



Research Article

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Fishes of River Kopili in The Assam Province of Eastern Himalayan Biodiversity Hotspot



Devashish Kar*

Department of Life Science, Assam University, India

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Corresponding author: Devashish Kar, Micro-Centre for Water and Human Studies, Silchar, formerly Assam University, Department of Life Science, Silchar, Assam, PIN-788005, India

Abstract

Fish faunal surveys in the River Kopili at different locations in the Assam province of the Eastern Himalayan Biodiversity hotspot resulted into 36 species belonging into 31 genera, 18 families and 8 orders. The species composition is dominated by the Cypriniformes (20 species) followed by the Siluriformes (8 species), Anabantiformes (3 species), Belontiiformes, Cichliformes, Clupeiformes, Gobiiformes and Synbranchiformes with 1 species each. The present study added 10 new records (*Ailia coila*, *Cirrhinus reba*, *Clarias magur*, *Gagata cenia*, *Glyptothorax telchitta*, *Labeo boga*, *Macrogonathus pancalus*, *Mystus vittatus*, *Pachypterus atherinoides* and *Semiplotus semiplotus*) to the ichthyofauna of Kopili river including 2 threatened (*Clarias magur* and *Semiplotus semiplotus*) and 1 Near threatened (*Ailia coila*) species. The occurrence of threatened species is a concern and requires prior conservation actions.

Keywords: Fish fauna; Biodiversity; Taxonomy; River Kopili; Assam; Eastern Himalayan hotspot

Introduction

Fish constitutes almost 50% of the total number of known vertebrates on the earth. India is known to be one of the megabiodiversity countries in the World. The hills and the undulating valleys of the region give rise to a large number of torrential hill streams, which lead to big rivers that finally become part of the Ganga-Brahmaputra-Barak-Chindwin-Kolodyne-Gomati-Meghna system, identifying North-Eastern region in the Eastern Himalayan stretch as a hotspot of biodiversity [1-9]. This bewildering ichthyodiversity of this region has been attracting many ichthyologists from different regions of the earth.

Assam, situated in the Eastern Himalayan belt, is a hotspot of not only fish diversity but also abiotic diversity harbouring numerous wetlands, rivers and streams spreading across the length and breadth of the region. The aquatic life has been influenced by human interventions. A number of studies have been done on different aspects of fish and their habitats, notably [9-35].

The River Kopili, said to have originated as River Umkhen from the hills in the province of Meghalaya, has a typical rheophilic

characteristics with mainly cascade and riffle as microhabitat and boulders and bedrocks as substratum in the rheophilic upstream stretch; and mostly run, sheet as microhabitat and fines (sand, silt and clay) as substratum in the plain water downstream stretch. The River Kopili is one of the principal incoming tributaries of River Brahmaputra. Few studies have been done on the fishes of River Kopili [30, 36,37]. As such, the present attempt is a humble contribution towards taxonomic diversity of the fishes of River Kopili with an effort to add to the existing database.

Material and Methods

Fish samples were collected by experimental fishing using cast nets (diameter 1.0m -3.7m), gill nets (vertical height 1.0m - 1.5m; length 100m - 150m), drag nets (vertical height 2.0m), triangular scoop nets (vertical height 1.0m) and a variety of traps. Camouflaging technique was also used to catch the fishes. Fishes have been preserved at first in concentrated formaldehyde in the field itself and then in 10% formalin. Fishes have been identified after standard literature [1-4,38-47]. The arrangement of classification, followed here, is that of Greenwood et al. [48] and Jayaram [1-4] and Kar & Khyntiam et al. [9,27,49] (Table 1).

Systematic Account

Phylum: Chordata

Class: Actinopteri

Order: Clupeiformes

Family: Dorosomatidae

Genus: *Gudusia* Fowler, 1911

Gudusia Fowler, 1911. Proc Acad. Nat. Sci, Philad. 63: 207 (Type species: *Clupanodon chapra* Hamilton-Buchanan, by original designation); Whitehead, 1985, FAO Fish Synopsis, (125) 7(1): 228-230; Talwar and Jhingran, 1999, Inland Fishes 1: 95; Menon [45], Rec. Zool. Surv. India, Occ.Paper No. 175: 7; Jayaram [2], FW Fishes of the Indian Region: 41; Vishwanath, 2002, Fishes of North-East India, NATP Pub., 29.

Generic characters: Body compressed and oblong. Abdomen serrated with 18 to 19 pre-pelvic and 8 to 10 post-pelvic scutes. Head short and much compressed. Snout rounded. Mouth terminal. Cleft of mouth not extending upto orbit. Eyes large, lateral. With a broad adipose eyelid. Dorsal fin inserted above pelvic fin origin with 14 to 17 rays. Anal fin with 18 to 29 rays. Caudal fin forked. Scales small. Lateral line absent.

Material examined: Assam, River Kopili, Kalighat, 7.12.2007; 2 Exs; Museum No.:8/6(i).8/6(ii); Kheroni, 14.12.2007; 1 Ex; Museum No.: 10/8(I). Collector: Professor D. Kar and Party.

Key to species: Anal fin with 18 to 22 rays. Body with round spots and absence of any cross bars on sides.

Gudusia chapra (Hamilton 1822)

Distribution: Almost throughout India, Bangladesh, Indonesia, Myanmar, Nepal, Pakistan.

IUCN status: Least Concern (LC).

Order: Cypriniformes

Family: Danionidae

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 moderately 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. Lateral line complete with usually 39 to 112 scales.

Material examined: Assam, River Kopili, Kheroni, 14.12.2007, 1 Ex., (Museum No.: 10/10(i). Collector: Professor D. Kar and Party. Key to species: Presence of 4-6 scales between lateral line and pelvic fin base.

Salmostoma bacaila (Hamilton, 1822)

Distribution: Almost throughout India, Bangladesh, Myanmar, Nepal, Pakistan.

IUCN status: Least Concern (LC).

Genus: *Danio* Hamilton 1822. *Danio* Hamilton 1822, Fishes of the Ganges, pp. 321, 390 (Type species: *Cyprinus (Danio) dangila* Hamilton, by subsequent designation); Hora and Mukerji, 1933, Rec.Indian Mus., 39 (1), pp. 130-133; Talwar and Jhingran, 1999, Inland Fishes.I: 362; Jayaram, 1999, FW Fishes of the Indian Region: 78; Menon, 1999, Rec. Zool. Surv.India Occ. Paper No.175: 38; Vishwanath, 2002, Fishes of North East India, NATP Pub.: 45; Nath and Dey, 2000, Fish and Fisheries of NE India: 19 (Arunachal Pradesh).

Generic characters: Body elongate, compressed, sub-cylindrical. Abdomen rounded. Head moderate, blunt. Mouth anterior; cleft of mouth shallow and not protractile; directed obliquely upwards. Eyes large, centrally placed. Presence of one or two pairs of barbells which may also be rudimentary; or, barbels may be absent. Dorsal fin inserted opposite interspace between anal and pelvic fins; nearer to caudal fin base than to tip of snout with 10 to 19 rays. Anal fin with 9 to 14 rays. Caudal fin emarginated or forked. Lateral line concave with 32 to 42 scales. 'A stripe' on the anal fin rays. Two or more pigmented stripes on the caudal fin rays.

Material examined: Assam, River Kopili, Kalighat; 7.12.2007; 2 Exs; Museum No.:7/11(i) and 7/11(ii). Collector: Professor D. Kar and Party. Key to species: Barbels well developed; longest in the species.

