MATERIAL AND METHODS
MATERIAL AND METHODS

Fishes were collected from different sites of the river system and also from fish landing sites in the vicinity of the river during the period from January 2001 to June 2003 in different seasons. Collection had been made using different gears and nets commonly in use in these areas. Methods for collecting the fishes differ depending on the species. Fishes were caught by gill nets of different mesh sizes, rods and line with different baits according to the food of choice. Cast nets, scoop nets, bamboo traps, angling were also used in some cases. The cast nets were used to catch fishes from hill streams. Where self-collection was not possible, expert fishermen were employed for collecting the fishes. At the time of collection maximum care were taken to keep the external morphology intake for taxonomic studies.

Total nine collection sites were selected from both the rivers on such criteria that fishes from all the habitats could be covered. The nine sites are –

Mathanguri: N 26°47' 03.8" E 90°57' 13.8". The site is located within Manas National Park at the foothills of Himalayas. Water current is very high in this place and hill stream in nature. Manas river bifurcate here into two distinct streams viz Beki and Manas.

Bashbari: N 26°39' 34.4" E 90°59' 24.3". This site of Beki river lies just outskirt of Manas National Park. The river is semi-torrential in nature here.

Bekipar: N 26°29' 27.6" E 90°55' 29 3". This site of Beki river is located near NH No 31 and the river is quite wide here.
Material and Methods

Kalgachia: N 26° 21' 13.9" E 90° 53' 28.0". The site is in lower stretch of Beki river where the river is very wide and plain in nature.

Bekimukh: N 26° 14' 43.2" E 90° 49' 12.7". In this site river Beki confluence with Brahmaputra river.

Panbari: N 26° 37' 26.9" E 90° 50' 09.3". This site of Manas river lies in the periphery of Manas National Park where nature of water course is semi-torrential.

Nagarzar: N 26° 28' 16.9" E 90° 45' 13.2". This site of Manas river is located in the NH No 31 and the river is plain here.

Lengtisinga: N 26° 18' 28.3" E 90° 45' 02.5". The lower course site of Manas river is quite wide and flooded both the banks during rainy season.

Jogighopa: N 26° 13' 05.0" E 90° 34' 37.6". This is the confluencing point of Manas river with Brahmaputra.

Fishes caught alive or in fresh conditions had been preserved in 9 to 10 % formal de hyde solution (Jayaram, 1999). For fishes of medium ranges (10 to 30 cm) an incision on the abdominal wall top one side of the mid-ventral line is made. For fishes longer than 30cm, injection through a hypodermic syringe and needle is made. In the process of preservation, every individual fish is tagged and details of the fish like location, date of collection, local name, colouration, special features etc. were recorded. The preserved fishes were taken to the laboratory for detailed morphometric investigations.
For taxonomic study of the fishes, various morphometric measurements were taken with utmost care. The measurements were based mainly on the works of Jayaram (1999), Talwar and Jhingran (1991), Nath and Dey (2000). All are straight point-to-point measurements with dial-reading callipers and also with fine pointed dividers except for body depth that is measured point-to-point at a vertical direction where the height is greatest. These measurements were recorded to the nearest one tenth of a millimeter.

(a) **Morphometric measurements** : The important morphometric measurements are:

*Total length* : The greatest distance between the most anterior projecting parts of the head to the posterior most tip of the caudal fin.

*Standard length* : The straight distance from the anterior most part of the head to the end of the vertebral column.

*Body depth* : The vertical measurement from a point in the body of the fish on its back where its height is greater to a straight line to the ventral surface or profile.

*Head length* : A straight measurement of the distance from the tip of the snout to the most distant point on the opercular membrane.

*Head depth or height of head at occiput* : The perpendicular distance measured from the midline at the occiput vertically downwards to the vertical contour of the head or the breast.
**Head width**: Distance straight across the head in the ventral position.

**Eye diameter**: The distance between margins of the cartilaginous eyeball across the cornea.

**Snout length**: The distance from the most anterior midpoint on the snout or upper lip to the front hard margin of the orbit.

**Interorbital width**: The least distance between the bony rims between inner margins of the eyes.

**Predorsal length**: A straight measurement from the midpoint or tip of the snout or upper lip or the anterior most part of the head to the structural part of the first dorsal fin ray.

**Postdorsal length**: A straight-line measurement from the structural base of the dorsal fin to the flexure line of the body or the end of the vertebral column.

**Prepelvic distance**: A straight distance from the mid-point of the base of the pelvic fin to the anterior most point of the head.

**Height of the dorsal-anal fin or length of dorsal fin spine**: Measure from the anterior point of function with the body to anterior tip of the fin even if the other rays do not reach this point.

**Length of base of Spinous or soft dorsal, Adipose dorsal, Anal fin**: The greatest distance measured in a straight line between the anterior most and posterior most points of function with the body.
Length of Pectoral and Pelvic fin or spines: Measured between its origin or place of insertion into the body to the extreme tip.

Depth or Least Height of Caudal Peduncle: The least vertical distance from the dorsal to ventral profile at the narrowest part of the caudal peduncle. It is a straight measurement.

Length of Caudal Peduncle: An oblique measurement from the last point of contact of anal fin posteriorly to the end of the vertebral column or the flexure line of the body.

Postorbital length: The greatest distance from the posterior edge of orbit to the posterior tip of the fleshy operculum

Suborbital width: The least distance from the lower most margin of the orbit to suborbital or preorbital margin

Width of gape of mouth: The greatest transverse distance across the opening of the mouth, without stretching the mouth opening.

Width of the premaxillary teeth band: The maximum width of the band.

Length of Occipital process: The distance from the point of origin or base of the occipital process on the supra-occipital bone of its posterior most tip where it meets the basal bone of the dorsal fin, the latter is excluded. Where it meets the inter-neural shield, the shield is excluded.

Width of Occipital process: The maximum width at base of occipital process where it originates from the supra-occipital bone.
(b) **Meristic characters**: The important meristic characters are –

*Fin rays count*: Number of fin rays of dorsal, pectoral, pelvic, anal and caudal are counted. Hard rays, spinous rays and simple rays are separately shown. Caudal fin rays are counted separately for the principal rays and the branched rays in each lobe. Pectoral and pelvic fin rays are counted including the smallest one at the inner end of the fin base. A good magnification is often needed for this count.

*Lateral line scale count*: The number of scales or pores along the lateral line up to the structural caudal base or end of hypural plate or at the flexure line of the body. The scales wholly on the caudal fin base or beyond this point are excluded. Where the flexure line cuts a scale, depending upon the front or behind of the midline of the scale, the count is made. If the cut is behind the midline of the scale it is included.

If the line is incomplete or absent, or if all the scales do not have pores or perforations the scales themselves may be counted along the normal course of the line. Near the head the first scale to be counted is the one which touches the pectoral girdle and which is followed by a scales which does not touch it.

*Scales from the back to the lateral line*: Generally the count is taken from the insertion of the first dorsal fin including the small scales, counting downward and backward following the natural scale row to but not including the lateral line scale.

*Scales below lateral line or from lateral line to pelvic base*: These are counted as above but from below upwards and forward from base of pelvic to lateral line. Small scales are included. The scale nearest the pelvic fin is counted as half when it is so. When counting upward and
forward, if the scales rows are found wavy backward and forwards, the backward rows are taken.

*Predorsal scales*: The number of scales from the origin of the dorsal fin to the occiput. All scales that wholly or partly intercept the straight midline running from the origin of the dorsal fin to occiput is taken.

*Scales in transverse series*: Where the lateral line is absent, the number of transverse rows of scales between the occiput and the structural base of the caudal fin is counted.

*Circumpeduncular scales*: Scales around the least depth of caudal peduncle.

*Branchiostegal rays*: Numerous tiny thin bones arranged fanwise from the lower edge of the opercle to the ventral surface of the head and covered by the branchiostegal membrane.

*Gill rakers*: Thin needle like filamentous prolongations on the gill arches. For count purposes, the rakers on the first arch are taken.

*Pharyngeal teeth*: “Throat teeth” borne on two bones which are modified to fifth gill arches, each with one to three rows of teeth. The teeth in each row are counted and are indicated in formula in order from left to right.

The various measurements are shown in ratio as:

- Head length ... in Standard length
- Body depth ... in Standard length
- Predorsal distance ... in Standard length
- Postdorsal distance ... in Standard length
### Material and Methods

<table>
<thead>
<tr>
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<tr>
<td>Dorsal fin length</td>
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<td>Head width</td>
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<td>Snout length</td>
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<td>Eye diameter</td>
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<tr>
<td>Snout length</td>
<td>in Interorbital width</td>
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<tr>
<td>Caudal peduncle depth</td>
<td>in caudal peduncle length</td>
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</table>

### Identification and classification
The identification of fishes were mainly based on the works of Talwar and Jhingran (1991), Jayaram (1999), Nath and Dey (2000), Vishwanath (2002) etc. For confirmation following literatures were followed – Jayaram (1991) for genus *Puntius* Hamilton, Menon (1964) for *Garra* Hamilton, Rainboth (1982) for *Psilorhynchus* McClelland, Mishra (1976), Jayaram (1977a,b, 1979, 1980 and 1982) for siluroid fishes, Menon (1992) for fishes belonging to Cobitidae and Botinae. Beside these, relevant literatures mentioned in the synonymies of the fishes in the text were followed.

Classifications of the identified fishes were done mainly after Talwar and Jhingran (1991), Jayaram (1999) and Nelson (1994). For scientific names of the fishes Talwar and Jhingran (1991), Vishwanath (2002) and websites *viz*. [www.calacademv.org/research/ichthyology/catalog](http://www.calacademv.org/research/ichthyology/catalog) of fishes and [www.fishbase.org](http://www.fishbase.org) were followed.
Comparison: Wherever necessary, the morphometric data of the fishes were compared with the specimen deposited at the fish section of Biodiversity Museum of the Zoology Department, Gauhati University and with the fishes of Zoological Survey of India, Eastern Regional Station, Shillong.

Mode of arrangement: The mode of arrangement is followed as proposed by Talwar and Jhingran (1991) and Vishwanath (2002).

The habitat inventories were carried out in terms of different physico-chemical and biological parameters in the study area. Standard methods were applied for physico-chemical examinations viz. APHA (1998). Biological parameters were based mainly for zoo and phytoplanktons. The planktons were identified after APHA (1998), Needham and Needham (1972) and Edmonson (1959).
Morphometric measurements: AF-Standard length, AD-Head length, TU-Body depth, BC-Eye diameter, AB-Snout length, CD-Post orbital length, AE-Predorsal length, ON-Height of dorsal fin, KJ-Prepelvic length, KI-Preanal length, LM-Pectoral fin length, PQ-Height of anal fin, VJ-Pelvic fin length, GH-Caudal peduncle length, RS-Height of Caudal peduncle.
SYSTEMATIC ACCOUNT
OF FISHES
## SYSTEMATIC LIST OF FISHES

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<tr>
<td>Order</td>
<td>Anguilliformes</td>
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<tr>
<td>Family</td>
<td>Anguillidae</td>
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<tr>
<td>Genus</td>
<td>Anguilla Schrank</td>
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<tr>
<td>Species</td>
<td>1. <em>Anguilla bengalensis</em> (Gray)</td>
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<tr>
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<td>Clupeomorpha</td>
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<td>Alosinae</td>
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<tr>
<td>Genus</td>
<td>Gudusia Fowler</td>
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<td>Species</td>
<td>2. <em>Gudusia chapra</em> (Hamilton-Buchanan)</td>
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<td>Genus</td>
<td>Hilsa Regan</td>
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<td>3. <em>Hilsa ilisha</em> (Hamilton-Buchanan)</td>
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<td>Genus</td>
<td>Setipinna Swainson</td>
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<tr>
<td>Species</td>
<td>4. <em>Setipinna phasa</em> (Hamilton-Buchanan)</td>
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<td>Genus</td>
<td>Chagunius Smith</td>
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<td>Species</td>
<td>5. <em>Chagunius chagunio</em> (Hamilton-Buchanan)</td>
</tr>
<tr>
<td>Genus</td>
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</tbody>
</table>
Species : 6. *Cirrhinus reba* (Hamilton-Buchanan)
Genus : *Semiplotus* Heckel
Species : 7. *Semiplotus semiplotus* (McClelland)
Genus : *Bangana* Hamilton-Buchanan
Species : 8. *Bangana dero* (Hamilton-Buchanan)
Genus : *Labeo* Cuvier
Species : 9. *Labeo calbasu* (Hamilton-Buchanan)
10. *Labeo dyocheilus* (McClelland)
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Genus : *Neolissochilus* Rainboth
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Genus : *Oreichthys* Smith
Species : 13. *Oreichthys cosuatis* (Hamilton-Buchanan)
Genus : *Osteobrama* Heckel
Species : 14. *Osteobrama cotio* (Hamilton-Buchanan)
Genus : *Puntius* Hamilton-Buchanan
Species : 15. *Puntius chola* (Hamilton-Buchanan)
16. *Puntius conchonius* (Hamilton-Buchanan)
17. *Puntius puntio* (Hamilton-Buchanan)
18. *Puntius sarana* (Hamilton-Buchanan)
19. *Puntius sophore* (Hamilton-Buchanan)
20. *Puntius terio* (Hamilton-Buchanan)
21. *Puntius ticto* (Hamilton-Buchanan)
Genus : *Tor* Gray
Species : 22. *Tor putitora* (Hamilton-Buchanan)
23. *Tor tor* (Hamilton-Buchanan)
Subfamily : Cultrinae
Genus : Salmophasia Swainson

Species : 24. *Salmophasia bacaila* (Hamilton-Buchanan)
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Subfamily : Rasborinae
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Species : 26. *Aspidoparia jaya* (Hamilton-Buchanan)
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Genus : Barilius Hamilton-Buchanan
Species : 28. *Barilius barna* (Hamilton-Buchanan)
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Genus : Devario Fang Fang
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Genus : Rasbora Bleeker
Species : 34. *Rasbora rasbora* (Hamilton-Buchanan)

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Genus : *Schizothorax* Heckel
Species : 36. *Schizothorax richardsonii* (Gray)
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Genus : *Garra* Hamilton-Buchanan
Species : 38. *Garra annandalei* Hora
39. *Garra gotyla* (Gray)
40. *Garra nasuta* (McClelland)
Family : Psilorhynchidae
Genus : *Psilorhynchus* McClelland
Species : 41. *Psilorhynchus balitora* (Hamilton-Buchanan)
42. *Psilorhynchus sucatio* (Hamilton Buchanan)
Family : Balitoridae
Subfamily : Nemacheilinae
Genus : *Acanthocobitis* Peters
Species : 43. *Acanthocobitis botia* (Hamilton-Buchanan)
Genus : *Nemacheilus* Bleeker
44. *Nemacheilus corica* (Hamilton-Buchanan)
Genus : *Schistura* McClelland
45. *Schistura beavani* (Gunther)
Family : Cobitidae
Subfamily : Cobitinae
Genus : *Lepidocephalichthys* Bleeker
Species : 46. *Lepidocephalichthys guntea* (Hamilton-Buchanan)

Subfamily : Botiinae
Genus : *Botia* Gray
Species : 47. *Botia dario* (Hamilton-Buchanan)
48. *Botia rostrata* Gunther

Order : Siluriformes
Family : Bagridae
Genus : *Sperata* Holly
Species : 49. *Sperata aor* (Hamilton-Buchanan)
Genus : *Batasio* Blyth
Species : 50. *Batasio tengana* (Hamilton-Buchanan)
Genus : *Mystus* Scopoli
Species : 51. *Mystus cavasius* (Hamilton-Buchanan)
52. *Mystus vittatus* (Bloch)

Family : Siluridae
Genus : *Ompok* Lacepede
Species : 53. *Ompok bimaculatus* (Bloch)
54. *Ompok pabda* (Hamilton-Buchanan)

Family : Schilbeidae
Subfamily : Ailiinae
Genus : *Ailia* Gray
Species : 55. *Ailia coila* (Hamilton-Buchanan)

Subfamily : Schilbeinæ
Genus : *Clupisoma* Swainson
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Genus : Eutropiichthys Bleeker
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Genus : Amblyceps Blyth
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Family : Sisoridae
Genus : Bagarius Bleeker
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Genus : Erethistes Muller & Troschel
Species : 61. Erethistes pussilus Muller & Troschel
Genus : Erethisoides Hora
Species : 62. Erethisoides montana Hora
Genus : Gagata Bleeker
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Species : 65. Laguvia shawi Hora
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Species : 66. Gangra nangra (Hamilton-Buchanan)
67. Gangra viridescens (Hamilton-Buchanan)
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Species : 68. *Sisor rhabdophorus* Hamilton-Buchanan
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Genus : *Chaca* Gray
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Family : Olyridae
Genus : *Olyra* McClelland
Species : 70. *Olyra longicaudata* McClelland
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Family : Syngnathidae
Genus : *Microphis* Kaup
Species : 71. *Microphis deocata* (Hamilton-Buchanan)
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Suborder : Percoidei
Family : Ambassidae
Genus : *Chanda* Hamilton-Buchanan
Species : 72. *Chanda nama* Hamilton-Buchanan
Genus : *Parambassis* Bleeker
Species : 73. *Parambassis ranga* (Hamilton-Buchanan)
Family : Nandidae
Subfamily : Badinae
Genus : *Badis* Bleeker
Species : 74. *Badis badis* (Hamilton-Buchanan)
Suborder : Mugiloidei
Family : Mugilidae
Genus : *Rhinomugil* Gill
Species : 75. *Rhinomugil corsula* (Hamilton-
Suborder : Gobioidei
Family : Gobiidae
Subfamily : Gobiinae
Genus : *Glossogobius* Gill
Species : 76. *Glossogobius giuris* (Hamilton-Buchanan)

Suborder : Anabantoidei
Family : Belontiidae
Subfamily : Trichogasterinae
Genus : *Polyacanthus* Cuvier
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Suborder : Channoidei
Family : Channidae
Genus : *Channa* Scopoli
Species : 78. *Channa gachua* Bloch & Schneider

Order : Tetraodontiformes
Suborder : Tetraodontoidei
Family : Tetraodontidae
Genus : *Tetraodon* Linnaeus
SYSTEMATIC ACCOUNT OF FISHES

Grade: PISCES

Aquatic Gnathostomata having gills in adult state. Paired limbs if present are not of pentadactylyous type. Median fins supported by a special skeleton. An internal ear only. No amnion, no allantois.

Class: OSTEICHTHYES: Bony fishes

The class includes bony fishes and preponderance of bone in the skeleton of most species are seen. Most bony fishes are oviparous, with fertilization external. They usually have a single gill opening of each side of the head.

Subclass: ACTINOPTERYGII

Radials of paired fins not arranged biserially; no internal nares; scales not of cosmoid type. Squamosal and Jugal sensory canal absent. Conus arteriosus extended into bulbus arteriosus. Lower forms with a single dorsal fin.

Subdivision: TELEOSTEI: Teleosts

The teleosts or modern bony fishes are the largest and most diverse group of fishes. Comprising about 20,800 species (Nelson, 1994), the teleosts have radiated into every aquatic niche of our planet, from high mountain streams to the greatest depths of the oceans, from deep caves and tropical swamps to the polar seas.
Infradivision: ELOPOMORPHA

Primitive teleosts in which the angular and retroarticular bones of the lower jaw are fused, the rostral and prenasal ossicles are present; and there is a unique, elongate, compressed larval form known as "leptocephalus". (Nelson, 1973; Patterson and Rosen, 1977; Greenwood, 1977).

Order: ANGUILLIFORMES: Eels

Eels are long-bodied, snake-like fishes with low dorsal and anal fins, generally long, continuous with caudal fin and supported by soft-rays. Gill openings restricted to a slit or hole on each side (on underside of head in some species); pelvic fins absent. No spines in fins. Pectoral fins absent in many eel groups. Scales usually absent; if present, they are small and embedded in the skin. Branchiostegal rays 6 to 49. Lateral line present, sometimes obsolete. Swimbladder present and with a duct.

Family: ANGUILLIDAE: Freshwater eels

Body elongate and robust; cylindrical in front and only moderately compressed along tail. Snout rounded; mouth terminal and moderately large; lips thick; teeth small and conical, multiserial to form narrow to broad bands on jaws and vomer.

Genus: Anguilla Schrank

1798. Anguilla Schrank, Fauna Boica, 1: 76 (type-species: Muraena anguilla Linnaeus.)

*Anguilla bengalensis* (Gray)  
(Fig. 3)


1878. *Anguilla bengalensis* : Day, *Fishes of India* : 659, pl. 168. fig.1;

1889 *Anguilla bengalensis*: Day, *Fauna Br. India*, Fishes, 1 : 68, fig. 35.


