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Icthyofauna of Genus: *Mystus Scopoli 1777*, recorded in River Siang of Arunachal Pradesh, India

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ABSTRACT

The unique topography of North-East India and watershed pattern is an attractive field for ichthyological studies. This region has already recognized as a global spot of freshwater fish diversity. A great numbers of species have been reported from most of the North-Eastern region states. River Siang is the one of the major river of Arunachal Pradesh. *Mystus* is a genus of small to medium-sized of the family Bagridae. There are currently 45 extant species in this genus. There are four species of *Mystus* are recorded in River Siang of Arunachal Pradesh, these are *Mystus bleekeri*, *Mystus cavasius*, *Mystus vittatus* and *Mystus tengara*.

Keywords: *Mystus*, Bagridae, River Siang, Arunachal Pradesh.

INTRODUCTION

River Siang, a hill-stream of 1st order river; had colluvial valley segment and pool-riffle type of reach. Pools, riffles and runs were generally found to dominate the micro-habitat type with frequent occurrence of trench pools. River Siang was said to be more entrenched based on V-shaped valley segment. The substrate type had been found to be dominated by gravels and cobbles with frequently occurring quite large number of boulders and some bed rocks. River Siang was the unique in the ichthyofaunal diversity. Fish sampling was carried out with the help of different kinds of nets such as cast net, gill net and traps, lines and hooks, etc. More than 50% of fish species of River Siang belongs to the Order Cypriniformes whereas other fishes were represented by the Orders viz., Siluriformes, Perciformes, Clupeiformes, Synbranchiformes, Osteoglossiformes, Tetradontiformes and Beloniformes. In the present study on fish diversity, it was revealed that the number of fishes was recorded higher in pre-monsoon and monsoon seasons in all the study years. In this regard, the present objective is the numbers of different species of *Mystus* are available in River Siang of Arunachal Pradesh.

MATERIALS AND METHODS

2.1 Study Site

The River Siang, is largest river of Brahmaputra river system, originates from Chema Yungdung Glacier near Kubi at 5150 m in Tibet. In Tibet it is popularly known as Tsang-Po, flows in West-East direction. After traversing a distance of about 1625 km river in Tibet and then it takes a turn in south direction, enters the territory of India near Tuting in the Upper Siang district of Arunachal Pradesh and flows through North-South direction in East Siang

district towards Assam and finally it merges with Lohit and Dibang in Assam and it becomes the mighty River Brahmaputra (1) (2) (3) (Figure 1).

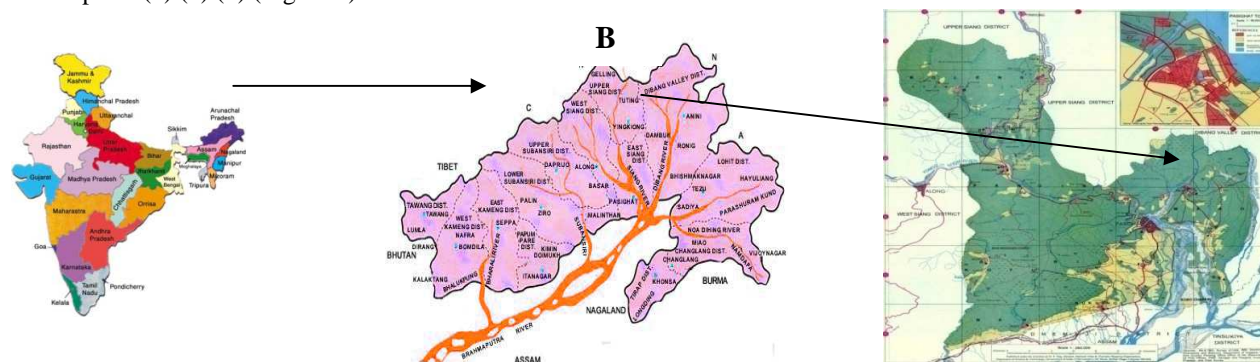


Fig 1: Map of (A) India indicating Arunachal Pradesh, (B) Arunachal Pradesh indicating to East Siang District, (C) In East Siang district highlighting River Siang (Study Area) of Arunachal Pradesh.

2.2. Freshwater Survey

Fish samples were collected from River Siang during January 2012 to December 2014 through experimental fishing; using cast nets (dia.3.7 m and 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 and with hook and lines in certain places (where netting is not possible). River was surveyed and classified into different habitat units based on morphology (4) and finally divided in to six different study sites covering upstream, mid-stream and downstream stretches of the river. General survey of the fish biodiversity was done using standard procedures (5).