Danio dangila (Hamilton, 1822)

Distribution: Throughout India, Bangladesh, Myanmar, Nepal.

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: Assam, River Kopili, Panimur; 4.12. 2016; 1 Ex; (Museum No.: 6/5(i). Collector: Professor D. Kar and Party. Key to species: A lateral band along the sides of the body with thinner golden bands above and below it.

***Devario aequipinnatus* (McClelland, 1839)**

Distribution: Throughout India, Bangladesh, Myanmar, Tenasserim provinces, Nepal, Sri Lanka, and Thailand.

IUCN Status: Least Concern (LC).

Genus: *Amblypharyngodon* Bleeker, 1860. *Amblypharyngodon* Bleeker, 1860. *Natuurkundig Tijdschrift voor Nederlandsch Indië* v. 20 (no. 3): 433 (Type species: *Cyprinus mola* Hamilton 1822 by being a replacement name).

Generic characters: Body moderately long, sub-cylindrical. Abdomen round. Head much compressed. Snout obtusely rounded. Mouth wide, antero-lateral and not protractile. Eyes centrally-placed and large; they are not visible from below ventral surface. Upper lip absent. Lower lip with a short labial fold. Lower jaw prominent with a thin sharp edge and a symphyseal knob which fits into the upper jaw. Barbells absent. Dorsal fin inserted little behind insertion of pelvic fins. Anal fin short. Caudal fin forked. Scales minute.

Material examined: Assam, River Kopili, Kalighat; 7.12. 2007; 2 Exs; Museum No.: 8/7(i) and 8/8(I); Kheroni; 14.12. 2007; 1 Ex, Museum No.: 10/5(i); Panimur, 20. 3. 2018; 1 Ex, Museum No.: 12/1(i). Collector: Professor D. Kar and Party.

Key to species: Lateral line incomplete with 65-91 scales. A silvery lateral band with dark markings on dorsal, anal and caudal fins present.

***Amblypharyngodon mola* (Hamilton, 1822)**

Distribution: Throughout India, Afghanistan, Bangladesh, Myanmar, Nepal, Pakistan, Sri Lanka, etc.

IUCN status: Least Concern (LC).

Genus: *Cabdio* Hamilton, 1822. *Cabdio* Hamilton, 1822, An account of fishes found in the river Ganges: 333, 392 (Type species: *Cyprinus* (*Cabdio*) *jaya* Hamilton, 1822 by subsequent designation).

Generic characters: Body elongate. Abdomen rounded. Head moderately rounded anteriorly. Snout obtuse. Mouth small, inferior. Eyes lateral. Lips thin. Lower jaw without any lip and with a sharp crescent bony edge. Barbells absent. Dorsal fin inserted behind pelvic fins. Caudal fin forked. Lateral line much decurved. Scales of moderate size; eye, 17.2 to 25.3 % HL.

Material examined: Assam, River Kopili, Panimur; 11.9.2007; 1 Ex; Museum No.: 11/4(i). Collector: Professor Devashish Kar and party.

Key to species: Lateral line scales 38 to 42. Anal fin with 10 to 12 rays. 2.5 to 3 rows of scales between lateral line and pelvic fin base.

***Cabdio morar* (Hamilton, 1822)**

1.1.1. Distribution: Throughout Northern India, including river Barak in North-East India; Bangladesh, Nepal, Pakistan, 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: Assam, River Kopili, Panimur; 11. 9.2007; 1 Ex, Museum No. 11/10(i). Collector: Professor D. Kar and Party.

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

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

Distribution: Throughout North East India, Bihar, Delhi, Jammu and Kashmir, Madhya Pradesh, Mysore, Orissa, Rajasthan, Uttar Pradesh, West Bengal. Bangladesh, Myanmar, Nepal and Pakistan.

IUCN Status: Least Concern (LC).

Genus: *Opsarius* McClelland, 1838. *Opsarius* McClelland, 1838, *J. Asiat. Soc. Bengal*, 7: 944 (Type species: *Opsarius maculatus* McClelland, 1839, by subsequent designation).

Diagnostic characters: Body moderately elongate, compressed. Abdomen rounded. Head sharply pointed; may be with “peral organs” and tubercles. Mouth anterior or obliquely directed upwards. Eyes large, superior, in the anterior half of the head, not visible from below ventral surface. Upper jaw longer than lower. Characteristic muscular pads present in front of the bases of the pectoral fins. Dorsal fin inserted opposite to inter-space between pelvic and anal fins, nearer to caudal fin base than to tip of snout. Caudal fin forked. Scales moderate. Lateral line concave, body usually covered with vertical bands.

Material examined: Assam, River Kopili, Panimur; 4.12. 2016; 1 Ex.; Museum No.: 6/1(i). Collector: Professor D. Kar and Party.

Key to species: Coloured bands usually present on the upper part of lateral line and generally do not extend below the lateral line. No barbel.

***Opsarius barna* McClelland, 1839**

Distribution: Throughout North East India, Bihar, Delhi, Jammu and Kashmir, Madhya Pradesh, Mysore, Orissa, Rajasthan, Uttar Pradesh, West Bengal. Bangladesh, Myanmar and Nepal.

IUCN Status: Least Concern (LC).

Material examined: Assam, River Kopili, Panimur; 11. 9. 2007; 1 Ex.; Museum No. 11/9(i). Collector: Professor D. Kar and Party.

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

***Opsarius bendelisis* McClelland, 1839**

Distribution: Throughout India, Bangladesh, Bhutan, Myanmar, Nepal, Pakistan, Sri Lanka, and Thailand.

IUCN Status: Least Concern (LC).

Order: Cypriniformes

Family: Cyprinidae

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 (Arunachal 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: Assam, River Kopili: Panimur; 20.3. 2018; 1 Ex.; Museum No.: 12/1(i). Collector: Professor. D. Kar and Party.

Key to species: Body marked with two conspicuous dark

blotches.

***Puntius chola* (Hamilton, 1822)**

Distribution: Throughout India, Bangladesh, Myanmar, Nepal, Pakistan, Sri Lanka.

IUCN status: Least Concern (LC).

Material examined: Assam, River Kopili: Panimur; 4.12. 2016; 1 Ex.; Museum No.: 6/2(i); 20.3. 2018; 1 Ex.; Museum No.: 12/1(i); Kalighat; 7.12. 2007; 1 Ex.; Museum No.: 8/10(i); Kheroni, 14.12. 2007; 1 Ex.; Museum No.: 10/4(i). Collector: 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.

***Puntius sophore* (Hamilton, 1822)**

Distribution: Throughout India, Bangladesh, Myanmar, Nepal, Pakistan, Sri Lanka.

IUCN status: Least Concern (LC).

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

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, dorsolateral; 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.

Material examined: Assam, River Kopili, Panimur; 11.9.2007; 1 Ex.; Museum No. 11/7(i). Collector: Professor, D. Kar and Party.

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

***Pethia conchoni* (Hamilton, 1822)**

Distribution: Throughout North east India, Bihar, Uttar Pradesh, Punjab, Maharashtra, Orissa, Eastern, and western Himalaya, Deccan, Afghanistan, Bangladesh, Myanmar, Nepal, Pakistan, and Sri Lanka.

IUCN Status: Least Concern (LC).

