



Morphological variation in *Acrossocheilus hemispinus* (Teleostei: Cyprinidae: Barbinae), with comments on its taxonomic status

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Abstract

Differences in coloration and morphology between two subspecies of *Acrossocheilus hemispinus* were investigated based on museum-stored and freshly-caught specimens. There are marked differences in the coloration of either juveniles or adults, and in sexual dimorphism, between *A. h. hemispinus* and *A. h. cinctus*. Multivariate analysis of morphometric data too, shows the two taxa to be distinguishable from each other. Differences in body coloration and morphometric characters coincide with those of the mouthpart structure and the coiling pattern of the intestine in *A. h. hemispinus* and *A. h. cinctus*. Morphological distinction, coupled with different habitat and food preferences, supports the taxonomic elevation of the two hitherto subspecific populations of *A. hemispinus* to species.

Key words: *Acrossocheilus hemispinus*, *Acrossocheilus cinctus*, subspecific populations, China, taxonomy

Introduction

The taxonomic distinctions in some species of the cyprinid genus *Acrossocheilus* are still confusing, despite recent clarification of the misidentifications of the species identified in this genus by Shan *et al.* (2000) (Kottelat, 1998, 2000; Zhang, 2005; Yuan *et al.*, 2006). A case of such confusion is represented by the uncertain status of *A. hemispinus cinctus* (Lin). It was first described as *Barbus hemispinus cincta* by Lin (1931). Later, Lin (1933) recognized it as conspecific with *Barbus (Lissochilichthys) hemispinus*, which was originally described in *Lissochilus* by Nichols (1925) from Yenping (Nanping), Fukien (Fujian) Province, South China. Wu *et al.* (1977) treated *cinctus* as a subspecies of Nichols (1925) and placed it in *Acrossocheilus* subgenus *Lissochilichthys*. Some of succeeding Chinese authors accepted Wu *et al.*'s generic classification, but regarded it as identical to *A. hemispinus* (Fang in Zheng, 1981; Lin in Zheng, 1989; Chen in Pan, 1991). In the recent monograph of Chinese freshwater fishes, Shan *et al.* (2000) regarded *A. hemispinus* as including two subspecies: *A. h. hemispinus* restricted to the Min Jiang drainage in Fujian Province and *A. h. cinctus* known from the Pearl River drainage in Guangxi and Guangdong Provinces, South China. Our recent surveys indicated that *A. h. cinctus* also occurs in the Ling Jiang of Zhejiang Province, Qiupu He (flowing to the lower Yangtze River drainage) of Anhui Province and Xin Jiang (flowing to the Poyang Lake) of Jiangxi Province. Yuan *et al.* (2006), in describing *Acrossocheilus spinifer*, noted that the two subspecific populations of *A. hemispinus* deserve specific status, but without elaboration. The only difference noted by them between the two subspecies was in body coloration. *Acrossocheilus h. cinctus* has a longitudinal black stripe extending along the lateral line and black blotches on the membranes between the branched dorsal-fin rays; both these are absent in *A. h. hemispinus*.

Body coloration is of taxonomic significance for species identification in *Acrossocheilus* (Shan *et al.*, 2000). Based on coloration, species of this genus can be tentatively divided into two groups: a barred one, including those species with several vertical black bars on each side of the body, and a striped one, comprising those species with a longitudinal black stripe along the lateral line on each side of the body (Kottelat, 1998,