New record of the Sewing Needle Zipper Loach

Paracanthocobitis linypha Singer & Page, 2015 (Teleostei: Cypriniformes: Nemacheilidae) from the Chindwin drainage of Manipur, India

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Abstract: Paracanthocobitis linypha Singer & Page, a freshwater nemacheiline zipper loach, is reported for the first time from the Lokchao River of Manipur (headwaters of Chindwin drainage), in northeastern India. The species is diagnosed in having an incomplete lateral line, flank with 10–14 thin dark bars, long bars occasionally alternating with short bars extending up to about lateral mid-line, interspaces broader than bar width. Morphometric and meristic data of the examined specimens were compared with the original description to validate the species identity.

Keywords: Freshwater nemacheiline, Lokchao River, new report, northeastern India.

Fishes of the genus Paracanthocobitis Grant, 2007 are widely distributed in southern and southeastern Asia, ranging from the Indus drainage in eastern Pakistan to the Mekong drainage in Cambodia and Laos (Rainboth et al. 2012). The genus is diagnosed in having a thickened lower lip, swollen medially, densely covered by papillae, the two halves are in contact anteriorly and globulous medially, followed laterally up to the rictus by a thin, narrow, and smooth part; upper lip with several rows of papillae; 9½–15½ branched dorsal-fin rays; anus closer to anal-fin origin; male suborbital flap is located more posteriorly with its extremity under the middle of the eye, the lower edge of the lateral ethmoid is marked by a groove extending forwards beyond the nostrils (Kottelat & Vishwanath 2021).

Hora (1921) reported the presence of Paracanthocobitis zonalternans (Blyth, 1860) from the Chindwin drainage and P. botia (Hamilton, 1822) from the Brahmaputra drainage of Manipur, northeastern India. Recently, Kottelat & Vishwanath (2021) clarified that P. zonalternans, which Hora recorded from the Chindwin drainage is actually P. marmorata Singer et al., 2017. Additionally, Vishwanath & Laisram (2001) also clarified that Hora’s report of P. botia from Manipur was erroneous as the collection was made from a place named Ghaspani in the present state of Nagaland, India, and extended the distribution of P. botia to the Barak drainage in Manipur.

A recent ichthyological survey in the Lokchao River of Manipur, Chindwin drainage, resulted in the collection of 10 specimens of Paracanthocobitis. After detailed examination, the specimens were identified as Paracanthocobitis linypha Singer & Page, 2015 and the species is hereby reported for the first time from the Chindwin drainage in Manipur, northeastern India.
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**Materials and Methods**

Measurements and counts follow Singer & Page (2015). Measurements were made with digital callipers on the left side of the specimens to the nearest 0.1 mm. Measurements of body parts and head length are presented as proportions of standard length (SL) and subunits of head, as that of head length (HL). Fin rays, pores on lateral line and cephalic lateralis system were counted under a stereo-zoom microscope using transmitted and reflected light. The values in parenthesis following a count indicate the frequency of that count. Specimens are preserved in 10% formalin and deposited in the Manipur University Museum of Fishes (MUMF), Imphal.

**Results**

*Paracanthocobitis linypha* Singer & Page, 2015 (Image 1)

Common name: Sewing Needle Zipper Loach

**Materials examined:** MUMF 18051–18055, 5 ex.,

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Figure 1. Map of Manipur showing the sampling site of *Paracanthocobitis linypha* in the Lokchao River, Chindwin drainage, northeast India.
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Image 1. Lateral view of *Paracanthocobitis linypha*, MUMF 18056, male, 41.7 mm SL. © Yumnam Rameshori.

Image 2. Pectoral fin of male of *Paracanthocobitis linypha*, MUMF 18056, 41.7 mm SL, showing tubercles. © Yumnam Rameshori.

Diagnosis: *Paracanthocobitis linypha* is distinguished from all other species of *Paracanthocobitis* by the following combination of characters: 10–14 thin dark bars on flank, long bars occasionally alternating with short bars extending up to about lateral mid-line; interspaces wider than bars; an incomplete lateral line; absence of axillary pelvic lobe; males with suborbital flap.

Description: Morphometric and meristic data are presented in Table 1 and 2 respectively. Body moderately elongate, anterior sub-cylindrical, posterior compressed; body depth greatest at dorsal-fin origin. Dorsal profile of body arched, rising gently from tip of snout to dorsal-fin origin, then sloping evenly to caudal-fin base; ventral profile almost straight up to anal-fin origin, then inclined gently towards end of caudal peduncle. Head depressed, snout slightly rounded, maximum head width 1.6–1.9 times interorbital width. Eyes almost spherical, situated close to dorsal profile of head, nearer to tip of snout than to end of opercle, not visible in ventral view. Caudal
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Table 1. Morphometric data of Paracanthocobitis linypha (n= 10).