Genus: *Semiplotus* Bleeker, 1860. *Semiplotus* Bleeker, 1860, Nat. Tijdschr. Ned. Indel., 20 (3): 424 (Type species. *Cyprinus semiplotus* McClelland, by subsequent monotypy).

Generic characters: Body short, deep and compressed.

Abdomen rounded. Snout thick and overhanging the mouth. Mouth inferior and wide. Eyes large; situated in the middle of head. Lower jaw with a knob at the symphysis. No barbels. Dorsal fin inserted above posterior third of pectoral fins. Anal fin short with 5-7 branched rays. Caudal fin forked. Lateral line complete with 27 to 34 scales.

Material examined: Assam, River Kopili, Kalighat; 7.12.2007; 1 Ex; Museum No. 7/7(i). Collector: Professor. D. Kar and Party: First report.

Key to species: Dorsal spine smooth. Lateral line scales 27. Anal fin short with 7 rays.

***Semiplotus semiplotus* (McClelland, 1839)**

Distribution: India (Assam, Arunachal Pradesh, Meghalaya, Tripura, North Bengal), Bhutan, Myanmar, Nepal, Pakistan, Sri Lanka.

IUCN Status: Vulnerable (VU)

Genus: Cirrhinus Oken, 1817. Cirrhinus Oken, 1817, Isis orderEncyclopadischeZeituny, 8: 1183 (type species, Cyprinus cirrhusus Bleeker, by monotypy).-Banarescu, 1983, Rev.Roum. Biol. (Zool).28 (1): 13-17 (revision)

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

Materials examined: Assam, River Kopili, Kheroni; 14.12.2007; 1 Ex; Museum No.: 10/1(i); Panimur; 20.3.2018; 1 Ex; Museum No.: 12/1(i); Kalighat; 7.12. 2007; 1 Ex; Museum No.: 8/3(i). Collector: Professor D. Kar and Party: First report.

Key to species: Lateral line scales 34 to 38. Dorsal fin less than body height (body depth).

***Cirrhinus reba* (Hamilton, 1822)**

Distribution: Throughout India, Bangladesh, Myanmar, Nepal, Pakistan.

IUCN Status: Least Concern (LC).

Genus: Labeo Cuvier, 1816. Labeo Cuvier, 1816, Regne Animale, 2 (ed.1): 194 (Type species, Cyprinus niloticus Forskal, by subsequent designation); Jayaram and Dhas,1998, Occ.Papers Zool. Surv.India, No. 183: 1-143; Talwar and Jhingran, 1991, Inland Fishes I: 193; Jayaram, 1999, FW Fishes of the Indian Region: 132; Menon, 1999, Rec.Zool. Surv. India Occ. Paper No., 175: 125; Nath and Dey, 2000, Fish and Fisheries of NE India (Arunachal Pradesh): 45.

Generic characters: Body of moderate size; sometimes, could be much big in size; elongated, abdomen rounded. Head quite large. Snout more or less swollen, rounded or truncated; often projecting beyond mouth; covered by a groove across and with or without tubercles; generally overhanging the mouth. Mouth usually semilunar and inferior. Eyes moderately large, generally placed at the commencement of the posterior half of the head. Lips thick, fleshy and fringed; continuous at the angle of the mouth forming a labial fold. Post-labial groove may be continuous or discontinuous. Barbels may be present or absent. Dorsal fin inserted above anterior to origin of pelvic fins with 11 to 26 rays. Anal fin short with 7 or 8 rays. Caudal fin deeply forked or emarginated. Lateral line complete.

Materials examined: Assam, River Kopili; Kalighat; 7.12.2007; 1 Ex; Museum No.: 7/1(i); Panimur; 11. 9. 2007; 1 Ex; Museum No. 11/1(i). Collector: Professor D. Kar and Party.

Key to species: Presence of generally 6 to 6.5 scales between lateral line and pelvic fin base; eye, 17.2 to 25.3 % HL.

***Labeo rohita* (Hamilton, 1822)**

Distribution: Introduced widely in Asia.

IUCN Status: Least Concern (LC).

Materials examined: Assam, River Kopili, Kalighat; 7.12.2007; 1 Ex; Museum No.: 7/10(i); Panimur; 11. 9. 2007; 1 Ex; Museum No. 11/2(i). Collector: Professor D. Kar and Party.

Key to species: Barbels two very short pairs, rostral and maxillary. Dorsal fin with 16-18 branched rays. Lateral line with 65 - 84 scales. Lips thick and fringed.

***Labeo gonius* (Hamilton, 1822)**

Distribution: North and Northeast India, Afghanistan, Bangladesh, Myanmar, Nepal, Pakistan.

IUCN Status: Least Concern (LC).

Materials examined: Assam, River Kopili; Kalighat; 7.12.2007; 2 Ex; Museum No.: 8/1(i) and 8/2(i). Collector: Professor D. Kar and Party. First Report.

Key to species: Snout moderately projecting beyond jaw. Inner surface of lower jaw with thin cartilaginous covering.

***Labeo boga* (Hamilton, 1822)**

Distribution: Almost throughout India, Bangladesh, Myanmar, Nepal, Pakistan.

IUCN Status: Least Concern (LC)

Materials examined: Assam, River Kopili, Kheroni; 11. 9.2007; 1 Ex; Museum No.: 9/1(i). Collector: Professor D. Kar and Party: First report. Key to species: Dorsal fin long, inserted above tip of pectoral fins with 18 to 19 rays and without any spine.

***Labeo catla* (Hamilton, 1822)**

Distribution: Throughout India, Bangladesh, Myanmar, Nepal, Pakistan.

IUCN Status: Least concern (LC)

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

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

Material examined: Assam, River Kopili, Panimur; 4.12.2016; 1 Ex; Museum No.: 6/3(i). Collector: Professor. D. Kar and Party. First report.

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.

***Garra annandalei* Hora, 1921**

Distribution: Darjeeling Himalayas, Bengal, Bihar, Arunachal Pradesh, Manipur, Assam, Bangladesh, Bhutan, Nepal.

IUCN status: Least Concern (LC)

Order: Cypriniformes

Family: Botiidae

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: Assam, River Kopili, Panimur; 11.9.2007; 6 Exs; Museum No.:11/3(i), 11/3(ii), 11/3(iii), 11/3(iv),

11/3(v), 11/3(vi). Collector: Professor. D. Kar and Party.

Key to species: Eye diameter 33.3 % snout length.

***Botia dario* (Hamilton, 1822)**

Distribution: India (Bihar, Assam, Meghalaya, North Bengal, Punjab, Uttar Pradesh), Bangladesh, Bhutan, Nepal.

IUCN status: Least Concern (LC).

Order: Cypriniformes

Family: Cobitidae

Genus: Lepidocephalichthys Bleeker, 1858. Lepidocephalichthys, Bleeker, 1858, NaTijdschr. Ned. Indet. 16:3: 303 (Type species, Cobitis macrochir Bleeker; Tilak and Hussain, 1981, rec Zool. Surv. India Occ Paper No. 32: 3-28 (revision); Menon, Fauna India, 4(2), p.52 (revision); Talwar and Jhingran, 1999, Inland Fishes, 1: 520; Jayaram, 1999, FW Fishes of the Indian Region: 216; Menon, 1999, Rec Zool. Surv. India Occ Paper No. 175: 159.

