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Taxonomic Study of the Riverine Fishes of Karbi Anglong in North East India of the Eastern Himalayan Biodiversity Hotspot

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Abstract

Ichthyofaunal surveys in the rivers of Karbi Anglong district in the Nort-East India Biodiversity hotspot region, viz., Dhansiri, Kopili, Jamuna, Dikrupti and Siloni depicted the occurrence of 15 species belonging into 12 genera, 8 families and 6 orders. These include, 8 species of *Cypriniformes*, 2 species each of *Siluriformes* and *Synbranchiformes* and 1 species each of *Anabantiformes*, *Cichliformes* and *Mugiliformes*. The near threatened status of prize food fishes, *Labeo pangusia* and *Ailia coila* are of concern.

Keywords: Biodiversity; Ichthyofauna; Taxonomy; Karbi Anglong; Assam; Eastern Himalaya; Hotspot; Rivers

Introduction

There are numerous water bodies (wetlands and rivers) in India. The province of Assam, situated in the Eastern Himalayan belt, is a hotspot of not only fish diversity but also abiotic diversity harbouring numerous wetlands and rivers of various kinds (including rheophilic hill streams and plain water rivers and streams) spread 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 various aspects of fish and their habitats [1-28]. But not much detailed taxonomic studies have been done on the fishes of Karbi Anglong (KA). As such, the present novel attempt is a humble contribution towards the systematics of the riverine fishes in Karbi Anglong district of Assam.

Fish forms almost half of the total population of vertebrates on the globe. India is considered as one of the megabiodiversity countries in the World. The hills and the undulating valleys of this region gives rise to many 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 (NE) region in the Eastern Himalayan (EH) stretch as a hotspot of biodiversity [20,29-36]. Out of 2,500 species of fishes in India, 930 are freshwater (FW) inhabitants and 1,570 are marine [8,11,32]. This bewildering ichthyodiversity of this region has been attracting many ichthyologists from different regions of the world.

The district of Karbi Anglong (located between 25° 33′ and 26° 35′ North latitude and from 92° 10′ to 93° 50′ East longitude) is one of the 34 administrative districts of Assam in India. The name "Karbi Anglong" is derived from` Karbi' the name of indigenous tribe living in and around the region. The tribe call themselves as Arleng, meaning "Humans." Anglong is homonym noun for Hills and Mountains. The British, under their domain, constituted and declared the land of the Karbi people as a 'Scheduled District' in 1874. On November 17, 1951, now defunct United Mikir Hills and North Cachar Hills district was formed. This was followed by bifurcation of the erstwhile district of United Mikir and North Cachar Hills into two separate districts - Mikir Hills and North Cachar Hills district - on 2 February 1970. Mikir Hills district was later renamed as Karbi Anglong district on 14 October 1976.

With Karbi as majority, there also exist many other ethnic groups, like Tiwa. Kuki tribes, like Thadou and Hmar, are found scattered in the district. All these ethnicities represent different and unique identities, customs and traditions, cloth, food, yet, they share many common practices. Done at SR on 31 3 24 arnd 7-45 pm.

The district of Karbi Anglong harbours a number of rivers, notably, the Dhansiri, Kopili, Jamuna, Dikrupti and Siloni having rich diversity of fishes. In 1971 Census of India, the Tribal population was at 65%. This region has tourist attraction, having tourist spots with water bodies and fishes like Akashi Ganga, situated c 15 km away from Dokmoka. There is the Dikrut Waterfall (also called Paklongkam), which is known to the tourists by the name Bhelughat. There is a hot spring called Garampani (also called Langkar-om) with a Garampani Wildlife Sanctuary, being the home for hoolock gibbon and golden langur. The bank of River Siloni is said to be a picturesque picnic spot. Silbheta (also called Arlong-Ru-pat) is a beautiful rain forest.

