indonesia. In Java, it was previously known only from the mainland and had never been reported from Madura Island, east of Java. This paper provides the first description of *B. gonionotus* from the Kemuning River in Madura Island. The specimens of *B. gonionotus* were characterized as follows: dorsal fin rays 12; ventral fin rays 9; pectoral-fin rays 15-16; anal-fin rays 9. Description of specific morphological characters of sampled specimens is provided.

1. Introduction
Western Indonesia and Southeast Asia were still connected as a single Sundaland region in the last glacial era [1] where many large rivers were connected from the South China Sea to the Java Sea [2]. Major rises in sea level at that time in South China, Andaman, and the Java Sea divided Sundaland into several archipelagos [3]. This geographical change has resulted in the isolation of several freshwater fishes [4], one of which was the Silver barb *Barbonymus gonionotus* [5].

*Barbonymus gonionotus* is a species of cyprinid native to Southeast Asia and Western Indonesia (Borneo, Sumatra, and Java) [6,7]. In Java, *Barbonymus gonionotus* ranged widely in the fresh waters across the Mainland which include West Java, Central Java, and East Java [8]. In this paper, we report the presence and description of *B. gonionotus* in the Kamuning river, Madura Island, which increases knowledge of the previously known distribution range of this species.

2. Materials and methods
We collected specimens using landing nets with a mesh size of 76 mm on 18 June 2019 in the Kamuning river (7°09'41"S, 113°14'24"E) (Figure 1). Administratively, the site is located in Sampang district, East Java province, Indonesia. Diagnostic morphological characters of the specimens were analyzed following Weber and de Beaufort (1913) [9].
Figure 1. Kamuning River, Sampang district, Madura Island, the fishing site of *Barbonymus gonionotus*.

3. **Results and discussion**

The four specimens of *Barbonymus gonionotus* had a total length between 14.4 cm and 31.2 cm. All of them were used as preserved specimens in 96% alcohol solution [10] and deposited at the Zoology Laboratory, Generasi Biologi Indonesia Foundation, Gresik, Indonesia (GBI0069).

Meristic characters of specimens are as follows: dorsal fin rays 12; ventral fin rays 9; pectoral fin rays 15-16; anal-fin rays 9. Other specific morphological characters: body compressed; snout pointed; mouth terminal; barbels very small; dorsal emarginate; pectorals and ventrals subequal, the ventrals not reaching urogenital; caudal deeply emarginate; scales brownish; anal emarginate. All of these characteristics were found in every specimen collected from the Kamuning river, Madura Island, Indonesia (Fig. 2).

Figure 2. Fixed specimen of *Barbonymus gonionotus* (GBI0069) found in Madura Island (Indonesia).
The presence of *B. gonionotus* in the Kamuning river, Madura Island is the first record of this species beyond its previous record (mainland of Java). However, in addition to Madura Island, *B. gonionotus* could be located on other Islands too, at a further distance such as Masalembo, Bawean, and Kangean Islands. For a native species, new records are important contributions to understanding species diversity and biogeography, among other biological topics [11,12,13]. As reported in this paper, the new record of *B. gonionotus* has helped to improve the knowledge of the species as it extends the distribution range of the species further east. Besides geological factors [14,15,16], the spread of freshwater fishes to remote areas could occur due to human introduction [17, 18, 19, 20].

![Figure 3. Distribution of *Barbonymus gonionotus*. Brown area is the previously known localities of the species in the mainland of Java. Grey area is the recent record from the Kamuning River, Madura Island. The red circle is the sampling site.](image)

### 4. Conclusion

Specimens collected from the Kemuning River, Madura Island were identified as silver barb. This can be proven using the morphological character of the specimen by the character of the silver barb. Apart from the human introduction factor, this data can prove that the island of Madura was once one with the island of Java.

### 5. References

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