Sustainability in Environment
ISSN 2470-637X (Print) ISSN 2470-6388 (Online)
Vol. 10, No. 3, 2025
www.scholink.org/ojs/index.php/se

Original Paper

DISTRIBUTION AND CONSERVATION STATUS OF FISH SPECIES IN RIVER TUIRIAL IN MIZORAM: PIONERING DETAILED TAXONOMIC STUDY

Devashish K A R[1]

[1] Micro-Centre for Water and Human Studies, Silchar, Assam, INDIA-788005; formerly Assam University, Department of Life Science, Silchar, Assam, India-788011

Received: March 23, 2025 Accepted: May 11, 2025 Online Published: June 26, 2025

doi:10.22158/se.v10n3p19 URL: http://dx.doi.org/10.22158/se.v10n3p19

Abstract

Ichthyofaunal surveys in the River Tuirial at different locations from the headwaters to the downstream region in the province of Mizoram, done as a pioneering work (since updated), revealed the occurrence of 39 species of fishes belonging to 30 genera, 8 sub-families, 15 families and 6 orders for the whole stretch of the surveyed river from upstream to downstream region during the entire period of study. These include 28 fish species under Cypriniformes, 5 species under Siluroiformes, 3 species under Anabantiformes and 1 species each under Angulliformes, Beloniformes and Synbranchiformes. Conservation status and Distrubution of each species have been dealt with in the present paper.

Keywords

fish taxonomy and Diversity, River Tuirial, Mizoram, North-East India Eastern Himalayan Biodiversity Hotspot, Conservation

1. Introduction

Fish forms *c* 50 % of the total number of vertebrates in the world.. They live almost in all conceivable aquatic habitats. *c* 21,723 living species of fish have been recorded out of *c* 39,900 species of vertebrates (Jayaram, 1999, 2003, 2010). Of these, *c* 8411 are freshwater species and *c*11,650 are marine. India is one of the Megabiodiversity countries in the World. (Mittermeier & Mittermeier, 1997). In India, there have been reports *c* 2500 species of fishes; of which, *c* 930 live in freshwater (FW) and *c* 1570 are marine (Jayaram, 2010; Kar, 2003, 2007, 2010, 2019). This bewildering ichthyodiversity of this region has been attracting many ichthyologists both from India and abroad. Concomitantly, NE region of India has been identified as a `Hotspot' of Biodiversity in the Eastern Himalayan stretch by

the World Conservation Monitoring Centre (WCMC, 1998) This prolific diversity of this region could be assigned to certain reasons, notably, the geomorphology and the tectonics of this zone. The hills and the undulating terrains of this area gives rise to large number of torrential hill streams, which lead to big rivers; and, finally, become part of the Ganga-Brahmaputra-Barak-Chindwin-Kolodyne-Gomati-Meghna system (Kar, 2000, 2007, 2013, 2019, 2021a, b, c, d).

There are numerous lentic and lotic water bodies in India. And, the province of Tripura. situated in the North-Eastern Himalayan belt, is a hotspot of fish diversity contained in many wetlands and rivers of various kinds including rheophilic hill streams and plainwater rivers and streams. However, the aquatic life has been influenced by human interventions.

A little detailed survey of literature on Fish taxonomic works revealed that, Menon (1978) had dealt with an appraisal of Satpura Hypothesis of Distribution of the Malayan Fauna and Flora to Peninsiular India.

Concomitant to above, Kar, 1990, 1996, 1999, 2000, 2003 a,b, 2005, 2007, 2013, 2015, 2019, 2021 a,b,c,d, 2022, 2024 (a), 2024(b); Kar and Kumar, 2023, Kar and Das (2024) have been doing a big number of studies in North-East (NE) India on different aspects of fish and their habitats. Kar and Sen (2007) had carried out a detailed study on fish' biodiversity in North-East India with particular reference to Barak drainage, Mizoram, and Tripura. Very recently, Kar and Khynriam (2020, 2022, 2023, 2024; and, Kar *et al.,* 2007, 2008, 2011, 2018, 2020 did extensive works on the fish systematic and diversity and other related parameters in many water bodies in NE India.

Kar and Das, BK (2015), Kar and Kumar (2023) studied the present status of water bodies and human impact *vis-a-vis* sustainability of fishes, particularly the endangered mahseer fishes. Kar and Das B (2024) published the fish diversity in rivers in Karbi Anglong. Kar and Khynriam (2020 a, b) did pioneering taxonomic studies of the fishes of rivers Diyung, Vombadung, Khuolzangvadung, Tuikoi and Mahur; and, in River Jinam in Dima Hasao district of Assam. Kar and Khynriam (2022) reported the fishes of River Barak at Karong. Kar and Khynriam (2023) did Pioneering Study on Taxonomic Diversity of Fishes in the Headwaters of River Barak in Assam, Manipur and Mizoram, Northeast India. Kar and Khynriam (2024), in continuation of the reconnaissance pilot survey, did further pioneering works on the Systematic, Distribution and Conservation of Ichthyospecies in the Headwaters of River Barak (Assam, Manipur and Mizoram) in North East, India. Kar and Roy (2021 a, b) worked on the *hitherto* unknown, virulent Epizootic Ulcerative Fish Disease Syndrome (EUS). Kar *et.al.*[2008 a, b, c, d; 2003, 2007, 2008, 2011, 2018 a, b) worked on various aspects of fishes, including fish taxonomy, fish disease and fish parasites, zooplankton as fish food fauna, fishing gears and fish catching devices; and, so on. Das *et al.* (2018) sudied on zooplankon assemblage.

Notwithstanding the above, Kar, D. (2005 b,) presented on the Fish Diversity in the Major Rivers in Southern Assam, Mizoram and Tripura at the 2nd International Symposium on GIS and Spatial Analyses in Fisheries and Aquatic Sciences, held at the University of Sussex at Brighton in the UK. In addition,

Kar, D. (2007 b) dealt with the Sustainability issues of Inland Fish Biodiversity and Fisheries in Barak drainage (Assam), in Mizoram and in Tripura at the International Symposium on `Improved sustainability of Fish Production Systems and Appropriate Technologies for Utilisation' (`Sustain Fish'), held at the Cochin University of Science and Technology(CUSAT) at Cochin in Kerala. Further, Kar D (2016 a) presented an overview of the Wetlands, Rivers, Fish Resources and Fish Disease in North-East India at the International Symposium on Aquaculture and Fisheries (as part of the International Conference on Environmental Sustainability for Food Security (ENFOSE, 2016), held at Fisheries College and Research Institute (FCRI), Tamil Nadu Fisheries University (TNFU). In addition, Kar, D (2016 b) dwelt upon the Wetlands, Rivers, Fish, Plankton resources and Fish disease and Aquaculture in North-East India as an Overview at the International Symposium, entitled, `Lake 2016' orgaised by the Indian Institute of Science, Bengaluru, and the Alva's Education Foundation, Mengaluru (India).

Notwithstanding the above, some of the other significant works on the fishes and water bodies in India in general and NE India, in particular are those of Ghosh. and Lipton,1982; Barman, 1984, 1992, 1994; Jayaram, 1981, 1999, 2003, 2010; Sen, 1985; Kar *et al.,* 2007, 2008, 2011, 2018, 2020; Menon, 1974,1999; Yadava *et.al.,*(1994); Nath and Dey, 1989,1997; Sinha, 1994; Sen, 2000; Sen and Khynriam, 2014; Arunachalam, *et.al.* 2013; Das, *et.al.,* 2015; Dey, *et.al.,* 2015; *Lalramliana et al.*, 2018; Lokeshwor *et.al.* 2013; Khynriam and Sen, 2014; and Bănăduc *et al*., 2020).

In addition to above, Bailey, R.G.(1994) had dealt with the fishes of River Nile in the Republic of Congo. Bailey (1996) had dealt with changes in the Fish and Fisheries Ecology of a large man-masde lake in Tanzania for the period from 1965-94. Bailey and Hickley (1986) had eported on a recent collection of *Nothobranchius virgatus* Chambers, a new killifish from southern Sudan. Didem *et.al* (2012) reported on a New Reccord for occurrence of *Symphodus bailloni* (Osteichthuyes: Perciformes: Labridae) in the Western Black Sea Cooast of Turkey. Kullander, Sven O and Ralf Britz (2008) had reported on a new species of cyprinid fish from Myanmar. Kevin W. Conway and Maurice Kottelat (2007) had reported a new species of *Psilorhynchus* from thr Ataran River Basin, Myanmar, with comments on the generic name *Psilorhynchoides.* Wikramanayake, and Moyle (1989) worked on the ecological structure of Tropical Fish Assemblages in wet-zone streams of Sri Lanka.

About Mizoram and River Tuirial

The province of Mizoram (area 21,081 km ^{2}) is a beautiful terrain (maximum height *c* 2,743.90 m MSL) situated in the southern part of North-East India bordering Bangladesh in the south-west and Myanmar in the east having the Tropic of Cancer passing through it. The average elevation of the mountains is *c* 1000 m in the West; and, *c* 1300 m on east. Some of the peaks may be as high as *c* 2000 m. Inhabited by a population of *c* 8,91,058 (2001 census), growth rate was found to be *c* 21.18 % (1991-2001); while, density per sq.km.was found to be *c* 42. *c* 85 % of the rural mass are engaged in various kinds of agricultural practices including fisheries. The province has *c* 24,000 ha of cultural fishery resources and *c* 6000 ha of riverine water spread area which is spread over *c* 1100 km^2 of riverine stretches. *Per capita* availability of fish per annum is said to be only *c* 3.01 kg. The major

rivers of Mizoram are the Tuirial, Tlawng, Tuirini, Tuivai, Mat, Kolodyne (Chhimtuipui), Tuichong, Karnafuli and Serlui. Of these, the rivers Tuirial, Tlawng, Tuivai and Serlui join the Barak drainage at different points of their course. A small river, called, Tuirini, also joins the river Tuirial. The river Chhimtuipui originates in Myanmar, flows northward along the Indo-Myanmar border for some distance, then, takes turn towards south to flow back to Myanmar again. This river, further, as river Kaladan, is said to have joined the the river Karnafuli in Chittogong district of Bangladesh after flowing through Indo-Myanmar-Bangladesh border The river Mat joins the river Chhimtuipui in Mizoram. The river Karnafuli, after originating from around Marpara region in the Mizoram-Tripura border, flows along the Mizoram-Bangladesh border; and, ultimately, joins the Bay of Bengal in Bangladesh. (Kar,2007, 2013, 2016).

The River Tuirial is one of the significant rivers in Mizoram. It originates from Chawilung hills (1398 m MSL, *c* 62 km from Aizawl city) in Aizawl District. It flows northward and joins the River Barak as River Sonai around Dungripar Anua in Barak valley region of Assam. The Tuirial River has a length of *c* 117 km. It flows through the central part of the province of Mizoram; thus, generating a fertile valley which is said to have rich agricultural productivity. The River Tuirial is also harnessed for hydroelectric power generation through construction of a Tuirial dam, which contributes to the energy needs of the province. River Tuirini is said to be tributary of River Tuirial.

2. Method

Fish samples had been collected through experimental fishing using cast nets (diameter 3.7 m – 1.0 m), gill nets (vertical height 1.0 m – 1.5 m; length 100 m – 150 m), drag nets (vertical height 2.0 m), triangular scoop nets (vertical height 1.0 m) and by using different types of traps. The technique of Camouflaging was also used to catch the fishes. Fishes had been preserved at first in concentrated formaldehyde in the field itself and then in 10% formalin. Fishes have been identified after standard literature (Day, 1873, 1885, 1878, 1889; Shaw and Shebbeare, 1937; Misra, 1959; Menon, 1974, 1999; Talwar and Jhingran, 1991; Jayaram, 1981, 1999, 2010) and fishbase.org. The arrangement of classification, followed here, is that of Greenwood et a1. (1966) and Jayaram (1981, 1999, 2003, 2010); Kar and Khynriam, 2022).

The systematic list of Fishes of River Tuirial is tabulated below:

Sl. No.	**Systematic list**	Habitat (Hill stream)	**Habitat (Plain water)**	**Habitat (Both Hill stream and Plain water**
	Phylum: Chordata			
	Class: Actinopteri			
1	Order (I): Anguillifirmes	**-**	**-**	**Both**

	Family (A): Ophichthidae Sub-family (a): Ophichthinae Genus (i): *Pisodonophis* Kaup, 1856 Species: (1):*Pisodonophis boro* ((Hamilton, 1822)			
2	***Order(II): Cypriniformes*** ***Family (B):*** **Danionidae** **Sub-family(b): Chedrinae** **Genus (ii): Securicula Gunther 1868** ***Species (2):*** ***Securicula gora*** (Hamilton, 1822)	-	-	**Both**
3	***Order(II): Cypriniformes*** ***Family (B):*** **Danionidae** **Sub-family(b): Chedrinae** Genus (iii): ***Salmostoma Swainson*** 1839 ***Species (3)Salmostoma bacaila*** (Hamilton, 1822)	-	-	**Both**
4	***Order(II): Cypriniformes*** ***Family (B):*** **Danionidae** **Sub-family(b): Chedrinae** **Genus (iv):** ***Barilius*** Hamilton, 1822 *Species(4):****Barilius barila*** (Hamilton, 1822)	**Hill stream**	-	-
5	***Order(II): Cypriniformes*** ***Family (B):*** **Danionidae** **Sub-family(b): Chedrinae** ***Genus (v): Opsarius*** **McClelland, 1838** ***Species (5): Opsarius bendelisis*** (Hamilton, 1807)	**Hill stream**	-	-
6	***Order(II): Cypriniformes*** ***Family (B):*** **Danionidae** **Sub-family(b): Chedrinae** ***Genus (v): Opsarius*** **McClelland, 1838**	**Hill stream**	-	-

	Species (6): Opsarius barna (Hamilton, 1807)			
7	***Order(II): Cypriniformes*** ***Family (B):*** **Danionidae** **Sub-family(b): Chedrinae** **Genus (iv):** ***Barilius*** Hamilton, 1822 *Species(7):**Barilius** vagra* (Hamilton, 1822)	Hill stream	-	-
8.	***Order(II): Cypriniformes*** ***Family (B):*** **Danionidae** **Sub-family (c): Danioninae** *Genus (vi):* ***Chela*** Hamilton, 1822 ***Species (8)Chela cachius (*Hamilton, 1822)**	-	-	**Both**
9	***Order(II): Cypriniformes*** ***Family (B):*** **Danionidae** **Sub-family (c): Danioninae** *Genus(vii): Devario* Heckel, 1843 Species (9): *Devario aequipinnatus* (McClelland, 1839)	-	-	**Both**
10	***Order(II): Cypriniformes*** ***Family(C):*** **Cyprinidae** **Sub-family (d): Torinae** ***Genus: (viii):Tor*** **Gray, 1834** **Species: (10) *Tor tor* (Hamilton, 1822)**	Hill stream	-	-
11	***Order(II): Cypriniformes*** ***Family(C):*** **Cyprinidae** **Sub-family (d): Torinae** **Genus (ix):** ***Neolissochilus*** Rainboth, 1985 Species (11): ***Neolissochilus hexagonolepis (*McClelland, 1839)**	Hill stream	-	-
12	***Order(II): Cypriniformes*** ***Family(C):*** **Cyprinidae** **Sub-family (e): Smiliogastrinae**	-	-	**Both**

	Genus:(x): Osteobrama Heckel, 1843 Species: (12):*Osteobrama cotio (*Hamilton, 1822)			
13	***Order(II): Cypriniformes*** ***Family(C):*** **Cyprinidae** **Sub-family (e): Smiliogastrinae** *Genus: (xi)* ***Puntius*** Hamilton, 1822 ***Species (13): Puntius sophore*** (Hamilton, 1822)	-	-	**Both**
14	***Order(II): Cypriniformes*** ***Family(C):*** **Cyprinidae** **Sub-family (e): Smiliogastrinae** *Genus: (xii) Pethia* Pethiyagoda, 2012 ***Species (14): Pethia conchonius*** (Hamilton, 1822)	-	-	**Both**
15	***Order(II): Cypriniformes*** ***Family(C):*** **Cyprinidae** **Sub-family (e): Smiliogastrinae** *Genus: (xii) Pethia* Pethiyagoda, 2012 ***Species (15): Pethia ticto*** (Hamilton, 1822)	-	-	**Both**
16	***Order(II): Cypriniformes*** ***Family(C):*** **Cyprinidae** **Sub-family(f): Labeoninae** *Genus: (xiii)* ***Labeo*** Cuvier, 1816 ***Species (16) Labeo pangusia*** (Hamilton, 1822)	Hill stream	--	-
17	***Order(II): Cypriniformes*** ***Family(C):*** **Cyprinidae** **Sub-family(f): Labeoninae** *Genus (xiv)* ***Tariqilabeo*** Kuhl van Hasselt, 1823 ***Species(17): Tariqilabeo latius*** (Hamilton, 1822)	Hill stream	-	-
18	***Order(II): Cypriniformes*** ***Family(C):*** **Cyprinidae**	Hill stream	-	-