2.3. Fish Measurement

The morphometric study included measurement of Total length (TL), Standard length (SL). Body depth (BD) Snout length, Post orbital length, Head length (HL), Pre dorsal length, Prepelvic distance, Eye diameter (ED), length of Caudal Peduncle, and Length of caudal fin. SL was the distance from the tip of the snout to the mid base of the caudal fin and TL was the distance from the tip snout to the furthest tip of the caudal fin. BD was the greatest vertical distance across the body. The measurements were done using Vernier Calliper Scale and Digital Sartorius Electronic Balance.

2.4. Fish Preservation and Identification

Fish species had been preserved, at first, in concentrated formaldehyde in the field. After that, the fishes were transferred to laboratory and preserved in 10 % formalin. The small size fishes were preserved in 5% aqueous formalin solution and big size fishes in 10% aqueous formalin solution and kept in the air-tight plastic bottles.

In the laboratory, the fishes were identified by following standard literature, notably, Day (6), Rainboth (7), Sen (8), Talwar and Jhingran (9), Jayaram (10), Jayaram (11), Nath and Dey (12), Nath and Dey, (13), Vishwanath (14), Vishwanath (15), Kar (16), Kar (17) and www.fishbase.org (18). All the fishes were kept in the Assam University Fish Museum (AUFM) for preservation and record. After labeling the fishes were drawn and photographed with the help of digital camera (Nikon Coolpix L-810).

RESULTS AND DISCUSSION

In River Siang we had recorded *Mystus bleekeri*, *Mystus cavasius*, *Mystus vittatus* and *Mystus tengara*. They are described as follows:

3. Genus: *Mystus Scopoli 1777*

Mystus Scopoli, (19), *Introductio Ad. Historium Naturalem*, p. 151 (type- species, *Bagrus halepensis* Valenciennes IN: Cuvier and Valenciennes = *Mystus pelusius* (Solander), by subsequent selection).- Jayaram, (20), *Proc. First All India Congr. Zool.* Part 2, p. 633.

Diagnosis: Body moderately elongated. Abdomen rounded. Head of moderate size, compressed. Snout obtuse. Eyes moderately large, supra-lateral, in anterior part of head not visible from below ventral surface and with free circular margins. Four pairs of barbels, one each maxillary, nasal and two of mandibular, generally longer than head. Rayed dorsal fin inserted above last quarter of pectoral fins with 7 rays and a spine. Adipose dorsal fin low, of varying length. Pectoral fins with 7 rays and a spine serrated. Pelvic fins with 6 rays. Anal fin short with 9 rays. Caudal fin forked. Lateral line complete, simple.

3.1. *Mystus bleekeri* (6)

Key to Species: Occipital process reaching basal bone of dorsal fin. Adipose dorsal fin commencing almost after rayed dorsal fin. Interspace between the two fins shorter than width of rayed dorsal fin. Maxillary barbels reach almost anal fin. No dark spots at base of dorsal fin. Body with two longitudinal bands, one above and one below lateral line (Figure 2 and Plate 1).

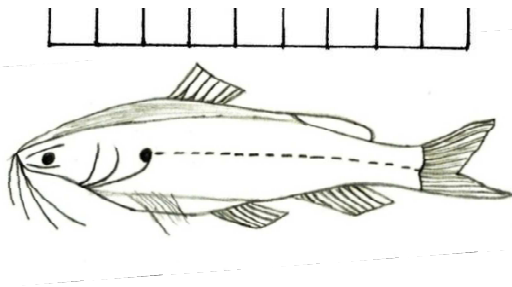


Figure 2: *Mystus bleekeri*



Plate 1: *Mystus bleekeri*

Snout length = 0.7 cm, Post orbital length = 1.0 cm, Head length = 1.7 cm, Pre-dorsal length = 2.6 cm, Pre-pelvic distance = 3.2 cm, Standard length = 6.2 cm, Total length = 7.7 cm, Eye diameter = 0.5 cm, Length of caudal peduncle = 1.2 cm, Length of caudal fin = 1.7 cm, Body depth = 1.6 cm and Weight = 7.86 g.

Distribution: River Siang, Brahmaputra, Subansiri, Deepor Beel, of India. Pakistan: Indus River System. Bangladesh and Nepal.

