



Revalidation and redescription of *Brachymystax tsinlingensis* Li, 1966 (Salmoniformes: Salmonidae) from China

YING-CHUN XING^{1,2}, BIN-BIN LV³, EN-QI YE², EN-YUAN FAN¹, SHI-YANG LI⁴, LI-XIN WANG⁴, CHUN-GUANG ZHANG^{2,*} & YA-HUI ZHAO^{2,*}

¹Natural Resource and Environment Research Center, Chinese Academy of Fishery Sciences, Beijing, China.

²Institute of Zoology, Chinese Academy of Sciences, Beijing, China.

³Yellow River Fisheries Research Institute, Chinese Academy of Fishery Sciences, Xi'an, China.

⁴The College of Forestry of Beijing Forestry University, Beijing, China.

*Corresponding authors: Yahui Zhao, zhaoyh@ioz.ac.cn; Chunguang Zhang, fish@ioz.ac.cn

Abstract

Brachymystax tsinlingensis Li, 1966 is revalidated and redescribed. It can be distinguished from all congeners by the following combination of characteristics: no spots on operculum; gill rakers 15-20; lateral-line scales 98-116; pyloric caeca 60-71. Unique morphological characters and genetic divergence of this species are discussed. This species has a limited distribution in several streams of the middle part of the Qinling Mountains in China. Methods for management and protection of *B. tsinlingensis* need to be re-evaluated.

Key words: *Brachymystax*, revalidation, redescription, Salmonidae, China

Introduction

The genus *Brachymystax* Günther, 1866, belonging to Salmonidae, Salmoniformes, is distributed in eastern and northern Asia with three currently recognized valid species (Froese & Pauly, 2014): *B. lenok* (Pallas, 1773), *B. tumensis* Mori, 1930, and *B. savinovi* Mitrofanov, 1959.

Li (1966) described a subspecies, *Brachymystax lenok tsinlingensis*, based on specimens collected from rivers on the eastern and southern sides of the Taibai Mountains segment of the Qinling Mountains. He pointed out that this subspecies could be distinguished from *B. lenok lenok* by lower numbers of pyloric caeca (65-75 vs. 91-111), lateral-line scales (115-127 vs. 132-175) and rakers (19-23 vs. 24-26) on the first gill arch (Li, 1966). However, because reference was made to only two specimens of *B. lenok lenok*, the validity of *B. lenok tsinlingensis* was questioned by other ichthyologists (Gao, 1980; Song & Fang, 1984; Song, 1987; Qin & Wang, 1989; Wang, 1988; Ma *et al.* 2009). Therefore, *B. lenok tsinlingensis* has been synonymized with *B. lenok lenok* (Song, 1987; Qin & Wang, 1989; Froese & Pauly, 2014). In fact, the identification of *B. lenok tsinlingensis* remains vague. For instance, Shedko (2001) synonymized it with *B. tumensis*. Kim and Park (2002) identified specimens from the South Korea as *B. lenok tsinlingensis*. The original description of *B. lenok tsinlingensis* in Chinese also has led to confusion among non-Chinese workers.

After examining paratypes of *B. lenok tsinlingensis*, additional comparative specimens, and information from other studies on mitochondrial DNA (Qi *et al.* 2009; Crete-Lafreniere *et al.* 2012; Si *et al.* 2012; Shedko *et al.* 2013), we conclude that *B. lenok tsinlingensis* is a valid species and re-describe it with more data on morphological characteristics. In addition, since the holotype is lost, herein we select a paratype as lectotype.

Materials and methods

We examined 50 specimens of *B. tsinlingensis*, including all paratypes. Comparative materials included 84 and 14