	Sub-family(f): Labeoninae **Genus (xv): *Garra* Hamilton, 1822** **Species (18): *Garra annandalei* Hora, 1921**			
19	***Order(II): Cypriniformes*** ***Family(C):* Cyprinidae** **Sub-family(f): Labeoninae** **Genus (xv): *Garra* Hamilton, 1822** **Species (19): *Garra gotyla* (Gray, 1830)**	Hill stream	-	-
20	***Order(II): Cypriniformes*** ***Family(C):* Cyprinidae** **Sub-family(f): Labeoninae** **Genus (xv): *Garra* Hamilton, 1822** Species (20): *Garra lamta* (Hamilton, 1822)	Hill stream	-	-
21	***Order(II): Cypriniformes*** ***Family(D):* Psilorhynchidae** ***Genus (xvi): Psilorhynchus*** McClelland, 1839 Species (21): ***Psilorhynchus balitora*** (Hamilton, 1822)	Hill stream	-	-
22	***Order(II): Cypriniformes*** ***Family(D):* Psilorhynchidae** ***Genus (xvi): Psilorhynchus*** McClelland, 1839 Species (22): ***Psilorhynchus*** *sucatio* **(Hamilton, 1822**	Hill stream	-	-
23	***Order(II): Cypriniformes*** ***Family (E):Balitoridae*** ***Genus: (xvii): Balitora*** Gray, 1830 Species (23)::*Balitora brucei* Gray, 1830	Hill stream	-	-
24	***Order(II): Cypriniformes*** *Family(F):* Nemacheilidae ***Genus (xviii): Acanthocobitis***	-	-	**Both**

	(*Paracanthocobitis)* Peters, 1861 ***Species (24):*** ***Acanthocobitis*** (*Paracanthocobitis)* ***botia*** (Hamilton, 1822) *Paracanthocobitis botia*			
25	***Order(II): Cypriniformes*** *Family(F):* Nemacheilidae ***Genus (xix):*** ***Schistura*** **McClelland, 1839** ***Species(25):*** ***Schistura multifasciata*** (Day, 1878)	Hill stream	-	-
26	***Order(II): Cypriniformes*** *Family(F):* Nemacheilidae ***Genus (xix):*** ***Schistura*** **McClelland, 1839** *Species: (26): Schistura paucireticuata Lokeshwor, Vishwanath and Kosygin, 2015*	Hill stream	-	-
27	***Order(II): Cypriniformes*** ***Family (G): Botiidae*** ***Sub-family (g): Botiinae*** ***Genus: (xx): Botia*** **Gray,1831** ***Species(27): Botia dario*** **(Hamilton, 1822)**	-	-	**Both**
28	***Order(II): Cypriniformes*** ***Family (G): Botiidae*** ***Sub-family(g): Botiinae*** ***Genus: (xx): Botia*** **Gray,1831** ***Species (28): Botia rostrata*** Gunther, 1868	-	-	**Both**
29	***Pangio pangia*** ***Order(II): Cypriniformes*** *Family (H): Cobitidae* *Genus:(xxi): Pangio* Blyth, 1860 Species: (29) ***Pangio pangia*** **(Hamilton, 1822)**	Hill stream	-	-

30	*Order(III): Siluriformes* ***Family (I): Bagridae*** ***Genus (xxii):*** *Sperata* Holly, 1939 *Species (30):* ***Sperata seenghala*** (Sykes, 1839)	-	-	**Both**
31	*Order(III): Siluriformes* ***Family(I): Bagridae*** ***Genus (xxiii)*** *Mystus* **Scopoli, 1777,** *Species(31):* ***Mystus cavasius*** (Hamilton, 1822)	-	-	**Both**
32	*Order(III): Siluriformes* *Family (J): Sisoridae* *Sub-family (h): Sisorinae* *Genus: (xxiv):Pseudolaguvia.* Misra, 1976 *Species (32):* ***Pseudolaguvia shawi*** *(* Hora, 1921)	Hill stream	-	-
33	*Order(III): Siluriformes* *Family (J): Sisoridae* *Sub-family (h): Sisorinae* ***Genus: (xxv):*** *Glyptothorax* Blyth, 1860 *Species: (33):* ***Glyptothorax telchitta*** *(*Hamilton, 1822)	Hill stream	-	-
34	*Order(III): Siluriformes* *Family (J): Sisoridae* *Sub-family (h): Sisorinae* ***Genus:*** *(xxv): Glyptothorax* Blyth, 1860 Species:(34):***Glyptothorax maceriatus*** **Ng and Lalramliana, 2012**	Hill stream	-	-
35	Order (IV): Beloniformes Family (K): Belonidae ***Genus (xxvi): Xenentodon*** Regan, 1911 *Species (35):* ***Xenentodon cancila***	-	-	**Both**

	(Hamilton, 1822)			
36	Order (V): Synbranchiformes Family(L): Mastacembelidae ***Genus(xxvii):*** *Mastacembelus* Scopoli, 1777 *Species (36):* ***Mastacembelus armatus*** (Lacepède, 1800)-	-	-	**Both**
37	Order (VI): Anabantiformes Family (M): Ambassidae ***Genus(xxviii): Parambassis*** Bleeker, 1874 *Species (37):* ***Parambassis ranga*** (Hamilton, 1822)	-	-	**Both**
38	Order (VI): Anabantiformes Family (N): Badidae ***Genus(xxix): Badis*** Bleeker, 1853 Species (38): ***Badis badis*** (Hamilton, 1822)	-	-	**Both**
39	***Order (VI):*** Anabantiformes Family (O): Channidae ***Genus (xxx): Channa* Scopoli, 1777** Species (39): ***Channa gachua*** *(*Hamilton, 1822) ***Order: 6*** ***Family: 15*** ***Sub-family: 8*** ***Genus:30*** ***Species: 39***	-	-	**Both**

The **River Tuirial**

Locaion: Village: Tuirial N 23° 43’1.7"- E 92° 48’10"

Altitude: 161. 5 m MSL

The taxonomic diversity of ichthyofauna in River Tuirial along with their conservation status have been presented in Tables 1 and 2

3. Result

River Tuirial: Systematic account of the Fishes

***Genus: Pisodonophis* Kaup (1856)**

***Pisodonophis* Kaup (1856),** *Catalogue of the apodal fish in the collection of the British Museum:* 47 (Type species, *Ophisurus cancrivorus* Richardson, (by subsequent designation); McCosker, 1977, *Proc. California Acad. Sci., (4),* 14, No.1, p.123(revision); Talwar and Jhingran, 1991, *Inland Fishes* 1: 86; Jayaram, 1999,*Freshwater Fishes of the Indian Region*: 30.

Generic Characters: Body long, snake-like, compressed, cylindrical. Abdomen rounded. Head short, compressed, conical. Mouty terminal, cleft of mouth wide or medium. Eyes small. Dorsal fin low,inserted above gill openig; or, behind the tip of pectoral fins, without any spine. Anal fin low, present or absent. Caudal fin absent.

Material examined: (a)River Tuirial in Mizoram (MZ); Collection date:14 4 2001; 2 Ex.; *Museum No.*77/2(i),2(ii)*;* Coll. and First Report by: Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date: 25-10-2002(Coll 2); 1 Ex.; *Museum* 80/12(i)*;* Coll. and First Report by: Professor D. Kar and Party.

Key to species:Head Length (HL) 25.0 to 28.6 % in length fom end of snout to anus.

(1) Pisodonophis boro ((Hamilton, 1822)

Distribution: In many water bodies in India, including Sone Beel in Assam; River Tuirial in Mizoram: First Reports by Professor D.Kar and Party); also, in Bangladesh, etc.

IUCN status: Least Concern (LC)

Genus: Securicula Gunther, 1868

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. 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.

Material examined: (a)River Tuirial in Mizoram (MZ); Collection: Oct 2000; 2 Ex.; *Museum No.,***104 / 1 (i), 1 (ii)***;* Coll. and First Report by: Professor D. Kar and Party.

Key to species: Anal fin with 11 to 18 rays. Caudal fin deeply forked. Only species so far known.

(2)Securicula gora (Hamilton, 1822)

Distribution: In many water bodies in India (including river Barak at Katigora, river Barak at Sartuinek in North-East India; River Tuirial in MZ: In all these Collections, First reports by Professor D. Kar and Party); also, in Bangladesh, Nepal, Pakistan, etc.

IUCN Status: Least Concern (LC)

Genus*: *Salmostoma Swainson, 1839

Salmophasia Swainson, 1839, *Nat. Hist.Fish.,* 2: 184 (Type species, *Cyprinus oblonga* Swainson= *Cyprinus bacaila* Hamilton-Buchanan, by subsequent designation); Banarescu, 1968, *Rev.Roum.Biol. Zool.,* 13: 13-14; Howes, 1979, *Bull.Br.Mus. nat.Hist.,* (Zool.) 36(3):190-191; Talwar and Jhingran, 1999, *Inland Fishes* 1; Jayaram, 1999, *FW Fishes of the Indian Region*: 65; Menon, 1999, *Rec.Zool. Surv. India Occ. Paper* No. 175: 24; Vishwanath, 2002, *Fishes of North-East India, NATP Pub.:* 51.

Generic characters: Body elongated, compressed. Abdomen keeled from below pectoral fins to anus; keel not hardened. Head moderate to long, compressed. Snout blunt. Mouth oblique to body axis; cleft reachin anterior margin of orbit or slightly ahead. Lower jaw longer with a knob (generally present) at the symphysis of the 2 bones. Dorsal fin short; inserted mostly opposite to anal fin (or may be little ahead in some cases) with usually 7 to 10 rays. Pectoral fins long and presence of an elongated axillary scale. Anal fin shaort with 14-20 rays. Caudal fin deeply forked. Ll complete with usually 39 to 112 scales.

Material examined: (a)River Tuirial in Mizoram (MZ); Collection: 28,29 Oct 2002; 3 Ex.; *Museum No., 78 /* 13 (i) to 13 (iii)*;* Coll. and First Report by: Professor D. Kar and Party.

Key to species: Presence of 4-6 Ll scales between Ll and pelvic fin base

(3) ***Salmostoma bacaila*** (Hamilton, 1822)

Distribution: In many water bodies in India (including Rivers Barak at Lakhipur, Assam; River Gomati in Tripura; River Tuirial in Mizoram:In all these collections, First Reports by Professor D. Kar and Party), also, in Bangladesh, Nepal, etc.

IUCN status: Least Concern (LC).

Genus *Barilius* Hamilton, 1822

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.

Material examined: (a)River Tuirial in Mizoram (MZ); Collection date: 28,29 Oct 2002; 1 Ex.; *Museum No., 78 / 12 (i);* Coll. and First Report by: Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date: 22-11-2015 (Lot 2); 5 Ex.; *Museum No., 116 /* 1 (i)

to 1 (v); Coll. and First Report by: Professor D. Kar and Party.

Key to species: Body with 14 or 15 short vertical bars extending from back to lateral line.

(4) *Barilius barila* (Hamilton, 1822)

Distribution: In many water bodies in India (including River Barak at Thingkal, NE India; River Tuirial in Mizoram: First reports by Prof. D. Kar and Party); also in Bihar, Delhi, Jammu and Kashmir, Madhya Pradesh, Mysore, Orrisa, Rajasthan, Uttar Pradesh, West Bengal. Bangladesh, Myanmar, Nepal, etc.

IUCN Status: Least Concern (LC).

Material examined: (a)River Tuirial in Mizoram (MZ); Collection date: 20-10-2002; 3 Ex.; *Museum No.*, ***115/7(iii) to 7 (v)****;* Coll. and First Report by: Professor D. Kar and Party.

Key to species: Body depth 20.9 to 22.3 % SL.

***(7)Barilius vagra* (Hamilton, 1822)**

Distribution: In many water bodies in India (including R Tuirial in Mizoram: First report by Prof. D. Kar and Party); also, in Bangladssh, Nepal, Pakistan, Sri Lanka, etc.

IUCN Status: Least Concern (LC).

Genus: *Opsarius* McClelland, 1838

Opsarius McClelland, 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.

(A) .*Material examined*:

(B) **(a)** River Tuirial in Mizoram (MZ); Collection date::14 4 2001; 2 Ex.; *Museum No.,* 77/1(i),1(ii)*;* Coll. and First Report by: Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date: 25- 10 -2002(Coll 1); 1 Ex.; *Museum No., 79 /*4 (i) *;* Coll. and First Report by: Professor D. Kar and Party Professor D. Kar and Party.

(c) River Tuirial in Mizoram (MZ); Collection date: 25-10-2002(Coll 2); 2 Ex.; *Museum No.,* 80/5(i),5(ii)*;* Coll. and First Report by: Professor D. Kar and Party.

(d) River Tuirial in Mizoram (MZ); Collection date: Oct 2000; 1 Ex.; *Museum No., 104 /* **3 (i);** Coll. and First Report by: Professor D. Kar and Party.

(e) River Tuirial in Mizoram (MZ); Collection date: 20-10-2006; 1 Ex.; *Museum No., 114 /* 1 (i)*;* Coll. and First Report by: Professor D. Kar and Party.

(f) River Tuirial in Mizoram (MZ); Collection date: 20-10-2002; 2 Ex.; *Museum No.,,****115/7(i),7(ii);*** Coll. and First Report by: Professor D. Kar and Party.

Key to species: Anal fin short with 7-8 branched rays. Each scale usually with a black spot.

(5) O*psarius bendelisis*(Hamilton, 1807)

Distribution: In many water bodies in India (including river Barak at Karong,Tamenglong, Vangai, Thinghmun-Patpuihmun, Thingkal, Liben (Joining Barak) in North-East India, River Tuirial in

Mizoram: First reports by Professor D. Kar and Party; also in Bangladesh, Bhutan, Myanmar, Nepal, Pakistan, Sri Lanka, Thailand, etc.

IUCN Status: Least Concern (LC).

(B).Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 14 4 2001; 1 Ex.; *Museum No., 77 / 2 (i);* Coll. and First Report by:Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date: 28,29 Oct 2002; 16 Ex.; *Museum No., 78 / 5 (i) to 5 (xvi);* Coll. and First Report by:Professor D. Kar and Party.

(c) River Tuirial in Mizoram (MZ); Collection date: 25- 10 -2002(Coll 1); 2 Ex.; *Museum No., 79 /* 3 (i),7 (i)*;* Coll. and First Report by: Professor D. Kar and Party.

(d) River Tuirial in Mizoram (MZ); Collection date: 25-10-2002(Coll 2); 12 Ex.; *Museum No.,* 80/1(i) to 1(xi),4(I)**;** Coll. and First Report by: Professor D. Kar and Party.

(e) River Tuirial in Mizoram (MZ); Collection date: Oct 2000; 1 Ex.; *Museum No., 104 /* **3 (i)***;* Coll. and and First Report by: Professor D. Kar and Party.

(f) River Tuirial in Mizoram (MZ); Collection date: 01-04-2001; 154 Ex.; *Museum No.,120 /* 7(i) to 7 (CLiv)***;*** Coll. and First Report by: Professor D. Kar and Party.

(g) River Tuirial in Mizoram (MZ); Collection date: 25 10 2001 (Bag C); 6 Ex.; *Museum No., 68(c)/* 1(i) to 1 (vi)*;* Coll. and First Report by: Professor D. Kar and Party.

Key to species: Coloured bands usually present on the upper part of Lateral line and generally does not extend below the Lateral line. No barbels.

(6) Opsarius barna McClelland, 1839

Distribution: In many water bodies in India (including River Barak between Patpuihmun and Sartuinek, River Barak at Karnifai; River Barak at Taithu in North-East India; River Tuirial in Mizoram: First reports by Professor D. Kar and Party); also in Bihar, Delhi, Jammu and Kashmir, Madhya Pradesh, Mysore, Orisa, Rajasthan, Uttar Pradesh, West Bengal. Bangladesh, Myanmar, Nepal, etc.

IUCN Status: Least Concern (LC).

Genus: *Chela* Hamilton, 1822

Chela Hamilton, 1822, An account of fishes found in the river Ganges: 258, 353.

Generic Characters: Body deep, abdomen keeled. Mouth small and opening vertically, barbel absent. Dorsal fin inserted near caudal fin. Inter orbital region without scales. No symphysial process on lower jaw. First ray of pelvic fins considerably longer.