Generic characters: Body elongate; caudal peduncle laterally compressed. Abdomen rounded. Head short, conical. Snout blunt. Mouth inferior, narrow, slightly arched. Eyes small. Lower lip interrupted in the middle. Barbels six; one pair each rostral, mandibular and maxillary. Presence of a large erectile bifid sub-orbital spine below or in front of eyes. Origin of dorsal fin variable with 8 or 9 rays. Anal fin short with 7 to 8 rays. Caudal fin truncate or slightly emarginated. Scales small. Lateral line absent.

Material examined: Assam, River Kopili, Panimur; 4.12.2016; 1 Ex; Museum No.: 6/4(i); Kheroni; 14.12.2007; 1 Ex; Museum No.: 10/3(i). Collector: Professor. D. Kar and Party.

Key to species: Depth of body <16.7 % SL. Presence of a dark lateral band or dark grey spots on the body.

***Lepidocephalichthys guntea* (Hamilton, 1822)**

Distribution: Throughout India, Bangladesh, Myanmar, Nepal, Pakistan.

IUCN status: Least Concern (LC)

Order: Siluriformes

Family: Bagridae

Genus: Mystus Scopoli, 1777. 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: Assam, River Kopili, Kalighat; 7.12.2007; 2 Exs; Museum No.: 7/5(I) and 8/9(i); Kheroni; 14.12. 2007; 1 Ex; Museum No.: 10/6(i). Collector: Professor. D. Kar and Party. First report.

Key to species: Body with two parallel stripes on each side of lateral line and a dark humeral spot.

***Mystus vittatus* (Bloch, 1794)**

Distribution: Throughout India, Bangladesh, Bhutan, Myanmar, Nepal, Sri Lanka.

IUCN status: Least Concern (LC)

Order: Siluriformes

Family: Siluridae

Genus: Wallago Bleeker, 1851. Wallago Bleeker, 1851, Nat. Tijdschr.Nedeerl. Inde, 2:265 (Type species, Silurus mulleri Bleeker= Silurus attu Bloch and Schneider by subsequent designation); Roberts, 1982, Copeia (4): 890-894; Jayaram, 2006, Catfishes of India: 112; Ferraris, 2007, Zootaxa, 1418: 380 (check list), Wallagonia Myers, 1918, Copeia (1): 98 (Type species: Wallago leerii Bleeker)

Generic characters: Body elongated, compressed. Abdomen rounded. Head large, depressed. Snout spatulate, somewhat protruded. Mouth sub-terminal, oblique, gape wide, reaching to or beyond anterior border of eyes. Eyes small. Lips thin. Presence of 2 pairs of barbels; one pair each of maxillary and mandibular. Rayed dorsal fin inserted above half of pectoral fin, with 5 rays and without a spine. Adipose dorsal fin absent. Pectoral fins with 13 to 15 rays and a feeble smooth spine. Pelvic fins with 8 to 10 rays. Anal fin long with 72 to 96 rays free from caudal fin. Caudal fin deeply forked with rounded lobes. Ll complete.

Material examined: Assam, River Kopili, Kheroni; 11. 9. 2007; 1 Ex; Museum No.: 9/2(i). Collector: Professor. D. Kar and Party.

Key to species: Mouth sub-terminal, oblique, gape wide, reaching to or beyond anterior border of eyes. Anal fin long with 72 to 96 rays free from caudal fin.

***Wallago attu* (Bloch & Schneider, 1801)**

Distribution: India (Northeast, Western Ghat), Bangladesh,

China, Myanmar, Nepal, Pakistan, Sri Lanka, Thailand, East Indies, Indonesia.

IUCN status: Vulnerable (VU)

Order: Siluriformes

Family: Ailiidae

Genus: Ailia Gray, 1830. Ailia Gray, 1830, Zool Miscellany, Pl. 85 (Type species: malapterus (sic) (Ailia) bengalensis Gray= Malapterus coila Hamilton-Buchanan, by monotypy); Hora, 1941, Rec. Indian Mus., 43: 110-112; Jayaram, 2006, Catfishes of India: 117; Ferraris, 2007, Zootaxa, 1418: 356 (Ailichthys).

Generic characters: Body short compressed. Abdomen rounded. Head short, greatly compressed. Mouth moderately wide. Eyes small lateral. Presence of 4 pairs of barbels: one pair each maxillary and nasal; and two pairs mandibular; all these barbels are usually longer than head. Rayed dorsal fin absent. Adipose dorsal fin small, short and posteriorly free. Pectoral fins with 13 to 16 rays and a spine. Pelvic fins with six rays; may sometimes be vestigial or absent. Caudal fin forked.

Material examined: Assam, River Kopili, Panimur; 11.9.2007; 1 Ex.; Museum No.11/6(i). Collector: Professor D Kar and Party. First report.

Key to species: Pelvic fins absent. Rayed dorsal fin also absent. Anal fin long with 48 to 90 rays.

***Ailia coila* (Hamilton, 1822)**

Distribution: India (Known from Krishna, Yamuna, Ganga, Brahmaputra, Mahanadi and rivers of North India, Darjeeling, Assam, Orrisa, Madhya Pradesh), Bangladesh, Nepal, Pakistan.

IUCN Status: Near threatened (NT).

Genus: Clupisoma Swainson, 1838, Clupisoma Swainson, 1838, Nat. Hist. Animal. Fish., 2: 347, 351, 354 (Type species, Pimelodus argentea Swainson = Silurus garua Hamilton, by monotypy); Hora, 1937, J.Bombay nat. Hist., Soc., 39(4): 659-678; Jayaram, 2006, Catfishes of India: 121; Ferraris, 2007, Zootaxa 1458: 357.

Generic characters: Body elongate, compressed with the portion between pelvic fins and vent keeled. Head of moderate size. Snout rounded. Cleft of mouth does not reach front edge of eyes. Presence of 4 pairs of barbels: one pair each of maxillary, nasal; and, two pairs of mandibular. Rayed dorsal fin inserted above near base of pectoral fins with 6-9 rays and a spine. Pelvic fin with 6 rays. Anal fin moderately long with 29 to 54 rays. Caudal fin deeply forked.

Material examined: Assam, River Kopili, Kalighat; 7.12.2007; 1 Ex.; Museum No.: 7/8(i). Collector: Professor. D. Kar and Party.

Key to species: Maxillary barbels generally extend beyond pectoral fins or just reach pelvic fins. Anal fin with 29-36 fin rays.

***Clupisoma garua* (Hamilton, 1822)**

Distribution: Throughout North India, Bangladesh, Myanmar, Nepal, Pakistan.

IUCN status: Least Concern (LC)

Order: Siluriformes

Family: Horabagridae

Genus: Pachypterus Swainson, 1838. Pachypterus Swainson, 1838, The Natural History and Classification of fishes, amphibians and reptiles, or monocardian animals, 1: 346 (Type by subsequent designation: Masc. Silurus atherinoides Bloch, 1794).

Generic characters: Barbels four pairs. Part of abdomen more or less keeled. Eyes large and ventro lateral. Dorsal fin with 5-6 rays and a spine. Adipose fin short.

Material examined: Assam, River Kopili, Kheroni; 14.12.2007; 1 Ex; Museum No.: 10/9(i); Lakhipur, 2001, 1 ex., Museum No.13,19(i). Collector: Professor. D. Kar and Party: First report.

Key to species: Mouth terminal, its cleft does not extend to anterior border of orbit. A pale golden stripe along lateral line ending in a dusky spot at base of caudal fin.