Fig.3. *Anguilla bengalensis* (Gray)

Vernacular names: Assamese: Nadal Bami, Langar Bami; English: Indian longfin eel; Oriya: Thumbi; Manipuri: Ngaril laina; Tamil: Serampambu; Tankhul(Naga): Manoi; Telegu: Malumgulu; Malayalam: Maniangal; Marathi: Harimeenu.

Diagnostic features: Head length 12.1 (11.81-12.39) and body depth 32.86 (34.06-31.66) in standard length. Eye diameter 47.3 (45-49.60) in head length. Dorsal fin inserted nearer base of anus than gill opening.

Description:
Counts: D 260-269; P 18; A 221-226

Proportional measurements: Head length 12.1 (11.81-12.39), body depth 32.86 (31.66-34.06), predorsal length 5.40 (5.18-5.63), postdorsal length 1.24 (1.23-1.25), height of dorsal fin 144.5 (142.5-146.5) in the standard length. Head length 3.04 (2.87-3.22), head width 3.16 (3.06-3.26), eye diameter 47.3 (45-49.60), snout length 6.2 (6.2-6.21), width of gape of mouth 7.03 (6.88-7.18), postorbital length 1.25 (1.24-1.27) in the head length. Eye diameter 5.14 (4.28-6.00), snout length 0.78 (0.75-0.81) in the interorbital width.

Body is elongated. The conically shaped head is dorsoventrally flattened. Mouth terminal where cleft extends behind the posterior edge of the orbit. Lips are well developed. Teeth are small and inconspicuous. The vomarine band does not extend posteriorly so far as the maxillary one, the mandibular teeth divided by a longitudinal groove. Scales rudimentary and embedded in the skin. Dorsal fin inserted nearer anus than gill opening.
**Colour** : Brownish superiorly, becoming yellowish on the sides and beneath.

**Distribution** : N.E India : Assam, Meghalaya, Tripura, Manipur, Arunachal Pradesh.
Rest of India : Throughout India.
Other parts : Bangladesh, Pakistan, Sri Lanka, Malay Archipelago, Myanmar, Formosa.

**Habitation** : Mainly fresh waters though occur in the estuaries and in the sea during early life and near maturity.

**Relationship** : It differs from other eels by having minute, embedded scales.

**Remarks** : Three specimens are collected from Manas river at Nagarzar and two specimens are collected from Panbari. This is a rare species and suddenly appears in the markets. But when appears in the markets the price is very high. It is categorized as endangered (EN) species in the CAMP report.

**Infradivision** : **CLUPEOMORPHA**

Primitive teleosts with a connection between the swimbladder and the ears in which the swimbladder is bifurcated anteriorly to form two sacs contained within bony swellings of the prootic and pterotic bones on each side of the skull ; this particular type of connection between the ears and the swimbladder is unique among fishes (Greenwood et al., 1996).
Order: CLUPEIFORMES


Family: CLUPEIDAE: Herrings, Sardines, Shads

Upper jaw neither prominent nor projecting over the lower jaw. Maxillaries not much elongated. One or two super maxillaries. Lateral line absent or traversing only the anterior 2 to 5 scales. Anal of moderate length (19–42 rays).

Subfamily: ALOSINAE: Shads, River shads

Body compressed, fully scuted along belly. Mouth terminal, upper jaw not evenly rounded anteriorly, but with a distinct notch. Teeth on jaws reduced or absent. Scales varying in size and number in lateral series. Fronto-parietal region with or without longitudinal striae. Cleithral lobe small or big. Gill rakers on 2nd, 3rd and 4th gill arch.

Genus: Gudusia Fowler

Body oblong and well compressed. Abdomen serrated with 18 or 19 prepelvic and 8 to 10 postpelvic scutes. Snout shorter than eye diameter. Upper jaw with a distinct median notch. Mouth slightly up-turned, terminal. Dorsal fin originates opposite the place of origin of the ventral fin. Scales small, 77 to 91 in lateral series. Lateral line absent.

**Gudusia chapra** (Hamilton-Buchanan)  
(Fig.4)


1968. *Gudusia godanahiai* Srivastava, *Fishes of Eastern Uttar Pradesh*: 6, figs. 4 a, b (type-locality: Gorakhpur, Uttar Pradesh).


**Fig.4. Gudusia chapra** (Hamilton-Buchanan)

**Material examined**: Three examples, (72.1-81.9 mm) SL, Jogighopa, 9th May, 2001.


**Diagnostic features**: Scales small, series irregular except on upper flank, 80 in lateral series. Lower edge of operculum steeply inclined at 45° to the horizontal, fluviatile. Depth of the body 2.89 times in the standard length. 26 scutes along belly; depressed tip of the dorsal fin extends to behind vertical from anal fin origin; hind margin of scales smooth. Anal fin with iii 22 rays. Body without any cross bars on sides, but with round spots.
Description:

Counts: D iv 11; P i 12; V i 7; A iii 12; C 17. Lateral line scales 80. Predorsal scales 25. Scutes along belly 26. Barbels absent.

Proportional measurements: Head length 3.24 (3.20-3.29), body depth 2.89 (2.80-2.94), predorsal distance 2.18 (1.99-2.29), postdorsal distance 1.80 (1.73-1.89), height of dorsal fin 4.76 (4.70-4.81), pectoral fin length 5.12 (5.01-5.23), pelvic fin length 7.94 (7.81-8.00), anal fin height 10.12 (10.00-10.19), caudal peduncle length 16.20 (16.01-16.34) in the standard length. Head depth 1.21 (1.00-1.38), head width 2.68 (2.50-2.79), eye diameter 3.57 (3.46-3.78), snout length 5.43 (5.40-5.53), width of gape of mouth 6.94 (6.81-6.99), postorbital length 1.85 (1.77-1.93) in the head length. Eye diameter 0.82 (0.77-0.89), snout length 1.26 (1.15-1.38) in the interorbital width. Caudal peduncle depth 0.54 (0.49-0.63) to its length.

Body well compressed, oblong. Abdominal profile more convex than dorsal profile. Depth of the body 2.89 times in the standard length. Abdomen serrated with 26 scutes along belly. Head short, high, compressed; length of head 3.24 times in the standard length. Snout rounded. Mouth somewhat oblique, sub inferior, cleft not extending to orbit. Barbels absent. The maxilla straight and rather narrow, reaching to below the anterior third of the orbit; opercle 2/3 wide as deep, sub-opercle large. Lower edge of operculum steeply inclined at 45° to the horizontal. Eye large, lateral, in the anterior part of the head, not visible from below ventral surface and with a broad adipose eyelid. Diameter of eye 3.57 times in the head length and 0.82 times in the interorbital width. Lips thin. Lower jaw not projecting over the upper. Teeth absent. Gill rakers fine and numerous. Dorsal fin inserted above pelvic fin origin. Depressed tip of dorsal fin extended to behind vertical from anal fin origin. Pectoral does not quite reach the ventral, anal highest in front, caudal deeply forked,

**Colour**: Silvery shot with gold, back rather dark, and edge of caudal stained darkest. Body without any cross bars on sides but with round spots.

**Habitation**: Inhabitants of rivers. Attains a length of 15 cm in the standard length.

**Distribution**: N. E. India: Assam, Meghalaya, Arunachal Pradesh, Manipur, Tripura.
Rest of India: Ganga and Mahanadi river systems.
Other parts: Bangladesh.

**Relationship**: The genus *Gudusia* differs from *Hilsa* by small scales, irregular series, 80 scales in lateral series and lower edge of operculum steeply inclined at 45° to the horizontal. Again *G. chapra* differ from *G. variegata* by body depth 2.89 times in the standard length, 26 scutes along belly, depressed tip of dorsal fin extends to behind vertical from anal fin origin and smooth hind margin scales.

**Remarks**: All the specimens are collected from Manas river at Jogighopa. This species is available only in the lower reaches of the rivers and appears in the markets of those areas. Preference is given as a foodfish. It is categorized as lower risk least concern (LRlc) in CAMP report.

**Genus**: *Hilsa Regan*

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Body compressed, oblong. Abdomen keeled and serrated. Head large, high, compressed. Snout rounded. Mouth terminal, cleft not extending to orbit. Gillrakers fine and numerous. Suboperculum rectangular or subrectangular, its junction with operculum, if produced, cutting the dorsal profile in middle of dorsal fin base or behind. Lateral line absent.

*Hilsa ilisha* (Hamilton-Buchanan)
(Fig. 5, 94)


![Image of Hilsa ilisha](image_url)

**Material examined**: Three examples, (137.5-140.9 mm) SL, Jogighopa, 6\(^{th}\) May, 2001; one example, 158 mm SL, Jogighopa, 27\(^{th}\) May, 2001; two examples, (160.2-197 mm) SL, Nagarzar, 31\(^{st}\) March, 2001.


**Diagnostic features**: Anal fin with less than 30 rays, scales large, regularly arranged, 38-41 in lateral series, lower edge of operculum at 20\(^{\circ}\) to horizontal, gillrakers on inner arches straight, scales not perforated, fronto-parietal striae on top of head inconspicuous, hidden by skin, head length 3.37 (3.12-3.80) in the standard length, caudal fin lobes as long as head, gillraker 160 (150-170) on lower arm of first arch, series of small spots along flanks.
Description:

Counts: D iii 14; P I 15; V I 7; A iii 17-18. Lateral line scales 38-41.

Proportional measurements: Head length 3.37 (3.12-3.80), body depth 3.46 (3.31-3.54), predorsal length 2.06 (2.03-2.09), postdorsal length 1.88 (1.86-1.90), caudal peduncle length 14.4 (13.70-14.80) in the standard length. Head length 1.24 (1.08-1.33), head width 2.20 (2.21-2.34), eye diameter 4.53 (4.27-4.71), snout length 4.17 (4.06-4.35), width of gape of mouth 5.16 (5.00-5.43), postorbital length 1.55 (1.40-1.65) in the head length. Eye diameter 1.43 (1.16-1.75), snout length 1.21 (1.09-1.33) in the interorbital width. Caudal peduncle depth 0.73 (0.68-0.77) to its length.

Body fusiform, deep and compressed. Abdominal edge keeled with a row of scutes, head with numerous fronto-parietal striae. Upper jaw with a notch for lower jaw occlusion, eye with broad adipose eyelids. Abdominal profile more convex than that of the back, lower jaw scarcely projects beyond the upper. The maxilla extends posteriorly to below the hinder third of the orbit. Teeth are absent. Dorsal origin nearer to snout than to caudal base. Pectoral fin extend to pelvic origin and the pelvic fin originate in the anterior half of dorsal fin. Caudal deeply forked and lobes are as long as head. Gillrakers numerous and fine. Pseudobranch well developed. Scales are large and regularly arranged. 38-41 scales in lateral series.

Colour: Greenish in above with a glass of gold changing to purple and below silver. Row of four or five black spots on each shoulder and is absent in adults. A dark blotch behind gill opening. Fins are hyaline.
**Distribution**: N.E. India: Assam, Tripura

Rest of India: Ganga, Cauvery, Godavari, Krishna, Narmada, Pennar, Tapi, Yamuna river.

Other parts: Bangladesh, Pakistan, Sri Lanka, Myanmar.

**Habitation**: Marine, pelagic and schooling in coastal waters, euryhaline, anadromous, ascending river for breeding.

**Relationship**: It differs from its related genus *Gudusia* having regularly arranged large scales, 38-41 scales in lateral series and lower edge of operculum at 20° to horizontal.

**Remarks**: One specimen is collected from Manas river at Nagarzar. Other specimens are also collected from Manas river at Jogighopa in the confluencing point of river Manas with Brahmaputra. This anadromous species is rare in the study areas and available in the lower portion of the rivers. Market value is high because of taste and inavailability. This species is categorized as vulnerable (VU) in CAMP report.

**Family**: ENGRAULIDIDAE: Anchovies

Maxillaries composed of two pieces, not ossified together. Tip of snout over-hanging mouth, latter set far back on the underside of the head. Lower jaw inconspicuous, upper jaw extending well beyond eye. Scales cycloid, thin and rather deciduous; no lateral line. Branchiostegal rays 7 to 19.

**Genus**: *Setipinna* Swainson

Body oblong to elongate, compressed or strongly compressed; belly sharply keeled, with 21 to 40 scutes from isthmus to anus. Maxilla extending behind eye, but not upto gill opening. Lower jaw shorter than upper. Small teeth on jaws and palate. Upper pectoral ray produced.

*Setipinna phasa* (Hamilton-Buchanan)  
(Fig. 6)

(type-locality : brackish rivers of Bengal).

(type-locality: Ganges river).

fig.2.


![Image of Setipinna phasa](image)

**Material examined**: Three examples, (146-159 mm) SL, Bekipar, 2nd February, 2001; one example, 101 mm SL, Bekipar, 3rd February, 2001.

**Vernacular names**: Bengali: Phasa; English: *Gangetic hairfin anchovy*; Hindi: Bindi, Patara, Phasia; Oriya: Tamparia.

**Diagnostic features**: Anal fin long with 73 branched rays. First pectoral ray filamentous. Lower gillrakers 18. Head length 5.54 times in standard length. Pectoral fins black in the adult specimen.

**Description**:

**Counts**: D i 14; P i 13; V i 6; A iii 70. Scales in lateral series 57. Gillrakers 18. Scutes in abdomen 21.

**Proportional measurements**: Head length 5.54 (5.29-5.73), body depth 4.05 (4.00-4.12), predorsal length 2.22 (2.11-2.43), postdorsal length 1.76 (1.51-1.89), height of dorsal fin 5.97 (5.63-6.10), pectoral fin length 3.65 (3.49-3.85), pelvic fin length 13.03 (13.01-13.06), anal fin height 13.94 (13.61-14.23), caudal peduncle length 15.9 (15.75-16.19) in the standard
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length. Head depth 1.05 (1.01-1.08), head width 2.20 (2.01-2.39), eye diameter 4.10 (4.00-4.20), snout length 6.10 (6.01-6.19), width of gape of mouth 3.15 (3.03-3.29), postorbital length 1.54 (1.46-1.72) in the head length. Eye diameter 1.00 (0.98-1.03), snout length 1.48 (1.35-1.62) in the inter orbital width. Caudal peduncle depth 0.81 (0.75-0.90) in its length.

Body fusiform and strongly compressed. Abdomen edge strongly keeled with 21 scutes. Head short and compressed, its length 5.54 times in the standard length. Prominent snout is obtuse. Mouth subinferior. Short maxilla reaches to gill-opening. 18 gillrakers on lower arm of first arch. Cleft of mouth wide, extending to beyond posterior margin of eye. Both jaws are indented on their edges and are sharp. Lips are thin. Dorsal fin originate slightly behind the anal fin origin and predorsal length is lower than the postdorsal length. First ray of pectoral fin produced into a filament which reaches to base of 15th to 39th anal fin ray. Pelvic fin short. Anal fin long, not attached to caudal fin which is forked. Scales are large and deciduous.

Colour: Olive-brown along back side and belly are bright silver. Pectoral fins hyaline, dorsal and caudal yellow, stained with black at their upper edges. Elongated pectoral ray is uncoloured.

Distribution: N.E.India: Assam, Meghalaya, Arunachal Pradesh, Manipur.
Rest of India: Ganga river system and Orissa.
Other parts: Bangladesh, Myanmar.

Habitation: Fresh water rivers, ponds, lakes, tanks, channels and estuaries.
Relationship: It differ from its closely related genus by having upper pectoral finray a filament and from related species by 18 gill rakers, head length 5.54 times in standard length and black pectoral fins.

Remarks: All the specimens are collected from Beki river at Bekipar. The species is very rare in the study area and seldom appears in the markets. This species is not evaluated in the CAMP.

Infradivision: EUTELEOSTEI

An ill-defined set of “higher teleosts” comprising all those living (recent) teleosts that are left after subtraction of the Osteoglossomorpha, Elopomorpha and Clupeomorpha. In addition to representing 90% of all living fish species, the euteleosts far exceed all of the other fishes in their diversity of morphology, ecology and behaviour.

Order: CYPRINIFORMES

Body oblong, compressed with small to large scales but no scales on head. Bony plates never developed. Mouth usually protractile and always toothless. Bones usually with bone cells. Adipose dorsal generally absent except in some nemacheilins and cobitins. Suprabranchial organ absent. Lateral line present.

Family: CYPRINIDAE: Carps and Minnows

Paired fins laterally inserted. Not more than one anterior (=outermost) ray of pectoral fins simple, or may be all branched. One or two pairs or no barbels. Body laterally compressed. Adipose dorsal fin absent. Pharyngeal
teeth one to three rows, never more than eight teeth in any one row.
Lateral line complete or incomplete.

**Subfamily**: CYPRININAE : Barbs

Lower jaw without any symphysial process; dorsal fin inserted before or opposite (exceptionally slightly behind) to origin of pelvic fins, generally with a spine; lateral line running along median line of caudal peduncle.

**Genus**: *Chagunius Smith*


Body with scales; Pharyngeal teeth in three rows; lateral line distinct, complete. Mouth narrow, upper row not extending to front edge of eye. Snout entire, without any lobes; lips not covered with papillae. Dorsal fin with eight branched rays, dorsal spine serrated, lateral trunk scales without radii.

*Chagunius chagunio* (Hamilton-Buchanan)

(Figs. 7, 95)


1878. *Barbus chagunio*: Day, *Fishes of India*: 559, pl. 136. fig. 1 and pl. 140, fig. 2.


2000. *Chagunius chagunio*: Nath and Dey, *Fish and Fisheries of N.E. India*: 54, fig. 46.


**Material examined**: Three examples, (61-68.3 mm) SL, Bhalukadoba, 3rd February, 2001, six examples, (59.1-78 mm) SL, Bashbari, 14th September, 2001, two examples, (57.1-73.3 mm) SL, Kalgachia, 16th June, 2003.

Diagnostic features: Based on three specimens 57-78.2 SL. Dorsal fin with eight branched rays; dorsal spine serrated; body scales on sides without radii. Circumferential scales 41-42, circumpeduncular scales 24.

Description:
Counts: D iii 8; P i 14; V i 8; A ii 6; C 19. Lateral line scales 44-45, scales from back to lateral line 10.5, scales from lateral line to pelvic base 8.5. Circumferential scales 41-42, circumpeduncular scales 24. Scales between vent and anal fin 3. Predorsal scales 15.

Proportional measurements: Head length 3.37 (3.16-3.58), body depth 3.40 (3.22-3.67), predorsal length 1.95 (1.88-2.03), postdorsal length 1.88 (1.80-2.00), height of dorsal fin 3.75 (3.38-4.01), length of pectoral fin 5.52 (5.12-5.87), length of pelvic fin 6.37 (5.97-6.74), height of anal fin 6.14 (5.98-6.35), length of caudal peduncle 7.32 (7.12-7.62) in standard length. Head depth 1.24 (1.15-1.30), head width 1.96 (1.88-2.05), eye diameter 4.96 (4.92-5.00), snout length 2.74 (2.40-3.00), width of gape of mouth 3.03 (2.97-3.11), postorbital length 2.99 (2.83-3.16) in the head length. Eye diameter 1.00 (0.98-1.03), snout length 0.93 (0.89-1.00) in the interorbital width. Caudal peduncle depth 1.18 (1.14-1.27) to its length.

Body elongate with dorsal profile more convex than ventral, abdomen broadly rounded. Head compressed with flat sides. Snout somewhat acute beset with small tubercles and depression along the nostrils. Mouth subterminal, narrow and directed forward. Lips thin, upper lip longer than lower. The two pairs of barbels are more or less of equal length and longer.
than orbit. Eyes large, superior not visible from below ventral surface. Suborbital region, cheeks and anterior superior margin of the orbit covered with numerous pores. Dorsal spine strong and serrated, the denticles strong and recurved. It originates above posterior half of pectorals and extending beyond ventral. Insertion of dorsal fin is slightly towards snout than caudal base. Pectoral and anal fin sometimes elongated. Anal fin short. Caudal forked. Lateral line present and complete. Scales small.

**Colour** : Uniformly silvery with a pinkish tinge. Scales towards the back darkest at their bases giving a spotted appearance. Fins reddish with light outer edges. The summit of the dorsal fin is black.

**Distribution** : N.E. India: All the N.E. states except Nagaland
Rest of India: Ganga drainages along the Himalayan foothills.
Other parts: Bangladesh.