3.2. *Mystus cavasius* (22)

Key to Species: Occipital process reaching basal bone of dorsal fin. Adipose dorsal fin commencing almost after rayed dorsal fin. Maxillary barbels reach caudal fin. No bands on body (Figure 3 and Plate 2).

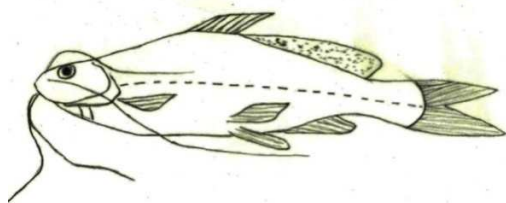


Figure 3: *Mystus cavasius*



Plate 2: *Mystus cavasius*

Snout length = 1.0 cm, Post orbital length = 1.5 cm, Head length = 2.6 cm, Pre-dorsal length = 3.3 cm, Pre-pelvic distance = 4.5 cm, Standard length = 9.2 cm, Total length = 11.8 cm, Eye diameter = 0.7 cm, Length of caudal peduncle = 2.3 cm, Length of caudal fin = 3.2 cm, Body depth = 2.1 cm and Weight = 11.88 g.

Distribution: River Siang, Brahmaputra, Subansiri, Deepor Beel of India. Pakistan: Indus River System. Bangladesh. Nepal.

3.3. *Mystus vittatus* (22)

Key to Species: Occipital process reaching basal bone of dorsal fin. Interspace between the two fins considerably greater than width of rayed dorsal fin. Median longitudinal groove on head short. Adipose dorsal fin base shorter than anal fin base. Eye diameter 5.2 in head length. Pectoral fin with 9 rays. Body with 4 longitudinal colour bands above and below of the lateral line. A dark shoulder spot. No spot at base of caudal fin (Figure 4 and Plate 3).

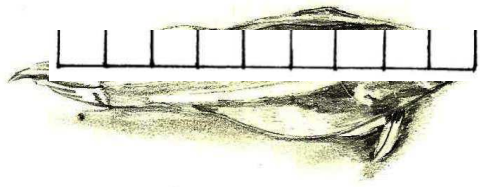


Figure 4: *Mystus vittatus*



Plate 3: *Mystus vittatus*

Snout length = 1.0 cm, Post orbital length = 1.5 cm, Head length = 2.6 cm, Pre-dorsal length = 3.3 cm, Pre-pelvic distance = 4.5 cm, Standard length = 5.2 cm, Total length = 6.7 cm, Eye diameter = 0.7 cm, Length of caudal peduncle = 2.3 cm, Length of caudal fin = 3.2 cm, Body depth = 2.1 cm and Weight = 28.88 g.

Distribution: River Siang, Brahmaputra, Subansiri, Deepor Beel of India. Pakistan: Indus River System. Bangladesh. Nepal.

3.4. *Mystus tengara* (21)

Key to Species: Occipital process reaching basal bone of dorsal fin. Adipose dorsal fin commencing almost after rayed dorsal fin. Interspace between the two fins negligible. Caudal peduncle not constricted; its least height about two times in its length. Vomerine tooth-band un-interrupted. Maxillary barbels reach base of pelvic fins. Head length not more than 4 times in total length. Body with 5 longitudinal bands (Figure 5 and Plate 4).

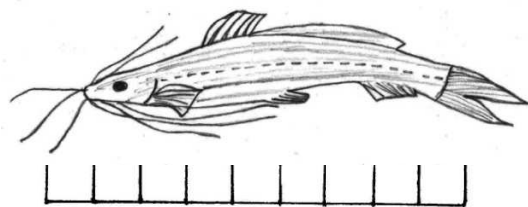


Figure 5: *Mystus tengara*



Plate 4: *Mystus tengara*

Snout length = 1.0 cm, Post orbital length = 1.5 cm, Head length = 2.6 cm, Pre-dorsal length = 3.3 cm, Pre-pelvic distance = 4.5 cm, Standard length = 9.2 cm, Total length = 4.8 cm, Eye diameter = 0.7 cm, Length of caudal peduncle = 2.3 cm, Length of caudal fin = 3.2 cm, Body depth = 2.1 cm and Weight = 14.88 g.

Distribution: River Siang, Brahmaputra, Subansiri, Deepor Beel of India. Pakistan: Indus River System. Bangladesh. Nepal.

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