Material examined: River Tuirial in Mizoram (MZ); Collection date: 28,29 Oct 2002**;** 22 Ex.; *Museum No. 78 /* 9 (i) to 9 (xxii)***;*** Coll. and First Report by: Professor D. Kar and Party.

Key to species: Outer ray of pelvic fins strongly produced. Lateral line complete with 51-56 scales. Body shining silvery with a greenish longitudinal band.

(8) Chela cachius (Hamilton, 1822)

Distribution: In many water bodies in India (including River Barak at Lakhipur; River Tuirial in

Mizoram: First reports by Prof. D. Kar and Party); also in Bangladesh, Myanmar, Nepal, Pakistan, etc. IUCN status: Least Concern (LC)

Genus: ***Devario*** Heckel, 1843

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.

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date**:** 14 4 2001; 1 Ex.; *Museum No., 77 / 7 (i);* Coll. and First Report by**:** Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date**:** 28,29 Oct 2002; 4 Ex.; *Museum No., 78 /6 (i) to 6 (iv);* Coll. and First Report by**:** Professor D. Kar and Party.

(c) River Tuirial in Mizoram (MZ); Collection date**:** 25-10-2002(Coll 1); 2 Ex.; *Museum No., 79 /* 8 (i), 8 (ii)*;* Coll. and and First Report by**:** Professor D. Kar and Party.

(d) River Tuirial in Mizoram (MZ); Collection date**:** 25-10-2002(Coll 2); 23 Ex.; *Museum No.,* 80/3(i) to 3 (iv),9(i) to 9(xix)**;** Coll. and First Report by**:** Professor D. Kar and Party.

(e) River Tuirial in Mizoram (MZ); Collection date**:** 20-10-2006; 6 Ex.; *Museum No.,*114 / *4(i) to 4 (vi);* Coll. and First Report by**:** Professor D. Kar and Party;Coll. Professor D. Kar and Party.

(f) River Tuirial in Mizoram (MZ); Collection date**:** 22-11-2015 (Lot 2); 38 Ex.; *Museum No.* 5 (i) to 5 (xxxviii)***;*** Coll. and First Report by**:** Professor D. Kar and Party.

(g) River Tuirial in Mizoram (MZ); Collection date**:** 01-04-2001; 6 Ex.; *Museum No.,* 120 / *4 (i) to 4 (vi);* Coll. and First Report by**:** Professor D. Kar and Party.

(h) River Tuirial in Mizoram (MZ); Collection date: 13 12 1999**(Bag B)**; 1 Ex.; *Museum No., 63/2(i).;* Coll. and First Report by: Professor D. Kar and Party.

Key to species: Lateral line scales 31-34; dorsal fin with 8-11 branched rays. A lateral band along the sides of the body with thinner golden bands above and below it.

(9)Devario aequipinnatus (McClelland, 1839)

Distribution: In many water bodies in India (including Anuas in Barak valley; River Gomati in Tripura; River Barak at Karong, Khowpan in North-East (NE) India; River Tuirial in Mizoram: In all these collections, First reports by Professor D. Kar and Party); also in Bangladesh, Bhutan, Indo-China, Myanmar, Nepal, Pakistan, Sri Lanka, Thailand, etc.

IUCN Status: Least Concern (LC).

Genus: *Tor* Gray, 1834

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.

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 25-10-2002(Coll 2); 5 Ex.; *Museum No.,* 80/9(xx) to 9(xxv)*;* Coll. and First Report by: Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date: 25-10-2002(Coll 3);1 Ex.; *Museum No., 81 / 5(i);* Coll. and First Report by: Professor D. Kar and Party.

(c) River Tuirial in Mizoram (MZ); Collection date: 20-10-2002;2 Ex.; *Museum No., **115/6(i), 6(iii)**;* Coll. and First Report by: Professor D. Kar and Party.

(d) River Tuirial in Mizoram (MZ); Collection date: 01-04-2001; 1 Ex.; *Museum No., 120 / 6 (i);* Coll. and First Report by: Professor D. Kar and Party.

(e) River Tuirial in Mizoram (MZ); Collection date: 13 12 1999**(Bag B)**;1 Ex.; *Museum No.,,63/1(ii);* Coll. and First Report by: Professor D. Kar and Party.

Key to species: Head length almost equal to or little less than body depth. Lateral line scales 22-27.

(10)Tor tor (Hamilton, 1822)

Distribution: In many water bodies in India, particularly, the hill streams (including River Barak at Teulein, River Barak at 20 km downstream from Tipaimukh Dam, Vitin, Gilgal, Tupidahar, Chandikhal in North East India; River Tuirial in Mizoram: In all these collections, First reports by Professor D. Kar and Party); also in West Bengal, Bihar, Uttar Pradesh, Madhya Pradesh, Ganga, and Narmada river systems, Eastern Himalayas. Bangladesh, Bhutan, China, Myanmar, Nepal, Pakistan, etc.

IUCN Status: Data Deficient (DD)

Genus: *Neolissochilus* Rainboth, 1985

Neolissochilus Rainboth, 1985, Beaufortia 35 (3): 26 (Type species: *Barbus stracheyi* 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.

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 14 4 2001; 1 Ex.; *Museum No., 77 / 12 (i);* Coll. and and First Report by: Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date: 25-10-2002(Coll 3); 3 Ex.; *Museum No., 81 /* 3 (i) to 3 (iii)*;* Coll. and First Report by:Professor D. Kar and Party.

(c) River Tuirial in Mizoram (MZ); Collection date: 20-10-2002; 3 Ex.; *Museum No., **115/ 6(ii), 6(iv), 6(v):*** Coll. and First Report by: Professor D. Kar and Party.

(d) River Tuirial in Mizoram (MZ); Collection date: 13 12 1999**(Bag B)**; 1 Ex.; *Museum No., 63/1(i);* Coll. and First Report by: Professor D. Kar and Party.

Key to species: Mouth nearly truncate. Edge of lower jaw sharp.

(11)Neolissochilus hexagonolepis (McClelland, 1839)

Distribution: In many water bodies in India, particularly, in the rheophilic hill streams (including River Barak at Karong (Nagaland-Manipur Border); River Gomati in Tripura; River Tuirial in Mizoram**:**:In many of these collections: First Reports by Professor D.Kar and Party); also, in Darjeeling and Eastern Himalayas; South and South-Eastern Asia; etc.

IUCN Status: Near Threatened (NT).

Genus: ***Osteobrama*** Heckel, 1843

Osteobrama Heckel, 1843, *Ichth. Russegger's Reisen in Europe, Asia and Africa, 1: 1033* (Type species, *Cyprinus cotio,*Hamilton-Buchanan,by subsequent designation); Silas, 1952,*proc.nat.Inst.Sci. India,* 18 (5): 430; Talwar and Jhingran, 1991, Inland Fishes I: 237; Jayaram, 1999, *FW Fishes of the Indian Region:* 101; Menon, 1999, *Rec. Zool.Surv. India, Occ. Paper* No. 175: 62; nath and dey, 2000, *Fish and Fisheries of NE India (Arunachal Pradesh):* 44; *Vishwanath,* 2002, *Fishes of North East India, NATP Pub.*: 67.

Generic Characters: Body short, deep, compressed. Abdomen edge sharp, keeled entirely or only from pelvic fin base to vent. Head short; snout bluntly rounded. Mouth small, somewhat directed upwards. Eyes large, lateral. Upper jaw slightly longer. Barbels, 4 2 or none. Dorsal fin inserted slightly behind pelvic fins extending over anal fin with 11 to 12 rays and a strong serrated spine. Anal fin long with 14 to 36 rays. Caudal fin deeply forked. Lateral line complete generally with 57 scales.

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 25-10-2002(Coll 2); 1 Ex.; *Museum No.,* 80/7(i)*;* Coll. and and First Report by: Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date: 22-11-2015(Lot 1); 1 Ex.; *Museum No.,* 105 / 5(i)*;* Coll. and First Report by: Professor D. Kar and Party.

Key to species: Presence of 14 scales between lateral line (Ll) and pelvic fin base. Ll scales 48 to 66. Presence of 33 to 38 rays in anal fin.

(12) ***Osteobrama cotio*** (Hamilton 1822)

Distribution: In many water bodies in India (including Shiv Narayanpur Anua at Katigorah, Cachar district in Assam:; River Tuirial in Mizoram: First Reports by Professor D.Kar and Party); also, in

Bangladesh, Myanmar, Nepal, Pakistan, Sri Lanka, etc.

IUCN status: Least Concern (LC).

Genus: ***Puntius*** Hamilton, 1822

Puntius Hamilton, 1822, *Fish Ganges:*310, 388 (Type species, *Cyprinus sophore,* Hamilton-Buchanan, by subsequent designation); Jayaram, 1991, *rec.Zool. Surv. India Occ. Paper* No.135: 1-178 (revision); Talwar and Jhingran, 1991, *Inland Fishes* 1: 250; Jayaram, 1999, *FW Fishes of the Indian Region:* 108; Menon, 1999, *Rec Zool.Surv. India., Occ. Paper* No. 175: 65; Nath and Dey, 2000. *Fish and Fisheries of NE India (Arunachlal Pradesh):* 39; Vishwanath, 2002, *Fish and Fisheries of NE India, NATP Pub.*: 69.

Generic characters: Body short to moderately long, deep, compressed. Abdomen round. Head short. Snout obtuse, conical or pointed; sometimes, may be with tubercles. Mouth arched, anterior or inferior. Upper jaw may be protractile. Eyes moderate to large, dorsolateral; they are not visible from below ventral surface. Lips thin, cover the jaws; without any horny covering. Jaws simple without any tubercle at the symphysis. Barbels four, two or may be absent. Dorsal fin short inserted nearly opposite to pelvic fins. Anal fin short. Caudal fin forked. Scales small, moderate or large.

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 14 4 2001; 1 Ex.; *Museum No., 77 / 3 (v);* Coll. and First Report by: Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date: 28, 29 Oct 2002; 2 Ex.; *Museum No., 78 /14 (i) 14 (ii);* Coll. and First Report by Professor D. Kar and Party.

(c) River Tuirial in Mizoram (MZ); Collection date: 31 3 2001 (Bag A); 2 Ex.; *Museum No., 54/*1(i),1(ii)*;* Coll. and First Report by: Professor D. Kar and Party.

Key to species: Pre-dorsal scales 8-10. Presence of a black spot on dorsal fin and on caudal peduncle.

(13) Puntius sophore (Hamilton, 1822)

Distribution: In many water bodies in India (including Rupairbala Anua in Cachar, Assam; Javda Beel and Karbhala Beel in Assam; River Tuirial in Mizoram: First reports by Prof. D. Kar and Party); also in Bangladesh, Myanmar, Nepal, Pakistan, Sri Lanka, etc.

IUCN status: Least Concern (LC).

Genus: ***Pethia*** Pethiyagoda, 2012

Pethia, 2012, Pethiyagoda, Meegaskumbura and Maduwage: 80 (Type species: *Barbus nigrofasciatus* Gunther, 1868. Type by original designation). Pethiyagoda, Meegaskumbura and Maduwage, 2012.

Generic characters: Body short to moderately long, deep, and compressed. Abdomen rounded. Head short. Snout obtuse, conical, or pointed; sometimes, it may have tubercles. Mouth arched, anterior or inferior. The upper jaw may be protractile. Eyes moderate to large, dorso-lateral; they are not visible from below the ventral surface. Lips thin, cover the jaws, without any horny covering. Jaws simple

without any tubercle at the symphysis. Barbels four, two or may be absent. Dorsal fin short inserted nearly opposite to pelvic fins. Anal fin short. Caudal fin forked. Scales small, moderate, or large.

(A)Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 14 4 2001; 4 Ex.; *Museum No., 77 / 3 (i)-3 (iv);* Coll. and First Report by:Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date: 28,29 Oct 2002; 2 Ex.; *Museum No., 78 / 11 (i), 11 (ii);* Coll. and First Report by:Professor D. Kar and Party.

(c) River Tuirial in Mizoram (MZ); Collection date: 25-10-2002(Coll 2); 35 Ex.; *Museum No.*, 80(i) to 80(xxxv)*;* Coll. and First Report by:Professor D. Kar and Party.

(d) River Tuirial in Mizoram (MZ); Collection date: 22-11-2015(Lot 1); 1 Ex.; *Museum No.*, *105 / 4 (i);* Coll. and First Report by:Professor D. Kar and Party.

(e) River Tuirial in Mizoram (MZ); Collection date: 20-10-2006; 4 Ex.; *Museum No.*, *114 / 3 (i) to 3 (iv);* Coll. and First Report by:Professor D. Kar and Party.

(f) River Tuirial in Mizoram (MZ); Collection date: 22-11-2015 (Lot 2); 4 Ex.; *Museum No.*, *116 /* 2 (i) to 2 (iv)*;* Coll. and First Report by Professor D. Kar and Party.

(g) River Tuirial in Mizoram (MZ); Collection date: 01-04-2001; 7 Ex.; *Museum No.*, *120 / 5(i) to 5 (vii);* Coll. and First Report by Professor D. Kar and Party.

(h) River Tuirial in Mizoram (MZ); Collection date: 13 12 1999**(Bag B)**; 1 Ex.; *Museum No.,,63/3(i).;* Coll. and First Report by: Professor D. Kar and Party.

(i) River Tuirial in Mizoram (MZ); Collection date: 25 10 2001 (Bag C); 4 Ex.; *Museum No., 68(c)/* 3(i) to 3(iv)*;* Coll. and First Report by: Professor D. Kar and Party.

Key to species: Barbel absent, lateral line incomplete, and caudal peduncle with a black blotch.

(13) ***Pethia conchonius*** (Hamilton, 1822)

Distribution: In many water bodies in India (including river Vomvadung and river Khuolzangvadung in Dima Hasa District, Assam; River Kopili: **at Panimur**; River Monu in Tripura; River Tuirial in Mizoram: In all these collections: First reports by Professor. D. Kar and Party); also in Bihar, Uttar Pradesh, Punjab, Maharashtra, Orissa, Eastern, and western Himalaya, Deccan, Afghanistan, Bangladesh, Myanmar, Nepal, Pakistan, and Sri Lanka, etc.

IUCN Status: Least Concern (LC).

(B) *Material examined*:

(a) River Tuirial in Mizoram (MZ); Collection date: 25- 10 -2002(Coll 1); 3 Ex.; *Museum No., 79 /* 5 (i) to 5 (iii)*;* Coll. and First Report by: Professor D. Kar and Party.

Key to species: Presence of 22-25 Lateral line scales. Pre-dorsal scales (PDS) usually 9. Presence of a long transverse black blotch above pectoral fin and another almost similar on caudal peduncle over the end of anal fin, generally in fresh/live fishes. Usually, presence of a red border in the dorsal fins of males.

(14) ***Pethia ticto*** (Hamilton, 1822)

Distribution: In many water bodies in India (including Baskandi Anua, Shiv Narayanpur Anua, in Cachar Assam; River Monu in Tripura; River Tuirial in Mizoram: First reports by Prof. D. Kar and Party); also in Bangladesh, Myanmar, Nepal, Thailand, etc.

IUCN Status: Least Concern (LC).

Genus: *Labeo* Cuvier, 1816

Labeo Cuvier, 1816, *RegneAnimale,* 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 fairly large. Snout more or less 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.

(a) River Tuirial in Mizoram (MZ); Collection date: Oct 2000; 1 Ex.; *Museum No., 104 /* **2 (i)***;* Coll. and First Report by: Professor 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.

(16) Labeo pangusia (Hamilton, 1822):

Distribution: In water bodies in India, generally in thr hill streams (including River Barak at Kotaikhal in NE India; River Tuirial in Mizoram: First reports by Prof. D. Kar and Party); also, Bangladesh, Nepal, etc.

IUCN Status: Near Threatened (NT).

Genus: ***Tariqilabeo*** Kuhl van Hasselt, 1823

Tariqilabeo Kuhl van Hasselt, 1823,*Algem-Konst.Letter-Bode,*2,p:132 (Type species, *Tariqilabeo oblongus* (*Crossocheilus oblongus)*Kuhl and van Hasselt, by monotypy); Mukerji, 1934, *J.Bombay nat. Hist. Soc.,* 37 (1): 49-54; Banarescu, 1986, *Trans Mus. Hist. natn. Gr.Antipa.* 28: 142-154; Kottelat, 1987, *Jap. J. Ichthyol.,* 33 (4): 371; Talwar and Jhingran, 1999, *Inland Fishes* 1: 413; Jayaram, 1999, *FW Fishes of the Indian Region*: 152; Menon, 1999, *Rec. Zool. Surv., India, Occ. Paper* No. 175: 139.