**Habitation** : Large rivers characterized by rocky bottom, clear and fast water, and little or no vegetation. Adults are found in habitats with stronger current than juveniles prefer.

**Relationship** : It differ from its closely related genus by having snout with a median and two lateral lobes, large gill rakers, lips covered with papillae, dorsal fin with eight branched rays, serrated dorsal spine and lateral trunk scales without radii. From related species it shows and lateral trunks scales without radii. From related species it shows distinguishing characters like circumferential scales 41-42 and circumpeduncular scales 24.
Remarks: Three species are collected from an off shoot of Manas river known as Mora Manas at Bhalukadoba. Six specimens are collected from Beki river at Bashbari and last two are also from Beki river at Kalgachia. This species sometimes appear in the markets and are sold in a moderate range. The species is not evaluated in CAMP.

Genus: *Cirrhinus* Cuvier


Body moderately elongate; abdomen rounded. Snout depressed, often with pores. Mouth wide. Lower lip reflected off from the mandible and closely adnate to lower jaw. Lower jaw sharp with a small tubercle at the symphysis, and without any cartilaginous covering inside the jaw.

*Cirrhinus reba* (Hamilton-Buchanan)
(Figs. 8, 96)


1877. *Cirrhina reba*: Day, *Fishes of India*: 549, pl. 130. fig. 3.


Material examined: Three examples, (100-109 mm) SL, Lengtisinga, 8th May, 2001, one example, 106 mm SL, Lengtisinga, 9th May, 2001.

Vernacular names: Assamese: Rashim, Lachim, Lassem; Bengali: Raig, Batta, kharge-bata; English: Reba Carp; Hindi: Rewah, Raicheng; Oriya: Dumra, Podha, Purha; Manipuri: Khabag; Tamil: Poorali; Gujarati: Reba.

Diagnostic Features: Dorsal fin with eight branched rays. Upper lip entire, not continuous with lower lip. Lateral line scales 36. Dorsal fin height less than body depth.

Description:
Count: D ii 9; P i 15; V i 8; A iii 5; C 19. Lateral line scales 86. Scales from back to the lateral line 6.5. Scales from lateral line to pelvic base 5.5. Barbels one pair.

Proportional measurements: Head length 3.97 (3.68-4.25), body depth 4.17 (4.01-4.31), predorsal length 2.12 (2.01-2.19), postdorsal length 1.80
(1.71-1.89), height of the dorsal fin 4.54 (4.45-4.63), pectoral fin length 5.89 (5.73-6.03), pelvic fin length 5.84 (5.65-6.01), height of anal fin 6.81 (6.75-6.98), caudal peduncle length 2.04 (2.00-2.09) in the standard length. Head depth 1.39 (1.21-1.52), head width 1.82 (1.75-1.91), eye diameter 4.28 (4.09-4.32), snout length 3.22 (3.09-3.40), width of gape of mouth 4.49 (4.40-4.59), postorbital length 2.44 (2.40-2.51) in the head length. Eye diameter 1.71 (1.69-1.74), snout length 1.29 (1.21-1.39) in the interorbital width. Caudal peduncle depth 1.16 (1.10-1.25) to its length.

Body fairly elongate, compressed, abdomen rounded. Dorsal profile slightly more convex than that of the abdomen. Head is blunt and oval. Snout somewhat acute, slightly projecting beyond mouth. Mouth terminal, extends horizontally and is small, upper lip entire. A thin cartilaginous layer covering lower jaw. Jaws protrude in opening and the upper jaw is longest. Nostrils are near the middle, between the eye and the jaw. Eyes are about the middle of the head, large and convex, not visible from below ventral surface. Gill cover contains three plates and is rounded behind. Barbels a pair of rostral, shorter than eye diameter, none on maxilla. Dorsal fin head less than body depth. It commences slightly nearer the snout than the base of the caudal fin and ahead of ventral. The upper margin of the fin is concave and without any spine. Pectoral fins as long as head. Ventral fins are as long as pectorals, do not reach the vent. Anal fin is near the vent and slopes backward. Caudal fin deeply forked with sharp lobes. Scales hexagonal and moderate. Lateral line complete and runs straight along the upper part of the body.

**Colour:** Silvery, scales darkest at their edges forming longitudinal bands on the body. In preserved specimens bands extend from the anterior to the posterior end. Anal and pelvic fins orange-tipped.
**Distribution**: N.E. India: All the N.E. states except Nagaland.

Rest of India: Throughout the country.

Other parts: Pakistan, Nepal, Bangladesh.

**Habitation**: Inhabitants clear river and tanks. Breeding takes place in the flooded shallows in between June and September. A plankton and detritus feeder.

**Relationship**: It differentiate from closely related genus by having 9 branched rays in dorsal fin, upper and lower lip not continuous. It has 36 lateral line scales whereas closely related species has 44 to 48 lateral line scales.

**Remarks**: All the specimens are collected from Manas river at Lenghtisinga. This is a fish with high demand because of good taste. When appeared in the markets, price is very high. It is categorized as vulnerable (VU) in CAMP report.

**Genus: Semiplotus Bleeker**


Body fairly elongate to extremely deep, laterally compressed. Mouth usually ventral and of great width. Lips thin, plain. No labial fold on lower lip. Lower jaw without any knob above the symphysis, and bent angularly inwards. A horny layer inside lower jaw, may be inconspicuous in juveniles. Upper jaw equal to lower jaw. A scaleless furrow between the occiput and origin of the dorsal fin present, may not be always evident.

_Semiplotus semiplotus_ (McClelland)
(Figs. 9, 97)

1877. _Semiplotus mcclellandi_ Bleeker: Day, *Fishes of India*: 550, pl. 133, fig. 4.
1985. _Semiplotus semiplotus_: Sen, *Fish fauna of Assam*: 88, fig. 41.
1999. _Semiplotus semiplotus_: Jayaram, *Freshwater fishes of India*: 123, fig. 68.
2000. _Semiplotus semiplotus_: Nath and Dey, *Fish and Fisheries of N.E. India*: 37, fig.30

![Fig.9. *Semiplotus semiplotus* (McClelland)](image)

**Material examined**: Eleven examples, (42.5-50.3 mm) SL, Mathanguri, 22\(^{nd}\) December, 2001; six examples, (50.1-56.5 mm) SL, Mathanguri, 23\(^{rd}\) December, 2001; three examples, (39.0-46.5 mm) SL, Bashbari, 19\(^{th}\) March, 2002; two examples, (55.3-55.5 mm) SL, Panbari, 8\(^{th}\) July, 2002.


**Diagnostic features**: Lower lip a mobile structure (epidermis loosely attached to underlying labial shelf and is free to move antero-posteriorly), with a deep shelf enveloped in loose stratified epithelium, anteriorly where it passes around the leading edge of labial shelf. Epidermis is thin and cornified, forming a chisel-edge to the jaw. Lateral line scales 27–30. Last simple (unbranched) dorsal fin ray smooth (non-serrated).
Description:

Counts: D iii 24-25; P i 15; V i 9; A ii 7; C 19. Lateral line scales 27-30. Scales from back to the lateral line 6.5, scales from lateral line to pelvic base 3.5. Barbels absent.

Proportional measurements: Head length 3.75 (3.60-4.03), body depth 2.83 (2.73-2.97), predorsal length 2.35 (2.23-2.68), postdorsal length 1.82 (1.73-2.06), height of the dorsal fin 3.33 (2.94-3.92), pectoral fin length 4.66 (4.26-4.88), pelvic fin length 5.34 (4.95-5.81), caudal peduncle length 6.95 (6.82-7.05) in the standard length. Head depth 1.11 (1.07-1.20), head width 1.68 (1.54-1.79), eye diameter 3.24 (3.02-3.54), snout length 3.31 (3.08-3.65), width of gape of mouth 2.51 (2.18-2.77), postorbital length 2.63 (2.54-2.83) in the head length. Caudal peduncle depth 1.15 (1.03-1.20) to its length. Eye diameter 1.21 (1.15-1.30), snout length 1.24 (1.18-1.34) in the interorbital width.

Body short, extremely deep and laterally compressed. Dorsal profile more convex than that of the abdomen. Head small, its depth almost equal to its length. Snout obtuse and broad, overhanging mouth. A row of 6 open pores passing across the snout and towards the orbit. Eye large, situates in the middle of the length of the head. Mouth wide and inferior, with an exposed cornified mandibular cutting edges, a small knob at symphysis of lower jaw in matured species. Barbels absent. Plough-shaped, pharyngeal teeth are present. Dorsal fin inserted midway between tip of snout and origin of anal fin, its last undivided ray strong, osseous and entire. Pectoral fin nearly equals to the head length and it reaches to the origin of ventral. The ventral originates from 4th or 5th dorsal ray. Anal fin with inner serrated spine. Caudal fin deeply forked. Scales large-sized. Lateral line complete with 27-30 scales. Lateral transverse scales 6.5 / 3.5.

Colour: Of a leaden silver, darkest above, pectoral, pelvic and anal fins orange.
**Distribution**: N. E. India: All the N. E. states except Nagaland. 
Rest of India: North Bengal. 
Other parts: Nepal, Upper Burma.

**Habitation**: Torrential water of the river. Immature fishes prefer rapids whereas larger fishes are found in deeper water.

**Relationship**: The distinctiveness of the fish lies in the size and shape of the head and extreme body depth. It differs from related species by having last simple (unbranched) dorsal fin ray smooth (non-serrated) and 27-30 lateral line scales.

**Remarks**: Seventeen specimens are collected from Manas river at Mathanguri. Three specimens are collected from Beki river at Bashbari and two specimens are collected from Manas river at Panbari. The species is restricted in the upstreams only and rarely seen in the markets. It is categorized as vulnerable (VU) in CAMP report.

**Genus**: *Bangana* Hamilton-Buchanan


Body subcylindrical, covered with medium sized cycloid scales. Dorsal fin with no spine. Branched dorsal fin rays 10-13. Smooth and entire upper lip separated from snout by a deep groove. Lower lip thin, present at sides of

**Bangana dero** (Hamilton-Buchanan)  
(Figs. 10, 99)


1877. *Labeo diplostomus* (nec Heckel), Day, *Fishes of India* : 540, pl. 129. fig. 2


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**Fig. 10. Bangana dero** (Hamilton-Buchanan)

**Material examined** : Four examples, (209-276 mm) SL, Khudnabari ghat, 14th September, 2001; three examples, (113-151 mm) SL, Bashbari, 20th March, 2002.

Diagnostic features: Lower jaws chisel-like with a heavy keratinised aris (cutting edge) but invariably covered by a thick labial fold; mouth inferior; lower lip entirely separated from isthmus by a postlabial groove. Dorsal fin inserted above last quarter of pectoral fins; snout with a distinct deep groove. Lateral transverse scales 7/7. Eye bigger in relation to the standard length.

Description:
Counts: D iii 10-11; P i 16; V i 7; A iii 5; C 19. Lateral line scales 42. Scales from back to lateral line 7.5. Scales from lateral line to pelvic base 7.5. Barbels one pair.
Proportional measurements: Head length 4.22 (4.01-4.53), body depth 4.07 (3.82-4.27), predorsal distance 2.24 (2.01-2.53), postdorsal distance 1.75 (1.54-1.86), height of dorsal fin 3.04 (3.00-3.15), pectoral fin length 4.66 (4.39-4.91), pelvic fin length 4.99 (4.72-5.18), anal fin height 4.38 (4.09-4.68), caudal peduncle length 7.00 (6.88-7.32) in the standard length. Head depth 1.20 (0.99-1.31), head width 1.50 (1.21-1.76), eye diameter 5.32 (5.08-5.78), snout length 2.36 (2.08-2.69), width of gape of mouth 2.58 (2.32-2.83), postorbital length 2.37 (2.16-2.83) in the head length. Eye diameter is 2.59 (2.44-2.77), snout length 0.96 (0.83-1.04) in the interorbital width. Caudal peduncle depth is 1.17 (1.08-1.38) to its length.
Body elongate, its dorsal profile more convex than that of the abdomen. Body depth 4.07 times in the standard length. Head of moderate size, its length 4.22 times in the standard length. Head depth 1.20 times to its length. Mouth rather narrow, snout overhanging the jaws, with a groove across it, and covered with pores. Mouth is without lateral lobes. Lips fleshy and smooth on the edges. The fold across the lower jaw is interrupted. A cartilaginous layer on inside of both lips are present. Gill rakers are closely set. Teeth are pharyngeal and plough shaped. The nostrils are in the middle, between the eyes and point of the nose. Gill covers are almost naked. Eyes situated rather before the middle of the length of the head. Eyes are small, not visible from underside of head. Its diameter 5.32 times in the head length. barbels one pair of short maxillary. Dorsal fin arises midway between the front of the snout and the end of the base of the anal fin. Its upper edges slightly concave and its height more than the body depth. The second ray of the dorsal fin is longer than the first, and shorter than the third - all the three being undivided, and devoid of joints, the others are branched. The pectoral fins are shorter than the head and contain seventeen rays. The ventral fins reach the vent, and are small. The anal fin slopes backward, and its first ray is short, and closely united to the second and third and all of them are simple; others are branched. The caudal fin is deeply forked and lobes are sharp and equal and contains nineteen distinct rays besides several short compacted ones. Scales are of moderate size. Lateral line complete with 42 scales. Scales from back to lateral line is 7.5. Scales from lateral line to pelvic base is also 7.5.

**Colour**: Greyish, darkest along the back, each scale tinged with red, a darkish band along the side, or short grey bars passing to lateral line. Fins with a faint reddish hue. Outer edge of dorsal rather stained.
**Habitation**: Inhabitants sides of torrential hill-streams in shallow waters. Its flesh is well flavoured and highly esteemed as food. Attains a length of 75 cm and can readily be caught with cast-nets. It is commonly used by anglers as bait for *Raiamas bola* and *Tor putitora*.

**Distribution**: N. E. India: Assam, Meghalaya, Arunachal Pradesh, Nagaland, Manipur.
Rest of India: All along the Himalayas.
Other parts: Pakistan (Sind Hills), Sri Lanka, China, Bangladesh, Nepal and Burma.

**Relationship**: The genus *Labeo* can be distinguished from close category by having only lower jaw with a cartilaginous covering but covered with a thick labial fold. Lower lip entirely separated from isthmus by a distinct postlabial groove. The species *dero* has characteristics like continuous labial fold, lateral tr. 7.5/7.5, bigger eye in relation to standard length.

**Remarks**: Four specimens are collected from Beki river at Khudnabari ghat in between Bekipar and Bashbari. Three specimens are collected also from Beki river at Bashbari. The species sometimes appear in the local markets and has a high demand. The species is categorized as vulnerable (VU) in CAMP.

**Genus: Labeo Cuvier**

Body is moderately elongated and the abdomen is rounded, generally projecting beyond mouth, mostly covered with tubercles or a groove across, and overhanging the mouth. Jaws with a sharp margin and with a soft movable horny covering which may be thick or thin. Lips thick, fleshy, fringed, covering both jaws, continuous at the angle of mouth forming a labial fold. Scales small or moderate, lateral line complete.

**Labeo calbasu (Hamilton-Buchanan)**
(Figs. 11, 98)

1822. *Cyprinus calbasu* Hamilton-Buchanan, *Fishes of Ganges*, 297, 387, pl. 2, fig. 33 (type-locality: rivers and ponds of Bengal and in the western provinces).


Vernacular names: Assamese: Mahlee, Kalisasu; Bengali: kalbasu, kalbosu, Kundu; English: Kalbasu, Black rohu; Hindi: Karnaaunehar, Kalabaneise; Manipuri: Ngathi; Myanmar: Nganebia; Punjabi: Morah, Bhanghan; Oriya: Chankora, Kalabattali; Telegu: Mosu, Arizu; Tamil: Kindameen.

Diagnostic features: Lower jaw with a cartilaginous covering but covered with a thick labial fold. Lower lip separated from isthmus by a distinct postlabial groove. Dorsal fin rays 15. Pectoral fins as long as head length; body deep; mouth distinctly inferior and wide.
Description:

Counts: D 13; P 17; V 8; A 5; C 19. Lateral line scales 42. Scales from back to lateral line 7.5, scales from lateral line to pelvic base 5.5. Predorsal scales 16. Barbels 2 pairs.

Proportional measurements: Head length 3.53 (3.50-3.59), body depth 3.31 (3.22-3.39), predorsal length 2.16 (2.10-2.27), postdorsal length 1.86 (1.80-1.91), height of the dorsal fin 3.29 (3.25-3.34), pectoral fin length 4.19 (4.09-4.32), pelvic fin length 4.85 (4.80-4.92), anal fin height 4.16 (4.10-4.21), caudal peduncle length 6.62 (6.5-6.70) in the standard length. Head depth 1.36 (1.34-1.39), head width 1.67 (1.61-1.71), eye diameter 3.80 (3.69-3.92), snout length 2.74 (2.70-2.79), width of gape of mouth 4.16 (4.09-4.28), postorbital length 2.31 (2.21-2.39) in the head length. Eye diameter 1.99 (1.98-2.00), snout length 1.44 (1.40-1.49) in the interorbital width. Caudal peduncle depth 1.13 (1.09-1.17) to its length.

Body elongated, laterally compressed. Abdomen rounded. Dorsal and ventral profiles equally arched. Head of moderate size and conical, its length less than body depth. Snout obtuse and depressed, destitute of a lateral lobe but with pores. Eyes moderately large, situated in the posterior half of the head, not visible from below ventral surface. Its diameter 3.80 in the head length. Interorbital space nearly flat. Mouth inferior, narrow, lips thick and conspicuously fringed, each with distinct inner fold which is covered over by a cartilaginous covering. Barbels 2 pairs, the rostral longer than maxillary and about as long as eye diameter. Base of the dorsal fin is fairly long, inserted in advance of ventral and midway between snout tip and caudal base. Upper margin of dorsal somewhat concave. Pectoral fin ray as long as head length. Ventral fin originates below the fourth dorsal ray and do not extend behind the original of the anal fin but the anal fin reaches the base of the caudal fin. Caudal deeply
forked. Scales are of moderate size, cycloid. Lateral line complete with 42 scales. 7.5 scales between dorsal fin base and lateral line.

Colour: Blackish with scarlet in the center of the scales. Dorsum and upper lateral half dark black, becoming lighter below. Fins black, upper lobe of caudal fin usually tipped with white.

Distribution: N. E. India: All the N. E. states except Nagaland
Rest of India: Rivers of Gangetic provinces, Orissa, Andhra Pradesh.
Other parts: Bangladesh, Burma, Eastern Nepal, Pakistan.

Remarks: Two specimens are collected from Manas river at Panbari. Three specimens are collected from Beki river at Bekimukh in the confluence point of the river with Brahmaputra. The fish is available in the adjoining wetlands and frequently appears in the markets. The fish is kept in the lower risk near threatened (LRnt) category in CAMP.

Relationship: Can be separated from closely related genus by absence of dorsal spine, only lower jaw with a cartilaginous covering but covered with a thick labial fold, lower lip entirely separated from isthmus by a distinct post labial groove. Form related species it has distinction by having 15 dorsal fin rays, pectoral fin as long as head length, deep body and mouth distinctively inferior, wide.

*Labeo dyocheilus* (McClelland)
(Figs. 12, 100)


**Fig. 12. Labeo dyocheilus** (McClelland)

**Material examined**: Three examples, (155-201 mm) SL, Khudnabari ghat, 3rd February, 2001; four examples, (141.3-186 mm) SL, Nagarzar, 29th March, 2001; two examples, (91-110.3 mm) SL, Panbari, 6th July, 2002.

**Vernacular names**: Assamese: *Heel-gorya*; Hindi: *Boalla*; Punjabi: *Konti, Konni*; Oriya: *Gharuch*.

**Diagnostic features**: Lower jaw chisel-like with a heavily keratinised aris (cutting edge) but invariably covered by a thick labial fold; mouth
subterminal to inferior; lower lip partly separated from ishthmus by a postlabial groove. Eyes small, its diameter 5.28 to 5.17 times in the head length. No tubercle above mandibular symphysis. Distinct lateral lobe and thick. Snout with groove. Circumpeduncular scale 20-21.

**Description:**

**Counts**: D ii 10; P i 16; V i 8; A ii 5; C 19. Lateral line scales 41-44. Scales from back to lateral line 7.5. Scales from lateral line to pelvic base 5.5. Circumpeduncular scale 20-21. Barbel one pair.

