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Short Communication

Record of zipper loach *Paracanthocobitis botia* (Hamilton 1822), an ornamental fish from Paschim Medinipur, West Bengal, India

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Abstract
Paracanthocobitis botia (Hamilton 1822) is an indigenous ornamental fish belongs to family Nemachilidae, mainly reported from north-eastern part of West Bengal. During the present survey of indigenous ornamental fish diversity in Paschim Medinipur district, *P. botia* has been recorded from Kangsabati River Basin (22°23′55.0″N 87°20′33.9″E and 22°24′31.3″N 87°17′54.3″E) of Midnapore, as well as Paschim Medinipur district, West Bengal. The specimens have been identified on the basis of morphometric and meristic analyses. Present study reports the extension of distribution of the species up to South-Western part of Bengal.

Keywords: loach; Nemachilidae; new record; ornamental fish; *Paracanthocobitis botia*; Paschim Medinipur

1 | INTRODUCTION

The zipper stone loaches, members of *Paracanthocobitis* genus, are geographically widespread and species-rich group of Nemachilidae family found in South East Asia (Arunkumar *et al.* 2019). They are extended from Indus Basin of Pakistan to the Salween drainages, the Malay Peninsula, Cambodia and Laos in the Mekong Basin (Kottelat 1990; Pethiyagoda 1991; Arunkumar *et al.* 2019). The genus *Paracanthocobitis* was created by Grant (2007) and recognised by Singer and Page (2015) as distinct genus *Paracanthocobitis* with 14 species. *Paracanthocobitis* has distinguished from *Acanthocobitis*, such as emarginate or truncate (vs. pointed) caudal fin, 9 ½ –15 ½ (vs. 17 ½–19 ½) branched dorsal-fin rays, rounded (vs. triangular-shaped) head in lateral view, horizontally (vs. vertically) aligned suborbital flap or groove, papillated pad on either side of narrow (vs. wide) with medial interruption of lower lip and anus closer to pelvic-fin insertion than to anal-fin insertion (vs. nearer to anal-fin insertion) (Singer and Page 2015). The genus is distinct from all other genera of the family Nemacheilidae by the combination of lower lip with a large papillated pad on either side of a median barrier, upper lip with 2–5 rows of papillae and continuous with lower lip, conspicuous black spot with ocellus on upper half of caudal-fin base (Kottelat 2012; Singer and Page 2015). Presently 20 species of the genus are valid and 8 species are reported from India (Shangningam 2019).

Paracanthocobitis botia is the most dominant species of genus *Paracanthocobitis* (Singer and Page 2015). It is described from 'North-eastern Bengal' as *Cobitis botia* Hamilton (1822) and formerly considered to have an enormous range extending eastwards from the Indus River basin of Pakistan to northern India, Nepal, Bhutan, Bangladesh, Myanmar, the Chinese province of Yunnan, western Thailand, and covering several major river drain-

ages viz. Ganges, Irrawaddy, Salween, and Mae Klong. They are demersal fish mainly found in freshwater river systems (Baensch and Riehl 1985). Recently Shangningam *et al.* (2019) have reported this species from Bihar state of India whereas Das (2015) enlisted this species in the river Torsa and its tributaries at Terai region and Das *et al.* (2013) reported it from Rasik Beel wetland of West Bengal. The previous literature (e.g. Paul and Chanda 2014, 2017; Jana *et al.* 2015, 2020, 2021; Pahari *et al.* 2017; Kar *et al.* 2017; Kisku *et al.* 2017) described fish diversity of different rivers and water bodies of the Paschim Medinipur district but did not enlist *P. botia*. Therefore, present study reveals the first record of the species in the Kangsabati River Basin of Midnapore, West Bengal.