***Pachypterus atherinoides* (Bloch, 1794)**

Distribution: Throughout India (except Kerala), Bangladesh, Myanmar, Nepal, Pakistan.

IUCN status: Least Concern (LC)

Order: Siluriformes

Family: Sisoridae

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

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

Material examined: Assam, River Kopili, Panimur; 11.9.2007; 1 Ex.; Museum No. 11/8(i). Collector: Professor D. Kar and Party: First report.

Key to species: Tip of snout acutely pointed in lateral profile with a distinct notch anteriorly. Maxillary barbels shorter than head length.

***Gagata cenia* (Hamilton, 1822):**

Distribution: India (Ganga-Brahmaputra, Indus and Mahanadi river systems), Bangladesh, Bhutan, Nepal, Pakistan.

IUCN status: Least Concern (LC)

Genus: Glyptothorax Blyth 1860. Glyptothorax Blyth 1860, J. Asiatic Soc. Bengal 29: 154 (Type species, G. trilineatus Blyth; Hora, 1923, Rec. Indian Mus. 25: 8 (revision); Prashad and Mukherji, 1929, rec. Indian Mus., 31: 164, 183, 185 (Buermse 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-Pacific Fish Biology: 521-528: Vishwanath, 2000, Fish Fauna of Manipur: 103; Nath and Dey, 2000, Fish and Fisheries of North-East India: 111 (6 species); Visahwanath, 2002, NATP Publication p: 151 (6 species); Jayaram, 2006, atfishes of India: 256; Thompson and Page, 2006: Zootaxa 1345: 40 (Checklist); Ferraris, 2007, Zootaxa, 1418: 387 (Checklist). Aglyptosternon Bleeker, 1863, Nat.Tijdschr. Dierk. 1: 103 (Type species: Silurus cous Linnaeus). Euglyptosternum Guenther, 1864, Cat. Fish. Brit. Mus. 5: 183, 1864 (Type species Silurus cous Linnaeus).

Generic characters: Small to moderately sized sisorid fishes with the dorsal profile not much arched. Head small; depressed, covered with thick skin; Mouth inferior, transverse, narrow and conical but not pointed; jaws sub-equal, upper jaw longer. Lips thick, fleshy, papillated. Eyes dorsal, small. Venetral surface of thorax provided with an adhesive organ consisting of unculiferous laminae arranged on a whorl and confined to the abdomen immediately behind isthmus and between pectoral fins. This adhesive organ may be of varying lengths and may be with or without a pit or depression. Presence of 4 pairs of barbels; one pair each of maxillary, nasal and 2 of mandibular. Maxillary barbel with broad bases. Mandibular pair inserted at different levels. Rayed dorsal fin inserted anteriorly above half of pectoral fins with 5 to 7 rays and a spine. Adipose dorsal fin short, posteriorly free. Pectoral fins inserted laterally with 6 to 11 rays and a spine. Adipose dorsal fin short, posteriorly free. Pectoral fins inserted laterally with 6 to 11 rays and a flat strong spine serrated with antrose teeth along its inner edge. Pelvic fins with 6 rays. Anal fin short with 7 to 14 rays. Paired fins may or may not be plaited below. Caudal fin deeply forked. Lateral line simple, complete.

Material examined: Assam, River Kopili, Panimur; 11.9.2007; 1 Ex; Museum No. 11/5(i). Collector: Professor. D. Kar and Party: First report.

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. Caudal peduncle height 26.3-33.3 % in its length.

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

Distribution: Ganga-Brahmaputra and Barak-Surma-Meghna River basins in India, Bangladesh, Nepal.

IUCN status: Least Concern (LC)

Order: Siluriformes

Family: Clariidae

Genus: *Clarias* Scopoli, 1777. *Clarias* Scopoli, 1777, Intro. ad hist. Natur., p. 445 (type species, *Silurus anguillaris* Linnaeus, by subsequent designation by Teugels & Roberts, 1987); Hora, 1936, Rec. Indian Mus., 38, pp. 347-351; Silas, 1952, Proc. Nat. Inst. Sci. India, 18, p. 434; Jayaram, 1980, Occ. Papers ZSI, 23, p. 3.

Generic characters: Body elongated, compressed. Abdomen rounded. Head compressed; snout broadly rounded. Mouth terminal and wide. Eyes small and dorsolaterally placed. Lips fleshy, papillated. Upper jaw longer. Barbels four pairs. Rayed dorsal fin long and without spine. Adipose fin absent. Pectoral fins with strong serrated spine. Anal fin long. Caudal fin rounded. Lateral line complete.

Material examined: Assam, River Kopili, Kalighat; 7.12.2007; 1 Ex; Museum No. 7/6(i). Collector: Professor. D. Kar and Party: First report.

Key to species: Snout broadly rounded. Pectoral spine strongly serrated.

***Clarias magur* (Hamilton, 1822)**

Distribution: Throughout India, Bangladesh, Nepal.

IUCN status: Endangered (EN)

Order: Beloniformes

Family: Belontiidae

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: Assam, River Kopili, Kalighat; 7.12.2007; 3 Exs; Museum No.:8/5(i).8/5(ii) and 8/5(iii); Kheroni, 14.12.2007; 1 Ex; Museum No.:10/11(i); Panimur; 20.3.2018; 1 Ex; Museum No.:12/2(i). Collector: Professor. D. Kar and Party.

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

***Xenentodon cancila* (Hamilton, 1822)**

Distribution: Throughout India, Bangladesh, Bhutan, Myanmar, Malaysia, Thailand, Pakistan, Sri Lanka.

IUCN status: Least Concern (LC)

Order: Synbranchiformes

Family: Mastacembelidae

Genus: *Macrogathus* Lacepede, 1800. *Macrogathus* Lacepede, 1800, Hist. Nat. Poiss., 2: 283 (Type species: *Ophidium aculeatum* Bloch by subsequent designation); Sufi, 1953, Bull. Raffles Mus., No. 27: 99-105; Roberts, 1980, Copeia, No. 3: 385-391; Travers, 1984, Bull. Brit. Mus.Nat. Hist. (Zool.). 47 (2): 141-145; Roberts, 1986, jap. J. Ichthyol., 33 (2): 97-103; Rhynchodella Bloch and Schneider, 1801, Syst. Ichth. 478

Generic characters: Body deep, eel-like, long, compressed. Head long pointed. Snout long fleshy, accommodating a concave prolongation of the upper jaw consisting of a paired series of tooth plates. Mouth inferior. Cleft narrow. Eyes, small, superior, in middle of head. Dorsal fin inserted far behind end of pectoral fins with 13 to 32 detached, depressible spines and 42 to 58 rays. Anal fin with 3 spines and 42 to 58 rays. Caudal fin rounded; and, distinctly separated from dorsal and anal fins. Pelvic fins absent.

Material examined: Assam, River Kopili, Kalighat; 7.12.2007; 3 Exs; Museum No.:7/9(i).7/9(ii) and 7/9(iii). Collector: Professor. D. Kar and Party. First report.

Key to species: Dorsal fin with 24 to 26 spines and 30 to 42 soft rays. Anal with three spines. Caudal fin distinctly separated from dorsal and anal fins.

***Macrogathus pancalus* Hamilton, 1822**

Distribution: Throughout India, Bangladesh, Pakistan, Nepal.