**Proportional measurements**: Head length 3.87 (3.72-4.10), body depth 3.85 (3.80-3.90), predorsal distance 2.20 (2.16-2.23), postdorsal distance 1.84 (1.80-1.89), height of dorsal fin 4.29 (4.18-4.40), pectoral fin length 4.82 (4.64-5.04), pelvic fin length 5.33 (5.01-5.51), anal fin height 4.82 (4.61-5.04), caudal peduncle length 6.53 (6.29-7.00) in the standard length. Head depth 1.31 (1.27-1.36), head width 1.64 (1.54-1.70), eye diameter 4.78 (4.28-5.17), snout length 2.21 (2.05-2.32), width of gape of mouth 2.62 (2.44-2.96), postorbital length 2.70 (2.53-2.90) in the head length. Eye diameter is 2.13 (1.99-2.25), snout length 1.02 (0.97-1.06) in the interorbital width. Caudal peduncle depth is 1.16 (1.04-1.31) to its length.

Body elongate, its depth 3.85 times in the standard length, dorsal profile more convex than the ventral. Head rather small, its length 3.87 times in the standard length. Snout conical, projecting and with a distinct lateral lobe, its length 2.21 times in the head length. Eyes are small, not visible from underside of the head and situated in the commencement of the posterior half of the head. Eye diameter 4.78 times in the head length and 2.13 times in the interorbital width. Mouth wide and inferior. Upper jaw is protruded. Lips of two jaws are continuous, the folder across the lower jaw is interrupted. A horny inner covering to both lips. Pores on snout. Gill
rakers short. Barbels one short maxillary pair. Teeth pharyngeal, plough-shaped. Height of the dorsal fin 4.29 times in the standard length and commences little towards caudal base. Upper margin of dorsal concave. Length of pectoral fin 4.82 times in the standard length and it reaches the ventral. Pelvic fin length 5.33 times in standard length, with nine rays and reaches anal base. Anal fin height 4.82 times in standard length. Caudal fin deeply forked. Scales moderate. Lateral line complete with 41-44 scales. Scales from back to lateral line 7.5 and from lateral line to pelvic base 5.5.

**Colour** : Colour is dull green, darkest above, fin darkest in the center.

**Habitation** : Inhabitants clear active currents of large rivers. Attains a length of 90 cm.

**Distribution** : N. E. India : Assam, Arunachal Pradesh, Nagaland.
Rest of India : All along the Himalayas, Mahanadi & Damodar rivers.
Other parts : Pakistan (Sind hills), Bangladesh, Nepal.

**Relationship** : The genus differs from close associates by only lower jaw with a cartilaginous covering but covered with a thick labial fold. Lower lip partly separated from isthmus by a distinct postlabial groove. The species has peculiar characteristics like distinct and thick lobe, snout with a groove and 20-21 circumpeduncular scales.

**Remarks** : Three specimens are collected from Beki river at Khudnabari ghat in between Bekipar and Bashbari. Four specimens are collected from Manas river at Nagarzar and two from Manas river at Panbari. In the Barpeta road market, this species is frequently seen and are sold at around
80-90 rupees per kg. In CAMP, the species is categorized as vulnerable (VU).

**Labeo rohita (Hamilton-Buchanan)**
(Figs. 13, 101)


2000. *Labeo rohita*: Nath and Dey, *Fish and Fisheries of N. E. India*: 52, fig. 44.


Fig. 13. *Labeo rohita* (Hamilton-Buchanan)

Vernacular names: Assamese: Rohiti, Rui, Rau; Bengali: rahu, Rui, Ruee; English: Rou; Hindi: Rohu, Bhobhari; Manipuri: Rou; Myanmar: Ngazing; Punjabi: Rohu, Tapra, Dumra, dhambra; Oriya: Rohi, Rohu; Telegu: Bocha-gandumeenu; Tamil: kennadi-Kendai; Marathi: Tambada-massa.

Diagnostic features: Lower jaw chisel like, with a heavy keratinised aris (cutting edge) but invariably covered by a thick labial fold, mouth inferior, lower lip separated from isthmus by a post labial groove. Lateral transverse scales from lateral line to the base of pelvic fin is 6.5., branched dorsal fin rays 12, colour bluish on back, silvery on flanks and belly.

Description:
Counts: D iii 12; P i 17; V i 7; A ii 5; C 19. Lateral line scales 41. Scales from back to lateral line 7.5. Scales from lateral line to pelvic base 6.5. Predorsal scales 13. Barbels one pair.
Proportional measurements: Head length 3.13 (3.10-3.19), body depth 3.87 (3.81-3.93), predorsal length 2.09 (2.05-2.12), postdorsal length 1.93 (1.90-1.97), height of dorsal fin 4.14 (4.09-4.19), pectoral fin length 5.05 (5.00-5.11), pelvic fin length 5.29 (5.22-5.36), height of anal fin 6 (5.95-6.03), caudal peduncle length 7.31 (7.28-7.38) in the standard length. Head depth 1.47 (1.41-1.53), head width 1.73 (1.64-1.79), eye diameter 4.86 (4.81-4.92), snout length 3.02 (3.00-3.05), width of gape of mouth 4.78 (4.64-4.90), postorbital length 1.91 (1.82-1.99) in the head length. Eye diameter 2.27 (2.19-2.36), snout length 1.41 (1.36-1.48) in the interorbital width. Caudal peduncle depth 1.18 (1.11-1.28) to its length.
Body elongated moderately, abdomen rounded. Dorsal profile more convex than that of the abdomen and is slightly concave over the orbit. Head moderate, snout fairly depressed, projects beyond mouth, devoid of lateral lobe. Mouth small, semi oval, inferior. Lips thick, fringed and with a distinct inner fold above and below. Barbels a pair of short maxillary, shorter than eye diameter. Eyes large, not visible from underside of head, eye diameter 4.86 in the head length. Interorbital space flat. Dorsal fin with 12 branched rays, originates midway between pectorals and ventrals, upper edges moderately concave and not as high as the body. Pectoral fin shorter than head. Ventral fin inserted below the third dorsal rays. Caudal deeply forked. Scales fairly large, cycloid. Lateral line complete and slightly concave with 41 scales. Scales between lateral line and pelvic base 6.5.

**Colour:** Bluish or brownish along the back, becoming silvery on the sides and beneath. Reddish mark on each scale during breeding season, eyes reddish. Fins dark, pectoral fins dusky.

**Distribution:** N. E. India: Assam, Meghalaya, Manipur, Tripura.
Rest of India: Throughout the country.
Other parts: Bangladesh, Myanmar, Nepal, Pakistan and Sri Lanka.

**Habitation:** A natural inhabitant of fresh water rivers of India, thrive well in all fresh waters below an altitude of approximately 549 m. A bottom feeder and prefers to feed on plant matter including decaying vegetation. It is one of the most esteemed major carps of India and widely cultured. A popular game fish and offers very good sports, known extingly to the anglers.
Relationship: From closely related genus it differs by having only lower jaw with a cartilaginous covering but covered with a thick labial fold. Lower lip separated from isthmus by a distinct post labial groove. It differs from related species by having 15 dorsal fin rays, pectoral fin as long as head excluding snout, oblong body, narrow and terminal mouth.

Remarks: Four specimens are collected from Beki river at Kalgachia and two from Manas river at Panbari. Though it is one of the most common species in all the markets, the riverine number is very less. The riverine form is rare and seldom appears in the markets and are sold in high price. All people prefer this species for its taste. In CAMP, the species is categorized as lower risk near threatened (LRnt).

Genus: Neolissochilus Rainboth


Body deep anteriorly, trunk and peduncle smoothly tapered from rather broad head to strongly compressed peduncle. Mouth oblique, near terminal to horizontal or inferior. Species with the horizontal mouths often have the lobe of snout overhanging the upper lip. Lips thick, but not hypertrophied. Cheeks with numerous tubercles occasionally anterior to rostral barbels, but never across tip of snout. Sensory canal pores present.

Neolissochilus hexagonolepis (McClelland) (Figs. 14, 102)

1878. *Barbus hexagonolepis*: Day, *Fishes of India*: 564, pl. 137, fig. 4;

1878. ? *Barbus dukai* Day, *Fishes of India*: 564, pl. 143, fig. 3 (type-locality: Teesta river, below Darjeeling).


Fig. 14. *Neolissochilus hexagonolepis* (McClelland)
Material examined: Four examples, (109.2-154 mm) SL, Mathanguri, 23rd December, 2001, two examples, (78.2-114.6 mm) SL, Bashbari, 19th March, 2002;


Diagnostic features: Lower lip develops into a fleshy lobe below mandibular symphysis; cheeks usually with tubercles. Gill rakers on lower arm 8-9. Mouth nearly truncate, lower jaw edge sharp; last unbranched dorsal finray osseous and strong.

Description:

Proportional measurements: Head length 4.16 (4.02-4.18), Body depth 3.55 (3.35-3.75), predorsal distance 2.03 (1.96-2.11), postdorsal distance 2.06 (1.96-2.17), height of dorsal fin 4.64 (4.50-4.78), pectoral fin length 5.33 (4.75-5.92), pelvic fin length 6.28 (5.70-6.87), anal fin height 5.43 (4.87-5.99), caudal peduncle length 6.09 (4.88-7.30) in the standard length. Head depth 0.81 (0.44-1.19), head width 1.15 (0.76-1.55), eye diameter 3.15 (1.52-4.78), snout length 2.35 (1.35-3.35), width of gape of mouth 2.31 (1.52-3.11), post orbital length 1.54 (1.08-2.01) in the head length. Eye diameter 1.47 (1.12-1.83), snout length 1.14 (1-1.28) in the interorbital length. Caudal peduncle depth 1.43 (1.11-1.75) to its length.
Body deep anteriorly, trunk and peduncle smoothly tapering from anterior to posterior. Abdomen rounded. Body depth 3.55 (3.35-3.75) in the standard length, Head broad, its length 4.16 (4.02-4.18) times in the standard length. Snout almost obtuse and with prominent pores or tubercles just below orbit. Interorbital space rather convex. The maxilla reaches to beneath the commencement of the orbit. Eyes moderate, its diameter 3.15 (1.52-4.78) times in the head length. Mouth transverse, terminal lips thin and lower labial fold interrupted. Jaws equal, lower jaw with horny covering. Barbells two pairs. Rostral pair slightly longer than the orbit, the maxillary pair almost reach the angle of the preopercle. The dorsal fin commences rather nearer the snout than the base of the caudal fin, and a little in advance of the insertion of the ventral, its last undivided ray is strong, osseous, with its stiff portion as long as the head excluding the snout, its upper edge very concave. Pectoral fin with 15-16 branched rays. Anal fin with 5-6 branched rays. Caudal fin deeply forked. Scales large and heavy, those of trunk below dorsal fin adjacent to lateral line with numerous radii in all fields especially lateral fields. Lateral line complete with 28-29 scales. Scales from back to lateral line 3.5. Scales from lateral line to pelvic base 3.5, predorsal scales 8-9.

**Colour:** Leaden tinge along the upper portion of the body, becoming dull while shot with gold on the sides and beneath, edges of scales darkest. Fins yellow, with dark band having a lighter outer edge along the upper and lower edge of the caudal fin.

**Distribution:** N. E. India: All the seven N. E. states. Rest of India: Eastern Himalaya. Other parts: Bangladesh, Nepal, Burma, Thailand, Malaysia, Sumatra, China.
Habitation: Inhabitants mainly the middle of stream. It is an omnivorous feeder. The species is known to breed from April to October with a peak in August to September. The male of this species mature at an early size of 9 cm. It breeds in ponds with running water.

Relationship: The genus *Neolissochilus* differs from other closely related genus by having lower lip conspicuously separated from lower jaw, which has a horny covering. Gill rakers on lower arms 8-9. From related species it has peculiarity like mouth nearly truncate and edge of lower jaw sharp.

Remarks: Four specimens are collected from Manas river at Mathanguri two specimens are collected from Beki river at Bashbari. One of the main attraction of Manas National Park is the angling of this species. In the Inspection Bunglow of the Park at Mathanguri, very big catches are displayed. Very big size fishes can be seen in the water of Manas river at Mathanguri when the fishes came upward for taking the bubbles of water. Thus this is an esteemed game fish which attains a length of over 60 cm. Talwar and Jhingran (1991) wrote “in Assam there are records of the species growing upto 11 kg. The Assamese use the petals of the camel foot tree, *Bauhenia purpurea* as bait on the hook along with a cork piece, so that the whole thing just floats on the surface of the water as a dead leaf and have this fish hooked”. The species gradually become rare as reported by local community. The species is not evaluated in CAMP.

Genus: *Oreichthys* Smith


Body oblong and compressed. Snout obtusely rounded. Numerous fine, parallel sensory folds in form of pores in parallel groups, on snout, cheeks, interorbital space and opercles. Height of dorsal fin greater than body depth. Scales along lateral line larger than others. Lateral line incomplete with about 22 scales.

*Orechthys cosuatis* (Hamilton-Buchanan)
(Figs. 15, 103)

1878. *Barbus cosuatis* : Day, *Fishes of India* : 581, pl. 144, fig.1;

![Fig. 15. Orechthys cosuatis (Hamilton-Buchanan)](image-url)
Material examined: Three examples, (30.10-34.5 mm) SL, Panbari, 6th July, 2002; two examples, (29.6-33.8 mm) SL, Bekimukh, 29th January, 2003.

Vernacular names: Assamese: Gang Puthi; English: Cosuatis barb; Bengali: Koswati; Marathi: Khavli.

Diagnostic features: Lateral line incomplete, normally confined to anterior four or five scales; head with numerous fine, parallel sensory folds in form of pores in parallel groups, on snout, cheeks, interorbital space and opercle. Dorsal fin height greater than body depth. Scales along lateral line larger than others.

Description:
Counts: D iii 8; P i 12; V i 8; A ii 5; C 19. Scales in longitudinal series 22. scales from back to lateral line 3.5, scales from lateral line to pelvic base 3.5. Predorsal scales 9. Barbels absent.

Proportional measurements: Head length 2.63 (2.57-2.69), body depth 2.48 (2.41-2.58), predorsal distance 2.00 (1.97-2.05), postdorsal distance 2.09 (2.00-2.16), height of the dorsal fin 2.05 (2.01-2.09), length of pectoral fin 5.65 (5.60-5.71), length of pelvic fin 5.30 (5.23-5.39), height of anal fin 5 (4.98-5.04), caudal peduncle length 5.84 (5.81-5.88) in standard length. Head depth 1.25 (1.19-1.31), head width 2.18 (2.14-2.23), eye diameter 3.54 (3.51-3.61), snout length 2.07 (2.01-2.12), width of gape of mouth 2.91 (2.88-2.95), postorbital length 2.11 (2.07-2.17) in the head length. Eye diameter 0.97 (0.90-1.02), snout length 0.57 (0.49-0.62) in the interorbital width. Caudal peduncle depth 1.09 (1.01-1.14) to its length.
Body deep, compressed and more prominent on the back than below. Dorsal profile elevated at nape. Head moderate size and oval shaped. Snout obtusely rounded. Numerous fine, parallel sensory folds in form of pores in parallel groups, on snout, cheeks, interorbital space and opercles. Mouth small, transverse, terminal. Jaw protrude much in opening, and without lips, upper jaw slightly the longer. No lower labial fold. Eyes high and large. Gill covers dotted. Barbels absent. Dorsal fin without any osseous ray, it commences midway between the end of the snout and the base of the caudal fin, its upper edge is oblique and its height exceeds that of the body below it. Pectoral fins are low, much shorter than head, and sharp above. Ventral fins are small with 9 rays. Anal fin with 7 rays. Caudal fin forked. Scales are large, cycloid. Scales along lateral line larger than others, each scale generally with a black base or tinge. Lateral line incomplete, confined to anterior four or five scales. Scales in longitudinal series 22. Predorsal scale 9.

Colour : Silvery with a greenish back, and the scales on back are dotted towards the root. The ventral fins are red, all the others are yellowish, and those of the back and behind the vent are stained with black. Eyes are silver, stained above with black.


Habitation : Inhabitants of rivers.

Relationship : The most remarkable feature of this genus appears to be the presence of numerous fine, parallel sensory folds on the sides of head.
This feature it shares with the fishes of the genus *cyclocheilichthys* Bleeker, but differs in having the last simple dorsal ray non-osseous and nondenticulated.

**Remarks**: Three specimens are collected from Manas river at Panbari and two from Beki river at Bekimukh. Locally it is known as *Gang Puthi* and is regarded as a *Puntius* spp. The fish comes to the fishermen along with other *Puntius* spp. This species is not evaluated in CAMP.

**Genus**: *Osteobrama* Heckel


Body short, deep, compressed. Abdominal edge sharp and trenchant entirely or only from pelvic fin base to vent. Mouth small, somewhat directed upwards and forwards. Dorsal fin inserted slightly behind pelvic fins extending over anal fin with a strong serrated spine. Procumbent predorsal spine absent. Lateral line complete with scales.

**Osteobrama cotio** (Hamilton-Buchanan)  
(figs. 16, 104)


**Material examined**: Five examples, (60.11-66.8 mm) SL, Bekipar, 1\textsuperscript{st} February, 2001, one example, 49.8 mm SL, Panbari, 6\textsuperscript{th} July, 2002; three examples, (55.6-64.8 mm) SL, Kalagachia, 16\textsuperscript{th} June, 2003.


Fig. 16. *Osteobrama cotio* (Hamilton-Buchanan)
Diagnostic features: Dorsal fin inserted posterior to base of pelvic fins, generally extending over anal fin, abdominal edge sharp and trenchant wholly or partly. Scales between lateral line and pelvic fin base is 12.5. Lateral line scales 70. Anal fin with 34 scales.

Description:
Counts: D iii 8; P ii 3; V i 9; A ii 32; C 19. Lateral line scales 70. Scales from back to lateral line 14.5, from lateral line to pelvic fin base 12.5. Predorsal scales 24. Barbels absent.

Proportional measurements: Head length 3.90 (3.79-4.01), body depth 2.31 (2.22-2.40), predorsal distance 1.98 (1.90-2.04), postdorsal distance 1.87 (1.79-1.98), height of the dorsal fin 3.18 (3.10-3.28), pectoral fin height 5.08 (5.00-5.14), length of pelvic fin 5.04 (5.01-5.09), anal fin height 5.33 (5.30-5.37), length of caudal peduncle 17.72 (17.52-17.84) in the standard length. Head depth 0.96 (0.90-1.01), head width 1.82 (1.72-1.89), eye diameter 2.66 (2.60-2.74), snout length 3.23 (3.20-3.29), width of gape of mouth 4.42 (4.36-4.48), postorbital length 2.15 (2.00-2.23) in the head length. Eye diameter 1.07 (1.00-1.15), snout length 1.30 (1.24-1.38) in the interorbital width. Caudal peduncle depth 0.56 to its length.

Body trapezoid and considerably compressed, its depth 2.31 in the standard length; abdominal edge trenchant from behind pelvic fin base to anal fin, but rounded in front of pelvic fins. Profile over occiput concave, from there it rises abruptly upto the base of the dorsal fin. Head fairly small, snout bluntly rounded. Eye large, lateral, visible from below ventral surface. Mouth small, somewhat directed upwards and forwards. Cleft extending to anterior margin of orbit. Lips thin and plain, upper jaw slightly longer. Barbels are absent. Dorsal fin inserted nearer to snout than to the base of the caudal fin and slightly behind pelvic fin. Dorsal spine weak and internally serrated. Pectoral fin over reaches the original of
ventral fin and the ventral over reaches the original of the anal fin. Anal fin is long and not confluent with caudal. Caudal fin deeply forked. Scales fairly small, somewhat deciduous and irregularly arranged. Lateral line is complete and almost straight with 70 scales. Scales from lateral line to pelvic base 12.5, which is a distinguishing character.

**Colour** : Green above, below white with a silver gloss. At the commencement of the dorsal fin there is a small black spot, and under the fore part of the lateral line there is a row of five others, around which is a bluish shining depression. Eyes are silver, stained above with dark green.

**Distribution** : N. E. India : Assam, Manipur, Arunachal Pradesh, Manipur, Tripura.
Rest of India : Throughout the country
Other parts : Bangladesh, Nepal and Pakistan.

**Habitation** : Inhabitants freshwater rivers, ponds and lakes. Possibly a useful larvicide.

**Relationship** : It differs from closely related genus by dorsal fin inserted posterior to base of pelvic fins, extending over anal fin, sharp abdominal edge which is trenchant wholly or partly. From related species it has salient unique features like very long anal fin with 34 rays. 10.5 scale-row between lateral line and pelvic fin.

