



Research Article

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A Pioneering Study on Taxonomic Diversity of Fishes in the Headwaters of River Barak in Assam, Manipur and Mizoram, Northeast, India



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Abstract

Ichthyofaunal surveys in the headwaters of river Barak at different locations in the provinces of Manipur, Mizoram and Assam, notably, Karong, Tamenglong, Vangai, Ankhasuo, Chandikhal, Choutrikhal, Jaisuo, Jahkradahar, Kangrengdahar, Khangbor, Khanthum, Kotaikhal, Sartuinek, Teulien, Tinghmun, Patpuihmun, Zilthaw, Thingkal and Liben joining river Barak around Tipaimukh revealed the occurrence of 20 species of fishes. These include 12 species under *Cypriniformes*, 4 species under *Siluriformes*, 1 species each under *Beloniformes* and *Synbranchiformes* and 2 species under *Perciformes*. Detailed taxonomic studies indicated the highest number of species among the *Cypriniformes* and lowest among the *Beloniformes* and *Synbranchiformes*. Distribution and conservation status of each species have been discussed in the present communication.

Keywords: Fish fauna; Taxonomy; Conservation; Barak; Assam; Manipur; Mizoram; India

Introduction

The aquatic biodiversity is under pressure due to human-induced impacts, including effects on fish and their habitats [1-5]. As such, studies regarding fish fauna are needed.

Fish constitutes almost half of the total number of vertebrates on the earth. India is one of the mega biodiversity countries in the World [6] and the North-Eastern (NE) region in the Eastern Himalayan (EH) stretch has been identified as a hotspot of biodiversity by the World Conservation Monitoring Centre [7]. The hills and the undulating valley of this region gives rise to a large number of torrential hill streams, which lead to big rivers that finally become part of the Ganga-Brahmaputra-Barak-Chindwin-Koladyne-Gomati-Meghna system [1-3,5,8-11].

India is one of the mega biodiversity countries in the World [12,13]. Out of 2,500 species of fishes in India, 930 are freshwater (FW) inhabitants and 1,570 are marine [8-10,13]. This bewildering ichthyodiversity of this region has been attracting many ichthyologists from different regions of the world (Table 1a).

The fish fauna of the North-East (NE) India mainly features elements of the Indo-Gangetic region; and partly of the Myanmar's and South-Chinese regions [14]. There have been a significant number of works on the fish and fisheries. Ghosh & Lipton [15] had reported 172 species. Sen [16] reported 187 species from Assam and its environs. Sinha [17] had compiled a list of 230 species of fishes from NE India. Nevertheless, Nath & Dey [18] recorded 131 species of fishes from the drainages in Arunachal Pradesh alone. Sen [19] comprehensively compiled a list of 267 species of fishes from NE India. Further, according to Sen [19], of the 806 species of fishes inhabiting India's freshwaters [20], the NE region of India is represented by 267 species belonging to 114 genera under 38 families and 10 orders. It is 33.13% of the total Indian FW fishes. Further, of the 267 species, *Cypriniformes* dominates with 145 species, followed by *Siluriformes* (72), *Perciformes* (31), *Clupeiformes* (7), *Anguilliformes* (3), *Cyprinodontiformes* (3), *Osteoglossiformes* (2), *Synbranchiformes* (2), *Syngnathiformes* (1) and *Tetraodontiformes* (1). Kar (2003) reported 133 species of fishes through a pilot survey conducted in 19 rivers spread in

Barak drainage (Assam), Mizoram, and Tripura. Kar [21] further reported the occurrence of 103 species of fishes through an extensive survey conducted in six principal rivers in Barak Valley

(Assam), Mizoram, and Tripura. Kar & Sen [22] have carried out a detailed study on fish' biodiversity in North-East India with reference to Barak drainage, Mizoram, and Tripura (Table 1b).

Table 1a: Morphometrics and meristic counts of fishes from river Barak at different Head water collection centres.

Morphometrics	<i>Opsarius bendelisis</i> (n=19)	<i>Cirrhinus reba</i> (n=7)	<i>Barilius barila</i> (n=5)	<i>Devario aequipinnatus</i> (n=1)	<i>Securicula gora</i> (n=1)
Weight (g)	2.0 - 22.8	50.5 - 94.5	9.3 - 20.5	3.92	52
Total Length (cm)	5.6 - 13.4	16.4 - 20.9	10.8 - 13.1	7.5	21.8
Standard Length (cm)	4.4 - 11.1	13.2 - 17.1	8.6 - 10.6	6	18.5
Head Length (cm)	1.1 - 2.4	2.8 - 3.6	2.1 - 2.7	1.6	4.2
Head Depth (cm)	0.9 - 1.9	2.6 - 3.4	1.8 - 2.7	0.8	3.2
Head Breadth (cm)	0.5 - 1.3	1.6 - 2.2	1.0 - 1.2	0.9	1.3
Pre-Orbital Length (cm)	0.3 - 0.9	1.0 - 1.4	0.6 - 0.9	0.7	1.1
Post-Orbital Length (cm)	0.6 - 1.3	1.8 - 2.1	1.1 - 1.5	1	1.9
Snout Length (cm)	0.3 - 0.9	1.0 - 1.4	0.6 - 0.9	0.7	1.1
Eye Diameter (cm)	0.3 - 0.6	0.7 - 0.8	0.5 - 0.7	0.3	0.8
Pre-Dorsal Length (cm)	2.6 - 6.0	6.0 - 7.3	4.8 - 5.9	3.4	13.3
Post-Dorsal Length (cm)	2.1 - 5.8	8.1 - 10.9	4.6 - 6.0	3.2	6.6
Length of Dorsal fin base (cm)	0.5 - 1.8	1.9 - 3.4	1.1 - 1.6	1	1.8
Height of Dorsal fin (cm)	0.8 - 2.4	2.3 - 3.9	1.8 - 2.4	1.3	1.2
Pre-Pectoral Length (cm)	1.1 - 3.0	2.5 - 3.6	2.3 - 3.4	1.7	4.5
Post-Pectoral Length (cm)	4.2 - 10.5	13.3 - 17.5	8.2 - 9.8	5.1	17.8
Length of Pectoral fin base (cm)	0.2 - 0.5	0.5 - 0.8	0.4 - 0.6	0.3	0.8
Height of Pectoral fin (cm)	0.9 - 2.2	2.2 - 3.4	1.8 - 2.5	1.2	4.9
Pre-Pelvic Length (cm)	2.3 - 5.4	6.4 - 7.7	4.1 - 5.4	3.3	10.3
Post-Pelvic Length (cm)	3.0 - 8.2	9.9 - 12.7	7.5 - 8.3	5	11.4
Length of Pelvic fin base (cm)	0.1 - 0.4	0.4 - 0.8	0.3 - 0.5	0.2	0.3
Height of Pelvic fin (cm)	0.6 - 1.6	2.0 - 2.9	1.3 - 1.6	1	1.6
Pre-Anal Length (cm)	3.1 - 7.5	10.3 - 12.5	5.8 - 6.9	4.7	14
Post-Anal Length (cm)	1.6 - 4.4	5.4 - 6.8	3.7 - 4.8	1.7	5.2
Length of Anal fin base (cm)	0.5 - 1.6	1.0 - 1.3	1.3 - 2.0	0.5	2.3
Height of Anal fin (cm)	0.7 - 1.7	1.9 - 1.5	1.5 - 1.8	1	2.1
Body Depth (cm)	1.2 - 2.8	3.0 - 4.3	2.2 - 3.0	0.8	3.4
Length of Caudal Peduncle (cm)	0.6 - 2.1	2.5 - 3.3	1.7 - 2.2	1	2.6
Height of Caudal Peduncle (cm)	0.5 - 1.1	1.6 - 2.1	0.9 - 1.2	0.6	1.6
No. of Pectoral Fin Rays	11.0 - 12.0	14.0 - 14.0	12	10	12
No. of Spines in Pectoral Fin Rays	0	0	0	0	0
No. of Pelvic Fin Rays	7.0 - 9.0	9.0 - 9.0	8	7	8
No. of Spines in Pelvic Fin Rays	0	0	0	0	0
No. of Anal Fin Rays	6.0 - 12.0	6.0 - 6.0	13	6	14
No. of Spines in Anal Fin Rays	0	0	0	0	0
No. of Dorsal Fin Rays	7.0 - 9.0	9.0 - 9.0	8	9	8
No. of Spines in Dorsal Fin Rays	0	0	0	0	0