Generic Characters**:** Body more or less elongate. Ventral profile horizontal or slightly curved. Abdomen rounded. Head small. Snout obtusely pointed. Mouth inferior. Eyes large. Post-labial groove generally present. Rostral cap thick; its margin fimbriate. Presence of a pair of rostral and maxillary barbels only; latter may be absent. Dorsal fin inserted midway between pectoral and pelvic fins; considerably nearer to tip of snout than base of caudal fin with 10 or 11 rays and without any spine. Anal fin short with 7 rays. Caudal fin deeply forked. Lateral line scales 33 to 46.

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 28,29 Oct 2002; 8 Ex.; *Museum No., 78 / 1 (I) to*

1(viii); Coll. and First Report by Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date: 25-10-2002(Coll 3); 2 Ex.; *Museum No., 81 / 1 (i), 4 (i);* Coll. and First Report by Professor D. Kar and Party.

(c) River Tuirial in Mizoram (MZ); Collection date: 31 3 2001; 15 Ex.; *Museum No., 82 /* 1 (i) to 1 (xv)*;* Coll. and First Report by Professor D. Kar and Party.

(d) River Tuirial in Mizoram (MZ); Collection date: 01-04-2001; 1 Ex.; *Museum No., 120 / 1 (i);* Coll. and First Report by Professor D. Kar and Party.

(e) River Tuirial in Mizoram (MZ); Collection date: 24 4 2001 **(Bag D)**; 3 Ex.; *Museum No., 72/*1(i) to 1(iii)*;* Coll. and First Report by Professor D. Kar and Party.

(f) River Tuirial in Mizoram (MZ); Collection date: 25 4 2001 **(Bag E)**; 8 Ex.; *Museum No., 76(a)/* 1(i) to 1 (viii)*;* Coll. and First Report by Professor D. Kar and Party.

Key to species: Presence of 37-39 Ll scales. Diameter of eye 21.3 to 23.8 % of HL.

(17) ***Tariqilabeo latius*** (Hamilton, 1822)

Distribution: In many water bodies in India (including Salchapra Anua in Cachar, Assam; River Tuirial in Mizoram: First Reports by Professor D. Kar and Party); River Monu in Tripura (First Report by Professor D. Kar and Party); also in Arunachal Pradesh, Bangladesh, Nepal, etc

IUCN status: Least Concern (LC)

Genus: *Garra* Hamilton, 1822

Garra Hamilton, 1822, Fish Ganges: 343, 393 (Type species: *Cyprinus (Garra) lamta*by 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.

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 22-10-2006; 3 Ex.; *Museum No., 114 / 6 (i) to 6 (iii);* Coll. and First Report by Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date: 20-10-2002; 15 Ex.; *Museum No., **115/ 3(i) to 3 (xiv), 5 (i)**;* Coll. and First Report by Professor D. Kar and Party.

(c) River Tuirial in Mizoram (MZ); Collection date: 22-11-2015 (Lot 2); 1 Ex.; *Museum No., 116 /* 4(i)*;* Coll. and First Report by Professor 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.

(18) ***Garra annandalei*** Hora, 1921

Distribution: In many water bodies in India (including River Barak at Chotrikhal along Manipur, Mizoram, Assam border in North-East India: **River Gomati in Tripura;** River Tuirial in Mizoram**:** First reports by Prof. D. Kar and Party); also in Darjeeling Himalayas, Arunachal Pradesh, Bangladesh, Nepal, etc.

IUCN status: Least Concern (LC)

Material Examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 14 4 2001; 1 Ex.; *Museum No., 77 /* 10 (i)*);* Coll. and First Report by Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date: 28,29 Oct 2002; 6 Ex.; *Museum No., 78 / 2 (i) to 2 (vi);* Coll. and First Report by Professor D. Kar and Party.

(c) River Tuirial in Mizoram (MZ); Collection date: 25- 10 -2002(Coll1); 1 Ex.; *Museum No., 79 /* 1 (i)*;;* Coll. and First Report by Professor D. Kar and Party.

(d) River Tuirial in Mizoram (MZ); Collection date: 20-10-2002; 3 Ex.; *Museum No., **115/1(i) to 1(iii);*** Coll. and First Report by Professor D. Kar and Party.

(e) River Tuirial in Mizoram (MZ); Collection date: 13 12 1999**(Bag B)**; 2 Ex.; *Museum No., 63/4(i),4(ii).;* Coll. and First Report by Professor D. Kar and Party.

Key to species: A well develop median proboscis and a transverse lobe at tip covered with spiny tubercles

(19) Garra gotyla (Gray, 1832)

Distribution: In many water bodies in India (including River Diyung in Dima Hasao district, Assam; River Tuirial in Mizoram: First reports by Professor D Kar and Party); also, in the other parts of the Himalayas, Chotanagpur plateau and mountains of the Indian Peninsula. Afghanistan, Bangladesh, Bhutan, Myanmar, Nepal, Pakistan.

IUCN Status: Least Concern (LC)

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 25- 10 -2002(Coll 1); 1 Ex.; *Museum No.,* 79 / 2 (i)*;* Coll. and First Report by Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date: 25-10-2002(Coll 2); 2 Ex.; *Museum No.,* 80/2(i),2(ii)*;* Coll. and First Report by Professor D. Kar and Party.

Key to species: Snout rounded and smooth with a deep, transverse groove at the tip.

(20)Garra lamta (Hamilton, 1822)

Distribution: In many water bodies in India (including rivers Diyung, Vomvadung, Khualzangvadung in Dima Hasao District, Assam; River Tuirial in Mizoram: First reports by Prof. D. Kar and Party); also, in the Eastern Himalayas, and Western Ghats. Myanmar, and Nepal.

IUCN status: Least Concern (LC).

Genus: *Psilorhynchus* McClelland, 1839

Psilorhynchus McClelland, 1839, Asiatic Researches, 19: 300, 428 (Type species: *Cyprinus sucatio* Hamilton, by subsequent designation).

Generic characters: Body spindle-shaped, arched dorsally and flattened ventrally; anteriorly depressed. Ventral surface markedly flattened. Snout flat obtusely pointed anteriorly. A shallow depression may be present on the cheek. Mouth small, inferior, transverse. Eyes large, dorsolateral in the posterior half of the head; not visible from below ventral surface. Lips entire, fleshy, continuous at the angle of mouth; reflected off from both the jaws; and, with glands and folds. Presence of a distinct lateral groove on either side passing along the sides of the snout. The upper jaw overhangs the mouth. Absence of barbels. Dorsal fins inserted ahead of pelvic fins with 10-12 rays. Pectoral fins simple with four-six rays. Anal fin short with seven rays. Caudal fin forked; upper lobe longer. Scales relatively large along the lateral line. Lateral line complete with 32-34 scales.

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 14 4 2001; 1 Ex.; *Museum No., 77 / 6 (i);* Coll. and First Report by Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date: 25-10-2002(Coll 2); 1 Ex.; *Museum No.,* 80/15(i)*;* Coll. and First Report by Professor D. Kar and Party.

(c) River Tuirial in Mizoram (MZ); Collection date: 01-04-2001; 1 Ex.; *Museum No.,*)*,120 / 1 (ii);* Coll. and First Report by Professor D. Kar and Party.

(d) River Tuirial in Mizoram (MZ); Collection date: 25 10 2001 (Bag C); 2 Ex.; *Museum No.*, *68(c)/* 2(i), 2(ii)*;* Coll. and First Report by Professor D. Kar and Party.

Key to species: Pectoral fin with 6-7 simple rays. Lateral line scales 30-34.

(21) Psilorhynchus balitora (Hamilton, 1822)

Distribution: In many water bodies in India, particularly, in the hill streams (including upstream rheophilic stretch of River Barak at Phulpui; and also, in the upstream hilly stretch of River Tuivai at 20 km upstream from Damsite; **River Gomati in Tripura**; River Tuirial in Mizoram: First reports by Prof. D. Kar and Party); also, in the Ganga-Brahmaputra basin. Bangladesh, Bhutan, Nepal, etc.,

IUCN Status: Least Concern (LC).

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 28,29 Oct 2002; 13 Ex.; *Museum No., 78 / 8 (I) to 8 (xiii);* Coll. and First Report by Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date: 25-10-2002(Coll 2); 1 Ex.; *Museum No.,* 80/17(i)*;* Coll. and First Report by Professor D. Kar and Party.

Key to species: Lateral line scales 34 to 35. Caudal fin deeply forked.

(22) ***Psilorhynchus sucatio*** (Hamilton, 1822)

Distribution: In water bodies in India, particularly, in the hill streams (including upstream rheophilic stretch of River Tuirial in Mizoram**:** First report by Prof. D. Kar and Party); also, in Darjeeling, Nepal, Bangladesh, etc.

IUCN Status: Least Concern (LC).

Balitora Gray,1830

Balitora Gray,1830, *Ill.Ind.Zool.,* I, pl. 88, Fig. 1 (Type species, *Balitora brucei* Gray, by monotypy); Silas, 1953, *Rec.Indian Mus.,* 50: 205 (revision); Menon, *Fauna India,* 4(1): 228 (revision); Talwar and Jhingran, 1999, *Inland Fishes,* 1: 445; Jayaram, 1999, *FW Fishes of the Indian Region:* 170; Vishwanath, 2002, *Fish and Fisheries of NE India, NATP Pub.*95.

Generic characters: Anterior part of body, head and abdomen greatly depressed; ventral surface of the body fkattened. Snout broad and rounded. Mouth inferior inferior and small. Rostral flap divided into 3 lobes; the median one being the largest lying between the rostral barbels. Barbels 3 pairs: 2 pairs of short thick rostral barbels and 1 pair of maxillary barbels. Dorsal fin inserted above or slightly ahead of pelvic fins with 11-12 rays. Presence of broad and horizontal paired fins. Pectoral fins with 19 to 21 rays. Adhesive pads present of the venteral surface of the 8 to 11 anteriormost pectoral fin rays and 3 or 4 pelvic fin rays. Anal fin short with 7 fin rays. Caudal fin forked. Lateral line (Ll) complete with 62-70 scales.

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 25-10-2002(Coll 2); 1 Ex.; *Museum No.,* 80/11(i)*;* Coll. and First Report by Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date:: 20-10-2002; 1 Ex.; *Museum No., **115/7**;* Coll. and First Report by Professor D. Kar and Party.

Key to species: Maximum head width 83.3 to 105.7 % HL. Eyes small.

***(23) Balitora brucei* Gray, 1830**

Distribution: In water bodies in India, particularly, in the hill streams (including River Gomati in Tripura near its origin at Tirthamukh, Mandirghat: First Reported by Professor D. Kar and Party); also, in the Ganga-Brahmaputra basin. Bangladesh, Bhutan, Nepal, etc.

IUCN status: Near Threatened.

*Genus: **Paracanthocobitis*** Peters, 1861

Paracanthocobitis Peters, 1861, *Monats. Akad. Wiss.*Berlin for 1861: 712 (Type species: *Acanthocobitis longipinnis* Peters = *Cobitis pavonaceus* McClelland, by monotypy); Menon, 1987, *Fauna India,* 4 (1): 140; Kottelat, 1990, *Verlag Dr. Friedrich Pfeil,* Munchen: 18 (as a valid genus); Banarescu and Nalbant, 1995, *Trav. Mus.Hist. nat. "Grigore Antipa",* 35: 430 (as a valid genus); Jayaram, 1999, *FW Fishes of the Indian Region:* 173; Vishwanath, 2002, *Fish and Fisheries of NE India, NATP Pub.:* 101.

Generic characters: Body deep and strongly compressed posteriorly. Head slightly compressed. Nostrils close together. Presence of a slight indication of an adipose keel. Upper lip covered by 2 or 3

rows of papillae. Lower lip interrupted in the middle and with numerous papillae. Dorsal fin usually with 10 to 18 branched rays. Caudal fin slightly emarginated. Presence of conspicuous black spot at upper extremity of caudal fin.

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 14 4 2001; 1 Ex.; *Museum No., 77 / 5 (i);* Coll. and First Report by Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date: 25-10-2002(Coll 2); 1 Ex.; *Museum No.,* 80/14(i)*;* Coll. and First Report by Professor D. Kar and Party.

(c) River Tuirial in Mizoram (MZ); Collection date: 01-04-2001; 1 Ex.; *Museum No., 120 / 2 (i);* Coll. Professor D. Kar and Party.

Key to species: Dorsal fin with 9-11 branched rays. Body depth about 20.00 to 23.63 % SL.

(23) *Paracanthocobitis botia* (Hamilton, 1822)

Distribution: In many water bodies in India, particularly, in the hill streams (including Baskandi Anua in Cachar, Assam (First report by Prof. D. Kar and Party); River Monu in Tripura (First report by Prof. D. Kar and Party); River Gomati in Tripura (First report by Prof. D. Kar and Party), River Tuirial in Mizoram (First report by Prof. D. Kar and Party); also in, in Manipur, Myanmar, etc.

IUCN Status: Least Concern (LC).

Genus: *Schistura* McClelland, 1839 *Schistura* McClelland, 1839, Asiat. Res., 19: 306, 439 (Type species: *Cobitis (Schistura) rupecula* McClelland by subsequent designation).

Generic characters: Body elongate of almost uniform depth; compressed posteriorly. Head either depressed or compressed. Snout usually blunt. The posterior nostril may be prolonged as a tube in some species. Lips with a few furrows; medially interrupted. Upper lip slightly furrowed; continuous or with a narrow median interruption. Lower lip interrupted in the middle; moderately furrowed. Processus dentiform of upper jaw present with a corresponding incision on the lower jaw in many species. Dorsal fin short; inserted ahead or opposite to pelvic fins; with seven-eight rays; rarely 10. An auxillary pelvic lobe may be present. Caudal fin slightly emarginated, forked, or truncate (never rounded); with a black bar. A general absence of adipose crest. If present, mostly in the posterior part of the body. Lateral line complete or incomplete. Presence of scales on the body generally. Usually, the presence of a characteristic color pattern.

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 14 4 2001; 2 Ex.; *Museum No., 77 / 4 (i), 4 (ii);* Coll. and First Report by Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date: 28,29 Oct 2002; 2 Ex.; *Museum No., 78 / 7 (iii), 7 (v);* Coll. and First Report by Professor D. Kar and Party.

(c) River Tuirial in Mizoram (MZ); Collection date: 25 10 2001 (Bag C); 2 Ex.; *Museum No., 68(c)/* 4(i), 4(ii); Coll. and First Report by Professor D. Kar and Party.

Key to species: Body marked with 14 -16 vertical bands often bands split up particularly in front of dorsal fin into several narrower bands. Lateral line complete.

(24) ***Schistura multifasciata*** (Day, 1878)

Distribution: In many water bodies in India, particularly, in the hill streams (including River Barak at Karong (Nagaland-Manipur Border), River Barak at Phulpui in the upper hill stream stretch of the River Barak along Assam, Manipur, Mizoram border in NE India; in **River Gomati in Tripura;** River Tuirial in Mizoram**:** In all these collections, First Reports by Professor D. Kar and Party); also in other parts of the Himalayas, notably, in Bhutan, Nepal, Myanmar, Thailand, etc.

IUCN status: Least Concern (LC)

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 28,29 Oct 2002; 8 Ex.; *Museum No., 78 / 7 (i), 7 (ii),7 (iv), 7 (vi) to 7 (x);* Coll. Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date: 25-10-2002(Coll 2); 2 Ex.; *Museum No.,* 80/16(i),16(ii)*;* Coll. and First Report by Professor D. Kar and Party.

(c) River Tuirial in Mizoram (MZ); Collection date: 20-10-2006; 1 Ex.; *Museum No., 114 / 7 (i);* Coll. and First Report by Professor D. Kar and Party.

Key to species: Presence of 8-9 brown bars in front of the dorsal fin, which are divided into 2-3 small bars; thus, forming reticulations.

(26)Schistura paucireticulata, *Lokeswaor, Vishwanath and Kosygin,* 2013

Distribution: In water bodies in India, particularly, in the hill streams including River Tuirial in Mizoram**:** First report by Prof. D. Kar and Party.

IUCN status: Not Evaluated

Genus: *Botia Gray*, 1831

Botia Gray, 1831, Zool Misc. 8 (Type species, Botiaalmorhae Gray, by monotype), - Hora, 1922, Rec India Mus., 24: 313-321 (revision)- Banarescu 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.

Material examined:

(a)River Tuirial in Mizoram (MZ); Collection date: 22-11-2015(Lot 1); 1 Ex.; *Museum No., 105 /* 2 (ii)*;* Coll. and First Report by Professor D. Kar and Party.

