

NEW RECORD OF THE CHINESE CYPRINID FISH *TOXOBRAMIS HOUEMERI* IN SINGAPORE

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ABSTRACT. — The Chinese cyprinid fish, *Toxobramis houdemeri* Pellegrin, is recorded for the first time in Singapore from Yishun Pond where a population seems to be established.

KEY WORDS. — *Toxobramis houdemeri*, China, Singapore, introduced species

INTRODUCTION

The family Cyprinidae consists of predominantly freshwater fishes such as carps, barbs, and minnows that are distributed throughout the Old World and North America. Members of the genus *Toxobramis* are characterised by their having a complete lateral line, a keel along the mid-ventrum from the pectoral-fin base to the anal-fin origin, anal fin with 14 or more branched rays, and the hind margin of the dorsal-fin spine distinctly serrated. At present, three species are recognised: *Toxobramis houdemeri* Pellegrin, *Toxobramis swinhonis* Günther, and *Toxobramis hoffmanni* Lin. This genus is distributed in China and northern Vietnam (Cheng & Zheng, 1987; Chen et al., 1998). As these fishes are barely known outside their natural range, there appears to be no known English name for them. Herein, we propose ‘silver blade-minnow’ to refer to members of the genus *Toxobramis*.

This article records the first occurrence of *Toxobramis houdemeri* Pellegrin in Singapore. The specimens collected possess morphological and meristic (quantitative) characters of that species defined by Chen et al. (1998). With this addition, there are presently about 46 species of non-native fish species with established populations in Singapore’s freshwaters (Baker & Lim, 2008; Ng & Tan, 2010; Yeo & Chia, 2010; Lim & Tan, 2012).

MATERIAL AND METHODS

The specimens mentioned in this article were obtained by a circular monofilament cast net with a diameter of 7 m and 1.5 cm mesh, and euthanized in an ice slurry. They were fixed in 10% formalin solution before long-term storage in 75% ethanol. The material is deposited at the Zoological Reference Collection (ZRC) of the Raffles Museum of Biodiversity Research (RMBR), National University of Singapore (NUS). Size is expressed as standard length (SL), from the tip of the snout to the base of the caudal fin.

RECORDS AND OBSERVATIONS

Toxobramis houdemeri Pellegrin, Houdemer’s silver blade-minnow

Fig. 1

Diagnosis. — Body slender and laterally compressed with keeled abdomen, the keel extending from between the pectoral-fin base to the origin of the anal fin. Head relatively small and long, with large eyes and a terminal mouth without barbels. Dorsal fin with short base and 7 branched rays, the last dorsal spine with two rows of serrae (each row with at least 20 serrae) along its hind margin. Pelvic fins with 8 branched rays. Anal fin broader than long with 15–17 branched rays, caudal fin deeply forked. Lateral line complete, piercing 44–53 scales. Scales deciduous. 29–38 gill rakers on first gill arch. Body olive along the back, uniformly silver on the sides, and with hyaline to yellowish fins. Maximum recorded size 148 mm in standard length (Chen et al., 1998; pers. obs.). *Toxobramis houdemeri* was described from Hanoi (Vietnam), and is native to northern Vietnam (Hong River basin), southern China (Pearl River basin), and Hainan Island (Kuang et al., 1986; Cheng & Zheng, 1987; Chen et al., 1998; Kottelat, 2001).



Fig. 1. Lateral view of a specimen of *Toxobramis houdemeri*, 107.9 mm SL (from ZRC 53732), collected from Yishun Pond on 10 Sep.2012. (Photograph by: Kelvin Lim Kok Peng).

Locality. — Yishun Pond: 144 examples of between 76.8–107.9 mm SL (ZRC 53732) obtained by J. T. B. Kwik, Z. Y. Kho, and J. H. Liew on 10 Sep.2012.

Observations. — The present series of *Toxobramis houdemeri* was caught by cast net at Yishun Pond (Fig. 2), a small freshwater reservoir in the Yishun housing estate at the northern part of Singapore Island. This exposed body of water, about 22,500 m² in expanse, and about 5 m at its deepest part, is used for storing storm water fed by concretised canals from the surrounding urban areas. The samples were obtained in shallow water (about 1 m depth) along the grassy edges. The fish fauna of the reservoir consists largely of introduced cichlids *Amphilophus citrinellus*, *Paraneetroplus melanurus*, and *Tilapia buttikoferi*. Although no specimen smaller than 76.8 mm SL was collected, many specimens were found to be gravid, including the largest individual in the series illustrated on Fig. 1. Stomach contents from three individuals consisted primarily of zooplanktonic organisms identified as copepods.



Fig. 2. View of Yishun Pond, an urban water body located in the heart of a public housing estate in the northern part of Singapore Island. (Photograph by: Kelvin Lim Kok Peng).

DISCUSSION

This represents the first record of *Toxobramis houdemeri* in the wild state in Singapore. From the abundance of this cyprinid in Yishun Pond, and the gravid females in the series collected, it is certain that this species is established at least in this locality. Although this is a subtropical species, it has acclimatised to Singapore's equatorial climate, and is breeding locally. Other species from similar latitudes such as *Puntius semifasciolatus*, *Metzia lineata*, and *Rhinogobius giurinus* have done so before, but do not appear to be flourishing. *Puntius semifasciolatus* has become very rare locally. *Metzia lineata* appears to have become locally extinct as the species has not been collected in Singapore since the 1970s. Only *Rhinogobius giurinus* is common in Singapore, mainly in artificial water-bodies. Local populations of the aforementioned species are not usually found in waterways in forested areas inhabited by native fish (Ng & Lim, 1996; pers. obs.).

As with the majority of alien fishes in Singapore, how *Toxobramis houdemeri* came to be present in Yishun Pond is a mystery. For a fish species to establish populations, it appears necessary for large numbers to be deliberately released. Owing to its lack of colour and attractive markings, this species is not sold as an ornamental fish. However, it has been observed to be sold as live feeder fish for predatory pet fish at a local aquarium retail shop (H. H. Tan, pers. comm. in early 2012). Fish used as live food tend to be bred stock culled from farms, or locally abundant wild fish. It is possible for *Toxobramis houdemeri* to have been imported as contaminants in shipments of large carps from China (e.g., bighead carp, grass carp) used for aquaculture purposes. Its presence in ponds used for carp culture is expected, but Yishun Pond has not been used for rearing large carps.

Toxobramis houdemeri is distinguished from its two congeners in having not more than 53 scales pierced by the lateral line (vs. 54–66 in *Toxobramis swinhonis*), 8 branched rays in the pelvic fins (vs. 7 in *Toxobramis swinhonis*), and 29–38 gill rakers on the first gill arch (vs. 12–15 in *Toxobramis hoffmanni*). Some fishes in Singapore may be confused with *Toxobramis*. These include the larger members of the genus *Rasbora*, *Metzia lineata*, and possibly *Amblypharyngodon chulabhornae*. Members of the genus *Rasbora*, such as *Rasbora elegans*, lack a keeled abdomen and have markings such as blotches or stripes on the body. *Metzia lineata* is comparatively deeper-bodied with fewer scales (no more than 37) pierced by the complete lateral line, and 8–10 narrow blackish lines on the sides. *Amblypharyngodon chulabhornae* is also deeper bodied, but has an incomplete lateral line that pierces only 6–7 scales, and is translucent in life (Lim & Tan, 2012). With its pointed snout, slender body uniformly covered in reflective silvery scales and lacking visible markings, *Toxobramis houdemeri* should be relatively easy to recognise.

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