**Remarks** : Five specimens are collected from Beki river at Bekipar, one from Manas river at Panbari and three from Beki river at Kalgachia.. Fishermen sold the species in markets along with other species like *Puntiu, Aspidoparia* etc. Moderate market demand. CAMP report kept the species in the lower risk near threatened (LRnt) category.
Genus: *Puntius* Hamilton-Buchanan


Body short to moderately elongate, deep and compressed. Abdomen rounded. Head short. Snout obtuse, conical or pointed, may or may not be overhanging the jaw. Lips thin covering the jaws, may have leathery lobes, but without any horny covering. Jaws simple, covered by lips without any knob or tubercle at the symphysis.

*Puntius chola* (Hamilton-Buchanan)

(Figs. 17, 105)


1878. *Barbus tetrarupagus* (McClelland): Day, *Fishes of India*: 572, pl. 142, fig. 6


**Material examined** : Eight examples, (53.9-67 mm) SL, Bekimukh, 6th April, 2001; twenty examples, (40.2-75 mm) SL, Lengtisinga, 10th May, 2001; three examples, (72.1-81 mm) SL, Kalgachia, 15th June, 2003.

Kannada: Dhodakarsa; Nishing (Arunachal Pradesh): Phen ngoi; Khasi (Meghalaya): Shalynnai tungtab; Manipuri: Phabou nga.

Diagnostic features: No horny covering on inner side of lips; lips distinct; scales with few and strongly radiating striae. Body with two conspicuous dark blotches between 21st and 23rd scales and near the gill opening. A dark mark at base of anterior dorsal fin ray present. Rostral barbels absent.

Description:
Counts: D iii 8; P i 14; V i 8; A ii 5; C 19. Lateral line scales 26-27. Scales from back to lateral line 5.5. Scales from lateral line to pelvic base 3.5. predorsal scale 11-12. Barbels one pair.

Proportional measurements: Head length 3.61 (3.52-3.72), body depth 2.75 (2.50-2.90), predorsal distance 1.99 (1.96-2.06), postdorsal distance 1.99 (1.83-2.07), height of dorsal fin 3.77 (3.62-4.05), pectoral fin length 5.39 (5.00-5.95), pelvic fin length 5.21 (5.03-5.51), anal fin height 5.54 (5.80-5.85), caudal peduncle length 7.69 (7.16-8.10) in the standard length. Head depth 1.13 (1.08-1.20), head width 1.61 (1.53-1.85), eye diameter 3.56 (3.49-3.66), snout length 3.33 (3.00-3.66), width of gape of mouth 3.53 (3.28-4.00), postorbital length 2.25 (2.04-2.36) in the head length. Eye diameter is 1.44 (1.37-1.55), snout length 1.32 (1.03-1.57) in the interorbital width. Caudal peduncle depth is 0.96 (0.90-1.02) to its length.

Body fairly deep and compressed, its lower profile considerably less convex than upper. Body depth is 2.75 times in the standard length. Head is small and narrower than body, its length 3.61 times in the standard length. Snout obtuse. Mouth small and terminal. Suborbital ring of bones narrow, their depth one third of the uncovered portion of the cheek.
Interorbital space slightly convex. Jaws equal anteriorly. Jaws simple, covered by lips, without any knob or tubercle at the symphysis. Lips thin. Eye diameter 3.56 in the head length and 1.44 in the interorbital width. Eyes are large, dorsolateral, not visible from below ventral surface. Barbels a maxillary pair, shorter than eye diameter. Dorsal fin with smooth and entire spine, inserted between pectoral and ventral and is equidistant between snout tip and base of the caudal fin. Pectoral fins are low and shorter than the head containing fifteen rays. The ventral rays are as long as the pectorals having nine rays. Anal fins short with seven rays. Caudal forked with nineteen distinct rays. Scales are small and cycloid. Lateral lines complete with 26-27 scales. Scales from back to lateral line 5.5 and from lateral line to pelvic base 3.5. Predorsal scales 11-12.

**Colour** : Silvery, opercle shot with gold and purple. A black blotch is located on the 21st and 23rd scales along the lateral line. Another blotch is located on the base of the dorsal fin, while a faint band is located along its middle portion. A scarlet red longitudinal band extends from the posterior end of the gill opening to the base of the caudal fin.

**Habitation** : Generally Inhabitants lakes and streams. The species is peaceful and active. Attains a length of 12 cm.

**Distribution** : N. E. India : Assam, Meghalaya, Arunachal Pradesh, Manipur, Tripura.
Rest of India : Throughout the country.
Other parts : Pakistan, Bangladesh, Nepal, Sri Lanka and Burma.

**Relationship** : The genus can be distinguished from other by characters like no horny covering on inner side of lips, distinct lips and scales with
few and strongly radiating striae. The species has strong superficial resemblance with *P. conchonius* but can be distinguished by more slender body and the dark spot is nearer the base of caudal fin.

**Remarks**: Eight specimens are collected from Beki river in the confluence point at Bekimukh. Twenty specimens are collected from Manas river at Lengtisinga. Three specimens are collected from Beki river at Kalgachia. This is one of the most common *Puntius* spp. of the study areas and frequently appears in the markets. All communities prefer the species as food fishes. The species is categorized as vulnerable (VU) in CAMP report.

*Puntius conchonius* (Hamilton-Buchanan)  
(Figs. 18, 106)


**Material examined**: Six examples, (40-50.5 mm) SL, Bhalukadoba, 25th March, 2001; three examples, (43.6-52.2 mm) SL, Nagarzar, 31st March, 2001; eight examples, (48.2-62 mm) SL, Jogighopa, 27th May, 2001;


Description:

Counts: D iii 8; P i 16-18; V i 8; A ii 5; C 19. Longitudinal series scales 25-28. Scales from back to lateral line 5.5 and from lateral line to pelvic base 4.5. Preanal scales 16-18. Barbels absent.

Proportional measurements: Head length 3.56 (3.35-3.75), body depth 2.29 (2.21-2.48), predorsal distance 1.90 (1.83-2.02), postdorsal distance 1.99 (1.88-2.10), height of dorsal fin 3.94 (3.60-4.13), pectoral fin length 4.45 (4.01-4.85), pelvic fin length 5.41 (5.01-5.65), anal fin height 5.94 (5.61-6.08), caudal peduncle length 7.67 (7.11-8.08) in the standard length. Head depth 1.10 (1.01-1.37), head width 1.63 (1.55-1.85), eye diameter 3.40 (3.02-3.80), snout length 2.73 (2.12-2.93), width of gape of mouth 3.56 (3.24-3.80), postorbital length 2.71 (2.50-3.04) in the head length. Eye diameter is 1.37 (1.22-1.55), snout length 1.17 (0.98-1.47) in the interorbital width. Caudal peduncle depth is 0.79 (0.63-0.97) to its length.

Body moderately elongated, deep, compressed, dorsal profile elevated at nape region. Its depth 2.29 times in the standard length. Abdomen rounded. Head small, snout pointed. Head length 3.56 times in the standard length. Mouth arched anteriorly, protrusible. Lips thin, jaws simple, covered by lips but without any horny covering. Jaws are without any knob or tubercle at the symphysis. Barbels absent. Eyes are moderate, dorsolateral, not visible from below ventral surface; its diameter 3.40 times in the head length and 1.37 times in the interorbital width. Scales medium, lateral line incomplete, ceases after 10th to 12th scale. Scales in longitudinal series 25-28. Scales from back to lateral line 5.5 and from lateral line to pelvic base 4.5. Preanal scales 16-18. Height of dorsal fin 3.94 times in the standard length, its last undivided rays osseous, moderately strong and serrated; the fin commences rather anterior to the insertion of the ventral, and midway between the anterior to the insertion
of the ventral, and midway between the anterior extremity of the orbit and
the base of the caudal. The pectoral fins are much smaller than the head
containing sixteen to eighteen branched rays. Each ventral fin contains
nine rays, of which the first one is undivided. The anal fin has seven rays
of which the first two are undivided and closely united. Caudal fin is
forked with nineteen distinct rays.

**Colour**: A large black spot on the middle of the side above the posterior
portion of the anal fin; opercles lack colour. Fin orange, dorsal with its
upper half blackish.

**Habitation**: Generally Inhabits lakes and streams and more abundant in
the hills than the plains. Attains a length of 14 cm., mature at 6 cm.

**Distribution**: N. E. India : All the seven N. E. states.

Rest of India : Ganga, Mahanadi and Cauvery river systems.

Other parts : Pakistan (Indus river system), Bangladesh, Nepal, Afghanistan.

**Relationship**: The genus can be distinguished from other close genera by
characters like no horny covering on inner side of lips, distinct lips, scales
with few and strongly radiating striae. Peculiar species characters include
scales in longitudinal series 25-28, absence of anterior colour spot, black
spot over posterior portion of anal fin and 16-18 preanal scales.

**Remarks**: Six specimens are collected from Mora Manas river, an
offshoot of the Manas river at Bhalukadoba. Three specimens are
collected from Manas river at Nagarzar and eight specimens are from
Manas river at Jogighopa in its confluence point. The species is also
available in a large amount in all adjoining wetlands. This species also appears in the markets frequently along with other *Puntius* spp. It is categorized as vulnerable (VU) in CAMP.

**Puntius puntio (Hamilton-Buchanan)**
(Figs. 19, 107)


![Fig. 19. *Puntius puntio* (Hamilton-Buchanan)]


**Vernacular names** : Assamese : *Puthi*; English : *Puntio barb*. 
Diagnostic features: No horny covering on the inner side of the lips; lips distinct; scales with few and strongly radiating striae. Dorsal spine smooth; pelvic fin rays nine; lateral line scales 22-23. Lateral transverse scales 4.5/2.5; a wide dusky band around caudal peduncle.

Description:
Counts: D iii 8; P i 14; V i 8; A ii 5. Lateral line scales 22-23. Scales from back to lateral line 4.5. Scales from lateral line to pelvic base 2.5. Predorsal scales 8. Barbels absent.
Proportional measurements: Head length 3.12 (3.07-3.23), body depth 2.59 (2.55-2.63), predorsal distance 1.84 (1.74-1.92), postdorsal distance 2.15 (2.12-2.20), height of dorsal fin 3.83 (3.75-3.95), pectoral fin length 4.92 (4.92-4.93), pelvic fin length 5.30 (5.07-5.64), anal fin height 5.35 (5.07-5.51), caudal peduncle length 7.44 (7.18-7.81) to the standard length. Head depth 1.25 (1.22-1.30), head width 1.88 (1.78-2.03), eye diameter 3.18 (2.89-3.38), snout length 3.44 (3.29-3.56), width of gape of mouth 6.21 (6.10-6.45), postorbital length 2.48 (2.06-2.71) in the head length. Eye diameter 1.05 (1.00-1.11), snout length 1.14 (1.08-1.30) in the interorbital width. Caudal peduncle depth 0.87 (0.82-0.91) to its length.

Body short, fairly deep, compressed; its depth 2.59 times in the standard length. Dorsal profile considerably elevated. Abdomen rounded. Head short, length of head 3.12 times in the standard length. Snout pointed, its length is 3.44 times in the head length and 1.14 times in the interorbital width. Mouth small, slightly inferior. Eyes moderate, dorsolateral, not visible from below ventral surface. Diameter of the eye 3.18 times in the head length and 1.05 times in the interorbital width. Lips thin covering the jaws, without any horny covering. Jaws simple, covered by lips, without any knob or tubercle at the symphysis. Barbels absent. Dorsal fin inserted nearer to base of the caudal fin than to tip of snout, its last unbranched ray
osseous, fairly strong and smooth. Each pectoral fin has thirteen rays, each ventral nine and the anal fin seven. Caudal fin is forked and its lobes are equal and sharp. Scales rather small. Lateral line complete with 22-23 scales. Scales from back to lateral line 4.5 and from lateral line to pelvic base 2.5. Predorsal scales 8.

**Colour**: Silvery, a wide black band encircles the free portion of the tail, and includes the tip of the anal fin. Dorsal orange tipped with black.

**Habitation**: Inhabitants of rivers. Attains a length of 7.5 cm.

**Distribution**: N. E. India: Assam.
- Rest of India: West Bengal.
- Other parts: Bangladesh, Burma.

**Relationship**: The genus have special characters like absence of horny covering on inner side of the lips, distinct lips and scales with few and strongly radiating striae. Important species characters include absence of barbels, 22-23 scales in the lateral line, osseous, strong and smooth last unbranched dorsal fin ray.

**Remarks**: All the four specimens are collected from Manas river at Nagarzar. This species is rare and earlier workers have not mentioned regarding its occurrence. The species is not evaluated in CAMP.

**Puntius sarana** *(Hamilton-Buchanan)*
(Figs. 20, 108)

(type-locality: Ponds and rivers of Bengal).


2000. *Puntius sarana sarana* : Nath and Dey, *Fish and fisheries of N. E. India* : 42, fig. 34.


Fig.20. *Puntius sarana* (Hamilton-Buchanan)
Material examined: Five examples, (80.9-111.3 mm) SL, Lengtisinga, 8th May, 2001; seven examples, (72.3-96.6 mm) SL, Kalgachia, 14th June; 2003;

Vernacular names: Assamese: Chiniputhi; Bengali: Sarana, Savalputi; English: Olive barb; Hindi: Giddi-kaoli; Punjabi: Kharni; Manipuri: Nganoi, Ngahou.

Diagnostic features: No homy covering on inner side of lips; lips distinct; scales with few and strongly radiating striae. Predorsal scales 12; dorsal fin inserted slightly nearer to tip of snout than to base of caudal fin. Lateral line scales 32.

Description:
Counts: D iii 8; P i 15; V i 8; A ii 5; C 19. Lateral line scales 32. Scales from back to the lateral line is 5.5. Scales from lateral line to pelvic base is 4.5. Predorsal scales 32.

Proportional measurements: Head length 3.57 (3.52-3.63), body depth 3.22 (3.16-3.28), predorsal distance 1.99 (1.96-2.02), postdorsal distance 2.23 (2.05-2.42), height of dorsal fin 4.06 (3.95-4.17), pectoral fin length 4.48 (4.19-4.78), pelvic fin length 6.06 (5.93-6.19), anal fin height 4.42 (4.05-4.80), caudal peduncle length 6.56 (6.44-6.68) in the standard length. Head depth 1.34 (1.30-1.39), head width 1.79 (1.77-1.82), eye diameter 3.44 (3.34-3.54), snout length 4.75 (4.88-4.62), width of gape of mouth 3.88 (3.76-4.01), postorbital length 1.99 (1.95-2.04) in the head length. Eye diameter is 1.60 (1.58-1.63), snout length 2.04 (1.95-2.13) in the interorbital width. Caudal peduncle depth is 1.16 (1.12-1.20) to its length.
Body moderately elongated, abdomen rounded. Dorsal profile more elevated than ventral profile. Body depth 3.22 times in the standard length. Snout obtuse, pores on the snout absent. Mouth oblique, terminal. Lips thin, covering the jaws, but without any horny covering. Lower labial fold interrupted. Jaws simple without any knob or tubercle at the symphysis. Eyes moderate, dorsolateral, not visible from below ventral surface; its diameter 3.44 times in the standard length and 1.60 times in the interorbital width. Interorbital space convex. Barbels two pairs, one pair each of rostral and maxillary; the rostral pair slightly longer than maxillary and shorter than eye diameter. Height of dorsal fin 4.06 times in the standard length and inserted slightly nearer to tip of snout than to base of caudal fin. The last unbranched ray of dorsal fin is osseous, strong and finely serrated posteriorly. The pectoral fins are very little shorter than the head, and each has sixteen rays, of which the first is undivided. The ventral fins are as large as the pectorals having nine rays. The anal fin slopes backward and its height 4.42 times in the standard length. Caudal fin forked with nineteen rays. The cycloid scales are fairly large. Lateral line complete with 32 scales. Scales from back to lateral line 5.5 and from lateral line to pelvic base 4.5. Predorsal scales 32.

**Colour**: Silvery, darkest superiorly, opercles shot with gold; a dull blotch on the lateralline before the base of the caudal fin. Mostly some dark spots behind the opercle. In fresh specimen, there are horizontal bands along the rows of scales in the upper half of the body. Fins whitish and externally stained with grey.

**Habitation**: Inhabit plains in rivers and tanks. Attains a length of 31cm. Breeds during monsoons in running waters amongst submerged boulders and vegetation.
**Distribution**: N. E. India: Assam, Meghalaya, Arunachal Pradesh, Manipur, Tripura.
Rest of India: Throughout except peninsular India, south of Krishna river.
Other parts: Afghanistan, Pakistan, Bangladesh, Nepal and Bhutan.

**Relationship**: The genus *Puntius* differs from other genus of close affinity by having no horny covering on inner side of lips which are distinct. Peculiar species characters include 32 scales in lateral line and dorsal fin inserted slightly towards tip of snout than caudal base.

**Remarks**: The first specimen is collected from Manas river at Lengtisinga and the second one is from Beki river at Kalgachia. This is a rare fish in the riverine habitat and so market demand is very high. It is kept in vulnerable (VU) category in CAMP report.

**Puntius sophore (Hamilton-Buchanan)**
(Figs. 21, 109)


Material examined: Nine examples, (41.6-50 mm) SL, Bekimukh, 3rd April, 2001; three examples, (49.2-56.5 mm) SL, Bekimukh, 29th January, 2003; five examples, (46.3-53.8 mm) SL, Kalgachia, 16th June, 2003.


Diagnostic features: No horny covering on inner side of lips; lips distinct; scales with few and strongly radiating striae. Dorsal spine smooth. Posterior dark blotch on 23rd scales. Circumpeduncular scales nine to ten. Barbels absent.

Description:

Counts: D iii-iv 8-9; P i 15; V i8; A iii 5; C 19. Lateral line scales 24-25. Scales from back to the lateral line is 4.5. Scales from lateral line to pelvic base is 3.5. Circumpeduncular scales 9-10. Predorsal scales 8-9. Barbels absent.
Proportional measurements: Head length 3.52 (3.40-3.67), body depth 2.88 (2.88-2.96), predorsal distance 2.09 (2.01-2.17), postdorsal distance 1.93 (1.88-2.00), height of dorsal fin 3.52 (3.32-3.62), pectoral fin length 5.25 (4.98-5.55), pelvic fin length 5.59 (5.17-5.81), anal fin height 5.27 (5.18-5.37), caudal peduncle length 6.84 (6.75-7.01) in the standard length. Head depth 1.31 (1.27-1.39), head width 1.77 (1.72-1.84), eye diameter 3.36 (3.32-3.40), snout length 4.59 (4.53-4.74), width of gape of mouth 4.00 (3.37-4.50), postorbital length 1.96 (1.93-2.01) in the head length. Eye diameter 1.31 (1.20-1.25), snout length 1.76 (1.66-1.93) in the interorbital width. Caudal peduncle depth is 1.07 (1.01-1.12) to its length.

Body relatively deep, its dorsal profile more convex than ventral. Abdomen rounded. Depth of body 2.88 times in the standard length. Head small, its length 3.52 times in the head length. Mouth narrow, horse-shoe shaped, the upper jaw very slightly the longer when the mouth is closed. Lips thin, covering the jaws, but without any horny covering. Jaws simple, without any knob or tubercle at the symphysis. Eyes are moderate, dorsolateral, not visible from below ventral surface. Eye diameter 3.36 times in the head length and 1.31 times in the interorbital width. Barbels absent. Dorsal fin arises almost opposite to the ventral and slightly toward caudal base than tip of snout. Its smooth osseous ray is not strong and 3.52 times in the standard length; upper margin of the dorsal fin slightly concave. The pectoral fins are low, sharp above and 5.25 times in the standard length. The ventral fins are smaller than the pectorals, and near each other, each having nine rays, of which the first is undivided and other are branched. The edge of the anal fin is slightly arched containing eight rays, of which the first three are undivided and united, the second being the longest; the others are branched and the last divided to the root. Caudal fin is forked with nineteen distinct rays besides some close compacted short ones. Scales are of medium size. Lateral line complete with 24-25 scales. Scales
from back to lateral line 4.5 and from lateral line to pelvic base 3.5. Circumpeduncular scales 9-10. Predorsal scales 8-9.

**Colour**: Dull silvery, darkest along the back and each scale having a dark base formed by fine black dots. Dorsal, ventral and anal fins generally stained with black spots at their extremities. A dark mark at the base of 3rd to 7th divided dorsal rays and another at 23rd scale at base of caudal fin.

**Habitation**: Inhabitants of plains and sub-montane regions. Attains a length of 13 cm. Considered as having medicinal value in Tamil Nadu.