IUCN status: Least Concern (LC)

Order: Cichliformes

Family: Ambassidae

Genus: *Chanda* Hamilton, 1822. *Chanda* Hamilton, 1822, An account of the fishes found in the river Ganges: 103, 370 (type species: *Chanda nama* Hamilton 1822 by designation of ICZN)

Generic characters: Body ovate, deep compressed. Abdomen rounded. Head short, compressed with sharp snout. Mouth wide,

protractile; extended up to border of orbit or slightly beyond. Eyes large, superior. Pre-orbital edge with four serrae. Lower jaw strongly projecting. Lower limb of pre-opercle with a double-serrated edge. Opercula without a prominent spine. Two dorsal fins; 1st with seven spines and 2nd with 15-17 rays; the two dorsal fins continuous. A forwardly directed recumbent spine present in the dorsal fin. Anal fin with three spines and 17 rays. Caudal fin forked. Body with cycloid scales. Lateral line complete with 125 scales.

Material examined: Assam, River Kopili, Kheroni; 14.12.2007; 1 Ex; Museum No.: 10/7(i). Collector: Professor D. Kar and Party.

Key to species: Lower jaw strongly projecting. Presence of three prominent canine teeth on either side of lower jaw.

***Chanda nama* Hamilton, 1822**

Distribution: Almost throughout India, Bangladesh, Myanmar, Nepal, Pakistan.

IUCN Status: Least Concern (LC).

Order: Gobiiforme

Family: Gobiidae

Genus: *Glossogobius* Gill, 1859. *Glossogobius* Gill, 1859, Proc. Acad. nat. Sci. Philad., 46 (Type species, *Gobius platycephalus* Richardson, by monotypy); Akihito, In: Masuda et.al., 1984, Fish. Jap. Archipel: 274; Rema Devi, 1992, Rec.zool. Surv. India, 90 (1-4): 174 (Ennore estuary)

Generic Characters: Body elongate, anteriorly cylindrical, compressed. Abdomen rounded. Head depressed, little pointed. Snout obtusely rounded or pointed. Mouth a little oblique. Cleft not extending to eyes. Eyes large, superior, almost in middle of head. Gill openings continued far below the eyes. Presence of 2 dorsal fins, separated by a short interspace; first dorsal inserted above half or three-fourth of pectoral fins with six rays. Second dorsal fin with 6 to 10 rays. Pelvic fins united, oblong. Anal fin with 8 or 9 rays. Caudal fin oblong to rounded. Scales ctenoid on body; cycloid on head.

Material examined: Assam, River Kopili, Kheroni; 14.12.2007; 2 Exs; Museum No.: 10/12(i) and 10/12(ii); Panimur; 20.3.2018; 1 Ex; Museum No.: 12/ 6(i). Collector: Professor. D. Kar and Party.

Key to species: First dorsal fin with one black spot or without it. Gill membranes connected to isthmus.

***Glossogobius giuris* (Hamilton, 1822)**

Distribution: Throughout India, common in coastal and estuarine waters from Africa, Madagascar and south of china.

IUCN Status: Least Concern (LC)

Order: Anabantiformes

Family: Nandidae

Genus: *Nandus*, Valenciennes, 1831. *Nandus*, Valenciennes, 1831, In: Cuvier and Valenciennes, Hist. Nat. Poiss., 7: 481 (Type species, *Nandus marmoratus* Cuvier = *Coius nandus* Hamilton-Buchanan, by absolute tautonymy; Liem, 1970, Fieldiana (zool.), 56: 1-166.

Generic Characters: Body oblong, compressed. Abdomen rounded. Head large, compressed. Snout pointed, conical. Mouth terminal, very protractile; its cleft very wide extending to below posterior border of eyes or slightly beyond. Eyes large and situated in the anterior part of the head. Opercle with one spine. Dorsal fin inserted above pectoral fin base with 12 to 14 spines and 11 to 13 rays; spinous portion longer than soft portion. Anal fin with 3 spines and 7-9 rays. Caudal fin rounded. Lateral line scales 46 to 57.

Material examined: Assam, River Kopili, Panimur; 20.3.2018; 1 Ex., Museum No.: 12/3(i); Collector: Professor D. Kar and Party.

Key to species: Scales smaller on nape than on body.

***Nandus nandus* (Hamilton, 1822)**

Distribution: Throughout India, Bangladesh, Bhutan, Malaysia, Myanmar, Nepal, Pakistan, Thailand.

IUCN status: Least Concern (LC)

Order: Anabantiformes

Family: Channidae

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: Assam, River Kopili, Kalighat; 7.12.2007; 1 Ex; Museum No.: 8/11(i). Collector: Professor D. Kar and Party.

Key to species: Dorsal fin with 28-33 rays. A number of dark

blotches on flanks; some with many black spots on body and also on dorsal and caudal fins. Ventral side of body usually white or pale yellow.

Channa punctata (Bloch, 1793)

Distribution: Throughout India, Bangladesh. China, Malaysia, Myanmar, Nepal, Pakistan, Sri Lanka, Thailand.

IUCN Status: Least Concern (LC)

Order: Anabantiformes

Family: Osphronemidae

Genus: Trichogaster Bloch and Schneider, 1801. Trichogaster Bloch and Schneider, 1801, Syst.Ichth., p.164 (Type species, Trichogaster fasciatus; Trichopodus Lacepede, 1801, Hist. Nat. Poiss., 3, p. 125 (Type species: Labrus trichopterus Pallas, by subsequent designation; Colisa Cuvier, 1831.IN: Cuvier and Valenciennes, Hist. Nat.Poiss.,7: 359 (Type species,Colisa vulgaris Cuvier=Trichopodus colisa Hamilton-Buchanan (by absolute tautonymy).

Generic characters: Body elevated, compressed. Head moderate, compressed. Snout blunt. Mouth upturned, terminal, cleft small. Eyes large, lateral, in middle of head, not visible from below ventral surface of head. Jaws a little protractile. Ventral border of pre-opercle usually serrated. Number of spines in dorsal and anal fins variable. Pelvic fins in the form of single long filiform ray, and a rudimentary adnate spine. Caudal fin slightly emarginated or truncate. Lateral Line (Ll) may be interrupted with 6-29 scales.

Material examined: Assam, River Kopili, Panimur; 20.3.2018; 1 Ex; Museum No.: 12/1(i). Collector: Professor D. Kar and Party.

Key to species: Bands on body 14 or more. Caudal fin may be slightly notched or cut-square.

Trichogaster fasciata Bloch & Schneider

Distribution: Throughout India, Bangladesh, Myanmar, Nepal, Pakistan.

IUCN Status: Least Concern (LC)

Results and Discussion

The Kopili River is an important tributary of the mighty River Brahmaputra. It has typical rheophilic characteristics with mainly cascade and riffle as microhabitat and boulders and bedrocks as substratum in its upstream stretch; while the downstream stretch is characterised by mainly run and sheet and microhabitat and fines (silt, sand and clay) as substratum. Freshwater inputs coming from various smaller streams enrich the river with bewildering biodiversity and replenish the physico-chemical characteristics of its water. Fish faunal surveys at different locations of Kopili River in the Assam province resulted into 36 species belonging into 31 genera, 18 families and 8 orders. The species composition is dominated by the Cypriniformes (20 species) followed by the Siluriformes (8 species), Anabantiformes (3 species), Beloniformes, Cichliformes, Clupeiformes, Gobiiformes and Synbranchiformes with 1 species each (Table 1).