2 | METHODOLOGY

Three specimens were collected from the Kangsabati River Basin (22°23′55.0″N 87°20′33.9″E and 22°24′31.3″N 87°17′54.3″E) of Midnapore, West Bengal, India by the use of a cast net with a mess size of 2 – 3 mm. After collection, the specimens were immediately preserved by 4% formaldehyde and brought to laboratory of the department of Zoology (PG) of Raja N.L. Khan Women's College (Autonomous). Finally, specimens were washed and preserved in 6% formaldehyde and kept in the museum of Zoology, Raja N. L. Khan Women's College (Autonomous) (ID RNLK/ZOO/ORN/FISH/49). The specimens were identified based on morphometric and meristic characters such as body length, depth, colour, colour band, shape, size, fin number, fin shape, fin ray's number and number of lateral line pore, following standard literature (e.g. Talwar and Jhingran 1991; Singer and Page 2015).

3 | RESULTS

3.1 History of species

Paracanthocobitis botia was originally described as *Cobitis botia* Hamilton (1822). A brief history of the species has been given below.

1822 *Cobitis botia* Hamilton, an account of the fishes found in the river Ganges; northeastern Bengal: 350, 394, no types known.

1822 *Cobitis bilturio* Hamilton, an account of the fishes found in the river Ganges; Brahmaputra River [at Goalpara], India: 358, 395, no types known.

1822 *Cobitis turio* Hamilton, an account of the fishes found in the river Ganges; Brahmaputra River at Goalpara, India: 358, 395, no types known.

1839 *Cobitis bimucronata* McClelland, Asiatic Researches v. 19 (pt 2); northeastern Bengal. Based on Hamilton manuscript drawings (Menon 1987: 141): 304, 435, Pl. 51 (fig. 4)

1840 *Cobitis arenata* Valenciennes, in Jacquemont, Pl. 15 (fig. 1), Voyage dans l'Independant les années 1828 à 1832; India. Holotype: MNHN 0000-3811.

1978 *Nemacheilus botia* Shrestha, Fish fauna of Nepal. Journal of Natural History Museum Tribhuvan University v. 5 (1-4): 33–43.

1990 *Acanthocobitis botia* Kottelat, Indochinese nemacheilines. A revision of nemacheiline loaches (Pisces: Cypriniformes) of Thailand, Burma, Laos, Cambodia and southern Viet Nam. Verlag Dr. Friedrich Pfeil, München. 1–262.

2007 *Acanthocobitis* (*Paracanthocobitis*) *botia* Grant, A new subgenus of *Acanthocobitis* Peters, 1861 (Teleostei: Nemacheilidae). Ichthyofile No. 2: 1–9.

2015 *Paracanthocobitis botia* Singer and Page, Revision of the Zipper Loaches, *Acanthocobitis* and *Paracanthocobitis* (Teleostei: Nemacheilidae), with descriptions of five new species; 103(20): 386–389.

3.2 Materials examined

One female (6.1 cm) and one male (5.5 cm) specimens, Midnapore (22°23′55.0″N 87°20′33.9″E), Paschim Medinipur, West Bengal, India, 21.01.2021, G. Sit; one female (6 cm), Midnapore (22°24′31.3″N 87°17′54.3″E), Paschim Medinipur, West Bengal, India, 07.02.2021, G. Sit.

3.3 Diagnosis

Morphological view (Figure 1): Body elongates, dorsal profile rising evenly from tip of the snout to head, slowly increasing from head to origin dorsal-fin, then decreasing gently towards caudal peduncle. Body cylindrical anteriorly to origin of dorsal-fin then compressed posteriorly. Head slightly depressed, snout rounded, eyes large, near top of head, slightly nearer to tip of snout than end of operculum.