**Distribution**: N. E. India: All the N. E. states except Nagaland. Rest of India: Throughout the country. Other parts: Pakistan, China, Bangladesh, Nepal and Burma.

**Relationship**: The genus Puntius differs from other genus of close affinity by having no homey covering on inner side of lips which are distinct. Peculiar species characters include smooth dorsal spine, posterior dark blotch on 23rd scales, circumpeduncular scales 9-10 and absence of barbels.

**Remarks**: Twelve specimens are collected from Beki river at Bekimukh in the confluence point. Five specimens are collected also from Beki river at Kalgachia. This species is abundantly found in the adjoining wet lands. The species is categorized as lower risk near threatened (LRnt) in CAMP.
**Puntius terio** (Hamilton-Buchanan)
(Figs. 22, 110)


1877. *Barbus terio* : Day, *Fishes of India*: 580, pl. 144. fig. 3.


Fig.22. *Puntius terio* (Hamilton-Buchanan)

**Material examined**: Seven examples, (30.9-37.3 mm) SL, Kalgachia, 16th June, 2003.

Diagnostic features: No horny covering on inner side of lips; lips distinct; scales with few and strongly radiating striae. Posterior dark blotch on 17th scales, from which a fine dark line runs back to base of caudal fin. A reddish orange spot on operculum. Circumpeduncular scales five.

Description:

Counts: D ii 18; P i 14; V i 8; A ii 5; C 18. Scales in longitudinal series are 22. Scales from back to lateral line 4.5. Scales from lateral line to pelvic base 3.5. Predorsal scales 10. Circumpeduncular scales 5. Barbels are absent.

Proportional measurements: Head length 3.40 (3.33-3.49), body depth 2.55 (2.01-2.98), predorsal distance 2.00 (1.99-2.06), postdorsal distance 1.99 (1.82-2.11), height of dorsal fin 3.54 (3.51-3.60), pectoral fin length 5.31 (5.21-5.46), pelvic fin length 6.80 (6.67-6.94), anal fin height 5.07 (5.01-5.19), caudal peduncle length 5.66 (5.60-5.72) in the standard length. Head depth 1.16 (1.11-1.23), head width 2.00 (1.91-2.09), eye diameter 2.85 (2.81-2.90), snout length 4.00 (3.92-4.08), width of gape of mouth 3.70 (3.66-3.78), postorbital length 2.50 (2.34-2.82) in the head length. Eye diameter 0.94 (0.82-1.01), snout length 1.32 (1.21-1.46) in the interorbital width. Caudal peduncle depth 1.15 (1.00-1.43) to its length.

Body fairly deep and compressed, dorsal profile more convex than that of the abdomen, there being a considerable rise from the snout to the base of the dorsal fin. Depth of body 2.55 times in the standard length. Head is of moderate size and its length 3.40 times in the standard length. Mouth moderate, descends obliquely from the extremity of the nose. The jaws have scarcely any lips. Upper jaw slightly the longer. Barbels absent. Eyes
are high and large, its diameter 2.85 times in the head length and 0.94 times in the interorbital width. Interorbital space flat. Scales medium. Lateral line incomplete, ceasing after 4th scale. Scales from the back to lateral line 4.5 and from lateral line to pelvic base 3.5. Predorsal scales 10. Circumpeduncular scales 5. Dorsal fin arises slightly in advance of the ventral, and midway between the end of snout and caudal base, its last undivided ray is osseous, entire, moderately strong, and nearly as long as head. The pectoral fins are sharp above, low and shorter than the head, each containing about fifteen rays. Each of the ventral fins has nine rays. Anal fin has seven rays, of which the first two are undivided, and closely united, the second being longer than the first, the other are branched and the last of them divided to the root. The caudal fin has eighteen distinct rays besides short compacted ones.

**Colour** : Silvery, greenish along the back, and each scale having a number of fine black spots most numerous at the anterior margin. A large black blotch on the 17th scale from which a fine dark line runs back to base of caudal fin. Fins yellowish, their margins stained with black, the dorsal having a median band.

**Habitation** : Inhabitants of montane and sub-montane regions. A peaceful species suitable for the community tank. Attains a length of 9 cm.

**Distribution** : N. E. India : Assam, Meghalaya, Mizoram, Manipur, Tripura.

Rest of India : Northern India.

Other parts : Pakistan, Bangladesh.

**Relationship** : The species can be distinguished from other species of *Puntius* by absence of barbels, 22 scales in longitudinal series, last
unbranched dorsal fin ray osseous and strong, one black blotch over anal fin from which a fine darkline runs back to base of caudal fin and a reddish orange spot on operculum.

**Remarks** : All the specimens are collected from Beki river at Kalgachia. This is a rare species and is never observed in the local markets. It is categorized as lower risk near threatened (LRnt) in CAMP.

**Puntius ticto (Hamilton-Buchanan)**

(Figs. 23, 111)

1822. *Cyprinus ticto* Hamilton-Buchanan, *Fishes of Ganges* : 314, 398, pl. 8, fig. 87 (type-locality : south-eastern parts of Bengal).


1878. *Barbus punctatus* : Day, *Fishes of India* : 577, pl. 144, fig. 5.


**Material examined**: Twenty two examples, (25.3-41.9 mm) SL, Bhalukadoba, 2nd February, 2001.


**Description:**

**Counts:** D iii 8; P i 12; V i 8; A ii 5; C 19. Longitudinal scales series 25-26. Scales from back to the lateral line is 4.5. Scales from lateral line to pelvic base is 4.5. Preanal scales 11-13. Predorsal scales 10. Barbel absent.

**Proportional measurements:** Head length 3.50 (3.49-3.51), body depth 2.46 (2.41-2.56), predorsal distance 1.96 (1.94-1.97), postdorsal distance 2.0 (1.97-2.04), height of dorsal fin 3.93 (3.79-4.01), pectoral fin length 5.03 (4.92-5.25), pelvic fin length 5.22 (5.06-5.33), anal fin height 6.12 (5.98-6.38), caudal peduncle length 5.90 (5.57-6.13) in the standard length. Head depth 1.13 (1.07-1.18), head width 1.51 (1.63-1.77), eye diameter 2.90 (2.83-3.02), snout length 3.74 (3.55-3.93), width of gape of mouth 3.74 (3.22-4.07), postorbital length 2.54 (2.50-2.57) in the head length. Eye diameter is 1.22 (1.18-1.28), snout length 1.39 (1.18-1.66) in the interorbital width. Caudal peduncle depth is 0.84 (0.76-0.99) to its length.

Body moderately elongated, deep, compressed, abdomen rounded, dorsal profile more convex than the ventral profile; its depth 2.46 times in the standard length. Head small, its length 3.50 times in the standard length.

Snout pointed. The mouth is small, and rather low and descends obliquely. The jaws are almost devoid of lips, and the lower jaw is shorter. There is scarcely any tongue. The palate is smooth. Teeth are pharyngeal, crooked, pointed. Nostrils are situated in the middle between the eye and the jaw. Barbels absent. The eyes are high up, convex and large; its diameter 2.90 times in the head length and 1.22 times in the interorbital width. The gill covers are rounded behind, each consisting of two plates, and concealing half of its membrane. Height of the dorsal fin 3.93 times in the standard length. It is inserted almost midway between snout tip and caudal base; its last unbranched ray osseous, fairly strong and serrated at its posterior edge. The pectoral fins are shorter than the head, low and
sharp above, each having thirteen rays. The ventral fins are still smaller than the pectorals, are placed close to each other, and each having nine rays. The anal fin occupies the middle of the tail and its height 6.12 times in the standard length. Caudal fin forked with nineteen distinct rays, besides short compacted ones. Scales medium; lateral line usually complete, often ceases after six to eight scales. 25-26 scales in longitudinal series. Scales from back to lateral line 4.5 and from lateral line to pelvic base 4.5. Predorsal scales 10. Preanal scales 11-13.

**Colour**: Silvery, sometimes stained with red, a black spot on the side of the tail before the base of the caudal fin and immediately behind the anal; smaller one at the commencement of the lateral line. Fins often black, sometimes orange.

**Habitation**: Inhabitants montane and sub-montane regions. Well behaved in community tanks, except for larger specimens which are inclined to be pugnacious. Attains a length of 10 cm.

**Distribution**: N. E. India: All the seven N. E. states.
   Rest of India: Throughout the country.
   Other parts: Pakistan (lower Swat river drainage), Sri Lanka, Thailand, Bangladesh, Nepal and Burma.

**Relationship**: The genus differs from other close associates by having no horny covering on inner side of lips which are distinct. The species has peculiar characters like scales in longitudinal series 25-26, presence of anterior colour spot and 11-13 preanal scales.

**Remarks**: All the specimens are collected from Mora Manas stream which is an offshoot of Manas river at Bhalukadoba. This species is very
common in the markets and preferred by all. It is kept in lower risk near threatened (LRnt) category in CAMP report.

**Genus: Tor Gray**


Body deep anteriorly, the trunk and peduncle smoothly tapered. Head small, broadly pointed. Mouth inferior to subinferior, arched. Lips fleshy, continuous at angles of mouth; posterior lip with a median lobe (mentum) and the postlabial groove continuous. Scales large and heavy, the striae on scales are parallel. Snout and cheeks often with tubercles.

*Tor putitora* (Hamilton-Buchanan)

(Figs. 24, 112)


1878. *Barbus tor* Day (nec Hamilton-Buchanan) (partim), *Fishes of India*: 564, pl. 136. fig. 5


1985. *Tor putitora*: Sen, *Fish fauna of Assam*: 91, fig. 44.
Fig. 24. *Tor putitora* (Hamilton-Buchanan)

**Material examined**: Three examples, (128.2-190.3 mm) SL, Bashbari, 14th September, 2001; seven examples, (100-203.2 mm) SL, Mathanguri, 22nd December, 2001; one example, 38.2 mm SL, Bashbari, 20th March, 2002;


**Diagnostic features**: Lateral line scales 21-25. Gill rakers on lower limb 11-13. Length of head considerably greater than body depth; lower fins yellowish. Dorsal fin inserted almost midway between snout tip and caudal fin base.
Description:

Counts: D iii 9; P i 17; V i 8; A ii 5; C 19. Lateral line scales are 21-25. Scales from back to the lateral line is 4.5. Scales from lateral line to pelvic base is 2.5. Predorsal scales 8-9. Gill rakers in lower limb 11-13. Barbel two pairs.

Proportional measurements: Head length 3.18 (2.96-3.38), body depth 1.66 (1.41-1.86), predorsal distance 1.91 (1.84-1.98), postdorsal distance 1.95 (1.89-1.99), height of dorsal fin 3.14 (3.03-3.27), pectoral fin length 4.74 (4.24-5.07), pelvic fin length 5.29 (5.03-5.69), anal fin height 4.91 (4.84-5.04), caudal peduncle length 6.84 (6.64-7.09) in the standard length. Head depth 1.65 (1.53-1.78), head width 2.16 (2.04-2.35), eye diameter 4.33 (4.03-4.17), snout length 2.70 (2.58-2.78), width of gape of mouth 4.81 (4.76-4.91), postorbital length 2.19 (2.12-2.30) in the head length. Eye diameter is 1.25 (1.10-1.51), snout length 0.72 (0.68-0.78) in the interorbital width. Caudal peduncle depth is 1.17 (0.98-1.28) to its length.

Body streamlined, oblong and somewhat compressed, with both dorsal and ventral profiles greatly arched. Body depth 1.66 times in the standard length. Head broadly pointed and the length of head is considerably more than body depth. Head length 3.18 times in the standard length. Snout pointed. Mouth small. Jaws of about the same length, lips thick, with an uninterrupted fold across the lower jaw. Width of gape of mouth 4.81 times in the head length. Eye diameter 4.33 times in the head length and 1.25 times in the interorbital width. Eyes are not visible from underside of head. Interorbital space flat. Barbels two pairs, a pair of maxillary and rostral, almost equal to the length of the orbit. Dorsal fin commences slightly before the insertion of the ventrals, and midway between the end of the snout and base of the caudal fin; its osseous ray is strong, smooth and somewhat compressed. The pectoral fins are low, shorter than the

**Colour** : Dorsal side is dusky with a gloss of steel, while the edges of the scales change from gold to silver. Ventral side silvery. The fins are without spots, and the hinder ones are tinged with yellow. Eyes are silver like.

**Habitation** : Inhabitants the montane and sub-mundane regions, in running streams and rivers. Attains a length of 2.7 m.

**Distribution** : N.E. India: Assam, Meghalaya, Arunachal Pradesh, Tripura. Rest of India: All along the Himalayas. Other parts: Afghanistan, Pakistan, Nepal and Bangladesh.

**Relationship** : The genus differs from *Neolissochilus* by having 11-13 gill rakers in the lower limb. It can be distinguished from other *Tor* species by having a greater head length than body depth and yellowish lower fins.

**Remarks** : Three specimens are collected from Beki river at Bashbari. Seven specimens are collected from Manas river at Mathanguri and one specimen is from Beki river at Bashbari. The famous "angling fish" is
found in the upper parts of the rivers. This is a very demanding fish in the markets. In the Barpeta road market, the price goes upto Rs. 200 to 250/- per kg. In this market one specimen is recorded weighing 11.5 Kg. The species is categorized as endangered (EN) in CAMP report.

**Tor tor (Hamilton-Buchanan)**
(Figs. 25, 113)

1822. *Cyprinus tor* Hamilton-Buchanan, *Fishes of Ganges* : 305, 388,
(type-locality : Mahanadi river, West Bengal).

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Fig.25. *Tor tor* (Hamilton-Buchanan)
Material examined: Three examples, (57.5-103.6 mm) SL, Jong-rong stream (Mathanguri), 23rd December, 2001; two examples, (96.8-115.1 mm) SL, Bashbari, 20th March, 2002.


Diagnostic features: Gill rakers on lower arm 11. Snout smooth. Lateral line scales 23. Scales row 2.5 between lateral line and pelvic fin base; eyes visible from under side of the head. Predorsal scales six. Dorsal fin inserted almost midway between tip of snout and caudal fin base. Ventral profile more arched than dorsal.

Description:
Counts: D iii 8; P i 16; V i 8; A ii 5; C 19. Lateral line scales 23. Scales from back to lateral line 3.5. Scales from lateral line to pelvic base 2.5. Predorsal scales 6. Gill rakers on lower arm 11. Barbels two pairs.

Proportional measurements: Head length 3.28 (3.01-3.44), body depth 3.68 (3.50-3.77), predorsal distance 1.94 (1.89-2.01), postdorsal distance 2.01 (1.88-2.08), height of dorsal fin 8.33 (8.21-8.56), pectoral fin length 5.13 (5.10-5.19), pelvic fin length 5.27 (5.13-5.46), anal fin height 4.87 (4.81-4.98), caudal peduncle length 7.18 (7.10-2.23) in the standard length. Head depth 1.47 (1.41-1.63), head width 1.78 (1.70-1.92), eye diameter 3.72 (3.63-3.79), snout length 2.96 (2.90-3.04), width of gape of mouth 3.50 (3.41-3.63), postorbital length 2.36 (2.12-2.63) in the head length. Eye diameter 1.23 (1.11-1.48), snout length 0.98 (0.84-1.06) in the interorbital width. Caudal peduncle depth 1.09 (1.06-1.17) to its length.
Body relatively more compressed, maximum depth of body at the origin of dorsal fin bigger than head length. Body depth 3.68 times in the standard length. Ventral profile more arched than dorsal. Head small, broadly pointed, its length 3.28 times in the standard length. Snout angularly rounded, both snout and cheeks are smooth and devoid of tubercles. Mouth small, terminal. Jaws of about same length; the maxilla reaches to below the front edge of the eye. Lips thick, with an uninterrupted fold across the lower jaw. Eyes far forward, large and visible from below ventral surface. Eye diameter 3.72 times in the head length and 1.23 times in the interorbital width. Interorbital spaces flat. Barbels two pairs, maxillary pair being longer than rostral and reaches upto orbit. Pharyngeal teeth in 3 rows. Gill rakers on lower arms 11. Dorsal fin inserted almost opposite to the ventral and almost midway between tip of snout and caudal base. Dorsal spine smooth and shorter than the head and sharp above with seventeen rays. The ventral fins do not extend to the vent and each has nine rays. The anal fin is near the vent, the first two of its rays are undivived and gradually lengthen from the first which is very short, the others five are branched. Caudal fin are forked with nineteen distinct rays. Scales fairly large, cycloid. Lateral line complete with 2.3 scales. Scales from back to lateral line 3.5 and from lateral line to pelvic base 2.5. Predorsal scales 6.

**Colour**: Silvery or greenish along the upper half of the body, becoming silvery shot with gold on the sides and beneath. Lower fins reddish yellow.

**Habitation**: Inhabitants of hill streams with high water currents and rocky bottom. Breeds during August-September and continues upto December. The species has voracious feeding habit particularly higher submerged plants. Attains a length of 2.5 m.
**Distribution**: N. E. India: All the seven N. E. states.

   Rest of India: Sub-Himalayan range, Ganga & Narmada river system.

   Other parts: Bangladesh, Pakistan.

**Relationship**: The genus can be distinguished from other related genera by having 11 gill rakers on lower arms, smooth snout. Peculiar species characters include 23 scales in lateral line, 2.5 rows of scales between lateral line and pelvic base, predorsal scales six and eyes visible from below ventral surface.

**Remarks**: Three specimens are collected from Jong-rong stream, a small stream that falls on Beki near Mathanguri and two are collected from Beki river at Bashbari. The famous fish for the anglers are now restricted within the Manas National Park. Sometimes the fish appears in the Barpeta Road market and are sold at Rs. 200-250/- per kg. One fish in the market is recorded weighing 7.5 Kg. All the fishes that appears in the market are poached from Manas Park. In the CAMP report, the species is categorized as endangered (EN).

**Subfamily: CULTRINAE**

Body laterally compressed, with a cultrate (knife-like) abdominal edge usually along its entire length from below pectoral fins to anal fin. Mouth terminal, subinferior or directed upwards. Dorsal fin placed in posterior half of body and normally opposite to anal fin. Scales very small or moderate sized.
Genus: *Salmophasia* Swainson


Body elongated, compressed. Abdomen keeled from below pectoral fin to anus, keel not hardened. Mouth oblique to body axis, cleft reaching anterior margin of orbit or slightly ahead. Lips thin. Lower jaw longer, with a knob at the symphysis of the two bones. Symphysial knob varying, strong to very rudimentary but always present. Scales small to moderate.

*Salmophasia bacaila* (Hamilton-Buchanan)
(Figs. 26, 114)


1878. *Chela bacaila*: Day, *Fishes of India*: 603, pl. 152. fig. 5.


2000. *Salmostoma bacaila*: Nath and Dey, *Fish and fisheries of N. E. India*: 17, fig. 11.


Material examined: Six examples, (101.3-163.9 mm) SL, Kalgachia, 16th June, 2003.


Diagnostic features: Abdominal keel not hardened, also not supported by an expansion of pectoral girdle; pectoral axial scale not thickened along its lower border; lateral line with 108 scales. Number of scales between lateral line and pelvic fin base six. Gill rakers 20 on first arch.
Description:
Counts: D ii 7; P i 12; V i 8; A iii 11; C 19. Lateral line scales 108. Scales from back to the lateral line 19. Scales from lateral line to pelvic fin base 6. Gill rakers 20 on first arch. Barbels absent.

Proportional measurements: Head length 4.46 (4.31-4.70), body depth 4.91 (4.83-5.09), predorsal distance 1.35 (1.30-1.42), postdorsal distance 3.83 (3.74-3.90), height of dorsal fin 9.58 (9.40-9.83), pectoral fin length 3.60 (3.51-3.73), pelvic fin length 10.86 (10.81-10.93), anal fin height 8.35 (8.30-8.42), caudal peduncle length 8.76 (8.63-8.88) in the standard length. Head depth 5.01 (4.93-5.10), head width 2.78 (2.66-2.92), eye diameter 5.00 (4.83-5.19), snout length 3.65 (3.55-3.74), width of gape of mouth 5.21 (5.15-5.29), postorbital length 1.86 (1.81-1.94) in the head length. Eye diameter 1.09 (1.00-1.19), snout length 0.80 (0.71-0.94) in the interorbital width. Caudal peduncle depth 1.67 (1.51-1.79) to its length.