|                     | MUMF 18051–18060 | Singer & Page (2015) |
|---------------------|-------------------|-----------------------|
| Standard length (mm)| Range             | Mean ± SD             |
| Body depth          | 37.4–44.8         | 26.1–42.9             |
| % SL                |                   |                       |
| Body depth          | 18.7–20.6         | 19.5±0.7              |
| Head length         | 22.9–25.2         | 24.2±0.6              |
| Caudal-peduncle depth| 12.1–14.9       | 13.3±0.9              |
| Pre-dorsal length   | 48.0–52.8         | 50.3±1.6              |
| Pre-pelvic length   | 54.4–59.4         | 57.2±1.4              |
| Pre-anal length     | 76.6–83.3         | 79.9±2.4              |
| Snout length        | 8.4–10.0          | 9.5±0.5               |
| Pectoral-fin length | 20.2–25.9         | 23.2±2.3              |
| Pelvic-fin length   | 16.9–20.1         | 18.7±1.0              |
| % HL                |                   |                       |
| Eye diameter        | 21.0–25.0         | 23.0±1.0              |
| Interorbital width  | 31.0–34.0         | 32.0±1.0              |

Table 2. Meristic counts of Paracanthocobitis linypha (n= 10).

|                     | MUMF 18051–18060 | Singer & Page (2015) |
|---------------------|-------------------|-----------------------|
| Branched dorsal-fin rays | 8½ (2), 9½ (2), 10½ (6) | 9½–11½ |
| Branched anal-fin rays    | 5½ (10)           | 5½                    |
| Pectoral-fin rays        | 11 (8), 12 (2)    | 11–13                 |
| Pelvic-fin rays          | 7 (2), 8 (8)      | 8                     |
| Caudal-fin ray count     | 8 + 8 (10)        | 8 + 8                 |

Body and belly completely covered by embedded scales. Lateral line incomplete, ending before end of adpressed pelvic fin, in some specimens reaches up to at least anal-fin origin. Cephalic lateral line system with 5–7 supraorbital, 3–4+10 infraorbital, 6 preperculomandibular and 3 supratemporal pores. Anterior and posterior nostrils adjacent. Mouth moderately arched, about 1.7–2.1 times wider than long. Lips thin, fleshy and papillated. Processus dentiformis present. Lower lip with a deep medial interruption. Barbels 3 pairs; inner rostral barbel slightly extend beyond base of maxillary barbel, outer rostral and maxillary barbel reaching slightly beyond vertical to posterior rim of eye.

Dorsal fin with 8½ (2) or 9½ (2) or 10½ (6) branched rays, its origin slightly in advance to vertical of pelvic-fin origin. Anal fin with 5½ (10) branched rays; pectoral fin with 11 (8) or 12 (2) rays; pelvic fin with 7 (2) or 8 (8) rays. Axillary pelvic lobe absent. Caudal fin slightly emarginate to truncate, lobes equal, with 8+8 (10) branched rays.

Sexual dimorphism: Males with prominent suborbital flap; dorsal surface of pectoral fin of males with thick unculiferous pad covered by small conical tubercles (Image 2). Coloration: In 10% formalin, body background pale yellowish with 10–14 thin dark bars on flank, most of them continuous with saddles on dorsum, long bars occasionally alternating with short bars extending up to about lateral mid-line; interspaces wider than bars. Dorsum of head with many dark spots. Dorsal fin with 5–6 rows of black spots. Pectoral, pelvic, and anal fin hyaline with little pigments on proximal end. An ocellus with more or less round black spot near dorsal margin of caudal-fin base. Caudal fin with 6–7 rows of V-shaped dark bands with vertices pointed towards distal end of caudal-fin.

Distribution: Presently known from the Irrawaddy and Sittang drainages in Myanmar. The occurrence of Paracanthocobitis linypha in the Lokchao River extends the natural occurrence range of the species into the Chindwin drainage of Manipur, northeastern India.

Discussion

Grant (2007) proposed Paracanthocobitis as a subgenus of Acanthocobitis Peters, 1861 with Cobitis zonalternans Blyth, 1860 as the type species. However, Kottelat (2012) did not recognize the subgenus Paracanthocobitis stating that the differentiating characters of Paracanthocobitis from Acanthocobitis are not clear, and the designation of the subgenus was not on the basis of actual examination of specimens, except one live individual and few photographs. Subsequently, Singer & Page (2015) recognized Paracanthocobitis as a distinct genus and listed 14 species including P. linypha which they described from the Irrawaddy and Sittang drainages in Myanmar.

At present, 18 species of Paracanthocobitis are considered valid (Fricke et al. 2021). The morphometric and meristic data of the examined Paracanthocobitis specimens collected from Manipur are in sync with the original morphometric and meristic data as well as characters in the description, except for few deviations such as body depth and pre-pelvic length (Table 1). Also, the examined specimens have 8½–10½ (vs. 9½–11½) branched dorsal-fin rays (Table 2). In the original description of P. linypha, the lateral line was suggested to end before distal end of adpressed pelvic fin; however, in some of the specimens examined from Manipur, lateral line reaches up to at least anal-fin.
origin. These minor differences may be due to limited coverage of populations in the original description, and habitat variations. Detailed analysis is required to assess location-specific threats, and to understand the status and trends in population of the species.

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