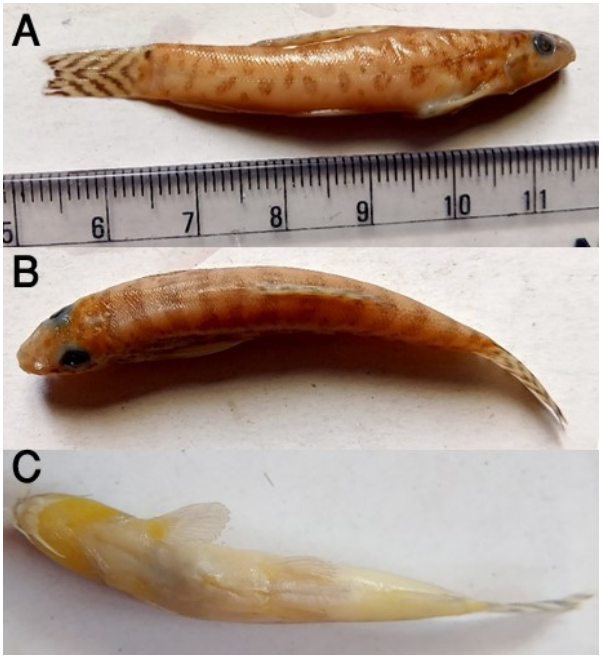

FIGURE 1 *Paracanthocobitis botia*. A, lateral view; B, dorsal view; C, ventral view.

TABLE 1 Morphometric characteristics of *Paracanthocobitis botia*.

Parameters (mm)	Present study	Singer and Page (2015)
Standard length (SL)	45 – 50	37.1 – 57.7
Predorsal length / SL%	45.5 – 48	45.7 – 50.7
Head length (HL) / SL%	16 – 22.5	18.7 – 21
Snout length / SL%	8 – 10	7.8 – 9
Pre-pelvic length / SL%	46.5 – 50	48.6 – 56.4
Pre-anal length / SL%	68.5 – 79.5	76 – 80.7
Body depth / SL%	18 – 20	12.6 – 18.4
Caudal peduncle depth / SL%	8 – 10	10.5 – 12.5
Pectoral-fin length / SL%	18.5 – 22	16.5 – 24.3
Pelvic-fin length / SL%	12.5 – 16.5	14.5 – 16.6
Eye diameter / HL%	25 – 30	28.1 – 35.3
Interorbital width / HL%	20 – 26.5	23.2 – 31.1

FIGURE 2 Fin rays of *Paracanthocobitis botia*.

Fin	Present study	Singer and Page (2015)	Hamilton (1822)
Dorsal fin	i 10	10.5 – 11.5	iii 9 – 10
Anal fin	iii 5		iii 5
Pelvic fin	8	8 (rarely 7)	i 7
Pectoral fin	i 10 – 12	i 10 – 13	i 11

Colour (Figure 2): Body olivaceous yellow and 8 – 10 dark oblong to squarish blotches alongside just below lateral line; small dorsal saddles narrower than, or equal to, interspaces, not extending to lateral line. Complete lateral line with 80 to 100 pores. Irregular pigmentation present between saddles and lateral line. Black roundish spot in ocellus near dorsal margin of caudal peduncle; Five dark bands ('V' shaped) on caudal fin. These attractive colour, blotches and spot are established *P. botia* as ornamental fish.

3.4 Habitat
They are found in streams and small rivers where leaf litter and other debris collects, areas of open sand or mixed cobbles, rocks and boulders.

3.5 Diet
Feeding on insect larvae in nature. Singer and Page (2015) report that stomach contents examined during their study were larval chironomids and ephemeropterans. In the aquarium it will accept sinking dried foods but should also be offered regular meals of small live and frozen fare such as daphnia, artemia, blood worm, etc. A varied diet is the key to maintaining it in the best of health.

3.6 Sexual dimorphism
Adult males are slimmer and have suborbital slit, visible as a cleft in the skin, extending from below the eye which is absent in females.