Body elongated and strongly compressed, its depth 4.91 times in the standard length. Abdomen keeled from below pectoral fin to anus, keel not hardened. Head moderately long, compressed; its length 4.46 times in the standard length. Snout long and pointed. Mouth oblique, superior, cleft reaches one fourth of eye. Eyes large, supero-lateral, not visible from below ventral surface. Diameter of eye 5.00 times in the head length and 1.09 times in the interorbital width. Suborbital bones broad. Lower jaw longer, with a well developed symphysial knob. The palate is smooth, and on each side is protuberant. Each nostril has only one circular aperture, very near to eye, which is globular. The gill cover is rounded behind and leaves exposed its membrane. Barbels absent. Dorsal fin small, situated between ventral and anal. The pectoral fin are very low, and are rather longer than the head, each with thirteen rays. The ventral fins stand apart from each other, and are shorter than the pectorals, the anal fin slopes backward with fourteen rays. Caudal fin is forked with nineteen distinct
rays. The scales are small, thin and adhere firmly. Lateral line complete, slightly decurved, with 108 rays. Scales from back to lateral line 19 and from lateral line to pelvic base 6.

**Colour** : Above dusky green, below silver. There is a large cloud like spot on each shoulder and with many small well define spots along the lateral line.

**Habitation** : Inhabitants of plains and sub-montane regions. Prefers slow running streams and grows upto 18 cm. It is a surface feeder and is regarded as a useful larvivorous fish. Sexes may be distinguished only by the greater girth of the female.

**Distribution** : N. E. India : Assam, Meghalaya, Arunachal Pradesh, Manipur, Tripura.
Rest of India : Ganga, Mahanadi drainage
Other parts : Bangladesh, Nepal, Pakistan (Indus drainage).

**Relationship** : The genus *Salmophasia* can be differentiated from other genera by abdominal keel not hardened, also not supported by an expansion of pectoral girdle, pectoral axial scale not thickened along its lower border. Peculiar species characters include 20 gill rakers on first arch, 6 scales between the lateral line and pelvic base.

**Remarks** : All the specimens are collected from Beki river at Kalgachia. This species sometimes appears in the markets and people generally prefer the species. The species is categorized as lower risk least concern (LRlc) in CAMP report.
Salmophasia phulo (Hamilton-Buchanan)
(Figs. 27, 115)

1822. Cyprinus phulo Hamilton-Buchanan, Fishes of Ganges, 262, 384
type-locality : north-eastern parts of Bengal).
1878. Chela phulo : Day (partim), Fishes of India : 602, pl. 153. fig. 1
(Assam, Bengal).
1889 Chela phulo : Day (partim), Fauna Br. India : Fishes, 1 : 365
(Assam, Bengal).
(1) : 5, fig. 2.
1991. Salmostoma phulo phulo : Talwar and Jhingran, Inland fishes of
India, vol. 1 : 326.
1999. Salmostoma phulo phulo : Jayaram, Freshwater fishes of India :
66.

Fig.27. Salmophasia phulo (Hamilton-Buchanan)

Material examined : Six examples, (61.3-69.8 mm) SL, Lengtisinga, 7th
May, 2001; three examples, (31.4-59.2 mm) SL, Panbari, 8th July, 2002;
eight examples, (46.8-66.3 mm) SL, Kalgachia, 14th June, 2003.
Vernacular names: Assamese: Selkona; English: Finescale razorbelly minnow; Bengali: Phul-chela; Hindi: Dunnahree; Punjabi: Took, Bungkachari.

Diagnostic features: Abdominal keel not hardened, also not supported by an expansion of pectoral girdle; pectoral axial scale not thickened along its lower border; pectoral fins long and the axillary scale not reach the pelvic fins. Lateral line scales 101, interorbital width equal to eye diameter; lower jaw about two times in head length; pectoral fin length 3.6 times in standard length. Lower jaw with a distinct symphysial process.

Description:
Counts: D iii 7; P i 11; V i 7; A iii 15; C 19. Scales on lateral line 101. Scales from back to lateral line 14.5. Scales from lateral line to pelvic base 8.5. Gill rakers on first arch 14. Barbels absent.

Proportional measurements: Head length 4.88 (3.91-5.02), body depth 5.73 (4.99-6.05), predorsal distance 1.49 (1.26-1.78), postdorsal distance 2.98 (2.06-3.51), height of dorsal fin 7.30 (7.01-7.92), pectoral fin length 3.60 (3.11-4.01), pelvic fin length 8.86 (8.24-9.28), anal fin height 9.36 (9.01-9.99), caudal peduncle length 7.47 (6.92-7.12) in the standard length. Head depth 1.29 (1.01-1.85), head width 2.19 (1.86-2.50), eye diameter 3.77 (3.11-4.22), snout length 4.53 (4.19-4.92), width of gape of mouth 4.53 (4.01-4.98), postorbital length 2.26 (2.20-2.35) in the head length. Eye diameter 1.00 (0.92-1.06), snout length 1.20 (1.00-1.45) in the interorbital width. Caudal peduncle depth 1.61 (1.25-1.98) to its length.

Body elongated and compressed. Abdomen keeled from below pectoral fin to anus, keel not hardened. Head is of moderate size and compressed. Snout blunt and short. Mouth oblique to body axis, cleft reaching anterior margin of orbit. Eyes are of moderate size, lateral, not visible from below
ventral surface. Eye diameter equals to interorbital width. Suborbital bones broad. Lips thin. Lower jaw longer, with a symphysial knob. Gill rakers on first arch 14. Each nostril has only one circular opening near the eye. Gillcovers do not conceal their membranes. Scales are small. Lateral line curves gently downwards and with 101 scales. Scales from back to lateral line 14.5, from lateral line to pelvic base 8.5. Barbels absent. Dorsal fin short, inserted opposite to original of anal fin, with seven branched rays. Pectoral fins long with an elongate axillary scale not reach the pelvic fins. Pectoral fin length 3.6 times in the standard length. The ventral fins are short with eight rays. The first ray of the anal fin is short, and, with the two next, is undivided, the others being branched. The caudal fin is divided into two lobes and the lower lobe is longer. It has nineteen distinct rays, besides some short compacted ones on each side.

**Colour**: The more prominent lower edge is green and the sides are silver coloured. The caudal fin and anal fin are tinged with yellow.

**Habitation**: Basically inhabitant of streams, ponds, beels and inundated fields. Attained a length of 12.

**Distribution**: N. E. India: Assam, Meghalaya, Arunachal Pradesh.

Rest of India: Gangetic drainage.

Other parts: Bangladesh.

**Relationship**: It has peculiar characters from closely related genus like pectoral fins long with an axillary scale not reaching the pelvic fins. From allied species it differs by having 101 lateral line scales.

**Remarks**: Six specimens are collected from Manas river at Lengtisinga, three at Panbari and eight from Beki river at Kalagachia. This species
appears in the markets along with other small fishes. Some people prefer this fish as it is supposed to have high nutrition value. The species is not evaluated in CAMP.

**Subfamily: RASBORINAE**

Small or medium sized silvery fishes with an abdominal keel usually extending up to the level of the pectoral fins. Body elongated and laterally compressed. Mouth oblique, terminal or directed upwards. Dorsal fin without osseous ray. Airbladder usually large and free in the abdominal cavity.

**Genus: *Aspidoparia* Heckel**


*Aspidoparia jaya* (Hamilton-Buchanan)  
(Figs. 28, 116)


![Fig.28. Aspidoparia jaya (Hamilton-Buchanan)](image)

**Material examined**: Four examples, (44-53.6 mm) SL, Bekimukh, 6th April, 2001; five examples, (38.6-47.4 mm) SL, Mathanguri, 22nd December, 2001; nine examples, (39.1-58.3 mm) SL, Bashbari, 20th March, 2002; one example, 65.5 mm SL, Panbari, 6th July, 2002.

**Vernacular names**: Assamese: *Bariala, Chola, Mouah*; English: *Jaya*; Hindi: *Jaya, Pahrwah*.

**Diagnostic features**: Lower lip absent, lower jaw with a sharp crescentic edge, barbels absent. Lateral line scales 52-59. Anal fin with nine rays,
scales between lateral line and base of pelvic fin 4.5. Pharyngeal teeth in two rows.

Description:
Counts: D ii 7; P i 13-14; V i 7; A ii 7; C 19. Lateral line scales 52-59. Scales from back to lateral line 9.5–10.5. Scales from lateral line to pelvic base 4.5. Barbels absent.

Proportional measurements: Head length 3.90 (3.60-4.06), body depth 3.97 (3.79-4.08), predorsal distance 1.84 (1.74-1.98), postdorsal distance 2.24 (2.14-2.35), height of dorsal fin 4.57 (4.45-4.70), pectoral fin length 5.44 (5.00-5.82), pelvic fin length 6.43 (6.11-6.89), anal fin height 6.28 (6.12-6.50), caudal peduncle length 8.91 (8.53-9.09) in the standard length. Head depth 1.29 (1.19-1.38), head width 1.85 (1.81-1.87), eye diameter 3.50 (3.05-3.89), snout length 3.82 (3.66-3.94), width of gape of mouth 3.94 (3.81-4.02), postorbital length 2.14 (1.94-2.37) in the head length. Eye diameter 1.11 (0.97-1.25), snout length 1.33 (1.12-1.46) in the interorbital width. Caudal peduncle depth 1.12 (0.89-1.50) to its length.

Body elongate and syb cylindrical, its depth 3.97 times in the standard length. Abdomen rounded. Head is oval, small and blunt, its length 3.90 times in the standard length. Snout obtuse. Mouth generic, considerably overhung by the snout. Both the preorbital and the sub-orbital bones touch the upper lip; only about half the cheek is covered by the sub-orbital ring of bones. Lips thin. Lower jaw without any lip and with a sharp crescentic bony edge. The nostrils are near the eyes, and each has only one aperture. Eyes lateral, not visible from below ventral surface; its diameter 3.50 times in the head length and 1.11 times in the interorbital width. Barbels absent. Pharyngeal teeth in two rows, the outer row plough shaped and compressed, the inner consisting of very minute teeth. Scales deciduous. Lateral line greatly decurved, running in lower half of caudal peduncle
with 52-59 scales. Scales from back to lateral line 9.5-10.5. Scales from lateral line to pelvic base 4.5. Dorsal fin height 4.57 times in the standard length. The fin inserted above origin of pelvic fins. The pectoral fin are low, sharp above and smaller than the head. The ventral fins do not extend to the vent and with seven branched rays. The anal fin slopes backward, the first and second of its rays are short and the last is divided to the root. The caudal fin is deeply forked with nineteen rays.

**Colour**: The colour is silver, with a greenish back, and no spots either on the body or fins. The eyes are silver.

**Habitation**: Rivers specially in lower gradients. Attains a length of 15 cm.

**Distribution**: N. E. India: Assam, Tripura, Arunachal Pradesh.
Rest of India: North Bengal, Gangetic provinces.
Other parts: Bangladesh, Nepal.

**Relationship**: The genus can be distinguished from other related genera by absence of lower lip, lower jaw with a sharp crescentic edge and absence of barbels. The peculiar species characters include 52-59 scales in the lateral line, nine rays in anal fins, 4.5 scales between lateral line and pelvic base and pharyngeal teeth in two rows.

**Remarks**: Four specimens are collected from Beki river at Bekimukh. Five specimens are collected from Manas river at Mathanguri. Nine are from Beki river at Bashbari and one is from Manas river at Panbari. This species is seen in the markets frequently and are sold in a very high price. It is categorized as vulnerable (VU) in CAMP.
Aspidoparia morar (Hamilton-Buchanan)
(Figs. 29, 117)

1822. Cyprinus morar Hamilton-Buchanan, Fishes of Ganges : 264, 384, pl. 31, fig. 75 (type-locality : Yamuna river and Tista river).
1878. Aspidoparia morar : Day, Fishes of India : 585, pl. 146, fig. 4.
1985. Aspidoparia morar : Sen, Fish fauna of Assam : 49, fig. 16.
1999. Aspidoparia morar : Jayaram, Freshwater fishes of India : 68, fig. 44.

Material examined: Twelve examples, (49.6-68.9 mm) SL, Bekipar, 1st February, 2001; nineteen examples, (36.3-78.3 mm) SL, Bekipar, 3rd
February, 2001; nine examples, (68.3-80 mm) SL, Kalgachia, 27th March, 2001; thirteen examples, (61.2-79.3 mm) SL, Nagarzar, 30th March, 2001.


**Diagnostic features**: Lower lip absent; lower jaw with a sharp crescentic edge; barbels absent. Lateral line scales 39-42. Anal fin with 10-11 rays; scales between lateral line and pelvic base 2.5. Pharyngeal teeth in three rows.

**Description**:  
*Counts*: D ii 7; P i 14; V i 7; A ii 9; C 19. Lateral line scales 39-42. Scales from back to lateral line 6.5. Scales from lateral line to pelvic base 2.5. Predorsal scales 17. Barbels are absent.  
**Proportional measurements**: Head length 4.46 (4.22-4.66), body depth 3.91 (3.80-4.05), predorsal distance 1.76 (1.72-1.81), postdorsal distance 2.21 (2.12-2.34), height of dorsal fin 4.79 (4.54-5.03), pectoral fin length 4.22 (4.00-4.66), pelvic fin length 6.41 (6.01-6.96), anal fin height 8.05 (8.00-8.08), caudal peduncle length 9.52 (9.33-9.88) in the standard length. Head depth 1.22 (1.21-1.24), head width 1.91 (1.84-2.01), eye diameter 3.56 (3.22-4.02), snout length 4.30 (4.02-4.51), width of gape of mouth 4.39 (4.02-4.99), postorbital length 2.04 (2.00-2.14) in the head length. Eye diameter 1.07 (0.92-1.28), snout length 1.29 (1.15-1.43) in the interorbital width. Caudal peduncle depth 0.88 (0.75-1.00) to its length.

Body elongate, sub-cylindrical. Abdomen rounded and is normal. Depth of body 3.91 times in the standard length. Head moderate, rounded anteriorly. A broad ring of suborbital bones present. Supra-orbital process
well developed. Length of head 4.46 times in the standard length. Mouth small and inferior. Lower jaw devoid of a lip, shorter than the upper jaw and with a short crescentic edge. Upper jaw overlaps the lower jaw. Eye lateral, not visible from below ventral surface. Eye diameter 3.56 times in the head length and 1.07 times in the interorbital width. Barbels absent. Pharyngeal teeth plough shaped and in three rows. Dorsal fin inserted behind pelvic fins, with seven branched rays. The pectoral fins are low down, and shorter than the head with fifteen rays. The ventral fins are small. The anal fin commences near the vent with nine branched and two unbranched rays. Scales are of moderate size. Lateral line greatly decurved, running in lower half of caudal peduncle with 39-42 scales. Scales between back and lateral line 6.5 and from lateral line to pelvic base 2.5. Predorsal scales 17.

**Colour** : Black light brown, flanks and belly yellowish-silvery; a burnished lateral streak on sides. Fins dark yellow.

**Habitation** : Fresh water rivers, channels, ponds and lakes. Attains a length of 17.5 cm.

**Distribution** : N. E. India : Assam, Mizoram, Arunachal Pradesh, Manipur, Tripura.  
Rest of India : Northern India.  
Other parts : Iran, Pakistan (Swat river drainage), Bangladesh, Nepal, Thailand, Burma.

**Relationship** : The genus can be distinguished by absence of lower lips, lower jaw with a sharp crescentic edge, absence of barbels. Peculiar species characters include 39-42 scales in the lateral line, nine branched rays in the anal fin and pharyngeal teeth in three rows.
Remarks: Twenty one specimens are collected from Beki river at Bekipar. Nine are collected from Kalgachia and thirteen are from Manas river at Nagarzar. The species has a high market demand and are sold in more than hundred rupees per Kg. It is categorized as lower risk near threatened (LRnt) in CAMP report.

Genus: *Barilius* Hamilton-Buchanan


Body moderately elongate, compressed, subcylindrical, abdomen rounded. Head rather pointed. Mouth moderate and terminal. Eyes large and superior. Barbels one or two pairs or entirely absent. Characteristic muscular pads in front of the bases of the pectoral fins may be present. Body generally coloured with vertical bands or cluster of dots.

*Barilius barna* (Hamilton-Buchanan)
(Figs. 30, 118)


**Vernacular names** : Assamese : *Balisundre*; Bengali : Bhola, Ghol; English : *Barna baril*; Hindi : *Darangni*; Oriya : *Bahari*; Manipuri : *Ngawa*; Nishing (Arunachal Pradesh) : *Rebio tapoi*; Tripura : *Joia, Ghal*.

**Material examined** : Five examples, (50.1-54.5 mm) SL, Jong-rong stream (Mathanguri), 22nd December, 2001; eleven examples, (30.1-59.3 mm) SL, Panbari, 8th July, 2002.

**Diagnostic features** : Lower jaw equal to combined lengths of snout and eye; pectoral axillary scale with a fleshy border. Cleft of mouth almost extending beyond anterior margin of eye. Anal fin with 10-11 branched rays; barbels absent. Body with seven to eight vertical bars.
Description:

Counts: D ii 7; P i 14; V i 8; A ii 10-11; C 19. Lateral line scale 39-40. Scales from back to lateral line 8.5. Scales from lateral line to pelvic base 5.5. Predorsal scales 15. Vertical bars 8. Barbel absent.

Proportional measurements: Head length 3.34 (3.15-3.63), body depth 3.42 (3.19-3.69), predorsal distance 1.81 (1.76-1.92), postdorsal distance 2.19 (2.13-2.23), height of dorsal fin 4.33 (4.02-5.09), pectoral fin length 4.90 (4.45-5.00), pelvic fin length 5.52 (5.23-5.82), anal fin height 5.54 (5.07-6.01), caudal peduncle length 5.68 (5.43-5.82) in the standard length. Head depth 1.23 (1.15-1.37), head width 1.98 (1.86-2.18), eye diameter 3.13 (3.07-3.33), snout length 3.25 (3.03-3.54), width of gape of mouth 2.78 (2.74-2.87), postorbital length 2.09 (2.01-2.30) in the head length. Eye diameter is 1.06 (0.98-1.17), snout length 1.06 (1.00-1.12) in the interorbital width. Caudal peduncle depth is 1.40 (1.17-1.75) to its length.

Body rather deep and more strongly laterally compressed; the dorsal outline of the body is slightly straighter than the ventral. Depth of the body 3.42 times in the standard length. Head strongly compressed, its length 3.34 times in the standard length. Snout pointed. Mouth obliquely directed upward. Lips thin and simple upper jaw prominent than lower. Lower jaw without a symphysial knob. The posterior extremity of the maxilla extends below the anterior third of the orbit. Tubercles well developed and large on snout and lower jaw. Barbel absent. Nostrils are middle in position between the eyes and jaws. Eyes are larger, superior in the anterior half of the head, not visible from below ventral surface, its diameter 3.13 times in the head length and 1.06 times in the interorbital width. Scales are moderate with few radii. Lateral line concave. Complete with 39-40 scales. Scales from back to lateral line 8.5 and from lateral line to pelvic base 5.5. Predorsal scales 15. Dorsal fin commences opposite in
interspaces between the pelvic and the anal fin, nearer to the base of caudal fin than to the tip of snout. Pectoral fin with fifteen rays. The ventral fins do not reach the vent. Anal fin with thirteen to fourteen rays. Caudal fin deeply forked with lower lobe slightly longer than the upper.

**Colour**: Silvery with seven to eight well marked bluish vertical bands, the first of which sometimes passes through the eye. Fins yellow, the dorsal, caudal and anal usually tinged with red.

**Habitation**: Inhabitants of hill-streams and large rivers. Attains a length of 7.5 cm.

**Distribution**: N. E. India: All the N.E. states except Nagaland.
Rest of India: Ganga river system, Mahanadi.
Other parties: Bangladesh, Nepal, Burma.

**Relationship**: The genus *Barilius* differs from other close associate by having lower jaw equal to combined lengths of snout and eye and pectoral axillary scale with a fleshy border. Peculiar species characters include anal fin with ten to eleven branched rays and absence of barbels.

**Remarks**: Five specimens are collected from Jong-rong stream which is a small stream falls in the Beki river near Mathanguri. Eleven specimens are collected from Manas river at Panbari. This hill stream fish is restricted to the upper reaches of the rivers. It is categorized as lower risk near threatened (LRnt) in CAMP.
Barilius bendelisis (Hamilton-Buchanan)
(Figs. 31, 119)


1822. Cyprinus (Barilius) cocsa Hamilton-Buchanan, Fishes of Ganges : 272, 385, pl. 3, fig. 77 (type-locality: northern rivers of Bengal and Bihar).