No. of Caudal Fin Rays	17.0 - 19.0	17.0 - 19.0	19	19	19
Shape of Caudal fin	Forked	Forked	Forked	Forked	Forked
No. Lateral Line Scales	33 - 45	37.0 - 38.0	42 - 43	78	210
No. of Scales above Lateral Line	7.5 - 8.5	8.5 - 9.5	8.5 - 9.5	11	18.5
No. of Scales below Lateral Line	4.5 - 7.0	9.5 - 10.5	5.5	1.4	13.5
No. of Nasal Barbels	0	0	0	0	0
No. of Rostral Barbels	2.0 - 2.0	2.0 - 2.0	2	4	0
No. of Maxillary Barbels	2.0 - 2.0	0	2	2	0
No. of Mandibular Barbels	0	0	0	0	0
Pre-Dorsal Scales	13.0 - 20.0	12.0 - 14.0	18 - 20	36	90

Table 1b: Morphometrics and meristic counts of fishes from river Barak at different Head water collection centres.

Morphometrics	<i>Labeo pangusia</i> (n=1)	<i>Garra annandalei</i> (n=1)	<i>Garra naganensis</i> (n=4)	<i>Neolissochilus hexagonolepis</i> (n=4)	<i>Botia dario</i> (n=3)
Weight (g)	40	36.5	2.56 - 20.19	6.46 - 24.5	23.0 - 36.5
Total Length (cm)	15.9	15	5.8 - 13.9	8.6 - 14.2	11.8 - 13.3
Standard Length (cm)	12.6	11.7	4.7 - 11.4	6.6 - 11.3	9.6 - 11.1
Head Length(cm)	3.2	3.1	1.2 - 2.8	1.8 - 3.1	2.7 - 3.2
Head Depth (cm)	2.6	2.7	0.8 - 2.2	1.4 - 2.4	2.2 - 2.6
Head Breadth (cm)	2	1.8	0.9 - 2.3	1.0 - 1.7	1.3 - 1.5
Pre-Orbital Length (cm)	1.6	1.1	0.5 - 1.4	0.5 - 1.0	1.5 - 1.9
Post-Orbital Length (cm)	2.3	1.8	0.8 - 1.9	1.1 - 1.8	1.9 - 2.6
Snout Length (cm)	1.6	1.1	0.5 - 1.4	0.5 - 1.0	1.5 - 1.9
Eye Diameter (cm)	0.7	0.7	0.3 - 1.5	0.6 - 0.8	0.4 - 0.5
Pre-DorsalLength (cm)	6	6.1	2.2 - 5.6	3.3 - 5.4	4.9 - 5.8
Post-Dorsal Length (cm)	8.5	8.3	2.7 - 7.2	4.3 - 7.1	4.9 - 6.1
Length of Dorsal fin base (cm)	2.1	1.8	0.6 - 1.6	1.1 - 1.2	1.6 - 1.8
Height of Dorsal fin (cm)	3	3	1.1 - 2.4	1.7 - 1.9	1.7 - 2.1
Pre-Pectoral Length (cm)	3.2	2.9	1.1 - 2.4	1.8 - 3.2	2.5 - 2.8
Post-Pectoral Length (cm)	12.9	10.7	4.9 - 11.7	7.1 - 11.8	9.0 - 11.0
Length of Pectoral finbase (cm)	0.5	0.4	0.3 - 0.8	0.2 - 0.5	0.5 - 0.6
Height of Pectoral fin (cm)	2.4	2.5	1.1 - 2.1	1.4 - 2.3	1.7 - 2.1
Pre-Pelvic Length (cm)	6.7	5.4	2.6 - 6.0	3.4 - 5.9	5.5 - 6.5
Post-Pelvic Length (cm)	9.1	7.9	3.2 - 8.0	5.3 - 8.5	6.1 - 7.3
Length of Pelvic fin base (cm)	0.4	0.5	0.2 - 0.7	0.3 - 0.4	0.3 - 0.4
Height of Pelvic fin (cm)	2.3	2.1	0.9 - 1.7	1.2 - 1.9	1.3 - 1.7
Pre-Anal Length (cm)	9.7	8.4	3.6 - 8.5	4.9 - 8.2	7.8 - 8.9
Post-Anal Length (cm)	5.3	4.7	1.8 - 4.6	3.1 - 5.2	2.8 - 3.3
Length of Anal fin base (cm)	1	0.8	0.4 - 17.0	0.5 - 0.8	0.7 - 0.9
Height of Anal fin (cm)	2.3	2.4	0.9 - 2.3	1.4 - 2.2	1.5 - 1.5
Body Depth (cm)	3.1	3.3	0.9 - 3.1	1.5 - 2.5	2.8 - 3.6

Length of Caudal Peduncle (cm)	2.3	1.9	0.9 - 2.2	1.0 - 2.4	1.3 - 1.7
Height of Caudal Peduncle (cm)	1.5	1.4	0.4 - 1.3	0.6 - 1.3	1.4 - 1.8
No. of Pectoral Fin Rays	13	14	12.0 - 12.0	12.0 - 15.0	12.0 - 12.0
No. of Spines in Pectoral Fin Rays	0	0	0	0	0
No. of Pelvic Fin Rays	8	9	8.0 - 9.0	9.0 - 9.0	7.0 - 7.0
No. of Spines in Pelvic Fin Rays	0	0	0	0	0
No. of Anal Fin Rays	6.0 - 12.0	6	6.0 - 6.0	6.0 - 6.0	6.0 - 6.0
No. of Spines in Anal Fin Rays	0	0	0	0	0
No. of Dorsal Fin Rays	11	9	9.0 - 9.0	10.0 - 10.0	10.0 - 10.0
No. of Spines in Dorsal Fin Rays	0	0	0	0	0
No. of Caudal Fin Rays	19	17	18.0 - 21.0	17.0 - 19.0	20.0 - 20.0
Shape of Caudal fin	Forked	Deeply Forked	Forked	Forked	Forked
No. Lateral Line Scales	42	26	28 - 39	24 - 32	105 - 142
No. of Scales above Lateral Line	8.5	4.5	3.5 - 5.5	4.5 - 5.5	19 - 25
No. of Scales below Lateral Line	10.5	5.5	5.5 - 6.5	4.5 - 5.5	35 - 39
No. of Nasal Barbels	0	0	0	0	0
No. of Rostral Barbels	0	2	2.0 - 2.0	2.0 - 2.0	4.0 - 4.0
No. of Maxillary Barbels	0	2	2.0 - 2.0	2.0 - 2.0	2.0 - 2.0
No. of Mandibular Barbels	0	0	0	0	2.0 - 2.0
Pre-Dorsal Scales	27	10	10.0 - 12.0	9.0 - 11.0	32 - 39

Table 1c: Morphometrics and meristic counts of fishes from river Barak at different Head water collection centers.