Material and Methods

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 a variety of traps. Camouflaging technique was also used to haul the fishes. Fishes were preserved at first in concentrated formaldehyde in the field itself and then in 10% formalin. Fishes were identified with the help of standard literature [29-32,37-45] and fishbase. org [46]. The arrangement of classification after Greenwood et al. [47] were mainly followed in consultation with other literature, like Jayaram [29- 32] and Kar & Khynriam [19].

Detailed pioneering taxonomic studies on the riverine fishes in Karbi Anglong (KA) district of Assam revealed the occurrence of 15 species under 12 genera, 8 families and 6 orders. These include, 8 species of *Cypriniformes*, 2 species each of *Siluriformes* and *Synbranchiformes* and 1 species each of *Anabantiformes*, *Cichliformes* and *Mugiliformes*. There seemed to be more abundance of *Puntius sophore*, *Amblypharyngodon mola*, *Ailia coila*, *Cirrhinus reba* and *Trichogaster fasciata* in the rivers of Karbi Anglong. The near threatened status of prize food fishes, *Labeo pangusia* and *Ailia coila* are of concern (Table 1).

Table 1: Distribution and conservation status of ichthyospecies in different Rivers of Karbi AngloRivers.

Sl. No.	Systematic list	R Dhansiri at Rangapahar	Kopili	R Dhansiri at Bokajan	R Dhansiri in Karbi Anglong (KA)	R. Jamuna at Silvetta	R Dikrupti in KA	R. Siloni in KA	Conservation status
	Phylum: Chordata Class: Actinopteri								
	Order: Cyprini-formes Family: Danionidae								
1	*Cabdiomorar* (Hamilton, 1822)	+							Least Concern
2	*Salmostomabacaila* (Hamilton, 1822)				+				Least Concern
3	*Amblypharyngodon-mola* (Hamilton, 1822)	+	+		+			+	Least Concern
	Family: Cyprinidae								
4	*Puntiussophore* (Hamilton, 1822)	+	+	+	+			+	Least Concern
4(a)	*Neolissochilushexas-tchicus*						+		-
5	*Cirrhinusreba* (Hamilton, 1822)	+				+			Least Concern
6	*Labeogonius* (Hamilton, 1822)				+				Least Concern

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7	*Labeopangusia* (Hamilton, 1822)			+					Near Threatened
8	*Labeorohita* (Hamilton, 1822)			+					Least Concern
	Garragotyla (Gray,1830)						+		Least Concern
	Schistura Savona (Hamilton,1822)						+		Least Concern
	Order: Siluriformes Family: Bagridae								
9	*Mystusvittatus* (Bloch, 1794)					+		+	Least Concern
9(a)	Mystusbleekeri (Day)							+	-
	Family: Ailiidae								
10	*A Ailiacoila* (Hamilton, 1822)	+			+	+			Least Concern
10(a)	Family: Schilbeidae *Pachypterusatherinoides* (Bloch, 1794)							+	
	Order: Synbranchiformes Family: Mastacembelidae								
11	*Macrognathusaral* (Bloch & Schneider, 1801)			+				+	Least Concern
12	*Macrognathuspancalus* Hamilton, 1822					+		+	Least Concern
12(a)	*Mastacembelusarmatus* (Lacepède, 1800)						+		Least Concern
	Order: Cichliformes Family: Ambassidae								
13	*Chandanama* Hamilton, 1822					+		+	Least Concern
13(a)	*Parambassisranga* (Hamilton1822)							+	Least Concern
	Order: Mugiliformes Family: Mugilidae								
14	*Rhinomugilcorsula* (Hamilton, 1822)					+			Least Concern

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	Order: Anabantiformes Family: Osphronemidae								
15	*Trichogasterfasciata* Bloch & Schneider, 1801	+	+						Least Concern
16	Family: Channidae *Channapunctata* (Bloch,1793)						+		Least Concern
17	*Channastewartii* (Playfair, 1867)						+		Least Concern