3.7 Conservation status
According to IUCN, they are belonging to Least Concern

3.8 Local status
Very low availability in the study area.

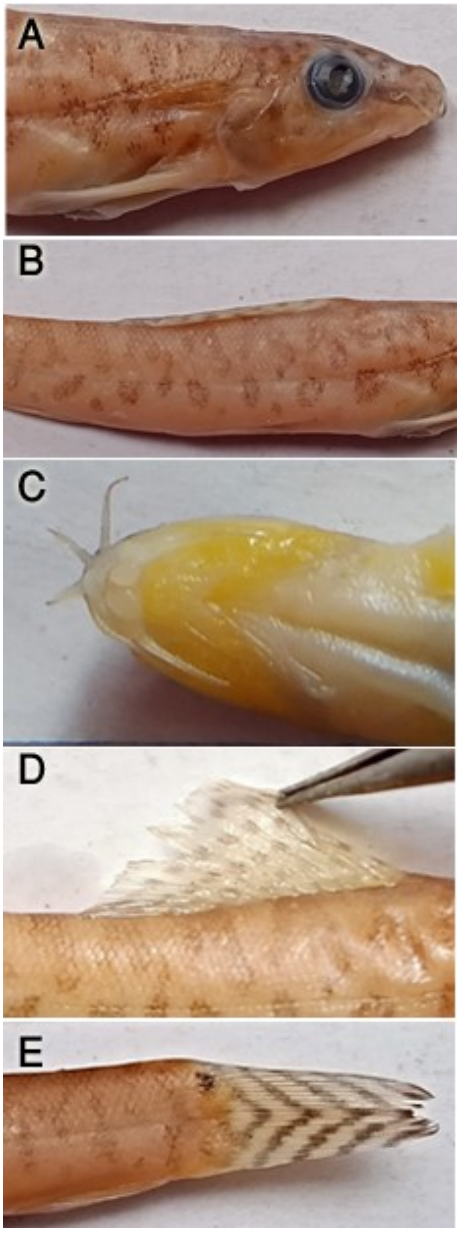

FIGURE 2 *Paracanthocobitis botia*. A, colour pattern on body; B, adipose tissue; C, ventral view of head showing papillated lips; D, dorsal fin; E, tail with dark band and round black spot in ocellus.

4 | DISCUSSION AND CONCLUSIONS
Paracanthocobitis botia (Hamilton 1822) is peaceful in nature and can be maintained along with many of the more popular species in the hobby as ornamental fish. The distinguish characteristic of ocellus, a dark marking at the top of the caudal peduncle that resembles an eye, is

thought to have some function in predator distraction and is normally more intense in younger specimens. *Paracanthocobitis botia* is distinct from all other species of *Paracanthocobitis* by the complete lateral line; suborbital flap in male; no axillary pelvic lobe; small dorsal saddles; 8 – 10 dark blotches alongside and just below lateral line; usually 11 dorsal-fin rays; and 12 pectoral-fin rays (Singer and Page 2015). After comparison of morphometric and meristematic data with Singer and Page (2015) it is confirmed that the present specimen is *P. botia*. Present specimens differ from Singer and Page (2015) diagnosis by only 10 branched and one normal dorsal fin rays.

Paracanthocobitis botia is mainly found in north-eastern part of West Bengal. Present work is the first-time record of the species *P. botia* from the Kangsabati River basin, Paschim Medinipur district of west Bengal. Present report is the extension of distributional range for the species up to south-western part of Bengal as well as addition in indigenous ornamental fish faunal richness of Paschim Medinipur district, West Bengal. It is a good ornamental fish due to its olivaceous yellow body colour, with squarish blotches, eye spot on caudal peduncle and peaceful in nature, bottom dweller etc., have been attracted aquarist. The availability of this species is very low in the study area and therefore, its conservation is recommended. This could be done by its culture and artificial or captive breeding. This may benefit the local people economically.

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CONFLICT OF INTEREST

The author declares no conflict of interest.

AUTHORS' CONTRIBUTION

AC Design, monitoring, review, communication; GS specimen collection; AJ, GS & AC data analysis; AJ, GS & AC manuscript preparation; AJ, GS, AC & SKS revision of the manuscript.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on a reasonable request from the corresponding author.

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