Morphometrics	<i>Cabdio morar</i> (n=1)	<i>Tor tor</i> (n=5)	<i>Sperata seenghala</i> (n=8)	<i>Hemibagrusmenoda</i> (n=1)	<i>Gagata cenia</i> (n=1)
Weight (g)	18	10.5 -33.0	2.01 - 5.89	45	7.7
Total Length (cm)	12.7	10.0 - 15.1	8.0 - 12.2	18.4	11
Standard Length (cm)	10.2	8.0 - 11.4	6.4 - 9.7	14.6	8.9
Head Length(cm)	2.2	2.4 - 3.3	1.9 - 2.9	14.6	2.3
Head Depth (cm)	2	1.9 - 2.9	0.6 - 1.2	2.5	1.5
Head Breadth (cm)	1	1.2 - 1.7	1.0 - 1.4	3.1	1.3
Pre-Orbital Length (cm)	0.6	0.8 - 1.0	0.6 - 1.1	1.8	0.9
Post-Orbital Length (cm)	1.2	1.5 - 1.8	1.0 - 1.5	2.3	1.6
Snout Length (cm)	0.6	0.8 - 1.0	0.6 - 1.1	1.8	0.9
Eye Diameter (cm)	0.6	0.7 - 0.8	0.4 - 0.6	0.5	0.7
Pre-Dorsal Length (cm)	5.6	4.5 - 5.8	2.6 - 3.9	5.9	3.4
Post-Dorsal Length (cm)	5.8	5.3 - 7.1	5.6 - 7.2	9.6	6.5
Length of Dorsal fin base (cm)	1.2	1.4 - 2.3	0.8 - 1.4	2	1.1
Height of Dorsal fin (cm)	1.9	2.3 - 3.4	1.4 - 2.0	2.7	1.8
Pre-Pectoral Length (cm)	2.5	2.4 - 3.2	1.6 - 2.6	4	2

Post-Pectoral Length (cm)	10.3	7.6 - 12.5	6.6 - 9.3	13.4	9
Length of Pectoral finbase (cm)	0.5	0.3 - 0.4	0.2 - 0.4	0.7	0.4
Height of Pectoral fin (cm)	2.2	1.6 - 2.6	1.0 - 1.4	2.5	1.7
Pre-Pelvic Length (cm)	5.2	4.2 - 6.5	3.0 - 5.2	8.1	4.6
Post-Pelvic Length (cm)	7.5	5.9 - 9.7	5.1 - 7.1	9.9	5.8
Length of Pelvic fin base (cm)	0.4	0.3 - 0.5	0.2 - 0.3	0.4	0.2
Height of Pelvic fin (cm)	1.5	1.6 - 2.1	1.0 - 1.5	2.1	1.2
Pre-Anal Length (cm)	7.8	6.0 - 9.3	4.4 - 7.3	10.7	6.4
Post-Anal Length (cm)	3.6	3.4 - 5.9	3.0 - 3.7	6.1	3.6
Length of Anal fin base (cm)	1.1	0.7 - 1.0	0.6 - 1.1	1.5	1
Height of Anal fin (cm)	1.2	1.7 - 2.7	1.2 - 1.6	2.6	1.3
Body Depth (cm)	2.6	2.4 - 3.4	1.0 - 1.5	2.7	1.5
Length of Caudal Peduncle (cm)	1.4	1.4 - 2.4	1.2 - 1.6	2.3	1.4
Height of Caudal Peduncle (cm)	1.1	1.1 - 1.4	0.5 - 0.9	1.7	0.9
No. of Pectoral Fin Rays	12	14.0 - 15.0	6.0 - 6.0	8	8
No. of Spines in Pectoral Fin Rays	0	0	1.0 - 1.0	1	1
No. of Pelvic Fin Rays	8	9.0 - 9.0	6.0 - 6.0	6	6
No. of Spines in Pelvic Fin Rays	0	0	0	0	0
No. of Anal Fin Rays	9	6.0 - 7.0	11.0 - 11.0	8	11
No. of Spines in Anal Fin Rays	0	0	0	0	0
No. of Dorsal Fin Rays	8	9.0 - 10.0	7.0 - 7.0	8	6
No. of Spines in Dorsal Fin Rays	0	0	1.0 - 1.0	0	1
No. of Caudal Fin Rays	19	19.0 - 21.0	21.0 - 21.0	19	17
Shape of Caudal fin	Forked	Forked	Deeply Forked	Deeply Forked	Deeply Forked
No. Lateral Line Scales	38	25.0 - 28.0	0(Scaleless)	0	0
No. of Scales above Lateral Line	7.5	4.5 - 4.5	0(Scaleless)	0	0
No. of Scales below Lateral Line	5.5	5.5 - 5.5	0(Scaleless)	0	0
No. of NasalBarbels	0	0	2.0 - 2.0	2.0 - 2.0	0
No. of RostralBarbels	0	2.0 - 2.0	0	0	0
No. of MaxillaryBarbels	0	2.0 - 2.0	2.0 - 2.0	2	2
No. of MandibularyBarbels	0	0	4.0 - 4.0	4.0 - 4.0	4.0 - 4.0
Pre-Dorsal Scales	21	9.0 - 10.0	0(Scaleless)	0(Scaleless)	0(Scaleless)

Table 1d: Morphometrics and meristic counts of fishes from river Barak at different Head water collection centres.

Morphometrics	<i>Rita rita</i> (n=1)	<i>Xenentodon cancila</i> (n=3)	<i>Mastacermbelusarmatus</i> (n=2)	<i>Johnius coitor</i> (n=2)	<i>Channa stewartia</i> (n=2)
Weight (g)	62	3.2 - 52.5	35.75 - 49.82	40.3 - 43.5	7.35 - 41.17
Total Length (cm)	18.8	13.5 - 25.7	26.3 - 34.5	16.4 - 17.5	10.2 - 16.1
Standard Length (cm)	15.1	12.5 - 23.5	25.1 - 32.8	13.4 - 14.0	8.1 - 13.3
Head Length(cm)	4.7	4.4 - 8.7	4.4 - 5.6	3.7 - 3.9	2.4 - 4.9
Head Depth (cm)	3	0.7 - 2.5	1.5 - 2.1	3.2 - 3.2	1.1 - 2.2