Key to species: Eye diameter 33.3 % snout length.

(27)Botia dario (Hamilton, 1822)

Distribution: In many water bodies in India (including Baskandi Anua in Cachar, Assam; River Barak at Teulien; River Tuirial in Mizoram: In all these collections, First Reports by Prof D Kar and Party); also, in Bangladesh, Myanmar, Nepal, Pakistan, Sri Lanka, etc.

IUCN status: Least Concern (LC).

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date:: **24 4 2001 (Bag D)**; 1 Ex.; *Museum No., **72/2(i)**;* Coll. and First Report by Professor D. Kar and Party.

Key to species: Body with brown cross bands of irregular pattern which may form rings or blotches.

(28) Botia rostrata Gunther,1868

Distribution: In many water bodies in India; in both lotic and lentic systems; in the hill streams; River Tuirial in Mizoram; also, in the lentic systems (including Baskandi Anua in Cachar, Assam: In all these collections, First Reports by Professor D. Kar and Party); also in Bangladesh, etc.

IUCN status: Vulnerable OK

Pangio Blyth, 1860

Pangio Blyth, 1860, *J.Asiatic Soc., Bengal,* 29:169 (Type species *Cobitis cinnamomea* McClelland by monotypy= *C. pangia* Hamilton-Buchanan); Koittelat, 1987, *Jap. J.Ichthyol.,* 33 (4):371; Talwar and Jhingran, 1999, *Inland Fishes* **1:** 530; Menon, 1999, *rec.Zool. Surv India Occ. paper* No. 175: 165 (Check list).

Acantophthalmus van Hasselt, 1823, *Alg. Konst. Letterbode,* 2:132 (Type species, *Cobotis taenia* Linn.); Banarescu and Nalbant, 1968, *Mitt. Hamburg Zool. Mus. Inst.,*65: 343; Menon, 1992, *Fauna of India* 4(2): 86 (revision); Jayaram (1999), *FW Fishes of the Indian Region: 214.*

Apua Blyth, 1861, *J. Asiat. Soc. Bangal.* 29: 164 (Type species: *Apua fusca* Blyth; Robert, 1989. *Mem.Calif. Acad. Sci.,*No.14:95.

Generic characters: Body sufficiently long, worm-like. Abdomen round. Head short. Mouth small, narrow, inferior. Snout short, bluntly rounded. Eyes minute, covered by skin, superior in middle of head. Nostrils close together; anterior tubular. Lips thick; lower lip with 2 contiguous prolongations; or, bilobate. Presence of a sub-orbital spine. Presence of 6 barbels: 1 pair of rostral and two pairs of maxillary. Dorsal fin short, inserted in posterior half of the body; nearer to caudal fin base than tip of snout. Caudal fin truncate.

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 28,29 Oct 2002; 1 Ex.; *Museum No.*, *78 / 4(i);* Coll. and First Report by Professor D. Kar and Party.

Key to species: Dorsal fin inserted far bckward beween pelvic and anal fins. HL 20.2 % SL.

(29) ***Pangio pangia*** **(Hamilton, 1822)**

Distribution: In many water bodies in India (including River Tuirial in Mizoram; First Report by Professor D Kar and Party); also, in Bangladesh, Myanmar, etc.

IUCN status: Least Concern (LC).

Genus: ***Sperata*** Holly, 1939

Sperata Holly, 1939, *Zool. Anzeiger* 125:14, 1939 (replacement name for *Macrones* Dumeril, 1856; therefore, taking the same type species *Bagrus lamarii* Valenciennes, 1840 (Type species: *Sperata vittatus* (Bloch) in error); Ferraris and Runge, 1999, *Proc.Acad. Nat. Sci. Philad.* 51 (10): 400 (Revision); Jayaram, 2006, *Catfishes of India*: 23; Ferraris, 2007, *Zootaxa,* 1418: 106. *Macrones* Dumeril, 1856, *Ichthyologie analytique:* 484 (Type species *Bagrus lamarrii* Valenciennes, 1840, by original designation; preoccupied by *Macrones* Newman, 1841, Insecta (Coleoptera). *Aoria* Jordan, 1856, *Proc Acad. Nat. Sci. Philad.* 70: 341 (substitute name for *Macrones* Dumeril, 1856, preoccupied by *Aoria* baly, 1863. Insecta, Coleoptera).

Generic characters: Dorsal profile arched. Head large elongate, slightly depessed. Snout spatulate or rounded. Mouth moderately wide. Presence of a distinct inter-neural shield in between basal bone of dorsal fin and occipital process. Presence of 4 pairs of barbels; one each maxillary and nasal and two mandibular. Gill membranes free from each other and also from isthmus. Rayed dorsal fin generally with 7 rays and a robust spine. Adipose dorsal fin low with slightly convex margin. Pectoral fins with 9 or 10 rays and a spine. Pelvic fins generally with 6 rays. Anal fin short with 11 to 15 rays. Caudal fin deeply forked. Presence of a large round or ovoid dark spot near the posterior margin of the adipose fin.

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date:14 4 2001; 1 Ex.; *Museum No.*,*77 / 13 (i);* Coll. and First Report by Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date, 25-10-2002(Coll 2); 1 Ex.; *Museum No.,* 80/10(i); Coll. and First Report by Professor D. Kar and Party.

(c) River Tuirial in Mizoram (MZ); Collection date, 25-10-2002(Coll 3); 2 Ex.; *Museum No.,* 81/*2(i), 2(ii);* Coll. and First Report by Professor D. Kar and Party.

(d) River Tuirial in Mizoram (MZ); Collection date, 25 10 2001 (Bag C); 1 Ex.; *Museum No., 68(c)/5(i);* Coll. and First Report by Professor D. Kar and Party.

***Key to species*:** Snout spatulate. Pectoral fin with 8 or 9 rays.

***(30) Sperata seenghala* (Sykes, 1839)**

Distribution: In many water bodies in India (including Chatla Haor and Bakri Haor in Assam; **River Gomati in Tripura;** River Tuirial in Mizoram: In all these collections, First Reports by Professor D. Kar and Party); also in Bangladesh, Myanmar, Nepal, Pakistan, Sri Lanka etc.

IUCN status: Least Concern (LC)

Genus*: *Mystus Scopoli, 1777

Mystus Russell, 1756, *Nat. Hist. Aleppo* 1: 76; *Mystus anguillaris* Meuschen. *Mystus,* Talwar and Jhingran, 1991, *Inland Fishes,* 2: 554; Roberts, 1994, *Ichthyological Exploration of Freshwaters* 5(3):243. *Genus*: *Mystus* Scopoli, 1777. *Introductio ad historiam naturalem*: 451 (Type by subsequent designation: Masc. *Bagrus halepensis* Valenciennes 1840).

Generic characters: Body short or moderately elongated. Head short, flattened. Snout obtuse or rounded. Mouth sub-terminal, transverse. Eyes anteriorly situated, moderately large. Teeth numerous. Upper surface of head mostly smooth with one or two median longitudinal grooves of varying length. Occipital process long or short, situated superficially concealed under skin. Four pairs of barbells; one each of maxillary, nasal and two mandibular, two dorsal fins; an anterior rayed dorsal with seven or eight rays and a spine; a posterior smooth low adipose fin of varying lengths. Pectoral fins with seven to 11 rays and a strong spine serrated along the inner edge. Pelvic fins with six rays. Anal fin with nine to 14 rays. Caudal fin forked, bilobed with unequal lobes; lobes may be rounded, pointed or prolonged into filamentous extensions. Lateral line simple, complete.

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 22-11-2015(Lot 1); 1 Ex.; *Museum No., 105 /* 1 (i); Coll. and First Report by Professor D. Kar and Party.

Key to species: Maxillary barbels reach caudal fin base or even beyond. A mid-lateral stripe along Ll may sometimes be seen and another faint one above. Presence of a faint spot at base of dorsal spine.

(31)Mystus cavasius (Hamilton, 1822)

Distribution: In many water bodies in India (including wetlands in Assam, notably, Fulbari Anua, Rupairbala Anua; River Gomati in Tripura; River Tuirial in Mizoram: In all these collecions, First Reports by Professor D. Kar and party); also in Myanmar, Pakistan, Sri Lanka, etc.

IUCN status: Least Concern (LC)

Pseudolaguvia Misra,1976

Pseudolaguvia Misra,1976, *Fauna of India, Pisces,* Ed. 2,2: 258 (Type species: *Glyptothorax tuberculatus* Prashad and Mukerji, by original designation); Britz and Ferraris, 2003, *Zootaxa,* 388: 1-8 (*Laguvia* species considered as belonging to *Pseudolaguvia)*(Jayaram, 2010); Jayaram, 2006, *Catfishes of India:* 299; Thompson and Page, 2006; *Zootaxa,* 1340: 20 (Checklist); Ferraris, 2007, *Zootaxa,* 1418: 401 (Check list).

Generic characters: Presence of a prominent elongated adhesive thoracic apparatus formed by longitudinal, muscular skin-folds, with a distinctive central pit. Adipose dorsal contiguous with rayed dorsal with very little inter-space.

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 14 4 2001; 1 Ex.; *Museum No., 77 / 11 (i)*; Coll. and First Report by Professor D. Kar and Party.

Key to species: Thoracic adhesive apparatus comparatively poorly developed. Presence of two broad vertical bands each below the rayed dorsal fin. Pelvic fins inserted nearer to tip of snout than caudal fin base.

(32) ***Pseudolaguvia shawi*** (Hora, 1921)

Distribution: In many water bodies in India (including River Tuirial in Mizoram: First report by Prof. D. Kar and Party); also in Darjeeling, Kalimpong, Duars, Siliguri, Arunachal Pradesh, etc.

IUCN status: Least Concern (LC)

Genus: *Glyptothorax* Blyth, 1860

Glyptothorax Blyth, 1860, *J.Asiat.Soc., Bengal,* 29: 154 (Type species: *Glyptothorax trilineatus* Blyth); Hora, 1923, *Rec. Indian Mus.,*25: 8 (revision); Prashad and Mukerji, 1929, *Rec. Indian Mus.*, 31: 164, 183, 185) Burmese species; Hora and Gupta, 1941, *Bull. Raffles Mus.,* 17: 33, Pl. 3 (Malayan species); Menon, M.A.S., 1954, *Rec. Indian Mus.,* 62: 30 (revision); Li, 1986, *Indo-Paific Fish Biology*: 521-528; Nath and Dey, 2000, *Fish and Fisheries of NE India:* 111; Jayaram, 2006, *Catfishes of India:* 256; Thompson and Page, 2006, *Zootaxa,* 1345: 40 (Check list); Ferraris, 2007, *Zootaxa,* 1418: 387 (Check list).

Generic characters: Body of small to moderate size. Dorsal profile not much arched. Head small, depressed, covered with thick skin. Mouth conical but not pointed. Upper jaw longer. Mouth inferior, transverse, narrow. Presence of an adhesive organ on the ventral surface of thorax; which is confined to the abdomen immediately between the pectotal fins; and, further, it may be of varying lengths and may be with or without a pit or depression. Barbels: 4 pairs; 1 pair each of maxillary and nasal; and, 2 pairs of mandibular. Rayed dorsal fin with 5 to 7 rays and a spine. Adipose dorsal fin short and posteriorly free. Pectotal fins inserted laterally with 6 to 11 rays and a flat strong spine**.** Pelvic fins with 6 rays. Anal fin short with 7 to 14 rays. Caudal fin deeply forked. Lateral line simple and complete.

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 20 10 2006; 2 Ex.; *Museum No.,114 / 5 (i), 5 (ii)*; Coll. and First Report by Professor D. Kar and Party.

Key to species: Thoracic adhesive apparatus with narrow folds of skin, incomplete posteriorly. Nostrils separated from the snout by a distance equal to eye diameter.

(33) *Glyptothorax telchitta* (Hamilton, 1822)

Distribution: In many water bodies in India, particularly, in the hill streams. Also, found in the plain water, mid-stream and downstream stretches of River, like River Barak at Lakhipur and Katigora; also, found in River Tuirial in Mizoram: In all these collections, First Reports by Professor D. Kar and Party. Also, found in Bangladesh, Nepal, etc.

IUCN status: Least Concern (LC)

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 20 10 2002; 1 Ex.; *Museum No.,**115/8***; Coll. Professor D. Kar and Party.

Key to species: Presence of: 6 dorsal soft rays one dorsal spine; 11-13 soft anal rays. It is distinguished from other species of *Glyptothorax (*from other rivers linked with Gangetic Delta) in having the following features: (i)Nasal barbels do not reach anterior margin of orbit. (ii)Inter-orbital distance 27.0 to 31.4 % of HL; HD 12.5 to 14.2 % of SL; HL 23.7 to 25.3 % of SL.(iii) Thoracis adhesive apparatus with narrow elliptical central depression, which is almost fully enclosed posteriorly by skin ridges (striae) and with single, non-diverging series of striae running along its edges.

(34) ***Glyptothorax maceriatus*** Ng and Lalramliana, 2012

Distribution: In water bodies in India, particularly, in the hill streams including River Tuirial in Mizoram**:** Reported by Professor D. Kar and Party.

IUCN status: Not evaluated

Genus: ***Xenentodon*** Regan, 1911

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.

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 14 4 2001; 1 Ex.; *Museum No. 77 / 9 (i)*; Coll. Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date: 25-10-2002(Coll 2); 1 Ex.; *Museum No.* 80/13(i); Coll. and First Report by Professor D. Kar and Party.

Key to species: Dorsal fin rays 15 – 18. Anal fin rays 16 – 18. Pre-dorsal scales >200.

(35) Xenentodon cancila (Hamilton, 1822)

*Distribution***:** In many water bodies in India (including wetlands in Assam, notably, Salchapra Anua in Cachar, Assam; River Gomati in Tripura; River Tuirial in Mizoram: In all these collecions, First Reports by Professor D. Kar and party); also in Manipur, Nepal, etc.

*IUCN status***:** Least Concern (LC)

Genus: ***Mastacembelus*** Scopoli, 1777

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. Pelvic fins absent. Caudal fin rounded. Dorsal and anal fins may or may not be confluent with caudal fin. Pelvic fins absent.

*Material examined**:***

(a) River Tuirial in Mizoram (MZ); Collection date: 28,29 Oct 2002; 1 Ex.; *Museum No. 78 / 10 (i)*; Coll. and First Report by Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date: 25-10-2002(Coll 2); 3 Ex.; *Museum No.* 80/6(i) to

6(iii); Coll. Professor D. Kar and Party.

(c) River Tuirial in Mizoram (MZ); Collection date: 20-10-2006; 1 Ex.; *Museum No. 114 /* 2 (i); Coll. and First Report by Professor D. Kar and Party.

(d) River Tuirial in Mizoram (MZ); Collection date: 01-04-2001; 3 Ex.; *Museum No. 120 / 8 (i) to 8 (iii);* Coll. and First Report by Professor 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 and continuous with dorsal and anal fins, Caudal fin rays14 to 17.

(36) ***Mastacembelus armatus*** (Lacepede, 1800)

Distribution: **In** many water bodies in India (including Baskandi Anua in Cachar, Assam; **River Gomati in Tripura around its origin at Tirthamukh, Mandirghat;** River Tuirial in Mizoram: In all these collections: First reports by Prof. D. Kar and Party); also in Bangladesh, South China, Malaya, Java, Myanmar, Nepal, etc.

IUCN status: Least Concern (LC)

Genus: ***Parambassis*** Bleeker, 1874

Parambassis Bleeker, 1874, *Nat. Verh.Holland. Maatsch. Wetensch.,* 2(2): 102 (Type species, *Ambassis apogonoides* Bleeker by original designation); Guha and Talwar, 1975, *J.Inland Fish. Soc. India,* 8: 76; Roberts, 1994, *Nat. Hist. Brit. Siam. Soc.,* 42: 271-289.

Diagnostic characters: Body elongate, compressed. Abdomen round. Head short, compressed. Snout pointed. Mouth large; gape oblique; extending to anterior border of orbit. Eyes large, superior, not visible from below ventral surface of head. Jaws straight or only slightly upturned. Supra-orbital ridge smooth or serrated, with one or two spines posteriorly. Pre-orbit serrated on both ridge and edge. Sub-orbit also serrated. Cheek with four to seven transverse scale rows.

*Material examined**:***

(a) River Tuirial in Mizoram (MZ); Collection date: 25-10-2002(Coll 2); 19 Ex.; *Museum No.* 80/7(ii) to 7(xi),18(i) to 18 (ix)*;* Coll. and First Report by Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date: 22-11-2015(Lot 1); 3 Ex.; *Museum No. 105 /* 3 (i) to 3 (iii)*;* Coll. and First Report by Professor D. Kar and Party.