The tropical Asian piscifauna forms a substantive part of the total lotic and lentic fish community. The Indian Peninsula supports 930 species of native Fresh Water (FW) fishes, which belong to 87 families. Several of tropical Asian Freshwater fishes share the African riverine ecosystems, both regarding the family and the generic level. *Cyprinids*, certain *Siluriform* catfishes, *Channids*, *Mastacembelids* and *Notopterids* are shared between the two regions. At the generic level, *Anabas*, *Clarias*, *Garra*, *Labeo*, and *Mastacembelus* occur in both African and Asian rivers. *Cyprinids* and *Balitorids* have been numerous in Asia, in contrast to the predominance of Characids and Cichlids in Africa. In fact, there had not been much research works done on the taxonomy and associated habitat parameters of the tropical fish communities. Conversely, there have been some number of researches done on fish diets and resource partitioning in specific Sri Lankan rheophilic streams. Incidentally, niche' segregation is dependent on seasonality, diet, and habitat utilization, as was revealed from different studies. Also, there are morphological segregation and specialization in different fish communities [19,20,48].

Systematic account

Phylum: Chordata

Class: Actinopteri

Order: Cypriniformes

Family: Danionidae

Genus: *Cabdio* Hamilton, 1822

Cabdio Hamilton, 1822, An account of fishes found in the river Ganges: 333, 392.

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. Barbels 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, Karbi Anglong district, River Dhansiri at Rangapahar, 1 ex, (Museum No. 1/10), Coll: 3.12.2016. Professor D Kar and Party. First detailed taxonomic report.

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)**

Distribution: Throughout Northern India, including river Barak in North-East India, 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 reaching 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 short with 14-20 rays. Caudal fin deeply forked. Lateral line (L1) complete with usually 39 to 112 scales.

Material examined: Assam, Karbi Anglong district, River Dhansiri in Karbi Anglong (KA), 1 ex, (Museum No. 4/3), 3.12.2016.

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Coll: Professor D Kar and Party. First detailed taxonomic report.

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

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

Distribution: Almost throughout India, Bangladesh, Nepal, etc.

IUCN status: Least Concern (LC).

Genus: *Amblypharyngodon* Bleeker, 1860

Amblypharyngodon Bleeker, 1860. Physics Journal for the Dutch East Indies 20(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 symphysial knob which fits into the upper jaw. Barbel absent. Dorsal fin inserted little behind insertion of pelvic fins. Anal fin short. Caudal fin forked. Scales minute.

Material examined: Assam, Karbi Anglong district, River Dhansiri at Rangapahar, 1 ex. (Museum No. 1/13), Coll: 3.12.2016, River Kopili in KA, 1 ex. (Museum No. 2/6), Coll: 4.12.2016, River Dhansiri in KA, 4 ex, (Museum No. 4/25, 26), Coll: 3.12.2016. Coll. Professor D Kar and Party. First detailed taxonomic Report.

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

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

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

IUCN status: Least Concern (LC).

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 & Jhingran [45] Inland Fishes 1: 250, Jayaram, 1999, FW Fishes of the Indian Region: 108, Menon [44], 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 generally 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, Karbi Anglong district, River Dhansiri at Rangapahar, 1 ex, (Museum No.1/3), Coll: 3.12.2016, River Kopili in KA, 2 ex, (Museum No.2/11, 13), Coll: 4.12.2016, River Dhansiri at Bokajan, 1 ex, (Museum No.3/7). Coll: 2.12.2016, River Dhansiri in KA, 1 ex, (Museum No.4/24), Coll: 3.12.2016. Coll. Professor. D Kar and Party. First detailed taxonomic report.

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

IUCN Status: Least Concern (LC). Done at SR on 1 4 24 arnd 9-30 pm.