Head Breadth (cm)	4	0.7 - 1.6	1.3 - 1.9	2.1 - 2.2	1.4 - 2.8
Pre-Orbital Length (cm)	1.8	3.2 - 5.3	0.6 - 1.9	1.0 - 1.1	0.5 - 1.0
Post-Orbital Length (cm)	2.3	3.7 - 6.1	1.1 - 2.4	2.0 - 2.1	1.0 - 1.6
Snout Length (cm)	1.8	3.2 - 5.3	0.6 - 1.9	1.0 - 1.1	0.5 - 1.0
Eye Diameter (cm)	0.5	0.5 - 0.8	0.5 - 0.5	1.0 - 1.0	0.5 - 0.6
Pre-Dorsal Length (cm)	6.2	9.8 - 18.7	5.3 - 6.4	4.4 - 4.6	2.8 - 4.5
Post-Dorsal Length (cm)	10.1	1.6 - 3.3	1.1 - 1.8	4.5 - 4.6	2.6 - 3.5
Length of Dorsal fin base (cm)	2.5	1.9 - 3.8	18.5 - 26.3	8.1 - 8.4	5.1 - 7.8
Height of Dorsal fin (cm)	5.3	1.4 - 2.0	0.8 - 1.3	2.2 - 2.6	1.0 - 1.7
Pre-Pectoral Length (cm)	4	5.2 - 9.0	4.3 - 6.1	3.6 - 3.9	2.4 - 4.3
Post-Pectoral Length (cm)	9	8.4 - 16.6	22.1 - 28.1	12.9 - 13.0	7.4 - 12.1
Length of Pectoral finbase (cm)	1	0.2 - 0.5	0.5 - 0.6	0.7 - 0.7	0.5 - 0.7
Height of Pectoral fin (cm)	4.2	0.9 - 1.4	1.3 - 1.6	2.6 - 2.9	1.6 - 2.4
Pre-Pelvic Length (cm)	8	8.0 - 14.5	0(Absent)	4.3 - 4.7	2.8 - 5.0
Post-Pelvic Length (cm)	10.1	5.1 - 10.9	0(Absent)	12.4 - 12.5	7.1 - 11.4
Length of Pelvic fin base (cm)	0.6	1.0 - 2.0	0(Absent)	0.4 - 0.5	0.1 - 0.2
Height of Pelvic fin (cm)	2	0.5 - 1.2	0(Absent)	2.8 - 3.2	0.7 - 0.9
Pre-Anal Length (cm)	10.7	10.1 - 18.3	13.8 - 18.0	9.0 - 9.9	3.9 - 7.0
Post-Anal Length (cm)	6.4	1.7 - 2.8	1.2 - 1.7	6.4 - 6.5	2.9 - 4.2
Length of Anal fin base (cm)	1.8	1.8 - 3.5	10.8 - 14.8	1.1 - 1.1	3.2 - 5.0
Height of Anal fin (cm)	3	1.3 - 2.5	0.9 - 1.3	2.0 - 2.0	0.8 - 1.4
Body Depth (cm)	3.5	0.7 - 3.0	1.9 - 2.3	3.7 - 3.7	1.1 - 2.4
Length of Caudal Peduncle (cm)	3	0.8 - 1.5	0.4 - 0.5	3.3 - 3.6	0.9 - 1.7
Height of Caudal Peduncle (cm)	1.7	0.4 - 1.1	0.3 - 0.4	1.3 - 1.4	0.7 - 1.2
No. of Pectoral Fin Rays	8	9.0 - 9.0	22.0 - 22.0	16.0 - 16.0	12.0 - 12.0
No. of Spines in Pectoral Fin Rays	1	0	0	0	0
No. of Pelvic Fin Rays	8	6.0 - 6.0	0(Absent)	5.0 - 5.0	5.0 - 5.0
No. of Spines in Pelvic Fin Rays	0	0	0(Absent)	1.0 - 1.0	0
No. of Anal Fin Rays	10	15.0 - 15.0	72.0 - 72.0	7.0 - 7.0	24.0 - 25.0
No. of Spines in Anal Fin Rays	0	0	3.0 - 3.0	1.0 - 1.0	0
No. of Dorsal Fin Rays	6	15.0 - 15.0	73.0 - 73.0	28.0 - 28.0	31.0 - 37.0
No. of Spines in Dorsal Fin Rays	1	0	35.0 - 35.0	12.0 - 12.0	0
No. of Caudal Fin Rays	18	17.0 - 17.0	17.0 - 17.0	17.0 - 17.0	11.0 - 13.0
Shape of Caudal fin	Deeply Forked	Round	Round	Round	Round
No. Lateral Line Scales	0(Scaleless)	230.0 - 230.0	282.0 - 420.0	42.0 - 63.0	43.0 - 49.0
No. of Scales above Lateral Line	0(Scaleless)	26.0 - 45.0	14.0 - 17.0	9.5 - 16.5	4.5 - 5.0
No. of Scales below Lateral Line	0(Scaleless)	5.0 - 10.0	20.0 - 23.0	5.5 - 6.5	5.0 - 11.5

No. of Nasal Barbels	0	0	0	0	0
No. of Rostral Barbels	0	0	0	0	0
No. of Maxillary Barbels	2	0	0	0	0
No. of Mandibular Barbels	2	0	0	0	0
Pre-Dorsal Scales	0(Scaleless)	70.0 - 130.0	27.0 - 35.0	19.0 - 33.0	13.0 - 13.0

The tropical Asian ichthyofauna constitutes a substantial part of the total lotic fish community. The Indian Peninsula supports 930 species of native FW fishes, which belong to 87 families [22]. Several of tropical Asian FW fish share the African riverine ecosystems, both regarding the family and the generic level. Cyprinids, certain Siluriform catfishes, Channids, *Mastacembelids* and Notopterids are shared between the two regions. At the generic level, *Anabas*, *Clarias*, *Garra*, *Labeo*, and *Mastacembelus* occur in both African and Asian rivers. *Tilapia*, which have been introduced into India from Africa, have become widespread all-over southern Asia. They have also replaced the native population in some places due to their dominance. There is a large-scale abundance of Cyprinids and Balitorids in Asia, in contrast to the predominance of Characids and Cichlids in Africa. Incidentally, research on the ecology of the tropical fish communities is limited. Further, there have been studies on fish diets and resource partitioning in specific Sri Lankan hill streams [23]. Niche segregation is dependent on seasonality, diet, and habitat utilization, as was revealed from their studies. Also, there are morphological segregation and specialization in these fish communities (Table 1c).

Material and Methods

Fish samples were collected through experimental fishing using cast nets (diameter 3.7m - 1.0m), gill nets (vertical height 1.0m - 1.5m, length 100m - 150m), drag nets (vertical height 2.0m), triangular scoop nets (vertical height 1.0m) and a variety of traps. Camouflaging technique was also used to catch the fishes. Fishes have been preserved at first in concentrated formaldehyde in the field itself and then in 10% formalin. Fishes have been identified after standard literature [13,20,32,24-33] and fishbase.org. The arrangement of classification, followed here, is that of Greenwood & Jayaram [11-13,32-34] (Table 1d).

Results and Discussion

Pioneering ichthyological survey in the upstream stretch of river Barak in Assam, Manipur and Mizoram revealed the occurrence and first record of 2 species at Karong, 8 species at Tamenglong, 1 species at Vangai (Manipur), 1 species at Ankhasuo, 2 species at Chandikhal, 2 species at Choutrikhal, 2 species at Jaisuo, 2 species at Jahkradahar, 3 species at Kangrengdahar, 2 species at Khangbor, 1 species at Khanthum, 1 species at Kotaikhal, 2 species at Sartuinek, 1 species at Teulien, 1 species at Tinghmun and Patpuihmun, 1 species at Zilthaw, 1 species at Zilthaw, 3 species

at Thingkal and 1 species in Liben joining river Barak around Tipaimukh. These comprise the *Cypriniformes* - *Cabdiomorar*, *Bariliusbarila*, *Botiadario*, *Cirrhinusreba*, *Devarioaequipinnatus*, *Garraannandalei* Hora, *Garranaganensis* Hora, *Labeopangusia*, *Neolissochilus hexagonolepis*, *Opsarius bendelisis*, *Securiculagora* and *Tor tor*, *Siluriformes* - *Sperataseenghala* (Sykes), *Hemibagrismenoda*, *Rita rita* and *Gagatacenia*, *Beloniformes* - *Xenentodoncancila*, *Synbranchiformes* - *Mastacermbelusarmatus* and *Perciformes* - *Johniuscoitor* and *Channa stewartia*.