Key to species: Body transparent with a silvery broad lateral stripe on sides. Body depth 41.7 to 43.4 % of SL

(37)Parambassis ranga (Hamilton, 1822)

Distribution: **In** many water bodies in India (including wetlands like Rupairbala Anua in Cachar, Assam; **River Gomati in Tripura;** River Tuirial in Mizoram: **In all these collections:** First reports by Prof. D. Kar and Party); also, in Bangladesh, Mayanmar, many parts of SE Asia; also, further, in Australian region including New Guinea, etc.

IUCN Status: Least Concern (LC).

Genus: ***Badis*** Bleeker, 1853

Badis Bleeker, 1853, Verh. Bat. Genootsch, 25: 106 (Type species, *Labrus buchanani* Bleeker = *Labrus badis* Hamilton-Buchanan, by autonomy).

Generic characters: Body moderately elongated, compressed. Abdomen rounded. Head usually large, compressed. Snout bluntly rounded. Mouth relatively small, slightly upturned, terminal, and slightly protractile; cleft does not extend to the eyes anterior margin. Eyes large; not visible from below ventral surface. Lips thin. Lower jaw longer. Opercle with one sharp spine. A single dorsal fin inserted above the base of pectoral fins; the spiny portion more extended than the soft portion; with 16-18 spines and seven-10 rays. Anal fin with three spines and six-eight rays. Caudal fin rounded. Scales ctenoid and are of moderate size. Lateral line interrupted or absent with 26-33 scales, when present. Some of the unique characters include black stripe along the middle of the dorsal fin; dark bars on the trunk; modified in adults, displayed as two narrow vertical lines; dark pigment on the caudal-fin base differentiated into three vertically-aligned blotches.

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 14 4 2001; 2 Ex.; *Museum No. 77 / 8 (i), 14 (i);* Coll. and First Report by Professor D. Kar and Party.

(b) River Tuirial in Mizoram (MZ); Collection date: 28, 29 Oct 2002; 2 Ex.; *Museum No. 78 / 3 (i), 3 (ii);* Coll. and First Report by Professor D. Kar and Party.

(c) River Tuirial in Mizoram (MZ); Collection date: 25- 10 -2002(Coll1); 3 Ex.; *Museum No. 79 /* 6 (i), 6 (ii), 6 (iii)*;* Coll. and First Report by Professor D. Kar and Party.

(d) River Tuirial in Mizoram (MZ); Collection date: 25-10-2002(Coll 2); 45 Ex.; *Museum No.* 80/18(i) to 18(xxxxv)*;* Coll and First Report by. Professor D. Kar and Party.

(e) River Tuirial in Mizoram (MZ); Collection date: 01-04-2001; 1 Ex.; *Museum No. 120 / 3 (i);* Coll. and First Report by Professor D. Kar and Party.

(f) River Tuirial in Mizoram (MZ); Collection date: 25 10 2001 (Bag C); 1 Ex.; *Museum No. 68(c)/6(i);* Coll. and First Report by Professor D. Kar and Party.

Key to species: Scales in lateral row 26-28. Presence of a row of dark spots along the base of the dorsal fin.

(38)Badis badis (Hamilton, 1822).

Distribution: **In** many water bodies in India (including wetlands like Baskandi Anua in Cachar, Assam; River Tuirial in Mizoram**:** In all these collections, First reports by Professor D Kar and party); also, in Bangladesh, Nepal, etc.

IUCN Status: Least Concern (LC)

Genus: ***Channa*** Scopoli, 1777

Channa Scopoli, 1777, Introd. Hist. Nat.: 459 (Type species, *Channa orientalis* Bloch and Schneider, by subsequent designation).

Generic characters: Body elongated, sub-cylindrical anteriorly. Abdomen rounded. Head large depressed with plate-like scales. Snout somewhat obtuse. Mouth reasonably large; opening moderate to

wide; may extend to below orbit. Eyes lateral, moderate; in the anterior part of the head. The lower jaw protrudes beyond the upper. Gill openings wide. Membranes of two sides connected beneath the isthmus. Dorsal fin long; inserted almost above the pectoral fins with 29-55 rays and no spine. Anal fin long with 21 to 36 rays. Both dorsal and anal fins are free from caudal fin. Caudal fin rounded; scales small; cycloid or ctenoid; scales on the head are more extensive than those on the body. Lateral line abruptly curved or almost interrupted with 37 to 110 scales.

Material examined:

(a) River Tuirial in Mizoram (MZ); Collection date: 22-11-2015 (Lot 2); 1 Ex.; *Museum No. 116 / 3 (i);* Coll. and First Report by Professor D. Kar and Party.

Key to species: Presence of generally 80 Lateral line scales and 22 anal fin rays.

(39)Channa gachua (Hamilton, 1822)

Distribution: **In** many water bodies in India (including wetlands in Assam like Salchapra Anua, Baskandi Anua in Cachar, Assam; River Tuirial in Mizoram: In all these collections, First reports by Professor D Kar and party); also, in Bangladesh. China, Malaya, Myanmar, etc.

IUCN Status: Least Concern (LC)

4. Discussion

An overall perusal into the habitat inventory features of the River **Tuirial** portrays that, the extesively long microhabitat of the river comprises all the four types, *viz.,* Fall, Cascade, Riffle-pool and Run-sheet. Of these, the most common and widely observed microhabitat is the riffle-pool type followed by cascade type. Run-sheet type of microhabitat is evident mainly in the downstream tail-end portion of the river coming under the jurisdiction of Barak valley region of Assam. Incidentally, the River Tuirial joins the River Barak, as River Sonai in the Barak valley region of Assam. On the other hand, cascades are observed quite often when the river negotiates boulders and bedrocks in lower upper reach and upper mid-reach region of the river. Falls are observed usually in the upper reach of the river when the river flows down from a hill top. Riffle-pools could be seen in different regions of the entire length of the river depending on the type of the substratum.

Concomitant to above, there are four different kinds of substrata in the entire length of the River Tuirial, *viz.,*(a) Bedrocks, (b) Boulders, (c) Cobbles and Gravels and (d) Fines composed of sand, silt and clay. In River Tuirial, Bedrocks are infrequently found in the upstream region near the origin of the river. Boulders are usually seen in the upper mid-reach region of the river; generally, having cascade type of microhabitat; while cobbles and gravels are usually seen in the lower mid-reach of the river with riffle-pool type of microhabitat. The substratum in the entire downstream stretch of the river is formed of mainly `fines' consisting mainly of sand, silt and clay.

Notwithstanding the above, there seems to be a differential trend in fish biodiversity and ichthyospecies composition in different microhabitats and substrata of the River Tuirial. Highly rheophilic fishes like *Balitora brucei, Garra* species, *Glyptothorax* species are usually found in the fall and cascade types of

microhabitats; while the upper midreach region of the river was found to be inhabited mainly by the *Barilius* species, *Opsarius* species, *Tariquilabeo* species, *Psilorhynchus* species, *Lepidocephalichthys* species, *Paracanthocobitis* species, *Schistura* species, *Gagata* species, etc. Incidentally, the lower midreach region was found to be inhabited mainly by *Devario* species, *Puntius* spp, *Botia* species, *Cabdio* species*, Barilius* species (occaionally), *Opsarius* species (Occasionally); and, so on. The entire downstream plainwater lower and terminal stretch of the river was found to harbour many ichthyospecies, like *Salmostoma, Securicula, Gudusia, Puntius, Pethia, Amblypharyngodon, Esomus, Osteobrama, Labeo, Cirrhinus, Mystus, Eutropiichthys, Clupisoma, Ailia, Parambassis, Chanda, Glossogobius,* etc.

Further, the status of the fish species based on locally estimated information (but, corroborating with IUCN criteraia) is to be ascertained in order to develop locally tailored species-specific conservation measures.

Notwithstanding the above, Bailey, R.G.(20, 21) and Bailey and Hickley (22) had studied the water bodies and fishes in Africa. Concomitantly, Didem *et.al* (34)worked on the fishes of Western Black Sea Coast of Turkey; while, Kullander and Britz (109) and. Conway and Kottelat (110) had worked on the fishes of Myanmar.

Acknowledgement

The author expresses his heartfelt gratitude to the Zoologiocal Survey of India at Shillong for their help in the identification of the fish specimens.

References

Kar, D. (2006). Fish Biodiversity of North-East India. Proc. International Conference on Ganga, Patna University and Aquatic Animal Health Management Society, Canada, 1.

Kar DEVASHISH and *Roy AUROBINDO*(2021 b). (Devastating pandemic in the Globe: COVID-19; ***Acta Oecologica Carpatica XIV:*** pp. - 1 – 8.

Kar, Devashish (2024b). Distribution and Conservation Status of Ichthyospecies of River Monu in Tripura: First Detailed Taxonomic Report. (Research Article). Oceanogr. Fish. Open Access Journal, Vol. 17 (4) (August 2024): pp.: 1-22 (MS ID:555969 (2024). DOI: 10.19080/OFOAJ.2024.17.555969.

Kar, D., Barbhuiya, A.H. (2009 b). Hill stream Fishes of North-East India. National Symposium of Hill stream Fishes, National Centre for Cold water Fisheries, Bhimtal, ICAR, Oct 2009.

Kar, D., Barbhuiya, A.H. and Das, B. (2008 d). Fishes and water bodies of North-east India: their Conservation: Indian Science Congress, NEHU, Jan 2009.

Kar, D., Barbhuiya, A.H (2009 a) Status and Conservation of Freshwater Fishes of India, IUCN Workshop, Zoo Outreach Organisation, India.

region of Assam (India). *Transylv. Rev. Syst. Ecol. Res. 22.2 (2020), "The Wetlands Diversity" pp 87 – 102.*

Akhtar M.M.; Azomm Golam, Shamim Reza Sabuz; Hamidul Islam (2019). Sexual dimorphism of *Canthophrys gongota* (Teleostei: Cobitidae) using landmark-bsed geometric morhometrics in the Atrai. *BangalshJornal of Scienti and Industrial Researc*, *54*(2), 187-194.

Arunachalam, M.;Raja, M.;Nandagopal, S., & Mayden, R. L. (2013). *Garra palaruvica,* a new cyprinid fish (Cypriniformes: Cyprinidae) from Kerala, Western Ghats, Peninsular India. *International Journa of Zoology Research*, *3*(1), 62-68.

Bailey, R. G. (1994). Guide to the Fishes of River Nile in the Republic of Sudan. *Journal of natural History*, *28*, 937-970.

Bailey, R. G. (1996). Changes in the Fish and Fisheries Ecology of a large man-made lake in Tanzania for the period from 1965-94. *Fisheries Management and Ecology*, *3*, 251-260.

Bailey, R. G., & Hickley, P. (1986). A recent collection of *Nothobrabchus virgatus* Chanbers, a new killifish from southern Sudan. *Revue fr. Aquariol.*, *12*(1986).

Bănăduc, D., Noblet, B., Chauveau, R., Latrache, Y., Touati, A., & Curtean-Bănăduc, A. (2020). *Mountainous lotic systems dams environmental risks in Carpathians and Alps; Acta Oecologica Carpatica XIII*, 57/68 pp. 57 - 58.

Barbhuiya, A. H., Das, B., Darlong, L., Tarafdar, R. G., Sharma, R., Sharma, S. S., Datta, S., Das, B., Barman, R., Deb, S., Saha, B., & Kar, D. (2009). Fish Biodiversity in certain rivers of Tripura. Environment & Ecology, *27*(1), 222-227.

Barbhuiya, A. H., Singha, R, & Kar, D. (2021). Golden Mahseer in Barak in North-East India with a note on their morphometry and meristics, pp. 11-19. In *Advances in Animal Research*, pp.: 1-93, Global Net Publication (New Delhi).

Barman, R. P. (1984). On a small collection of fish from Mizoram, India: Journal, Bombay Natural Hist. Society, *86*, 463-466.

Barman, R. P. (1985 a). A new freshwater fish of the Genus *Barilius* Hamilton (Pisces: Cyprinidae) from West Bengal, India. Journal, Bombay Natural Hist. *Society*, *83*, 171-173.

Barman, R. P. (1985b). A new cyprinid fish of the Genus *Danio* Hamilton (Pisces: Cyprinidae) from Andhra Pradesh, India. Journal, Bombay Natural Hist. *Society*, *82*, 602-605

Barman, R. P. (1992). New Record of a croaker, J*ohnius coitor* (Hamilton Buchanan) (Pisces: Sciaenidae) from Tripura, North-East India. *Journal, Bombay Natural Hist. Society*, *89*, 135-136.

Barman, R. P. (1994). Fish fauna of Tripura, North-East India. *Journal, Bombay Natural Hist. Society*, 91, 37-46.

Barman, R.P. (1986). *Barilius nelsoni*, a new cyprinid fish (Pisces: Cyprinidae) from Tripura, North-Eastern India. *Journal, Bombay Natural Hist. Society*, *86*, 213-215.

Das, B. K., Boruah, P., & Kar, D. (2015). Ichthyofaunal Diversity of Siang River in Arunachal Pradesh, India. *Proc. Zool. Soc. (Springer)*, DOI 10.1007/s 12595-015-0155-6. ISSN 0373-5893

Das, B. K., Boruah, P., & Kar, D. (2015). Ichthyofaunal Diversity of Siang River in Arunachal Pradesh, India. *Proceedings of the Zoological Society*.

Das, P.; Mukherjee, S.; Kar,S.;Das,U.;Kar,D.; and, Aditya,G.(2018). Zooplnakton as dietary component of selected freshwater fish: Network Analysis based on gut content. AACL Bioflux, 11 (1): 232-244.

Das, S., Das, T., Das, B. K., & Kar, D. (2015). Length-Weight Relationship and Condition Factor in *Channa punctata* of River Manu in Tripura. *International Journal of Fisheries and Aquatic Studies (IJFAS)*, *2*(3), 56-57.

Das, U., & Kar, D. (2016). Diel and seasonal variation of zooplankton from the freshwater pond of North Tripura District, India. *Lake 2016: Conference on Conservation and Sustainable Management of Ecologically Sensitive Regions in Western Ghats (the 10th Biennial Lake Conference)*.

Day, F. (1873). *Report on the Freshwater Fish and Fisheries of India and Burma*, 22, 23, 35, 36 (Calcutta).

Day, F. (1878). The Fishes of India, being a Natural History of the Fishes known to inhabit the Seas and

Day, F. (1885). Relationship of the Indian and African Freshwater Fish Fauna. J. Linn. Soc. (Zool.), *18*, 308-317.

Day, F. (1889). *The Fauna of British India, including Ceylon and Burma: Fishes*, *I & II*, 548, 509.

Devashish KAR, Dimos KHYNRIAM, Bubul DAS, and *Satyajit DAS* (2020).

Dey, S., Manorama, M., & Ramanujam, S. N. (2015). New Records of three species of Fish in the upper reaches of the Btrahmaputra and Surma-Meghna River basins, Meghalaya, India. *Journal of Threatened taxa*, *7*(12), 7922-7926.

Didem, G., F Saadet, K., Nuran, U., & Abdullah, E. K. (2012). A New Reccord for occurrence of *Symphodus bailloni* (Osteichthuyes: Perciformes: Labridae) in the Western Black Sea Cooast of Turkey. *Scientific World Joiurnal*, 2012, Article ID 615318, pp 5:http://dx.doi.org/10.1100/2012/615318)

Dudgeon, D. (1995). The Ecology of rivers and streams in Tropical Asia: pp. 615-657. In: Ecosystems of the World 22: River and Stream Ecosystems (Eds.) Cushing, C.E.; Cummins, K.W.; and, Minshall, G.W., Elsevier Press (UK).

Freshwaters of India, Burma and Ceylon, xx + 778, 195 pls, Text and Atlas in 4 parts, W_M Dawson and Sons Ltd. (London).

Froese, R., & D. Pauly. Editors. (2024). *FishBase.World Wide Web electronic publication*.

Ghosh, S. K., & Lipton, A. P. (1982). Ichthyofauna of the NEH Region with special reference to their economic importance. *ICAR Research Complex, NEH Region, Shillong, Spl. Bull*, *1*, 119-126.

Greenwood P. H., Rosen D. E., Weitzman S. H., & Myers ,G. S. (1966). Phyletic studies of teleostean fishes with a provisional classification of living forms, *Bulletin of American Museum of Natural History*, 131, 339-456.

IUCN. (1988). *Red List of Threatened Animals, IUCN, Gland (Switzerland)*.

Jayaram, K. C. (1981). *The Freshwater Fishes of India, Pakistan, Bangladesh, Burma, Sri Lanka: a Handbook, xxii +475, Zoological Survey of India (Calcutta)*.

