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TWO NEW SPECIES OF FRESHWATER FISH (TELEOSTEI: BALITORIDAE, OSPHRONEMIDAE) FROM SOUTHERN SARAWAK

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ABSTRACT

Two new species of freshwater fish are described from the vicinity of the Bau Limestone Area in southern Sarawak. *Gastromyzon ocellatus*, new species (Balitoridae), differs most markedly from congeners in having seven or eight black bars along the lateral part of the body which has a cream center in each bar. *Betta ibanorum*, new species (Osphronemidae), differs from the other members of the *B. akarensis* group in having the least marked operculumas well as its large adult size. *Betta akarensis* is also redescribed on the basis of the type and fresh material.

Keywords: Taxonomy, Betta, Gastromyzon, biodiversity, Sarawak

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Abstract. Two new species of freshwater fish are described from the vicinity of the Bau Limestone Area in southern Sarawak. *Gastromyzon ocellatus*, new species (Balitoridae), differs most markedly from congeners in having seven or eight black bars along the lateral part of the body which has a cream center in each bar. *Betta ibanorum*, new species (Osphronemidae), differs from the other members of the *B. akarensis* group in having the least marked operculum as well as its large adult size. *Betta akarensis* is also redescribed on the basis of the type and fresh material.

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INTRODUCTION

Since the important synopsis of the freshwater fishes of Sarawak by Kottelat and Lim (1995), we have been aware of the presence of several new species from the state. For a variety of reasons, most remain unpublished, the intention being to have them validated as part of larger taxonomic revisions or regional faunistic treatments. For the Bau Limestone Area, although the ichthyofauna is not very rich (Jongkar and Lim, 2004), two of the species which have been found are among the new species we have yet to name. As there is a clear need to have formal names for these species as there are plans to have the area protected, we provide here the necessary descriptions and comparisons to validate these names. Both species (one balitorid and one osphronemid) are not exclusive to the Bau Limestone Area and have been

found in other parts. Neither are they closely associated with limestone environments.

With regards to the two species, the balitorid subfamily Gastromyzontinae is represented by at least seven genera and 26 species (Inger and Chin, 1961, 1962; Roberts, 1982a, 1989; Kottelat *et al*., 1993; Rachmatika, 1998; Tan and Martin-Smith, 1998) and Borneo is a centre of diversity for this group. The family Balitoridae is most common in headwater streams and can constitute up to 50% of total species of ichthyofauna in that habitat (Martin-Smith and Tan, 1998). Most species have enlarged pectoral and pelvic fins, some with fused pairs of pectoral and pelvic fins. These fins enable these fish to cling onto rocks in fast flowing water. Unicellular growths or unculi on the ventral surfaces of the fish apparently serve to increase grip on smooth rock surfaces (Roberts, 1982b). Several species of *Gastromyzon* were commonly encountered in the ornamental fish trade, which were mainly sourced from Sarawak. Among the species in the trade, three were consistently found together, which was later discovered to be probably syntopic. Among the three species, one is a poorly known species - *G. ctenocephalus*; one is described herein as *G. ocellatus*, new species; and the third species to be described separately later as part of a full revision of the genus.

The osphronemid (previously Belontiidae) genus *Betta* is very speciose and Borneo also represents a centre of diversity for this taxon. There are currently more than 40 recognised species (Tan and Kottelat, 1998), with another more than 20 yet to be described (H.H. Tan, unpublished data) from Southeast Asia. During surveys conducted in the early 1990s in Bako National Park and the streams around southern Sarawak, a large species of *Betta* was obtained. Upon closer examination with existing species, it was discovered to be a distinct species, which is described herein as *B. ibanorum*.

MATERIALS AND METHODS

The fishes were caught using scoop nets and push nets. All specimens were initially fixed in 10% formalin solution for one to two weeks and later transferred to 75% ethyl alcohol for long term storage.

Specimens examined are deposited in the Natural History Museum, London, England (BMNH); California Academy of Sciences, San Francisco, USA (CAS); the collection of Maurice Kottelat, Cornol (CMK); Field Museum of Natural History, Chicago, USA (FMNH); Sarawak Biodiversity Centre, Kuching, Sarawak, Malaysia (SBC); National Museum of Natural History, Washington D.C., USA (USNM); the Zoological Reference Collection, Raffles Museum of Biodiversity Research, the National

University of Singapore (ZRC). Standard length was measured from the tip of the upper jaw to the caudal peduncle. Meristics and terminology of *Gastromyzon* follow that of Roberts (1982a) while those for *Betta* follow Tan and Kottelat (1998). Morphometrics was measured from point to point using dial calipers (to nearest 0.05 mm). Vertebral counts were taken from radiographs using the method and terminology of Roberts (1989: 22). Abbreviations used: SL – standard length; HL – head length.

TAXONOMY

Family Balitoridae

Genus *Gastromyzon*

Gastromyzon ocellatus, new species

Figures 1, 5

Material examined: SBC, holotype, 36.3 mm SL; Malaysia: Sarawak: Sarawak basin; Bau, Serikin area, Sungai Petiak (01°21.25'N 110°06.81'E) (from aquarium fish collectors); H.H. Tan *et al.*, Nov 1998. – CAS, 5 ex., paratypes, 24.3-32.8 mm SL; FMNH, 5 ex., paratypes, 24.4-32.4 mm SL; SBC, 8 ex., paratypes, 24.0-35.2 mm SL; USNM, 5 ex., paratypes, 23.2-32.0 mm SL; ZRC 47105, 55 ex., paratypes, 20.3-39.7 mm SL; same locality as holotype. – SBC.F.15, 6 ex., paratypes, 27.8-34.5 mm SL; Malaysia: Sarawak: Sarawak basin; Bau, Sungai Tongga near Gunung Tongga (01°22'18.7"N 110°08'02.1"E); K.K.P. Lim *et al.*, 15 Apr 2002.

Non-type material: ZRC 47106, 16 ex., 35.8-45.3 mm SL; Malaysia: Sarawak: Sarawak basin; Bau, Serikin area, Sungai Petiak (01°21.25'N 110°06.81'E) (from aquarium fish collectors); H.H. Tan *et al.*, 12 Mar 1996. – ZRC 47107, 62 ex., 19.5-31.2 mm SL; Malaysia: Sarawak: Sarawak basin; Bau, Serikin area, Sungai Petiak (01°21.25'N 110°06.81'E) (from aquarium fish collectors); H.H. Tan *et al.*, 29 Dec 1998. – ZRC 47136, 2 ex., 40.1-41.3 mm SL; Malaysia: Sarawak: Sarawak basin; Bau, Serikin area, Sungai Petiak (01°21.25'N 110°06.81'E) (aquarium trade); don. P. Yap, 15 May 2002. – ZRC 47549, 2 ex., 17.9-20.2 mm SL; Malaysia: Sarawak: Sarawak basin; Kampung Bayur, foothills of Penrissen (01°14'24"N 110°17'29"E); native collector, 23 Aug 2002.

Maximum known size: 45.3 mm SL (ZRC 47106).