Phylum: Chordata

Class: Actinopterygii

Order: Cypriniformes

Family: *Danionidae*

Sub-family: *Chedrinae*

Genus: *Securicula gunther*

Securicula gunther, 1868, Cat Fis Brit Mus 7: 332 (type species, *Cyprinus gora* Hamilton-Buchanan, by subsequent designation) - Howes 1979, Bull Brit Mus nat Hist Zool, 36(3):191-*Pseudoxygaster banarescu*, 1967, Rev Roum Biologie Zoologie 12(5): 306 (type-species, *Cyprinus gora* Hamilton-Buchanan, by original designation)- Mirza, 1970, Biologia, 16(2): 92-Talwar and Jhingran, 1999, Inland Fishes, 1: 328 - Jayaram, 1999, FW Fishes of the Indian Region: 64.

Generic characters: Body elongate; strongly compressed. Abdomen strongly and sharply keeled, not covered by scales, extending from below opercle to anal origin. Head moderate; axis somewhat oblique comparatively to body axis. Snout blunt. Mouth oblique; cleft reaching anterior border of the orbit. Eyes moderate. Lips thin. Jaws sub-equal. Dorsal fin short, very posterior, inserted above anal fin. Pelvic fins inserted nearer to the anal fin than to pectoral. Caudal fin deeply forked. Scales very small.

***Securicula gora*:** River Barak at Sartuinek, 2 ex., 31.05.2009; Collector: Prof. D Kar and Party. Key to species: Only species so far known. Anal fin with 11 to 18 rays. Caudal fin deeply forked.

Distribution: Throughout India, including river Barak at Sartuinek, North-East India (first report); Bangladesh, Nepal, Pakistan, etc.

IUCN status: Least Concern (LC)

Genus: *Cabdio hamilton*

Cabdio hamilton, an account of fishes found in the river Ganges: 333, 392.

Generic characters: Body elongate. Abdomen rounded. Head moderate rounded anteriorly. Snout obtuse. Mouth small, inferior. Eyes lateral. Lips thin. Lower jaw without any lip and with a sharp crescent bony edge. Barbel absent. Dorsal fin inserted behind pelvic fins. Caudal fin forked. Lateral line much decurved. Scales of moderate size.

***Cabdio morar*:** River Barak at Khangbor, 1 ex., 17.04 .2009; Collector: Prof. D. Kar and Party. Key to species: Lateral line scales 38 to 42. Anal fin with 10 to 12 rays. 2.5 to 3 rows of scales between lateral line and pelvic fin base.

Distribution: Throughout Northern India, including river Barak at Khangbor, North-East India (first report); Bangladesh, Nepal, Pakistan, etc.

IUCN Status: Least Concern (LC)

Genus: *Opsarius maclelland*

Opsarius maclelland, 1838. Journal of the Asiatic Society of Bengal 7: 944.

Generic characters: Body long, mouth widely cleft and horizontal with symphysial knob received into a corresponding depression in the apex of the upper jaw. Back straight, dorsal fin placed opposite to anal fin, both fins situated near the caudal extremity.

***Opsarius bendelisis*:** River Barak at Karong, 1 ex., 26 10 2004; Tamenglong, 1 ex., 15 10 2006; Vangai, 1 ex., 22 4 2008; Thingmun-Patpuihmun, 1 ex., 25 4 2008; Thingkal, 4 ex., 23 5 2005; Liben (Joining Barak), 1 ex., 25 4 2008; Collector: Prof. D. Kar and Party. Key to species: Anal fin short with 7-8 branched rays. Each scale usually with a black spot.

Distribution: Throughout India, including river Barak at Karong, Tamenglong, Vangai, Thingmun-Patpuihmun, Thingkal, Liben (Joining Barak), North-East India, (first report); Bangladesh, Bhutan, Myanmar, Nepal, Pakistan, Sri Lanka, and Thailand.

IUCN status: Least Concern (LC).

Barilius hamilton

Barilius hamilton, 1822, Fish Ganges, 266, 384 (Type species: *Cyprinus barila* Hamilton).

Generic characters: Body moderately elongate and compressed. Abdomen rounded. Head sharply pointed; might have "peral organs" and tubercles. Mouth anterior or obliquely directed upwards. Eyes large and superior in the anterior half of the head, not visible from below the ventral surface. Upper jaw longer than lower. Characteristic muscular pads present in front

of the bases of the pectoral fins. Dorsal fin inserted opposite the inter-space between pelvic and anal fins, nearer to caudal-fin base than to the tip of the snout. Caudal fin forked. Scales moderate. Lateral line concave. The body usually covered with vertical bands.

***Barilius barila*:** River Barak at Thingkal, 4 ex., 23 5 2009 date; Collector: Prof. D. Kar and Party. Key to species: Body with 14 or 15 short vertical bars extending from back to lateral line.

Distribution: Throughout Northeast India, river Barak at Thingkal, NE India (first report); Bihar, Delhi, Jammu and Kashmir, Madhya Pradesh, Mysore, Orissa, Rajasthan, Uttar Pradesh, West Bengal. Bangladesh, Myanmar and Nepal.

IUCN status: Least Concern (LC).

Genus: *Devario heckel*

Devario heckel, 1843, Ichthyologie (von Syrien) in von Russesa, Ereisen in Europa, Asia and Africa 1 (2): 1015 (Type species: *Cyprinus devario* Hamilton monotypy).

Generic characters: Mainly differentiated from *Danio* by a short and wide pre-maxillary ascending process, a short maxillary barbel, a "P stripe" extending to median caudal-fin rays. Infraorbital five or not or slightly reduced.

***Devarioaequipinnatus*:** River Barak at Tamenglong, 1 ex., 15.10. 2006; Collector: Prof. D. Kar and Party. Key to species: A lateral band along the sides of the body with thinner golden bands above and below it.

Distribution: Throughout India, including river Barak at Tamenglong, NE India (first report). Bangladesh, Myanmar, Tenasserim provinces, Nepal, Sri Lanka, and Thailand.

IUCN Status: Least Concern (LC). Sub-family: Torinae

Genus: *Tor gray*

Tor Gray, 1834, Illustrations of Indian Zoology, 2, Pl. 96 (type-species, *Cyprinus tor* Hamilton, by monotypy).

Generic characters: Body elongate, moderately compressed. Abdomen rounded. Head small, broadly pointed. Snout angularly rounded, often with tubercles. Mouth inferior usually arched. Eyes large; not visible from below ventral surface. Lips fleshy, continuous at angles of the mouth. Posterior lip with a median lobe and the post-labial groove continuous. Four barbels; one pair each of maxillary and rostral. Dorsal fin inserted above pelvic fins, with 12 to 13 rays and a strong, stout, smooth spine. Anal fin with seven or eight rays. The caudal fin deeply forked. Scales large. Lateral line complete with 22 to 37 scales.

***Tor tor*:** River Barak at Jaisuo, 1 ex., 19 5 2009; Jhakhradahar, 2 ex., 28 8 2009; Khangor, 2 ex., 5 9 2009; Collector: Prof. D. Kar and Party. Key to species: Head relatively smaller than body depth. Lateral line scales 22-27.

Distribution: Throughout Northeast India including river Barak at Jhakradahar and river Barak at Khangbor, NE India (first report); West Bengal, Bihar, Uttar Pradesh, Madhya Pradesh, Ganga, and Narmada River system, Eastern Himalayas. Bangladesh, Bhutan, China, Myanmar, Nepal, and Pakistan.

IUCN status: Data Deficient (DD).

Genus: *Neolissochilus rainboth*

Neolissochilus rainboth, 1985, Beaufortia 35 (3): 26 (Type species: *Barbusstracheyi* Day, 1871, by original designation).

Generic characters: Body deep anteriorly. Trunk and peduncle are smoothly tapering from anterior end to posterior end. Abdomen rounded. Head broad. Snout blunt. Mouth oblique, terminal to horizontal or inferior. Species with horizontal mouth often have the lobe of the snout overhanging the upper lip. Mouth smoothly rounded when the lower jaw is blunt. Eyes in the upper half of head; visible both from dorsal and ventral surfaces. Lips thick. Cheeks with many tubercles. Labial fold interrupted. Scales large and heavy.