Jayaram, K. C. (1999). The Freshwater Fishes of the Indian Region, xvii +551, Narendra Publishing House (Delhi).

Jayaram, K. C. (2003). Ecostatus and Conservation Strategies for Mahseer fishes of India with special reference to Deccan species: pp. 3-12. In: Welfare Biology in the New Millennium, (Eds.) Kar, D.; Dey, S.C. and Datta, N.C., pp. xx + 97, Allied Publishers Pvt.Ltd. (Bangalore).

Jayaram, KC (2010). The Freshwater Fishes of the Indian Region, xxiv + 614, Narendra Publishing House (New Delhi).

Kar, D (2000 b). Species composition and distribution of Riverine fishes of Mizoram and Tripura with emphasis on Habitat parameters and Health of Fishes. Proc. National Workshop on Fish Biodiveristy and Conservation in the North-East India: NBFGR-NEC (Govt. of India sponsored), 1: 25 p.

Kar, D (2000 d). On a collection of Fishes from River Gomati and River Howrah in Tripura. Proc. Nat. Symp.Currnet Trends in Wetlands and Fisheries Research in the New Millennium, 1: 20 p.

Kar, D (2001 a). Species composition and distribution of Fishes in the rivers in Barak valley region of Assam and the Principal rivers in Mizoram and in Tripura in relation to their Habitat parameters. Proc. National Workshop, NATP-ICAR Project Mid-term Review, 1: Central Marine Fisheries Research Institute, Cochin, 25 p.

Kar, D (2001 b). Further Studies on the Ichthyospecies composition and Distribution of Freshwater fishes in Barak drainage, and in principal rivers in Mizoram and in Tripura with a note on their Feeding and Breeding biology. National Project Monitoring Workshop of NATP-ICAR Project, National Bureau of Fish Genetic Resources, Lucknow, 1: 22 p.

Kar, D (2002). Fish Genetic Resources and Habitat Diversity of the Barak Drainage, Mizoram and Tripura with a note on Conservation of Endangered Species. International Symposium, `Lake 2002', Indian Institute of Science, Bangalore, 9-13 Dec, 2002, Abstracts, pp. 117-121.

Kar, D (2004 b). Fish Fauna of Barak Drainage in Assam, of Mizoram and of Tripura with a note on Conservation. J. Freshwater Biol., 16 (1-4): 31-39.

Kar, D (2007 a). Fundamentals of Limnology and Aquaculture Biotechnology, pp. xiv + 609, Daya Publishing House (New Delhi).

Kar, D (2013 a) Wetlands and Lakes of the World, pp.xxx + 687, Springer (London)., Print ISBN 978-81-322-1022-1; e-Book ISBN: 978-81-322-1923-8

Kar, D (2013 b). Wetlands, Rivers and Fishes of North-East India with a note on the Health of Fishes. Proc. International Symposium, Kerala University, 3-5 Oct 2013.

Kar, D (2016 b). Wetlands, Rivers, Fish, Plankton resources and Fish disease and Aquaculture in North-East India: An Overview. Proc. International Symposium, Lake 2016, pp.37, Indian

Institute of Science, Bengaluru, and Alva's Education Foundation, Mengaluru (India).

Kar, D and Barbhuiya, A.H. (2009). Mahseer Fishes of Barak Drainage, Mizoram and Tripura. Souvenir: National Symposium on Coldwater Fisheries Management: new Strategies and Approaches, 2.4 Oct 09, Directorate of Coldwater Fisheries Research (ICAR), Bhimtal, Uttarakhand, India: pp. 77-80.

Kar, D and Sen, N. (2007). Systematic List and Distribution of Fish Biodiversity in Mizoram, Tripura and Barak drainage in North-East India. ZOOs' Print Journal,22 (3):2599-2607.

Kar, D. (1990). Limnology and Fisheries of Lake Sone in the Cachar district of Assam (India), Matsya, 15-16: 209-213.

Kar, D. (1996). Biodiversity Conservation Prioritisation Project (BCPP) in India. Proc. International Project Formulation Workshop of BCPP, World Wide Fund (WWF) for Nature-India, 1 (New Delhi).

Kar, D. (1999). *Microbiological and Environmental Studies in relation to Fishes of India, Gordon Research Conference, Connecticut, USA*.

Kar, D. (2000 a). Fish Genetic Resources in the Principal rivers and wetlands in North-East India with special emphasis on Barak valley(Assam), in Mizoram and in Tripura. Proc. National Project Initiation Workshop of the NATP-ICAR World Bank-aided project on Germplasm Inventory, Evaluation and Gene Banking of Freshwater Fishes': National Bureau of Fish Genetic Resources (NBFGR),Lucknow, 1:12p

Kar, D. (2000 c). An account of Ichthyospecies of North-East India with a note on their conservation. Proc. International Symposium, Lake 2000, Indian Institute of Science, Bangalore, 1: 16 p.

Kar, D. (2003 a). Fishes of Barak drainage, Mizoram and Tripura: pp. 203-211. In: Environment, Pollution and Management (Eds.) Kumar, A. Bohra, C. and Singh, L.K., pp. xii + 604, APH Publishing Corporation (New Delhi).

Kar, D. (2003 b). Peoples' Perspective on Fish Conservation in the Water bodies of South Assam, Mizoram and Tripura: pp. 325-328. In: Participatory Approach for Fish Biodiversity Conservation in North-East India (Eds.) Mahanta, P.C. and Tyagi, L.K., v + 412, National Bureau of Fish Genetic Resources (ICAR) (Lucknow).

Kar, D. (2003 c). Ichthyoresources of Tripura: Assessment, Management and Conservation. Proc. Nat Symp. Assessment and Management of Biorecources, North Bengal University and The Zoological Society, Calcutta, 28-30 May 2003,p.48.

Kar, D. (2004 a). A Glimpse into the Fish Bioresources of North-East India with a note on their management, Conservation and Biotechnological potential. Invited Lecture at the DBT-sponsored National Seminar on Biodiversity Cconservation and Sustainable Utilisation of Environemntal Resources: Tripura University, 10-11 Jan. 2004.

Kar, D. (2005 a). Fish Biodiversity and Habitat Parameters of rivers in Barak drainage (Assam), in Mizoram and in Tripura. Himalayan Journal of Environmental Zoology, 19 (1): 41-45.

Kar, D. (2005 b). Fish Diversity in the Major Rivers in Southern Assam, Mizoram and Tripura: pp.679-691. Proc. 2nd International Symposium on GIS and Spatial Analyses in Fisheries and Aquatic Sciences, 2-6 Sep 2002, University of Sussex, Brighton (UK), (Eds.), Vol.2, Nishida, T.; Kailola, P.J.; and, Hollingworth, C.E. Fisheries and Aquatic GIS Research Group, Kawagoe, Saitama (Japan).

Kar, D. (2005 c). A critical Overview of the Water Bodies in Barak valley region of Assam, in Mizoram and in Tripura with a note on the present status of Fish Biodiversity and their Conservation. National Workshop on Women and Sustainable Development in the Context of South Assam. North-Eastern Centre for Advanced Studies and Womens' College, Silchar, Assam, 18-19 Feb 2005.

Kar, D. (2007 b).Sustainability issues of Inland Fish Biodiversity and Fisheries in Barak drainage (Assam), in Mizoram and Tripura: pp.555-560. In: Sustain Fish (Eds) Kurup, Madhusoodana, B and Ravindran, K., pp xii + 863, School of Industrial Fisheries, Cochin University of Science & Technology (CUSAT): Proceedings of International Symposium on `Improved sustainability of Fish Production Systems and Appropriate Technologies for Utilisation', 16-18 March, 2005 (Cochin).

Kar, D. (2010). Present status of Fish Diversity and water bodies in North-east India with a note on their Conservation. Keynote address of the Session Chair, Lake 2010 International Conference. Indian Institute of Science, Bangalore, Dec 2010.

Kar, D. (2011). Fish diversity, fish habitats, fish disease and aquaculture in North-East India Hotspot: A synopsis. *Conservation Forum Journal.* 3: 5. ISSN: 0974-6609

Kar, D. (2012). Wetlands, Rivers, Fish diversity, Fish disease and Aquaculture in North-East India. Fishing Chimes, 31 (12): 35-37

Kar, D. (2015). Epizootic Ulcerative Fish Disease Syndrome, xix + 293, Elsevier, (Academic Press), USA, ISBN: 9780128025048.

Kar, D. (2016 a). Wetlands, Rivers, Fish Resources and Fish Disease in North-East India: An Overview. Proc. International Symposium on Aquaculture and Fisheries (as part of the International Conference on Environmental Sustainability for Food Security (ENFOSE, 2016), 23 Sep 2016, held at Fisheries College and Research Institute (FCRI), Tamil Nadu Fisheries University (TNFU), pp. 6.

Kar, D. (2019). Wetlands diversity and their fishes in Assam, India. *Transylv. Rev. Syst. Ecol. Res. 21.3 (2019), "The Wetlands Diversity":* 47-80 (Romania) (pp.1-94(Romania)

Kar, D. (2021 a). Community Based Fisheries Management: A Global Perspective, pp.xiii + 590, Elsevier (Academic Press) USA.

Kar, D. (2021 b). Fish and Their Habitats in North-East India Biodiversity Hotspot. J Oceanography and Fisheries, USA, 13 (2): pp. 1-3 Oceanogr Fish Open Access J. 2021; 13(2): 555856 (USA), DOI: 10.19080/OFOAJ.2021.13.555856).

Kar, D. (2021 c). Unique Oxbow Wetlands in Assam, India. Oceanography & Fisheries Open access Journal, Volume 14 Issue 3: pp. 1-8, December 2021 DOI: 10.19080/OFOAJ.2021.14.555890 (USA).

Kar, D. (2021 d) Wetlands, Fishes and Pandemics with Special Reference to India. Sustainability in Environment, ISSN 2470-637X (Print) ISSN 2470-6388 (Online) Vol. 6, No. 3: pp. 136-142, 2021, www.scholink.org/ojs/index.php/se 1&2*1 (USA).

Kar, D. (2022). Seasonal Floodplain Haor Wetlands in Assam Hotspot in India. Oceanography and Fisheries open access Journal (ISSN 2476-0536), 15 (2): 1-9 (USA).

Kar, D. and Das, B.K. (2015). Sustainability of Freshwater Fishes in North-East India. Fishing Chimes, 35 (5): 47-52

Kar, D. and Khynriam, D. (2022). Fishes in the Upstream Rheophilic Stretch of River Barak at Karong. Sustainability in Environment ISSN 2470-637X (Print) ISSN 2470-6388 (Online) Vol. 7, No. 3: 77-96.

Kar, D. and Khynriam, D. (2023). A Pioneering Study on Taxonomic Diversity of Fishes in the Headwaters of River Barak in Assam, Manipur and Mizoram, Northeast, India. Oceanogr Fish Open Access J, Volume 15 Issue 5 - January 2023. DOI: 10.19080/OFOAJ.2023.15.555921

Kar, D. and Khynriam, D.(2020). On a recent pioneering taxonomic study of the fishes from rivers Diyung, Vombadung, Khuolzangvadung, Tuikoi and Mahur in Dima Hasao district of Assam. *Transylv. Rev. Syst. Ecol. Res* (Romania). *22.3 (2020), "The Wetlands Diversity"*: pp. 83-106.

Kar, D., Barbhuiya, A.H. and Das, B. (2008 b). Wetland panorama of North-East India. Keynote address: Zonal Conference of Indian National Cartographic Association, Survey of India, Shillong, June 2008

Kar, D., Barbhuiya, A.H. and Das, B. (2008 c). Fish Diversity and Habitat parameters of rivers in North-East India. Keynote address from Session Chair, All-India Congress in Zoology, Dec 2008.

Kar, D., Barbhuiya, A.H., Thangjam, G., Devi, S.M., Deb, S., Das, B., Chanu, H. and Nishima (2008). Panorama of Fish Biodiversity in certain rivers and wetlands in Manipur. Proc.Zool.Soc.India 7(2):123-134.

Kar, D., Barbhuiya, AH, Arifuddidn, Barbhuiya, MA, Chetia,P., Islam, R and Rahman, S (2007). Traditional Riverine Fish Catching Devices of Assam. Fishery Technology, 44 (2): 137- 146.

Kar, D., Dey, S.C. and Datta, N.C. (2003). Welfare Biology in the New Millennium, xx + 97, Allied Publishers Pvt. Ltd. (Bangalore).

Kar, D., Saha, D., Hussain, A., Barbhuiya, M. H., Kar, S., & Dey, S. C. (1999). Limnological Studies of some of the Wetlands of Assam, Mizoram, Tripura and Aruna-Chal Pradesh related to their status of Eutrophication. *Proc. Indian Sci. Congr.*, 86(III), 55.

Kar, D., Shomorendra, M., Singha, R., Puinyabati, H., Geetarani, B., Binky, K., Sangeeta, O. and Ranibala, T.(2011). Fish diversity and Helminth fauna in the fishes of Assam and Manipur, India.: Fishing Chimes,: 55-65.

Kar, D.; Barbhuiya, A.H. and Das, B. (2008 a). Wetlands, Rivers and Fish Diversity in North-East India. Key Speaker at International Symposium of Indian national cartographic Association, ISRO, Ahmedabad, Nov 2008.

Kar, Devashish (2024a). Fishes of River Kopili in the Assam Province of Eastern Himalayan Biodiversity Hotspot (Research Article). Oceanogr. Fish. Open Access Journal, Vol. 17 (4)(July, 2024): pp. 1-18. (MS ID:.555968 (2024): DOI: 10.19080/OFOAJ.2024.17.555968.

Kar, Devashish and Das, Bubul (2024). Taxonomic Study of the Riverine Fishes of Karbi Anglong in North East India of the Eastern Himalayan Biodiversity Hotspot. Oceanogr. Fish.Open Access Journal, Vol 17 (3): pp. 1-9. DOI: 10.19080/OFOAJ.2024.17.555962.

Kar, Devashish and Kumar, Ankush (2023). Present Status of Freshwater Fish Diversity and Human impact with Particular Reference to North-East India Biodiversity Hotspot. Oceanography and Fisheries Open Access Journal (ISSN: 2476-0536), Volume 16 (Issue 4),August 2023, DOI: 10.19080/OFOAJ.2023.16.555943.

KAR, Devashish and *Roy AUROBINDO* (2021 a). **EPIZOOTIC ULCERATIVE SYNDROME (EUS) FISH DISEASE CHRONOLOGY, STATUS AND MAJOR OUTBREAKS IN THE WORLD.** *Transylv. Rev. Syst. Ecol. Res. 23.2 (2021), "The Wetlands Diversity":* pp. 29-38.

Kar, Devashish Kar and Dimos Khynriam (2024).Further Report on the Systematic, Distribution and Conservation of Ichthyospecies in the Headwaters of River Barak (Assam, Manipur and Mizoram), North East, India. Oceanogr Fish Open Access J (ISSN 2476-0536): 17(1): OFOAJ.MS.ID.555954 (2024); DOI: 10.19080/OFOAJ.2024.17.555954

Kar, S.; Das, P.; Das, U.; Bimola, M.; Kar, D.; and, Aditya, G. (2018 a). Correspondence of zooplankton assemblage and water quality in wetlands of Cachar, Assam, India: Implications for environmental management. Limnological Review, 18 (1): 9-19.

Kar, S.; Das, P.; Das, U.; Bimola, M.; Kar, D.; and, Aditya, G. (2018 b). Correspondence of zooplankton assemblage and water quality in wetlands of Cachar, Assam, India: Implications for environmental management. Limnological Review, 18 (1): 9-19.

Kevin W. Conway and Maurice Kottelat (2007). A new species of *Psilorhynchus* (Teleostei: Psilorhynchidae) from thr Ataran River Basin, Myanmar, with comments on the generic name *Psilorhynchoides. Zootaxa,* 1663: 47- 57

Khynriam, D. and Sen, N. 2014. Taxonomic study on Nemacheiline loaches of North East India. *Rec. zool. Surv. India, Occ. Paper No.* 358: 1-37. Edited and published by Director, Zoological Survey of India, Kolkata.

Kottelat, M.; Harries, D.R; and, Proudlove, G.S.(2007). *Schistura papulifera,* a new species of cave loach from Meghalaya, India (Teleostei: Balitoridae). Zootaxa 1393: 35-44

Kullander, Sven O and Ralf Britz (2008).*Puntius padamya*, a new species of cyprinid fish from Myanmar (Teleostei: Cyprinidae). Electronic Journal of Ichthyology, 2: 56 – 66)

Lalramliana; Beihrosa, Solo; Samuel Lalronunga; and, Lalnuntleuanga (2018 a). *Hemimyzon indicus,* a

new species of balitorid fish from the Kaladan basin, Mizoram, North-east India (Teleostei: Balitoridae).