Genus: *Cirrhinus* Oken, 1817

Cirrhinus (Oken), Cuvier, 1817, V.KI. Fische. IN: Isis order Encyclopedic Timeline, 8: 113 (type species, *Cyprinus cirrhosus* Bleeker, by minotypy), 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, Karbi Anglong district, River Dhansiri at Rangapahar, 1 ex, (Museum No. 1/3), Coll.: 3.12.2016, River Dhansiri at Bokajan, 3 ex, (Museum No. 3/9,10,12), Coll: 2.12.2016, River Jamuna at Silvetta 2 ex, (Museum No. 5/4,5), Coll: 2.12.2016. Professor. D. Kar and Party. First detailed taxonomic report.

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

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

Distribution: Throughout North East India, Northern India, Darjeeling, and Eastern Himalaya. South and South-Eastern Asia.

IUCN Status: Least Concern (LC).

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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.

Material examined: Assam, Karbi Anglong district, River Dhansiri in KA, 2 ex, (Museum No. 4/15, 28), Coll: 3.12.2016, Professor D Kar and Party. First report.

Key to species: Presence of generally 9 to 14 scales between lateral line (Ll) and pelvic fin Base.

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

Distribution: Almost throughout India; also in Bangladesh, Myanmar, Nepal, Pakistan, Sri Lanka, etc.

IUCN Status: Least Concern (LC).

Material examined: Assam, Karbi Anglong district, River Dhansiri at Bokajan, 1 ex, (Museum No. 3/11), Coll: 2.12.2016. Coll. Professor D Kar and Party. First detailed taxonomic report.

Key to species: Presence of generally 6 to 6.5 scales between lateral line (Ll) and pelvic fin Base, eye 17.2 to 25.3 % HL.

***Labeo pangusia* (Hamilton, 1822)**

Distribution: Almost throughout India, also in Bangladesh, Myanmar, Nepal, Pakistan, Sri Lanka, etc.

IUCN Status: Near Threatened (NT)

Material examined: Assam, Karbi Anglong district, River Dhansiri at Bokajan, 1 ex, (Museum No. 3/4); Coll: 2.12.2016, Professor. D Kar and Party. First detailed taxonomic report.

Key to species: Presence of generally 6 to 6.5 scales between lateral line (Ll) and pelvic fin base.

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

Distribution: Almost throughout India, also in Bangladesh, Myanmar, Nepal, Pakistan, Sri Lanka, etc.

IUCN Status: Least Concern (LC)

Order: Siluriformes

Family: Bagridae

Genus: *Mystus* Scopoli, 1777

Mystus Scopoli, 1777, An introduction to natural history: 451 (type species: *Bagrus haplepensis* Valenciennes, 1840 by subsequent designation).

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, Karbi Anglong district, River Jamuna at Silvetta, 1 ex, (Museum No. 5/16), Coll: 2.12.2016, Professor. D Kar and Party. First detailed taxonomic report.

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

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

Distribution: Almost throughout India; Myanmar, Pakistan, Sri Lanka, etc.

IUCN Status: Least Concern (LC)

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.

Generic characters: Body short compressed. Abdomen rounded. Head short, greatly compressed. Mouth moderately wide. Eyes small lateral. Presence of 4 pairs of barbells: 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.

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Material examined: Assam, Karbi Anglong district, River Dhansiri in KA, 1 ex, (Museum No. 4/10), River Dhansiri at Rangapahar, 1 ex., (Museum No. 1/21), Coll. 3.12.2016. River Jamuna at Silvetta, 2 ex., (Museum No. 5/9, 10), Coll: 2.12.2016, Professor. D Kar and Party. First detailed taxonomic 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: Almost throughout India; Bangladesh, Nepal, Pakistan, etc.

IUCN Status: Near threatened (NT).

Order: Synbranchiformes

Family: Mastacembelidae

Genus: *Macrognathus* Lacepede, 1800

Macrognathus Lacepede, 1800, Hist Nat Poiss 2: 283 (Type species, *Ophidium aculeatum* Bloch, by subsequent designation), Sufi, 1953, Bull Raffles Mus No. 27: 99-105, Robert, 1980, Copeia, No. 3: 385-391 (revision), Roberts, 1986, Jap J Ichthyol, 33(2), 97-103, Bloch and Schneider, 1801, Syst Ichth 478.

