



<http://dx.doi.org/10.11646/zootaxa.3962.1.7>

<http://zoobank.org/urn:lsid:zoobank.org:pub:774A52BB-DD78-467E-ADA0-785B75E48558>

## Cyprinid fishes of the genus *Neolissochilus* in Peninsular Malaysia

M. Z. KHAIRONIZAM<sup>1</sup>, M. ZAKARIA-ISMAIL & JONATHAN W. ARMBRUSTER<sup>2</sup>

<sup>1</sup>*School of Biological Sciences, Universiti Sains Malaysia, 11800 Penang, Malaysia. E-mail: khaironizam@usm.my*

<sup>2</sup>*Department of Biological Sciences, 101 Life Sciences Building, Auburn University, Auburn, AL 36849, USA.*

*E-mail: armbrjw@auburn.edu.*

*Email of Corresponding Author: khaironizam@usm.my*

### Abstract

Meristic, morphometric and distributional patterns of cyprinid fishes of the genus *Neolissochilus* found in Peninsular Malaysia are presented. Based on the current concept of *Neolissochilus*, only two species are present: *N. soroides* and *N. hendersoni*. *Neolissochilus hendersoni* differs from *N. soroides* by having lower scale and gill raker counts. *Neolissochilus soroides* has three mouth types (normal with a rounded snout, snout with a truncate edge, and lobe with a comparatively thick lower lip). A PCA of log-transformed measurements did not reveal significant differences between *N. hendersoni* and *N. soroides*, or between any of the morphotypes of *N. soroides*; however, a CVA of log-transformed measurements successfully classified 87.1% of all specimens. Removing body size by running a CVA on all of the principal components except PC1 (which was correlated with length) only slightly decreased the successful classification rate to 86.1%. Differences in morphometrics were as great between the three morphotypes of *N. soroides* as between any of the morphotypes and *N. hendersoni* suggesting that the morphotypes should be examined in greater detail with genetic tools. The PCA of morphometrics revealed separate clouds for *N. hendersoni* and *N. soroides*, but no differences between the *N. soroides* morphotypes. This study revealed that *N. hendersoni* is recorded for the first time in the mainland area of Peninsular Malaysia. Other nominal species of *Neolissochilus* reported to occur in the river systems of Peninsular Malaysia are discussed. *Lissochilus tweediei* Herre in Herre & Myers 1937 and *Tor soro* Bishop 1973 are synonyms of *Neolissochilus soroides*.

**Key words:** *Neolissochilus*, taxonomy, Peninsular Malaysia, Teleostei

### Introduction

The cyprinid fishes of the genus *Neolissochilus* are widely distributed in freshwater habitats throughout tropical and subtropical areas of the southern and southeastern Asia (Rainboth 1991). Species of *Neolissochilus* have had a convoluted taxonomic history, and they have been placed under various genera, such as *Barbus* (M'Clelland 1839, 1845; Day 1869, 1870, 1871, 1873, 1878; Boulenger 1893; Duncker 1904, Pellegrin & Fang 1940), *Labeobarbus* (Weber & de Beaufort 1916), *Lissochilus* (Weber & de Beaufort 1916; Ahl 1933; Fowler 1934; Herre 1940), *Crossochilus* (Pellegrin & Chevey 1936; Herre & Myers 1937), *Puntius* (Smith 1945), and *Acrossocheilus* (Smith 1945).

Myers (1941) commented that the generic name *Lissochilus* described by Weber & de Beaufort (1916) is a junior homonym to the fossil gastropod genus *Lissochilus* (Pethö in Zittel 1881). Based on a single shared morphological character (a sharp, horny sheath covering of the lower jaw), Myers suggested placement of the fishes into *Acrossocheilus* (Oshima 1919). Rainboth (1985) reassessed this group of fishes and recognized the close relationship between them and *Tor* Gray as had also been suggested by several authors previously (Hora 1940, 1941; Hora & Misra 1941). Rainboth also commented that the sharp, horny sheath covering the lower jaw used to group fishes in *Acrossocheilus* is ecophenotypically variable as was found in other barbines, and therefore this character cannot serve as a primary distinguishing character. Based on several characters, such as the absence of the fleshy lobes on the lower lips, the development of a horny sheath on the lower jaw, low number of gill rakers on the lower arm, blunt, broad and longer snout, shallow and terete trunk, and shorter and more massive pharyngeal arch, Rainboth (1985) erected a new genus, *Neolissochilus*.