Table 1: The Kopili River.

Sl. No.	Systematic List	Collection Sites from River Kopili			IUCN status
		Panimur 25° 42' 58" N 92° 49' 21" E	Kheroni 25° 51' 06" N 92° 52' 49" E	Kalighat 26° 10' 44" N 92° 12' 23" E	
	Phylum: Chordata				
	Class: Actinopteri				
	Order: Clupeiformes				
	Family: Dorosomatidae				
1	<i>Gudusia chapra</i> (Hamilton 1822)	-	+	+	LC
	Order: Cypriniformes				
	Family: Danionidae				
2	<i>Salmostoma bacaila</i> (Hamilton, 1822)	-	+	-	LC
3	<i>Danio dangila</i> (Hamilton, 1822)	-	-	+	LC
4	<i>Devario aequipinnatus</i> (McClelland, 1839)	+	-	-	LC
5	<i>Amblypharyngodon mola</i> (Hamilton, 1822)	+	+	+	LC

6	<i>Cabdio morar</i> (Hamilton, 1822)	+	.	.	LC
7	<i>Barilius barila</i> (Hamilton, 1822)	+	.	.	LC
8	<i>Opsarius barna</i> (Hamilton, 1822)	+	.	.	LC
9	<i>Opsarius bendelisis</i> (Hamilton, 1807)	+	.	.	LC
	Family: Cyprinidae				
10	<i>Puntius chola</i> (Hamilton, 1822)	+	-	-	LC
11	<i>Puntius sophore</i> (Hamilton, 1822)	+	+	+	LC
12	<i>Pethia conchonius</i> (Hamilton, 1822)	+	-	-	LC
13	<i>Semiplotus semiplotus*</i> (McClelland, 1839)	-	-	+	VU
14	<i>Cirrhinus reba*</i> (Hamilton, 1822)	+	+	+	LC
15	<i>Labeo rohita</i> (Hamilton, 1822)	+	-	+	LC
16	<i>Labeo gonius</i> (Hamilton, 1822)	+	-	+	LC
17	<i>Labeo boga*</i> (Hamilton, 1822)	-	-	+	LC
18	<i>Labeo catla</i> (Hamilton, 1822)	-	+	-	LC
19	<i>Garra annandalei</i> Hora, 1921	+	-	-	LC
	Family: Botiidae				
20	<i>Botia dario</i> (Hamilton, 1822)	+	-	-	LC
	Family: Cobitidae				
21	<i>Lepidocephalichthys guntea</i> (Hamilton, 1822)	+	+	-	LC
	Order: Siluriformes Family: Bagridae				
22	<i>Mystus vittatus*</i> (Bloch, 1794)	-	+	+	LC
	Family: Siluridae				
23	<i>Wallago attu</i> (Bloch & Schneider, 1801)	-	+	-	VU
	Family: Ailiidae				
24	<i>Ailia coila*</i> (Hamilton, 1822)	+	-	-	NT
25	<i>Clupisoma garua</i> (Hamilton, 1822)	-	-	+	LC
	Family: Horabagridae				
26	<i>Pachypterus atherinoides*</i> (Bloch, 1794)	-	+	-	LC
	Family: Sisoridae				
27	<i>Gagata cenia*</i> (Hamilton, 1822)	+	-	-	LC

28	<i>Glyptothorax telchitta</i> * (Hamilton, 1822)	+	-	-	LC
	Family: Clariidae				
29	<i>Clarias magur</i> * (Hamilton, 1822)	-	-	+	EN
	Order: Beloniformes Family: Belonidae				
30	<i>Xenentodon cancila</i> (Hamilton, 1822)	+	+	+	LC
	Order: Synbranchiformes Family: Mastacembelidae				
31	<i>Macrogathus pancalus</i> * Hamilton, 1822	-	-	+	LC
	Order: Cichliformes Family: Ambassidae				
32	<i>Chanda nama</i> Hamilton, 1822	-	+	-	LC
	Order: Gobiiformes Family: Gobiidae				
33	<i>Glossogobius giuris</i> (Hamilton, 1822)	+	+	-	LC
	Order: Anabantiformes Family: Nandidae				
34	<i>Nandus nandus</i> (Hamilton, 1822)	+	-	-	LC
	Family: Channidae				
35	<i>Channa punctata</i> (Bloch, 1793)	-	-	+	LC
	Family: Osphronemidae				
36	<i>Trichogaster fasciata</i> Bloch & Schneider, 1801	+	-	-	LC

Abbreviation: *- New record; EN- Endangered; VU- Vulnerable; NT- Near Threatened; LC- Least Concern.

Few studies have been done on the fishes of River Kopili. Sen [36] reported 32 species of fishes from different localities of the Kopili Hydro Electric Project sites. Das & Kar et al. [30] reported species of fishes from River Kopili as their pioneering study in the river conducted since 2007. Das & Sharma [37] listed 54 species of fishes from different stretches of Kopili river. In the present study, 10 new records were added to the ichthyofauna of Kopili river. Fish sampling at Panimur, the upstream region of river revealed 22 species including new records (*Ailia coila*, *Cirrhinus reba*, *Gagata cenia* and *Glyptothorax telchitta*). Kheroni

the midstream, revealed 13 species including new records (*Cirrhinus reba*, *Mystus vittatus* and *Pachypterus atherinoides*) and Kalighat the downstream, revealed 15 species including new records (*Cirrhinus reba*, *Clarias magur*, *Labeo boga*, *Mystus vittatus*, *Macrogathus pancalus* and *Semiplotus semiplotus*). The species *Cirrhinus reba* is common in all three stretches and *Mystus vittatus* is common in the middle and downstream region of the river. An updated list of fishes reported from the Kopili river is summarised in (Table 2). The Occurrence of threatened species is a concern and requires prior conservation actions.

Table 2: Ichthyofauna of Kopili River.