Generic Characters: Body deep, eel-like, compressed. Head long, pointed. Snout long, fleshy, and, accommodate a concave prolongation of the upper jaw. Mouth inferior, cleft narrow. Dorsal fin inserted far behind the end of pectoral fins with 13 to 32 detached depressible spines and 42-58 rays. Anal fin with 3 spines and may be with 40 to 60 rays. Caudal fin rounded, distinctly separated from dorsal and anal fins. Scales small. Lateral line present.

Material examined: Assam, Karbi Anglong district, River Dhansiri at Bokajan, 2 ex, (Museum No. 3/3, 14), Coll. 2.12.2016, Professor. D Kar and Party. First detailed taxonomic report.

Key to species: Dorsal fin spines 16-23.

***Macrognathus aral* (Bloch and Schneider, 1801)**

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

IUCN Status: Least Concern (LC).

Material examined: Assam, Karbi Anglong district, River Jamuna at Silvetta, 1 ex, (Museum No. 5/6), Coll: 2.12.2016, Professor D Kar and Party. First detailed taxonomic report.

Key to species: Dorsal fin with 24 – 26 spines and with 30 – 42 soft rays.

***Macrognathus pancalus* Hamilton, 1822**

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

IUCN Status: Last Concern (LC).

Order: Cichliformes

Family: Ambassidae

Genus: *Chanda* Hamilton, 1822

Chanda Hamilton, 1822, Fish Ganges: 103, 270 (Type species, *Chanda nama*, Hamilton-Buchanan).

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. Laleral line complete with 125 scales.

Materials examined: Assam, Karbi Anglong district, River Jamuna at Silvetta, 1 ex, (Museum No.5/3) Coll: 2.12.2016, Professor D Kar and Party. First detailed taxonomic report.

Key to species: Three prominent canine teeth on either side of lower jaw.

***Chanda nama* Hamilton, 1822**

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

IUCN Status: Least Concern (LC).

Order: Mugiliformes

Family: Mugilidae

Genus: *Rhinomugil* Gill, 1863

Rhinomugil Gill, 1863. Proceedings of the Academy of Natural Sciences of Philadelphia 15: 169 (Type species: *Mugil corsula* Hamilton 1822 by monotypy).

Generic Characters: Body moderately elongate, cylindrical or slightly compressed. Head broad and depressed, snout obtuse and short; interorbital space broad. Mouth small, terminal or inferior. Two short widely separated spinous and soft dorsal fins present. Pectoral fins placed rather high on body, pelvic fins sub abdominal. Caudal fin moderately forked, emarginated or truncate. Scales fairly large on head and body. Lateral line absent.

Material examined: Assam, Karbi Anglong district, River Jamuna at Silvetta, 1 ex, (Museum No. 5/17), Coll: 2.12.2016, Professor D Kar and Party. First detailed taxonomic report.

Key to species: Body rather stout, head moderate. Operculum without spine. Mouth ventral, protrusible. First dorsal fin inserted

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nearer to caudal fin base than to tip of snout. Caudal fin slightly emarginate, scales in lateral series 48-52.

***Rhinomugil corsula* (Hamilton, 1822)**

Distribution: India: Assam, Meghalaya, Tripura, Uttar Pradesh, Bihar, Orissa, Tamil Nadu, West Bengal, Bangladesh, Myanmar, Nepal.

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, Karbi Anglong district, River Dhansiri at Rangapahar, 1 ex, (Museum No. 1/8), Coll: 3.12.2016, River Kopili in Karbi Anglong (KA), 2 ex, (Museum No. 2/2,5), Coll: 4.12.2016, Professor. D Kar and Party First detailed taxonomic report.

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

***Trichogaster fasciata* Bloch & Schneider, 1801**

Distribution: Wetlands in Assam, other parts of North-East (NE) India, different parts of rest of India, Bangladesh, Myanmar, Nepal, etc.

IUCN Status: Least Concern (LC)

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