Lalramliana; John Daniel Marcus Knight; Denis Van Lalhlimpuia; and, Mahender Singh (2018 b). Integrative taxonomy reveal a new species of snalehead fish, *Channa stiktos* (Teleostei: Channidae), from Mizoram, North-east India. Vertebrate Zoology, 68(2): 165-175).

Lambert, Niyoyitungiye; Anirudha Giri; Bhanu Prakash Mishra; Devashish Kar (2020). The impact of abiotic factors on the occurrence, assemblages and diversity of freshwater zooplanktonin lake Tanganyika, Burundian littoral. International Journal of Entomology Research, 5 (2)**:** 74-82.

Lipton A.P (1983-84). Fish Fauna of Tripura. Matsya, 9-10: 110-118.

Lokeshwar, Y.; Voshwanath, W.; and Kosygin, L. (2013). *Schistura paucireticulata,* a new loach from Tuirial River, Mizoram, India (Teleostei: Nemacheilidae), Zootaxa, 3683(5): 581-588).

Menon A.G.K. (1999). Checklist: Freshwater Fishes of India, xviii + 366, Occasional Paper No. 175, Zoological Survey of India (Calcutta).

Menon, A.G.K. (1974). A Checklist of the Fishes of the Himalayan and the Indo-gangetic Plains, pp. viii + 136, Inland Fish. Soc. India (Barrackpore).

Menon, AGK (1978). An Appraisal of Satpura Hypothesis of Distribution of the Malayan Fauna abd Flora to Peninsular India. *Zoologiana,* 1: 18 – 23.

Misra,K.S. (1959). An aid to the Identification of Commercial Fishes of India and Pakistan. Rec. Indian Mus., 57 (1-4): 1-320.

Mittermeier, R.A. and Mittemeier, C.G. (1997). Megadiversity: Earth's Biologically Wealthiest Nation. In: Global Freshwater Biodiversity (Ed.) McAllister, D.E; Hamilton, A.L.; and, Harvery, B; Sea Wind, Cemex, Mexico City, 11: 1-140.

Nath, M.; Singh, N.R.; Das, B.K.; Dutta, B.; Das, U.; Das, P.; Kar, S.; and, Kar, D. (2015). A preliminary study on Fish Diversity of Kakri and Deo rivers around Dharma nagar in Tripura. International Journal of Theoretical and Applied Sciences, 7 (2): 6-13.

Nath, P. and Dey, S.C. (1989). Two new Fish species of thr genus *Amblyceps* Blyth from Arunachal Pradesh, India. J. Assam Science Society, 32 (1): 1 – 6.).

Nath, P. and Dey, S.C. (1997). Fish and Fisheries of North-East India, Vol. I: Arunachal Pradesh: 1-140

Pethiyagoda, R., 1991. Freshwater fishes of Sri Lanka. The Wildlife Heritage Trust of Sri Lanka, Colombo. 362 p.

Sen, N. (2000). Occurrence, Distribution and Status of Diversified Fish Fauna of North-East India: pp. 31-48. In: Fish Diversity of North-East India (Eds.)Ponniah, A.G.andSarkar,U.K., pp. 228, National Bureau of Fish Genetic Resources, ICAR (Lucknow).

Sen, N. and Khynriam, D. (2014). *Pictorial Handbook on Fishes of North East India:* 1-345. Edited and published by Director, Zoological Survey of India, Kolkata.

Sen, T.K. (1985). The Fish Fauna of Assam and the neighbouring North-Eastern States of India. Records of Zoological Survey of India, Occasional Paper No. 64: 1-216.

Shaw, G.E. and Shebbeare, E.O. (1937). The Fishes of Northern Bengal. J. Royal Asiatic Soc. Bengal Science: 137 pp, 6 pls.

Sinha, M. (1994). Threatened coldwater fishes of North-Eastern Region of India: pp. 173-176. In: Threatened Fishes of India, pp. 384, Natcon. Publication No. 4 (UP).

Talwar, P.K. and Jhingran, A.G. (1991). Inland Fishes of India and Adjacent Countries, Vol. I & II, pp. 1158, Oxford and IBH Co., Pvt. Ltd. (New Delhi).

Tilak, Raj and Jain Seema (1987). On the Systematic status of *Danio (Danio) menoni* Barman (Pisces: Cyprinidae). Journal, Bombay Natural Hist. Society, vol. 84: pp.693-694.

WCMC (1998). Freshwater Biodiversity: A Preliminary Gobal Assessment. A Document prepared for the 4th Meeting of the Conference of the Practices to the Convention of Biological Diversity, World Conservation Monitoring Centre.

Wikramanayake, E.D. and Moyle, P.B. (1989). Ecological structure of Tropical Fish Assemblages in wet-zone streams of Sri Lanka. Journal of Zoology (London), 281: 503-526.

Yadava, Y.S. and Chandra, R. (1994). Some threatened carps and cat fishes of Brahmaputra River System: pp. 45-55. In: Threatened Fishes of India, pp. 384, Natcon. Publication No. 4 (UP).

Table 1: Seasonal incidence of Fish Diversity in River Tuirial in Mizoram

Sl No.	Fish name	Collection date:14 4 2001 & River Coll No. 77, +(No. of Fishes),River No/Fish No. =Mus	Collection date: 28,29 Oct 2002 & River Coll No. 78, +(No.of Fishes),	Collection date: 25-10 -2002(Coll,1) & River Coll No. 79, +(No.of Fishes),	Collection date:25-10-2002(Coll,2)& River Coll No. 80, +(No.of Fishes),River No./Fish No. =Museum No.	Collection date:25 -10-2002(Coll 3)& River Coll No. 81, +(No.of Fishes), River No./Fish No. =Museum No.	Collection date: 31 3 2001 & River Coll No. 82, +(No.of Fishes), River No/	Collection date: Oct 2000, & River Coll No. 104, +(No.of Fishes), River No/	Collection date: 22-11 -2015 (Lot 1) & River Coll No. 105, +(No .of Fishes),River No/Fish No.	Collection date: 20-10 -2006 & River Coll No. 114, +(No.of Fishes), Rive	Collection date: 20-10 -2002 & River Coll No. 115, +(No. of Fishes),River No/Fish No. =Mus eum	Collection date: 22-11-20 15 (Lot 2)& River Coll No. 116, +(No.of Fishes), Rive	Collection date: 01-04-2001 & River Coll No. 120, +(No.of Fishes), Rive	Total No. of Fish collected	IUCN Conservation status (Global) LC= Least Concern VU = Vuln	Conservation status (Local) (based on occurrence of Fish species in 1 or >1 locations 1

		eum No.	River No/ Fish No. =Museum No.	River No/ Fish No. =Museum No.			Fish No. =Museum No.	Fish No. =Museum No.	=Museum No.	r No/ Fish No. =Museum No	No.	r No/ Fish No. =Museum No.	r No/ Fish No. =Museum No.		erable EN= Endangered NT= Near Threatened NE= Not Evaluated DD- Data Deficient	Location: of Concern(C) 2 Locations: Less Concern(LC) >2Locations:No Concern(NC)
1	*Pisodonophis boro*	+(2), 77/2(i),2(ii)			+(1),80/12(i)									3	LC	LC
2	*Securicula gora*							+(2),**104/ 1 (i), 1 (ii)**						2	LC	C
3	*Salmostoma bacaila*		+(3),*78 /* 13 (i)											3	LC	C

			to 13 (iii)													
4	*Barilius barila*		+(1) ,*78 / 12 (i)*									+(5) ,*116* / 1 (i) to 1 (v)		6	LC	LC
5	*Opsarius bendelisis*	+(2), 77/1(i),1(ii)		+(1), *79* /4 (i)	+(2),80/5 (i),5(ii)			+(1) ,*104* / **3 (i)**		+(1) ,*114* / 1 (i)	+(2),***115/7(i),7(ii)***			9	LC	NC
6	*Opsarius barna*	+(1), *77 / 2 (i)*	+(16),*78 / 5 (i) to 5 (xvi)*	+(2), *79* / 3 (i),7 (i)	+(12),80/ 1(i) to 1(xi),4(I)			+(1) ,*104* / **3 (ii)**					+(154),*120* / 7(i) to 7 (CLiv)	186	LC	NC
7	*Barilius vagra*										+(3), ***115/7(iii) to 7 (v)***			3	LC	C
8	*Chelacachius*		+(22),*78* / 9 (i) to 9 (xxii)											22	LC	C
9	*Devario aequi*	+(1), *77 / 7 (i)*	+(4) ,*78 /6*	+(2), *79* / 8 (i),	+(23),80/ 3(i) to 3 (iv),9(i)					+(6) ,114 /		+(38),116 / 5	+(6) ,120 / *4*	80	LC	NC

	pinnatus		*(i) to 6 (iv)*	8 (ii)	to 9(xix)					*4(i) to 4 (vi)*		(i) to 5 (xxx viii)	*(i) to 4 (vi)*			
10	*Tor tor*				+(5),80/9 (xx) to 9(xxv)	+(1),*81 / 5(i)*					+(2),***115/6(i), 6(iii)***		+(1) ,*120 / 6 (i)*	9	DD	NC
11	*Neolissochilus hexagonolepis*	+(1), *77 / 12 (i)*				+(3),*81 /* 3 (i) to 3 (iii					+(3), ***115/6(ii), 6(iv), 6(v)***			7	NT	NC
12	*Osteobrama cotio*				+(1),80/7 (i)				+(1), 105 / 5(i)					2	LC	LC
13	*Puntius sophore*	+(1), *77 / 3 (v)*	+(2) *78 /14 (i) 14 (ii)*											3	LC	LC
14	*Pethia conchonius*	+(4), *77 / 3 (i)-3 (iv)*	+(2) *,78 / 11 (i), 11 (ii)*		+(35),80/ 8(i) to 8(xxxv)				+(1), *105 / 4 (i)*	+(4) *,114 / 3 (i) to 3 (iv)*		+(4) *,116 /* 2 (i) to 2 (iv)	+(7) *,120 / 5(i) to 5 (vii)*	57	LC	NC
15	*Pethia ticto*			+(3), *79 /* 5 (i) to 5 (iii)										3	LC	C
16	*Labeo pangu*							+(1) *,104*						1	NT	C

	sia							/ **2 (i)**								
17	*Tariqu ilabeo latius*		+(8) ,*78 / 1 (1) to 1(vi ii)*			+(2),*81 / 1 (i), 4 (i)*	+(15),*82* / 1 (i) to 1 (xv)						+(1) ,*120 / 1 (i)*	26	LC	NC
18	*Garra annan dale*									+(3) ,*114 / 6 (i) to 6 (iii)*	+(15), ***115/ 3(i) to 3 (xiv) + 5 (i)***	+(1) ,*116* / 4(i)		19	LC	NC
19	*Garra gotyla*	+(1), *77* / 10 (i)	+(6) ,*78 / 2 (i) to 2 (vi)*	+(1), *79* / 1 (i)							+(3), ***115/1(i) to 1(iii)***			11	LC	NC
20	*Garra lamta*			+(1), 79 / 2 (i)	+(2),80/2 (i),2(ii)									3	LC	LC
21	*Psilor hynch us balito ra*	+(1), *77 / 6 (i)*			+(1),80/1 5(i)								+(1) ,*120 / 1 (ii)*	3	LC	NC
22	*Psilor hynch us sucati o*		+(13),*78 / 8 (I) to 8 (xiii)*		+(1),80/1 7(i)									14	LC	LC

23	*Balitora brucei*				+(1),80/11(i)						+(1), ***115/2(i)***			2	NT	LC
24	*Paracanthocobitis botia*	+(1), *77 / 5 (i)*			+(1),80/14(i)								+(1) ,*120 / 2 (i)*	3	LC	NC
25	*Schistura multifasciata*	+(2), *77 / 4 (i), 4 (ii)*	+(2) ,*78 / 7 (iii), 7 (v)*											4	LC	LC
26	*Schistura paucireticulata*		+(8) ,*78 / 7 (i), 7 (ii), 7 (iv), 7 (vi) to 7 (x)*		+(2),80/16(i),16(ii)					+(1) ,*114 / 7 (i)*				11	NE	NC
27	*Botia dario*								+(1), *105 / 2* (ii)					1	LC	C
28	*Pangio pangia*		+(1) ,*78 / 4 (i)*											1	LC	C
29	*Sperata*	+(1), *77 /*			+(1),80/10(i)	+(2), 81/*2(i),*								4	LC	NC

	seenghala	*13 (i)*				*2(ii)*										
30	*Mystus cavasius*								+(1), *105 / 1 (i)*					1	LC	C
31	*Pseudolaguvia shawi*	+(1), *77 / 11 (i)*												1	LC	C
32	*Glyptothorax telchitta*									+(2) *,114 / 5 (i), 5 (ii)*				2	LC	C
33	***Glyptothorax maceriatus***										+(1),***115/4(i)***			1	NE	C
34	*Xenentodon cancila*	+(1), *77 / 9 (i)*			+(1),80/13(i)									2	LC	LC
35	*Mastaembelus armatus*		+(1) *,78 / 10 (i)*		+(3),80/6 (i) to 6(iii)					+(1) *,114* / 2 (i)			+(3) *,120 / 8 (i) to 8 (iii)*	8	LC	NC
36	*Parambassis ranga*				+(19),80/7(ii) to 7(xi),18(i) to 18 (ix)				+(3), *105 / 3* (i) to 3 (iii)					22	LC	LC

37	*Badis badis*	+(2), *77 / 8 (i), 14 (i)*	+(2) ,*78 / 3 (i), 3 (ii)*	+(3), *79 /* 6 (i), 6 (ii), 6 (iii)	+(45),80/ 18(i) to 18(xxxxv)							+(1) , *120 / 3 (i)*	53	LC	NC
38	*Chann a gachu a*											+(1) , *116 / 3 (i)*		1	LC	C

Table 2: Seasonal incidence of Fish Diversity in River Tuirial in Mizoram (Further

Sl No.	Fish name	Collection date 31 3 2001 (Bag A) & River Coll No. 54, +(No.of Fishes),R	Collection date: 13 12 1999**(Bag B)** & River Coll No. 63,	Collection date: 25 10 2001 (Bag C)& River Coll No. 68(c),	Collection date: 24 4 2001 **(Bag D)** & River Coll No. 72,	Collection date 25 4 2001 **(Bag E)** & River Coll	Total No. of Fish collected	Conservation Status (Global) IUCN Conservation status	Conservation Status (Local) Conservation status (Local) (based on

		iver No/Fish No. =Museum No.	+(No.of Fishes),River No/Fish No. =Museum No.	+(No.of Fishes), River No./Fish No. =Museum No.	+(No.of Fishes), River No/Fish No. =Museum No.	No. 76 (a), +(No.of Fishes), River No./Fish No. =Museum No.		(Global) LC=Least Concern VU= Vulnerable EN= Endangered NT=Near Threatened NE=Not Evaluated DD-Data Deficient	occurrence of Fish species in 1 or >1 locations 1 Location: of Concern(C) 2 Locations:Less Concern(LC) >2Locations:No Concern(NC)
1	*Opsarius barna*			+(6),*68(c)/* 1(i) to 1 (vi)			6	LC	C
2	*Devario aequipinnatus*		+(1),*63/2 (i)*				1	LC	C
3	*Tor tor*		+(1),*63/1 (ii)*				1	DD	C
4	*Neolissochilus*		+(1),*63/1 (i)*				1	NT	C

	exagonolepis								
5	*Puntius sophore*	+(2),*54*/1(i),1(ii)					2	LC	C
6	*Pethia conchonius*		+(1),*63/3(i)*	+(4),*68(c)/* 3(i) to 3(iv)			5	LC	LC
7	*Tariquilabeo latius*				+(3),*72/*1(i) to 1(iii)	+(8),*76(a)/* 1(i) to 1(viii)	11	LC	LC
8	*Garra gotyla*		+(2),*63/4(i),4(ii)*				2	LC	C
9	*Psilorhynchus balitora*			+(2),*68(c)/* 2(i), 2(ii)			2	LC	C
10	***Schistura multifasciata***			+(2),*68(c)/* 4(i), 4(ii)			2	LC	C
11	*Botia rostrata*				+(1),*72/2(i)*		1	VU	C
12	*Sperata seenghala*			+(1),*68(c)/5(i)*			1	LC	C
13	*Badis badis*			+(1),*68(c)/6(i)*			1	LC	C