***Neolissochilus hexagonolepis*:** River Barak at Jaisuo, 1 ex., 19.05.2009; Collector: Prof. D. Kar and Party. Key to species: Mouth nearly truncate. Edge of lower jaw sharp.

Distribution: Throughout NE India including river Barak at Jaisuo in NE India (first report), Northern India, Darjeeling, and Eastern Himalaya. South and South-Eastern Asia.

IUCN status: Near Threatened (NT).

Sub-family: Labeoninae

Genus: *Cirrhinus oken*

Cirrhinus (Oken), Cuvier, 1817, V.KI. *Fische*. IN: Isis order Encyclopadische Zeituny, 8: 113 (type species, *Cyprinus cirrhosus* Bleeker, by monotypy), -Banarescu, 1983, Rev.Roum. Biol. (Zool).28 (1): 13-17 (revision)

Generic characters: Body moderate, elongate, compressed. Abdomen rounded. Head short. Snout obtusely rounded, with thin skin covering it. Mouth wide, transverse. Eyes moderately large. Upper lip fringed or entire, not continuous with lower. Lower jaw sharp with a small tubercle at the symphysis. Barbels four, two or none. Dorsal fin inserted ahead of pelvic fins. Anal fin short. Scales of varying sizes. Lateral line complete.

***Cirrhinusreba*:** River Barak, Ankhasuo, 1 ex., 15.5.2009; Chandikhal, 2 ex., 21.5.2009; Chotrikhal, 1 ex., 13.5.2009; Khangbor, 1 ex., 17.5.2009; Khanthuum, 2 ex., 27.5.2009; Sartuinek, 2 ex., 31.5.2009. Collector: Prof D Kar and Party. Key to species: Lateral line scales 34 to 38. Dorsal fin less than body height (body depth).

Distribution: Throughout NE India including river Barak

at Ankhasuo, Chandikhal, Chotrikhal, Khangbor, Khanthuum, Sartuinek in NE India (first report), Northern India, Darjeeling, and Eastern Himalaya. South and South-Eastern Asia.

IUCN status: Least Concern (LC).

Genus: *Labeo cuvier*

Labeo cuvier, 1816, Regne Animale, 2 (ed.1): 194 (type-species, *Cyprinus niloticus* Forskal, by subsequent designation); - Jayaram and Dhas, 1998, Occ Paperszool Surv India No.183: 1-143 (revision); Menon, 1999, Rec Zool Surv India, Occ. Paper No.175: 125 (Check list).

Generic characters: Body small or of moderate size. Elongated or deep. Abdomen rounded. Head large. Snout swollen, rounded or truncated; often project beyond mouth, covered by a groove across; with or without tubercles, mostly overhanging the mouth. Mouth somewhat inferior. Eyes moderately large. Lips thick, fleshy, fringed, continuous at the angle of the mouth, forming a labial fold. 1 or 2 pairs of Barbels generally present. Dorsal fin inserted above anterior to origin of pelvic fins. Anal fin short. Caudal fin usually deeply forked. Scales large, moderate or small. Lateral line usually complete.

***Labeo pangusia*:** River Barak at Kotaikhal, 1 ex., 13.5.2009. Collector: Prof. D. Kar and Party. Key to species: Scales between lateral line and pelvic fins 6.0 to 6.5; eye, 17.2 to 25.3 % HL.

Distribution: Throughout NE India including river Barak at Kotaikhal in NE India (first report), rest of India (except Kerala), Bangladesh, Nepal, etc.

IUCN status: Near Threatened (NT).

Genus: *Garra hamilton*

Garra hamilton, 1822, Fish Ganges: 343, 393 (Type species: *Cyprinus* (*Garra*) lamtaby later designation).

Generic characters: Body short, sub-cylindrical. Ventral surface flat. Head little depressed anteriorly. Snout blunt; smooth or with pores; with or without a deep, transverse groove-like depression. Mouth inferior, transverse, semi-circular. Eyes small; in the posterior half of the head; lateral; not visible from below ventral surface. Lips thick and fleshy. Upper and lower lips are continuous without any lateral lobes. A proboscis may or may not be present. A suctorial disc of semi-cartilaginous pad present on the chin. Scales moderate.

***Garra annandalei hora*:** River Barak at Chotrikhal, 1 ex., 1.9.2009. Collector: Prof. D. Kar and Party. Key to species: Lateral line scales 33-34. Distance between vent and anal fin origin 31.25 to 38.5 % in inter-distance between pelvic and anal fin origin.

Distribution: Darjeeling Himalayas, river Barak at Chotrikhal in NE India (first report), Arunachal Pradesh, Manipur, Assam, Bangladesh, Nepal.

IUCN status: Least Concern (LC)

***Garra naganensis* hora:** River Barak at Karong, 1 ex., 26.10.2004; Tamenglong, 3 ex., 15.10.2006. Collector: Prof. D. Kar and Party. Key to species: Lateral line scales 38 to 40. Vent not situated between origin of anal and pelvic fins. Upper half of lobe of caudal fin longer than lower.

Distribution: Naga Hills, river at Karong and Tamenglong in NE India (first report)

IUCN status: Least Concern (LC)

Family: *Botiidae*

Sub-family: *Botiinae*

Genus: *Botia* gray, 1831

Botia gray, 1831, Zool Misc. 8 (Type species, *Botia almorhae* Gray, by monotype), - Hora, 1922, Rec India Mus., 24: 313-321 (revision)- Banareescu and Nalbant, 1968, Mitt. Hamburg Zool. Mus. Inst, 65: 341 (revision)-Taki, 1972, Jap. J. Ichthyol., 19 (2): 63-81 (review)-Menon, 1992, Fauna India, 4 (2), p. 31 (revision)-Jayaram, 1999, Freshwater Fishes of the Indian Region: 209, -Menon, 1999, Rec Zool Surv India, Occ. Paper No. 175: 155 (Check list).

Generic characters: Body oblong, short, moderately deep. Abdomen rounded. Head long, pointed. Snout conical, ventrally flat. Mouth small. Eyes moderately large, superior, in mid-part of head without any skin covering them. Anterior nostrils tubular. Lips thick, fleshy. Presence of a bifid erectile sub-orbital spine below or in front of eyes. Dorsal fin inserted above origin of pelvic or slightly ahead. Anal fin short. Caudal fin deeply forked. Scales absent on head.

Botia dario

River Barak at Teulien, 3 ex., 25.5.2009. Collector: Prof. D. Kar and Party. Key to species: Eye diameter 33.3 % of snout length.

Distribution: Bihar, Cachar, Meghalaya, North Bengal, Punjab, UP, Bangladesh and river Barak at Teulien in NE India (first report).

IUCN status: Least Concern (LC)

Order: Siluriformes

Family: *Bagridae*

Genus: *Rita* bleeker

Rita bleeker, 1853, Verh. Batav. Genootsch. Kunst.Wet., 25: 122 (type species, *Rita buechanani* Bleeker; -Jayaram, 1966, Int.Rev. ges.Hydrobiol., 51 (3): 434 (revision of genus); -Jayaram, 2006, Catfishes of India : 12, -Ferraris, 2007, Zootaxa 1418 : 105 (Check list). Gogrius Day, 1867, Protozoal. Soc. London: 563 (type-species, *Pimelodus gogra* Sykes, by monotype.

