

Presence of striped flying barb *Esomus metallicus* (Teleostei, Cyprinidae) from west Sumatra, Indonesia

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ABSTRACT

Striped flying Barb *Esomus metallicus* is native fish from Indochina and introduced to several countries in Southeast Asia. In Sumatra (Indonesia), it was previously known only from Siak River and Reteh River, Riau Province. This paper provide the first record of *E. metallicus* from Maninjau Lake in West Sumatra Province, thereby extending the distribution of the species approximately 270 and 350 km west from the previous records.

Key words: Distribution, Freshwater fish, Non-native, Sumatra

Introduction

Striped flying Barb *Esomus metallicus* (Ahl, 1923) is a freshwater fish native to Thailand (Beamish *et al.*, 2006), Laos (Kottelat, 1998) and Vietnam (Serov *et al.*, 2006) ranging from the upper Mekong River and north to the Malay paninsula (Rainboth, 1996) and now introduced to several countries in the South-east Asia for aquarium trade, one of which is Indonesia (Ng *et al.*, 1993; Arbsuwan *et al.*, 2012).

Esomus metallicus was described from Sumatra,

precisely in the Siak River (Pulungan *et al.*, 2011) and Reteh River (Arbsuwan *et al.*, 2012), Riau province. Maninjau Lake, West Sumatra province, is an aquaculture center, but there is no record of ornamental fish culture. The presence of *E. metallicus* in the Maninjau Lake constitutes a new record.

Materials and Methods

The fish sampling and description of the study sites

We collected specimens from Maninjau Lake using

cast net and fish trap on 26-28 October 2019 in a part of lakeside (0°18'14"S; 100°13'31"E). Administratively, the site is located in Agam Regency, West Sumatra province, Indonesia (Figure 1).



Fig. 1. Maninjau Lake, the location where *Esomus metallicus* was collected (Photograph by F. S. Valen).

Fish identification

In order to ensure the validity of the species, the morphological characters analysis of *Esomus metallicus* was carried out based on Rainboth (1996) and Arbsuwan *et al.* (2012).

Results

Specimens collection

The thirteen (13) specimens of *Esomus metallicus* had a total length between 299 and 719 mm. All of them were labeled and fixed in 10% formalin (Hasan *et al.*, 2019) and deposited at the Zoology Laboratory, Generasi Biologi Indonesia Foundation, Indonesia (GBI00014) (Figure 2).



Fig. 2. Specimen of *Esomus metallicus* GBI00014 captured on 28 October 2019 from Maninjau Lake (Photograph by F. S. Valen).

Identification

Several specimens collected in the Maninjau Lake were identified as *Esomus metallicus*. Specific mor-

phological characters are as follows: body compressed and elongated; head small; eye moderately large; snout moderately long; mouth superior, upper jaw shorter than lower jaw; maxillary barbel very long, extending to the ventral body, rostral barbel moderately long; lateral line incomplete. Dorsal fin rays 8; anal fin rays 8; pectoral fin rays 14; ventral fin rays 7; caudal fin forked. Coloration of fresh specimen: body uniformly yellow; a black band running at dorsal midline of the body from posterior end of opercle to caudal fin base; two light yellow bands present at the lateral side of body, running parallel to the black lateral band just above it and attaching to it at around caudal peduncle. All fin membranes colorless or transparent.

Discussion

The presence of *Esomus metallicus* in the Maninjau Lake, West Sumatra province is the first record of this species beyond its previous records in the Siak River and Reteh River, Riau province, and it represents westerly extension of the previously known distributions by more than 270 and 350 km. This record is an important contribution to the understanding of the dispersal of non-native fish in Indonesia, especially in Sumatra (Figure 3).

Based on geographical conditions, Maninjau Lake is not connected through the flow from Siak River and Reteh River, so it is difficult for *Esomus metallicus* to migrate naturally through streams. We speculate that *E. metallicus* was released into Maninjau Lake by local fish farmers. As an aquaculture center, there are many fish fry introduced from outside the province for cage culture on Maninjau Lake. We speculated that *E. metallicus* was accidentally carried during shipping fish fry and released into the Maninjau Lake. In many cases, the delivery of fish fry from outside the area for aquaculture is the cause of the entry of non-native fish (De Silva *et al.*, 2006; De Silva *et al.*, 2009).

Esomus metallicus exhibits planktivore habits and tolerance to environmental change (Arthur *et al.*, 2010; Neeratanaphan *et al.*, 2017). Based on previous research, there have been no reports of the negative impact of *E. metallicus* on aquatic communities (Arthur *et al.*, 2010; Pulungan *et al.*, 2011; Arbsuwan *et al.*, 2012), but the existence of non-native fish will still change the pattern of food and niche competition (Albornoz-Garzón and Villa-Navarro, 2017).

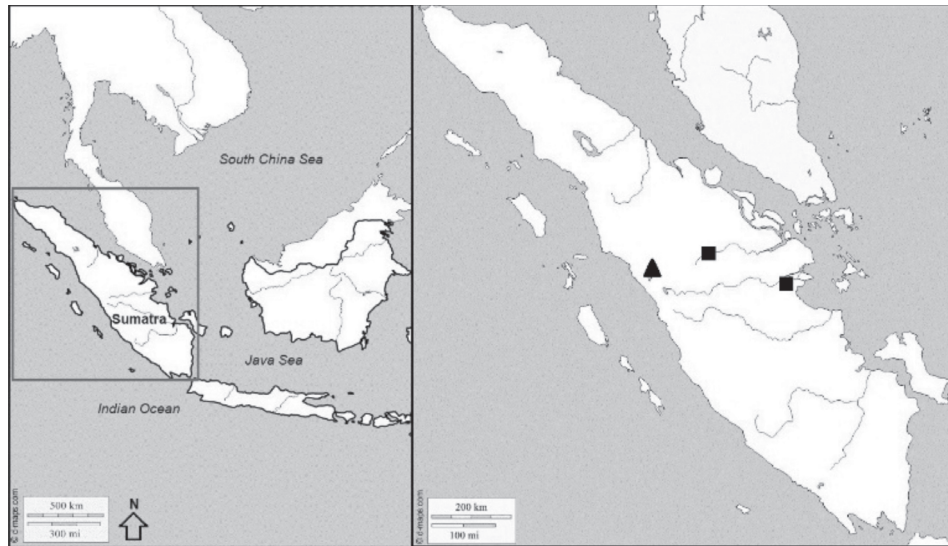


Fig. 3. Distribution of *Esomus metallicus* in Sumatra. Black squares are the previous records of the species on Siak River and Reteh River. Black triangle is the recent record on Maninjau Lake.

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