Sl. No.	Systematic List	IUCN Status	References
	Phylum: Chordata		
	Class: Actinopteri		
	Order: Osteoglossiformes		
	Family: Notopteridae		
1	<i>Notopterus notopterus</i> (Pallas, 1769)	LC	Das & Sharma [37]
	Order: Clupeiformes		
	Family: Dorosomatidae		
2	<i>Gudusia chapra</i> (Hamilton 1822)	LC	Das & Sharma [37]
	Order: Cypriniformes		
	Family: Danionidae		
3	<i>Salmostoma bacaila</i> (Hamilton, 1822)	LC	Sen [36]
4	<i>Salmostoma acinaces</i> (Valenciennes, 1842)	LC	Das & Sharma [37]
5	<i>Danio dangila</i> (Hamilton, 1822)	LC	Sen [36]
6	<i>Danio rerio</i> (Hamilton, 1822)	LC	Sen [36]
7	<i>Devario aequipinnatus</i> (McClelland, 1839)	LC	Sen [36]
8	<i>Devario devario</i> (Hamilton, 1822)	LC	Das & Sharma [37]
9	<i>Esomus danrica</i> (Hamilton, 1822)	LC	Sen [36]
10	<i>Amblypharyngodon mola</i> (Hamilton, 1822)	LC	Sen [36]
11	<i>Cabdio morar</i> (Hamilton, 1822)	LC	Das & Sharma [37]
12	<i>Cabdio jaya</i> (Hamilton, 1822)	LC	Das & Sharma [37]
13	<i>Barilius barila</i> (Hamilton, 1822)	LC	Das & Sharma [37]
14	<i>Opsarius barna</i> (Hamilton, 1822)	LC	Das & Sharma [37]
15	<i>Opsarius bendelisis</i> (Hamilton, 1807)	LC	Das & Sharma [37]
16	<i>Chela cachius</i> (Hamilton, 1822)	LC	Das & Sharma [37]
17	<i>Laubuka laubuca</i> (Hamilton, 1822)	LC	Das & Sharma [37]
18	<i>Rasbora daniconius</i> (Hamilton, 1822)	LC	Das & Sharma [37]
	Family: Cyprinidae		
19	<i>Puntius chola</i> (Hamilton, 1822)	LC	Das & Sharma [37]
20	<i>Puntius sophore</i> (Hamilton, 1822)	LC	Sen [36]
21	<i>Puntius terio</i> (Hamilton, 1822)	LC	Sen [36]
22	<i>Pethia shalynius</i> Yazdani & Talukdar, 1975	VU	Sen [36]
23	<i>Pethia ticto</i> (Hamilton, 1822)	LC	Sen [36]
24	<i>Pethia conchoniis</i> (Hamilton, 1822)	LC	Sen [36]
25	<i>Systemus sarana</i> (Hamilton, 1822)	LC	Das & Sharma [37]
26	<i>Semiplotus semiplotus</i> (McClelland, 1839)	VU	This study
27	<i>Cirrhinus reba</i> (Hamilton, 1822)	LC	This study
28	<i>Cyprinus carpio</i> Linnaeus, 1758	VU	Sen [36]
29	<i>Labeo calbasu</i> (Hamilton, 1822)	LC	Das & Sharma [37]
30	<i>Labeo rohita</i> (Hamilton, 1822)	LC	Das & Sharma [37]
31	<i>Labeo gonius</i> (Hamilton, 1822)	LC	Das & Sharma [37]

32	<i>Labeo bata</i> (Hamilton, 1822)	LC	Das & Sharma [37]
33	<i>Labeo boga</i> (Hamilton, 1822)	LC	This study
34	<i>Labeo catla</i> (Hamilton, 1822)	LC	Das & Sharma [37]
35	<i>Tor putitora</i> (Hamilton, 1822)	EN	Sen [36]
36	<i>Neolissochilus hexagonolepis</i> (McClelland, 1839)	NT	Sen [36]
37	<i>Neolissochilus hexastichus</i> (McClelland, 1839)	NT	Sen [36]
38	<i>Garra annandalei</i> Hora, 1921	LC	Sen [36]
39	<i>Garra gotyla</i> (Gray, 1832)	LC	Das & Sharma [37]
40	<i>Garra nasuta</i> (McClelland, 1838)	LC	Das & Sharma [37]
	Family: Psilorhynchidae		
41	<i>Psilorhynchus nudithoracicus</i> Tilak & Husain, 1980	LC	Sen [36]
	Family: Botiidae		
42	<i>Botia dario</i> (Hamilton, 1822)	LC	Das & Sharma [37]
43	<i>Botia rostrata</i> Gunther, 1868	VU	Das & Sharma [37]
	Family: Nemacheilidae		
44	<i>Schistura scaturigina</i> McClelland, 1839	LC	Sen [36]
	Family: Cobitidae		
45	<i>Lepidocephalichthys guntea</i> (Hamilton, 1822)	LC	Sen [36]
46	<i>Lepidocephalichthys annandalei</i> Chaudhuri, 1912)		Das & Sharma [37]
	Order: Siluriformes Family: Bagridae		
47	<i>Sperata aor</i> (Hamilton, 1822)	LC	Das & Sharma [37]
48	<i>Sperata seenghala</i> (Sykes, 1839)	LC	Das & Sharma [37]
49	<i>Batasio tengana</i> (Hamilton, 1822)	LC	Das & Sharma [37]
50	<i>Mystus vittatus</i> (Bloch, 1794)	LC	This study
51	<i>Mystus armatus</i> (Day, 1865)	LC	Das & Sharma [37]
52	<i>Mystus bleekeri</i> (Day, 1877)	LC	Das & Sharma [37]
53	<i>Olyra longicaudata</i> McClelland, 1842	LC	Sen [36]
	Family: Siluridae		
54	<i>Wallago attu</i> (Bloch & Schneider, 1801)	VU	Das & Sharma [37]
55	<i>Ompok bimaculatus</i> (Bloch, 1794)	NT	Das & Sharma [37]
	Family: Ailiidae		
56	<i>Ailia coila</i> (Hamilton, 1822)	NT	This study
57	<i>Clupisoma garua</i> (Hamilton, 1822)	LC	Das & Sharma [37]
58	<i>Eutropiichthys murius</i> (Hamilton, 1822)	LC	Das & Sharma [37]
59	<i>Eutropiichthys vacha</i> (Hamilton, 1822)	LC	Das & Sharma [37]
	Family: Heteropneustidae		
60	<i>Heteropneustes fossilis</i> Bloch, 1794	LC	Sen [36]
	Family: Horabagridae		
61	<i>Pachypterus atherinoides</i> (Bloch, 1794)	LC	This study
	Family: Sisoridae		
62	<i>Gagata cenia*</i> (Hamilton, 1822)	LC	This study
63	<i>Glyptothorax telchitta</i> (Hamilton, 1822)	LC	This study

	Family: Clariidae		
64	<i>Clarias magur</i> (Hamilton, 1822)	EN	This study
	Order: Beloniformes Family: Belonidae		
65	<i>Xenentodon cancila</i> (Hamilton, 1822)	LC	Das & Sharma [37]
	Order: Synbranchiformes Family: Mastacembelidae		
66	<i>Macrogathus pancalus</i> Hamilton, 1822	LC	This study
67	<i>Macrogathus aral</i> (Bloch & Schneider, 1801)	LC	Das & Sharma [37]
68	<i>Mastacembelus armatus</i> (Lacepede, 1800)	LC	Das & Sharma [37]
	Order: Cichliformes Family: Ambassidae		
69	<i>Chanda nama</i> Hamilton, 1822	LC	Das & Sharma [37]
	Order: Gobiiformes Family: Gobiidae		
70	<i>Glossogobius giuris</i> (Hamilton, 1822)	LC	Das & Sharma [37]
	Order: Cyprinodontiformes Family: Aplocheilidae		
71	<i>Aplocheilus panchax</i> (Hamilton, 1822)	LC	Sen [36]
	Order: Anabantiformes Family: Nandidae		
72	<i>Nandus nandus</i> (Hamilton, 1822)	LC	Das & Sharma [37]
	Family: Anabantidae		
73	<i>Anabas testudineus</i> (Bloch, 1795)	LC	Das & Sharma [37]
	Family: Badidae		
74	<i>Badis badis</i> (Hamilton, 1822)	LC	Sen [36]
	Family: Channidae		
75	<i>Channa punctata</i> (Bloch, 1793)	LC	Sen [36]
76	<i>Channa gachua</i> (Hamilton, 1822)	LC	Sen [36]
77	<i>Channa striata</i> (Bloch, 1793)	LC	Das & Sharma [37]
78	<i>Channa stewartii</i> (Playfair, 1867)	LC	Sen [36]
	Family: Osphronemidae		
79	<i>Trichogaster fasciata</i> Bloch & Schneider, 1801	LC	Das & Sharma [37]

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