Generic characters: Body short, compressed. Abdomen rounded. Head large, depressed. Snout obtuse. Occipital region rugose. Mouth moderately wide. Eyes moderate. Gill membranes free from each other and from the isthmus. Rayed dorsal fin inserted above half of pectoral fin. Adipose dorsal fin low, short. Caudal fin forked. Lateral line with well-developed cutes along anterior quarters.

***Rita rita*:** River Barak at Zilthaw, 1 ex., 2.6.2009. Collector: Prof. D. Kar and Party. Key to species: Dorsal spine reaching to origin of adipose dorsal fin base. Caudal peduncle depth 8.2 – 10.7 % SL.

Distribution: Most rivers in North India, river Barak at Zilthaw in NE India (first report); also, in Bangladesh, Myanmar, Yunnan, etc.

IUCN status: Least Concern (LC)

Genus: *Sperata* holly

Sperata holly, 1939, Zool. Anzeiger 125: 14, 1939 (type species, *Speratavittatus* (Bloch), -Ferraris and Runge, 1999, Proc Acad. Nat.Sci.Philad 51 (10): 400 (revision), Jayaram, 2006, Catfishes of India: 23, -Ferraris, 2007, Zootaxa, 1418: 106 (Check list). Macrones Dumeril, 1856, Ichthyologie analytique: 484 (type species, *Bagrus lamarkii* Valenciennes, 1840. Aoria Jordan, 1856, Proc Acad Nat Sci Philad 70: 341.

Generic characters: Dorsal profile arched. Head large, elongate, slightly depressed. Snout spatulate or rounded. Mouth moderately large. A distinct inter-neural shield present in between the basal bone of dorsal fin and occipital process. Gill membranes free from each other and also from isthmus. Adipose dorsal fin low; its margin slightly convex. Pectoral spine serrated along inner margin of antrorse teeth. Caudal fin deeply forked. A large round or ovoid dark spot present near the posterior margin of the adipose dorsal fin.

***Sperata seenghala*:** River Barak at Jharkhand, 8 ex., 11.5.2009. Collector: Prof D. Kar and Party. Key to species: Anterior margin of snout truncate. Width of mouth greater than one third of Head length.

Distribution: Large rivers of India up to Krishna River system in South India; river Barak at Jharkhand in NE India (first report); Bangladesh, Yunnan, etc.

IUCN status: Least Concern (LC)

Genus: *Hemibagrus* bleeker

Hemibagrus bleeker, 1862, Atlas Ichthyologique Indices Orientalis 2: 9 (type species, *Bagrus nemurus* Valenciennes. In: Cuvier and Valenciennes, 1840, Hist Nat Poiss 14: 423, by original designation); Gunther, 1864, Cat Fish Brit. Mus., 5 : 74 (as a synonym of *Macrones*); - Fowler, 1929, J. Bombay nat. Hist.

Soc. 33: 105;- Hora and Mukerji, 1934, Rec. Indian Mus., 36 : 365;-Jayaram, 1954, Rec. Indian Mus.,51 : 527 (as a synonym of *Mystus*; 15 *Mystus* species provisionally assigned);-Mo, 1991, Thesis Zoologicae 17: 132, 1991 (separated from *Mystus*);- Ng and Ferraris, 1993, Proc. Calif. Acad. Sci. 52 (11): 125 – 142 (review of Southern Asian forms)- Jayaram and Anuradha, 2003, Rec. Zool. Surv. India Occ. Paper No. 207: 21, 2003 (inclusion of species under *Embargos* discussed).

Generic characters: Dorsal profile rising evenly; but, not steeply from tip of snout to origin of dorsal fin. Body short or moderately elongated. Head broad, depressed and ventrally flattened. Eyes moderately large, oval with wide inter-orbital space. Mouth opening crescentic. Rayed dorsal fin with a long spine. Adipose dorsal fin moderately long with considerable amount of inter-space from rayed dorsal. Pectoral fin with a strong spine. Pelvic fins do not reach the anal fin. Anal fin does not reach caudal base. Lateral line complete.

***Hemibagrus menoda*:** River Barak at Khangbor, 1 ex., 17.4.2008. Collector: Prof. D. Kar and Party. Key to species: Median longitudinal groove on head not reaching base of occipital process.

Distribution: River Barak at Khangbor in NE India (first report); other parts of North India, Bangladesh, etc.

IUCN status: Least Concern (LC)

Family: *Sisoridae*

Sub-family: *Sisorinae*

Genus: *Gagata bleeker*

Gagata bleeker, 1858. Ichthyol. ArchipelIndiciProdr., 1: 204 (type species: *Pemelodusgagata* Hamilton-Buchanan, by absolute tautonymy); - Hora and Law 1941, Rec. Indian Mus. 43 (10): 9 (revision); - Roberts and Ferraris, 1998. Proc. Calif. Acad. Sci. 50 (14): 317; - Jayaram, 2006, Catfishes of India: 187; Thompson ad Page, 2006, Zootaxa, 1345: 29 (Check list)- Ferraris, 2007, Zootaxa, 1418: 385 (Check list).

Generic characters: Dorsal profile rising not very sharply upto dorsal fin base; thereafter, slopes very gently; nearly straight. Head and body compressed. Head short. Snout obtusely rounded. Mouth inferior, small and narrow. Median longitudinal groove on head distinct. Eyes large, dorso-lateral. Maxillary barbels with an osseous base and lying in a groove anteriorly. Nasal pair of barbels with broad flaps, separating the 2 nostrils. Mandibular barbels inserted in a transverse row but at the same level. Rayed dorsal fin inserted above middle of pectoral fins. Caudal deeply forked. Lateral line complete with pores on anterior half.

***Gagata cenia*:** River Barak at Khangbor, 1 ex., 17.4.2008. Collector: Prof. D. Kar and Party. Key to species: Tip of snout acutely pointed in lateral profile with a distinct notch anteriorly. Maxillary barbels shorter than head length.

Distribution: Manipur, Nepal, River Barak at Khangbor in NE India (first report); Indus River (Pakistan), etc.

IUCN status: Least Concern (LC)

Order: Beloniformes

Family: *Belonidae*

Genus: *Xenentodon Regan*

Xenentodon Regan, 1911, Ann Mag nat Hist (8)7: 332 (type-species, *Belone cancila* Hamilton-Buchanan, by subsequent designation); - Roberts, 1989, Mem Calif Acad Sci No 14: 152 (review).

Generic characters: Body very elongate, compressed. Abdomen rounded. Head pointed. Snout sharply pointed. Mouth superior, wide, cleft extending to orbit. Eyes moderate. Both the jaws prolonged into a beak. Presence of a deep longitudinal groove along upper surface of the head. Dorsal fin usually inserted above anal fin. Caudal fins truncate. Scales small. Lateral line present on posterior half of the body, without a keel.

***Xenentodon cancila*:** River Barak at Kangrengdahar, 3 ex., 21.5.2009. Collector: Prof. D. Kar and Party. Key to species: Dorsal fin rays 15 – 18. Anal fin rays 16 – 18. Pre-dorsal scales >200.

Distribution: Manipur, Arunachal Pradesh, river Barak at Kangrengdahar in NE India (first report); Bangladesh, Myanmar, Nepal, etc.

IUCN status: Least Concern (LC)

Order: Synbranchiformes

Family: *Mastacembelidae*

Genus: *Mastacembelus scopoli*

Mastacembelus scopoli, 1777, Introd. Hist. Nat.: 458 (type –species, *Ophidium mastacembelus* Banks and Solander, by subsequent monotype); Travers, 1984, Bull. Brit. Mus. nat. Hist. (zool.) 47 (2): 141-145 (review); Roberts, 1986, Jap. J. Ichthyol., 23 (2): 103-107 (review); - Sufi, 1956, Bull. Raffles. Mus., No. 27: 105-143 (systematic review).

Generic characters: Body eel-like, elongated, compressed, long, pointed. Snout long, conical. Mouth inferior; cleft narrow. Eyes small, superior. Rim of anterior nostrils with two finger-like fimbriae and two flaps. Dorsal fin inserted above middle of pectoral fins. Caudal fin rounded. Pelvic fins absent. Caudal fin rounded. Dorsal and anal fins may not be confluent with caudal fin.

***Mastacembelus sarmatus*:** River Barak at Tamenglong, 2 ex., 15.10. 2006. Collector: Prof. D. Kar and Party. Key to species: Dorsal fin with 32 – 40 detached, depressible spines and 67 to 90 rays. Anal with three spines and 46 to 90 rays. Caudal fin merged with that of dorsal and anal fins, Caudal rays 14 to 17.

Distribution: River Barak at Tamenglong in NE India (first report); other parts of India, Bangladesh, South China, Malaya, Java, Myanmar, Nepal, etc.

IUCN status: Least Concern (LC)

Order: Perciformes

Family: Sciaenidae

Genus: *Johnius bloch*

Johnius bloch, 1793, Naturge Ausland Fische 7, p. 132 (type species, *Johnius carutta* Bloch, by subsequent designation); Talwar and Shetty, 1971, Proc. Indian Acad. Sci, 74 (2): 74 – 80 (generic relationship).

Generic characters: Body oblong, compressed. Abdomen rounded. Head large, compressed. Snout blunt, prominent, and swollen superiorly. Mouth inferior; cleft horizontal. Eyes superior. Upper jaw somewhat longer. Two dorsal fins continuous; inserted near base of pectoral fins. Caudal fin wedge-shaped. Lateral line curved.

***Johnius coitor*:** River Barak at Thingkal, 2 ex., 23.5.2009. Collector: Prof. D. Kar and Party. Key to species: First dorsal fin with 10 weak spines; second with 26 to 28 rays and a feeble spine. Anal fin with two spines and 7 rays.

Distribution: River Barak at Thingkal in NE India (first report); Bangladesh, Myanmar, East Indies to the East coast of Australia.

IUCN status: Least Concern (LC)

Family: Channidae

Genus: *Channa scopoli*

Channa Scopoli, 1777, Intrtod. Hist. Nat., 459 (type-species, *Channa orietalis* Bloch and Schneider, by subsequent designation). *Ophicephalus* Bloch, 1793, Naturges, ausland. Fische: 137 (type-species, *Ophicephalus punctatus* Bloch, by subsequent designation).

Generic characters: Body elongated. Abdomen rounded. Head large, depressed with plate-like scales. Snout somewhat obtuse. Mouth fairly large, opening moderate to wide, may extend to below orbit. Eyes lateral, moderate, in anterior part of head. Lower jaw protruding beyond upper. Gill openings wide; membranes of two sides connected beneath isthmus. An accessory respiratory organ presents in a cavity in gill chamber. Dorsal fin long, inserted almost above pectoral fins with 29 to 55 rays and no spine. Anal fin long with 21 to 36 rays. Both dorsal and anal fins are free from caudal. Caudal fin rounded. Scales cycloid or ctenoid. Scales on head larger than those on the body. Lateral line abruptly curved or almost interrupted with 37 to 110 scales.

***Channa stewartia*:** River Barak at Tamenglong, 2 ex.,

15.10.2006. Collector: Prof. D. Kar and Party. Key to species: Dorsal fin with 39 to 40 rays. Anal fin with 27 rays. Presence of circular black spots, each occupying part of a scale.

Distribution: Arunachal Pradesh, river Barak at Tamenglong in NE India (first report); Meghalaya, West Bengal, Nepal.

IUCN status: Least Concern (LC)

Concomitant to above, it may be noted here that, 18 individuals of *Opsarius bendelisis* had been collected by Kar and Party from River Jinam, Dima Hasao District, Assam, 25°08'27" N and 93°16'32" E, altitude 658 m; 9-12.11.2014, 25.01.2017. These fishes portrayed the following main features: Anal fin short with six to eight rays, each scale usually has a black spot on it. It was a first ever report of *Opsarius bendelisis* from Jinam River in Dima Haso district of Assam [35].

In addition to above, *Opsarius bendelisis* was also reported for the first time from the rivers Diyung, Vomvadung, Khualzangvadung, Tuikoi, and Mahur Rivers in Dima Hasao District, Assam [35].

Concomitant to above, three individuals of *Barilius barila* were reported for the first time from River Jinam, Dima Hasao District, Assam, (25°08'27" N and 93°16'32" E, altitude 658m; 11.11.2014; collectors Kar and Party). Among the important features, body with 14 or 15 vertical bars, short extending from back to lateral line [35].

Concomitantly, *Barilius barila* was also reported for the first time from river Tuikoi, Dima Hasao District, Assam [35].

Concomitant to above, 2 individuals of *Devario aequipinnatus* (McClelland, 1839): was reported for the first time from River Jinam in Dima Hasao District, Assam (25°08'27" N and 93°16'32" E, altitude 658m; 25.01.2017; collectors, Kar and Party) having lateral line complete with 34-37 scales; dorsal fin with 8-11 branched rays; well-marked lateral bands along sides of the body with thinner golden bands [35].

In addition to above, *Devario aequipinnatus* was reported from rivers Vomvadung in Dima Hasao District in Assam as first report) [35]. In continuation of the foregoing account, two individuals of *Neolissochilus hexagonolepis*: were reported for the first time from River Jinam, in Dima Hasao District of Assam (25°08'27" N and 93°16'32" E, altitude 658m; 10.11.2014). Having been collected by Kar and Party, the fish portrayed nearly truncate edge of lower jaw [35]. Concomitantly, *Neolissochilus hexagonolepis* was also reported for the first time from river Diyung in Dima Hasao District in Assam having smoothly rounded with blunt edge of lower jaw [35].

In addition to above, *Tor tor* was reported for the first time from river Diyung in Dima Hasao district of Assam with head relatively smaller than body depth and having 22 - 27 lateral line scales [35].

Concomitant to above, *Mastacembelus armatus* was reported for the first time from river. Khuolzangvadung in Dima Hasao District of Assam having zig-zag lines on the body and a row of spots along the soft dorsal fin base [35].

Notwithstanding the above, *Hemibagrus menoda* was recorded by Dey et al. [36]. Specimens collected from River Samsang at Bagnmara in Meghalaya during 2009, revealed SL of 15.1 to 15.5cm and 16.4 to 17.4cm of two specimens; head depressed, little broad, dorso-ventrally flattened; with four pairs of barbels, of which, maxillary pair longer than head length; and, rayed dorsal fin with a long spine. Further, black dots found arranged in vertical columns on the sides of the body.

It may be noted here that, *Hemibagrus menoda* is, sometimes, wrongly referred to as *Mystus corsula*. The reason could be due to erroneous labelling of the diagram associated with the original description as 'Mugil corsula, possibly by Ng and Ferraris.

Concomitant to above, Das et al. [37], recorded the following species in River Siang in Arunachal Pradesh. These species are found to be common to ichthyospecies found in a number of collection centres in the head waters of River Barak as noted in the present communication [38-40]. These ichthyospecies in the river Siang are, *Opsarius bendelisis*, *Botia dario*, *Cabdio morar*, *Channa stewartii*, *Cirrhinus mrigala*, *Devario aequipinnatus*, *Garra annandalei*, *Labeo pangusia*, *Mastacembelus armatus*, *Neilissochilus hexagonolepis*, *Rita rita*, *Tot tor* and *Xenentodon cancila*.

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