Material examined: Thirty examples, (25.1-83.6 mm) SL, Bashbari, 31st January, 2001; eleven examples, (41.9-79.6 mm) SL, Panbari, 28th March, 2001; nine examples, (33.3-69.8 mm) SL, Bashbari, 14th September, 2001; eleven examples, (68.2-103 mm) SL, Mathanguri, 22nd December, 2001.

Vernacular names: Assamese: karang, Balisundaree; Bengali: Khoksa, Joia; English: Hamilton’s barila; Hindi: Angura; Punjabi: Dahrah, Kandri; Kashmiri: Pathrill-chaahl; Oriya: Bahgra-bahri; Marathi: Jodhia; Tamil: Aguskitti; Manipuri: Ngawa; Nishing (Arunachal Pradesh): Rebiotapio, Ngaba ngata.

Diagnostic features: Lower jaw equal to combined length of snout and eye; pectoral axillary scale with a fleshy border, cleft of mouth often extending beyond anterior margin of eye. Anal fin short, with seven to eight branched rays, scales with a black spot.
Description:

Counts: D ii 7; P i 14; V i 8; A ii-iii 7-8; C 18. Lateral line scales 40-41. Scales from back to lateral line 9.5. Scales from lateral line to pelvic base 7.5. Predorsal scales 18-19. Barbels two pairs.

Proportional measurements: Head length 4.31 (4.11-4.57), body depth 4.19 (4.02-4.56), predorsal distance 1.73 (1.68-1.80), postdorsal distance 2.36 (2.28-2.46), height of dorsal fin 5.36 (5.09-5.64), pectoral fin length 5.36 (5.06-5.72), pelvic fin length 7.58 (7.17-7.93), anal fin height 5.53 (5.12-5.95), caudal peduncle length 7.58 (7.42-7.76) in the standard length. Head depth 1.22 (1.10-1.37), head width 1.72 (1.55-1.94), eye diameter 4.39 (4.16-4.59), snout length 3.33 (3.12-3.47), width of gape of mouth 3.35 (3.04-3.71), postorbital length 1.96 (1.80-2.08) in the head length. Eye diameter 1.80 (1.58-1.96), snout length 1.29 (1.22-1.35) in the inter-orbital width. Caudal peduncle depth 1.25 (1.08-1.43) to its length.

Body moderately elongated, compressed, sub-cylindrical, abdomen rounded. Depth of mouth 4.19 times in the standard length. Head small, compressed and sharpish, its length 4.31 times in the standard length. Mouth oblique, superior, not protractile. Maxilla reaches to below the first third of the orbit. Open pores on the snout and lower jaw in the adult as well as in young. Maxillary process broad, lancet shaped. Lips thin and simple, upper jaw longer than lower, lower jaw with a knob above the symphysis and an emergination to receive it in the upper jaw. The nostrils are near the eyes, which are of moderate size. Eyes are larger, superior in the anterior half of head, not visible from below ventral surface. Eye diameter 4.39 times in the head length and 1.80 times in the interorbital width. Pharyngeal teeth in three rows. Barbels two pairs i.e. rostral and maxillary, rostral pair reduced and sometimes absent. Dorsal fin inserted opposite interspace between pelvic and anal fins, nearer caudal fin base than tip of snout, with nine rays and no spine. Each pectoral fin contains
fourteen branched rays. The ventral fin do not reach to the vent and with nine rays. Anal fin slopes with a concave edge, first two or three rays are simple and the remaining seven to eight rays are branched. Caudal fin forked with eighteen rays. Scales moderate-size, with many radii. Lateral line complete with 40-41 scales. Scales from back to lateral line 9.5 and from lateral line to pelvic base 7.5. predorsal scales 18-19.

**Colour**: Silvery, shot with purple and contains ventral bars. Scales tinged with black spots at the base. Fins whitish, tinged with orange. A grey margin to the dorsal and caudal, the lower lobe of which sometimes stained black.

**Habitation**: Inhabitants of streams and rivers along the base of hills. Attains a length of 15.5 cm.

**Distribution**: N. E. India: All the seven N. E states. Rest of India: Throughout the country. Other parts: Pakistan, Bangladesh, Nepal, Sri Lanka.

**Relationship**: Peculiar generic characters include lower jaw equal to combined lengths of snout and eye; pectoral axillary scales with a fleshy border. The species differs from other Bariline relatives by anal fin short with seven to eight branched rays and scales with black spot.

**Remarks**: Thirty nine specimens are collected from Beki river at Bashbari. Eleven specimens are collected from Manas river at Panbari and another eleven specimens are collected from Manas river at Mathanguri. This fish is abundantly appears in the markets of the Bashbari, Panbari and Barpeta Road. There is a high demand for the fish in the markets and are
sold around Rs. 100/- per kg. It is categorized as lower risk near threatened (LRnt) in CAMP.

**Genus : Danio Hamilton-Buchanan**


**Danio rerio (Hamilton-Buchanan)**

(Figs. 32, 120)


2000. *Danio (Brachydanio) rerio* : Nath and Dey, *Fish and fisheries of N. E. India* : 23, fig. 16.


Diagnostic features: Dorsal fin with six to seven branched rays; lateral line absent. Body with four beautiful, well marked shining golden longitudinal bands from head to caudal fin.

Description:

Proportional measurements: Head length 3.55 (3.54-3.57), body depth 3.74 (3.67-3.81), predorsal distance 1.70 (1.69-1.72), postdorsal distance 2.30 (2.17-2.44), height of dorsal fin 4.39 (4.16-4.62), pectoral fin length 4.07 (3.90-4.25), pelvic fin length 7.91 (7.81-8.02), anal fin height 5.08
(5.00-5.16), caudal peduncle length 5.59 (5.33-5.86) in the standard length. Head depth 1.62 (1.50-1.75), head width 1.87 (1.86-1.89), eye diameter 3.51 (3.44-3.39), snout length 4.46 (4.10-4.82), width of gape of mouth 3.12 (3.07-3.18), postorbital length 1.96 (1.91-2.02) in the head length. Eye diameter 1.02 (1.00-1.04), snout length 1.96 (1.92-2.00) in the interorbital width. Caudal peduncle depth 0.99 (0.93-1.06) to its length.

Body elongate, very slim and slightly compressed, its depth 3.74 times in the standard length. Abdomen rounded. Head small, obtusely pointed. Length of head 3.55 times in the standard length. Its depth 1.62 and width 1.87 times in the head length. Mouth anterior, cleft of mouth shallow not protractile, directed obliquely upwards, the end of the lower jaw in line with the dorsal profile and with a symphyseal knob. Lips thin and simple. Pharyngeal teeth hooked. Lower jaw prominent. Eyes are large, centrally placed not visible from below ventral surface. Diameter of eye 3.51 times in the head length and 1.02 times in the interorbital width. Barbels two pairs, well developed; rostral barbels considerably longer than eye diameter, the maxillary pair extend beyond half of pectoral fin. Gill rakers 10 on lower arm of the first arch. Dorsal fin inserted opposite interspace between anal and pelvic fins, nearer to caudal fin base than to snout tip, with six to seven branched rays. Anal fin with fourteen rays. Caudal fin forked. Lateral line absent. Scales in the longitudinal series 28-29. Scales in transverse series 6. Predorsal scales 16.

**Colour:** Back silvery-grey; belly yellowish white; flanks shining prussian blue, traversed with four well defined beautiful shining gold stripes from head to caudal fin, the two outer bands sharply delimit the blue of the sides above and below; blue—gold stripes show up fairly clearly on anal fin as well; operculum with golden blotches; iris golden
red. Dorsal fin yellow-olive at base, others blue with a white tip; paired fins hyaline.

**Habitation**: Inhabitants of slow-moving to stagnant standing bodies of water, particularly rice-fields. Attains a length of 4.5 cm in the standard length.

**Distribution**: N. E. India: All the seven N. E. states.
- Rest of India: Eastern parts from west Bengal to Krishna river system.
- Other parts: Pakistan, Bangladesh, Nepal.

**Relationship**: The genus *Brachydanio* differs from *Danio* mainly in the dorsal fin having six to seven branched rays and absence of lateral line. *B. rerio* is peculiar from other related species by four beautiful, well marked shining golden longitudinal bands from head to caudal fin.

**Remarks**: All the specimens are collected from Beki river at Bekipar. This small fish is abundantly found in all adjoining wetlands. It is categorized as lower risk near threatened (LRnt) in CAMP report.

**Genus: Devario Fang Fang**

Devario devario (Hamilton-Buchanan)
(Figs. 33, 121)

1822. Cyprinus devario Hamilton-Buchanan, Fishes of Ganges: 341, 393, pl. 6, fig. 94 (type-locality: rivers and ponds of Bengal).
1878. Danio devario: Day, Fishes of India: 595, pl. 150, fig. 4.
2000. Danio (Danio) devario: Nath and Dey, Fish and fisheries of N. E. India: 22, fig. 15.
**Material examined**: Seven examples, (50.9-78.3 mm) SL, Lengtisinga, 11th May, 2001; two examples, (55.2-59.1 mm) SL, Mathanguri, 23rd December, 2001.


**Diagnostic features**: Dorsal fin with 15-17 branched rays. Lateral line complete. Barbel absent.

**Description**:

**Counts**: D ii17; P i 12; V i 7; A iii 16; C 19. Lateral line scales 39. Scales from back to lateral line 7.5. Scales from lateral line to pelvic base 2.5. Predorsal scales 15. Barbels are absent.

**Proportional measurements**: Head length 3.94 (3.94-3.95), body depth 2.78 (2.61-2.95), predorsal distance 1.85 (1.75-1.96), postdorsal distance 2.06 (1.93-2.20), height of dorsal fin 4.62 (4.60-4.64), pectoral fin length 4.68 (4.31-5.06), pelvic fin length 7.27 (7.26-7.29), anal fin height 5.52 (5.20-5.85), caudal peduncle length 9.60 (9.36-9.85) in the standard length. Head depth 1.10 (0.98-1.23), head width 1.78 (1.75-1.82), eye diameter 3.33 (3.08-3.58), snout length 3.61 (3.55-3.68), width of gape of mouth 2.55 (2.30-2.80), postorbital length 2.25 (2.05-2.45) in the head length. Eye diameter 1.27 (1.08-1.46), snout length 1.37 (1.25-1.50) in the interorbital width. Caudal peduncle depth 1.00 (0.93-1.07) to its length.

Body rhomboidal and compressed, its depth 2.78 times in the standard length. Abdomen rounded. Head fairly small, snout obtusely pointed. Length of head 3.94 times in the standard length. Mouth oblique, superior. Cleft of mouth shallow, not protractile. The lower jaw being slightly
longer than upper jaw, without knob at the symphysis. Cleft of mouth reaches only up to the nasal opening. Lips thin and simple. Pharyngeal teeth crooked. Eyes large, centrally placed not visible from below ventral surface. Diameter of eye 3.33 times in the head length and 1.27 times in the interorbital width. Barbels absent. Dorsal fin commences opposite to and a little behind ventral. Caudal fin emerginate. Scales are moderate in size. Lateral line complete with 39 scales. Scales from back to lateral line 7.5. Scales from lateral line to pelvic base 2.5. Predorsal scales 15.

**Colour**: Greenish above, with many large irregular golden spots, and a golden gloss; below it is like silver. On each side of the tail, extending to the end of the fin, is a bluish stripe. The fins are yellow, eyes are white, with a golden ring round the pupil.

**Habitation**: Inhabits in freshwater rivers, ponds, tanks, lakes, channels and other water bodies. Attains a length of 10 cm.

**Distribution**: N. E. India: Assam, Meghalaya, Arunachal Pradesh, Tripura.
   Rest of India: Northern India to the Krishna Godavari river system.
   Other parts: Bangladesh, Nepal, Pakistan.

**Relationship**: Differ from related genera by absence of lower lip, presence of upper lip, complete lateral line, dorsal fin with 15-17 branched rays and absence of barbels.

**Remarks**: The first specimen is collected from Manas river at Lengtisinga and the second one also from Manas river at Mathanguri. This species are also available in the adjoining wetland and are regularly seen
in the markets. The species is categorized as lower risk near threatened (LTnt) in the CAMP report.

**Genus: *Parluciosoma* Howes**


*Parluciosoma daniconius* (Hamilton-Buchanan)  
(Figs. 34, 122)

1822. *Cyprinus daniconius* Hamilton-Buchanan, Fishes of Ganges: 327, 391, pl. 15, fig. 89 (type-locality: rivers of southern Bengal).


Material examined: Five examples, (41.9-55 mm) SL, Nagarzar, 26\textsuperscript{th} March, 2001; three examples, (49.3-54.1 mm) SL, Panbari, 8\textsuperscript{th} July, 2002.


Diagnostic features: Distinctive colour pattern comprising a black lateral band and dark edges to caudal fin. Lower lip simple; lateral line nearly complete.

Description:

Counts: D iii 7; P i 14; V i 8; A i 5; C 19. Lateral line scales 29-30. Scales from back to lateral line 5.5. Scales from lateral line to pelvic base 2.5. Predorsal scales 13. Barbels are absent.

Proportional measurements: Head length 3.61 (3.57-3.66), body depth 3.84 (3.74-3.95) predorsal distance 1.81 (1.80-1.83), postdorsal distance 2.08 (2.02-2.15), height of dorsal fin 4.43 (4.29-4.58), pectoral fin length 5.30 (5.28-5.33), pelvic fin length 6.14 (5.97-6.32), anal fin height 5.98
(5.50-6.47), caudal peduncle length 6.70 (6.54-6.87) in the standard length. Head depth 1.66 (1.66-1.67), head width 1.87 (1.78-1.97), eye diameter 3.37 (3.34-3.40), snout length 2.77 (2.52-3.03), width of gape of mouth 3.27 (3.14-3.40), postorbital length 2.19 (2.16-2.23) in the head length. Eye diameter 1.38 (1.36-1.41), snout length 1.19 (1.06-1.33) in the interorbital width. Caudal peduncle depth 1.09 (1.02-1.16) to its length.

Body rather elongate and large. Abdomen rounded. Depth of body 3.84 times in the standard length. Head fairly large, operculum broad and somewhat attenuated. Length of head 3.61 times in the standard length. Snout pointed. Mouth oblique, upturned. Lips thin. Lower jaw with a well developed symphysial process followed by a deep notch; maxilla with an extended anterior tip narrowly separated from its fellow medially. Eyes large and prominent; its diameter 3.37 times in the head length and 1.38 times in the interorbital width. Barbels absent. Dorsal fin commences nearer the base of caudal than the snout. Pectoral fins are low, shorter than the head, and sharp above, each having fifteen rays. The ventral fins are small and each have nine rays, of which the first is undivided. The anal fin is under the middle of the tail, slopes backward, and contain six rays. Caudal fin is forked with nineteen rays. Scales are moderate size. Lateral line is nearly complete and concave. Scales in lateral line 29-30. Scales from back to lateral line 5.5. Scales from lateral line to pelvic base 2.5. Predorsal scales 13.

**Colour**: Silvery with a distinct broad band running from the eye to the base of caudal fin.

**Habitation**: Inhabits pools, ditches and streams. Attains a length of 10 cm.
**Distribution**: N. E. India: Assam, Meghalaya, Arunachal Pradesh, Manipur, Tripura.
Rest of India: Throughout the country.
Other parts: Pakistan, Bangladesh, Sri Lanka, Mekong, Burma.

**Relationship**: It differ from related species by having characters like presence of lip, extension of maxilla upto vertical through anterior margin of eye, presence of symphyseal process in lower jaw, absence of barbels and distinct colour pattern comprising a black lateral band and dark edges to caudal fin.

**Remarks**: Five specimens are collected from Manas river at Nagarzar and three specimens are collected also from Manas river at Panbari. This small fish is traditionally preferred by the communities. It is kept under lower risk near threatened (LRnt) category in CAMP report.

**Genus: Raiamas Jordan**


Body slender, elongate and laterally compressed. Head compressed and pointed. Mouth wide and terminal. Eyes prominent. Lower jaw longer than combined lengths of snout and eye. Pectoral axillary scale elongate and without a fleshy border. Lateral line complete. Body with spots or marks on sides.
**Raiamas bola (Hamilton-Buchanan)**

(Figs. 35, 123)


2000. *Barilius bola*: Nath and Dey, *Fish and fisheries of N. E. India*: 32, fig. 25


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Fig.35. *Raiamas bola* (Hamilton-Buchanan)
Material examined: Eight examples, (110.9-134.5 mm) SL, Jong-rong stream (Mathanguri), 22nd December, 2001.

Vernacular names: Assamese: Korang, Rajahmas; Bengali: Goha, Bola; English: Indian trout; Oriya: Buggab; Manipuri: Ngawa; Nishing (Arunachal Pradesh): Ngota bolam.

Diagnostic features: Lower jaw longer than combined length of snout and eye; pectoral axillary scale elongate, without a fleshy border. Scales small, 85-88 in the lateral line, barbels absent.

Description:
Counts: D iii 7-8; P i 12; V i 8; A iii 10; C 19. Lateral line scales 85-88. Scales from back to lateral line 17.5. Scales from lateral line to pelvic base 5.5. Barbels are absent.

Proportional measurements: Head length 3.56 (3.48-3.37), body depth 4.99 (5.67-5.30), predorsal distance 1.70 (1.69-1.72), postdorsal distance 2.45 (2.42-2.52), height of dorsal fin 5.50 (5.35-5.89), pectoral fin length 5.36 (5.22-5.52), pelvic fin length 7.47 (7.30-7.66), anal fin height 5.89 (5.76-6.05), caudal peduncle length 7.61 (7.34-7.77) in the standard length. Head depth 1.64 (1.62-1.65), head width 2.02 (2.00-2.07), eye diameter 5.38 (5.15-5.50), snout length 3.57 (3.27-3.83), width of gape of mouth 2.47 (2.35-2.57), postorbital length 1.80 (1.69-1.91) in the head length. Eye diameter 1.43 (1.38-1.46), snout length 0.95 (0.88-1.02) in the interorbital width. Caudal peduncle depth is 1.39 (1.34-1.46) to its length.

Body slender, elongate and laterally compressed, its depth 4.99 times in the standard length. Head compressed and sharply pointed, its length 3.56 times in the standard length. Mouth very wide and terminal, obliquely
directed upward, maxilla extends well behind vertical through posterior margin of eye. Lower jaw longer than combined length of snout and eye, with a well developed symphysial knob fitting into a deep median notch of upper jaw. Barbels a pair of rostral occasionally present. Eyes large, dorsolateral in position. Diameter of eye is 5.38 times in the head length and 1.43 times in the interorbital width. Dorsal fin inserted behind ventral fins. Each pectoral fin contains thirteen rays. The ventral fins do not reach the vent. The first ray of the anal fin is short, and with the second and the third is undivided, the others are branched. The lower lobe of the caudal fin is the longest and the fin contains nineteen distinct rays. Scales small, lateral line complete with 85-88 scales. Scales from back to lateral line 17.5 and from lateral line to pelvic base 5.5.

**Colour**: Body colour silvery with 2-4 rows of bluish blotches along the sides.

**Habitation**: Inhabits in clear streams with rocky beds. Its wide mouth and streamlined body are well suited for a predaceous life. Breeds during early monsoon in quite inundated waters. Attains a length of 30 cm.

**Distribution**: N. E. India: Assam, Meghalaya, Arunachal Pradesh, Manipur, Tripura.
Rest of India: Confined to the hilly areas of the northern provinces (Haryana, Himachal Pradesh, Uttar Pradesh, Bihar, West Bengal, Orissa)
Other parts: Bangladesh, Nepal, Burma.

**Relationship**: The genus differs from other related genera by lower jaw longer than combined lengths of snout and eye; pectoral axillary scale...
elongate without a fleshy border. Peculiar species characters include small scales, 85-88 scales in lateral line and absence of barbel in adults.

Remarks: All the specimens are collected from Jong-rong stream, a small stream that falls in the Beki river near Mathanguri. This species seldom appears in the markets. It is categorized as vulnerable (VU) in CAMP.

Genus: Rasbora Bleeker


Body elongate, compressed, abdomen is rounded. Head large and pointed. Snout slightly pointed. Lower jaw prominent, with one central and two internal prominences. Dorsal fin inserted behind origin of pelvic fins. Scales large to moderate. Lateral line concave, complete.

Rasbora rasbora (Hamilton-Buchanan)
(Figs. 36, 124)

1878. Rasbora buchananii Bleeker: Day, Fishes of India: 584, pl. 145, fig. 10.


**Figure 36. Rasbora rasbora** (Hamilton-Buchanan)

**Material examined**: Three examples, (60.1-64.5 mm) SL, Lengtisinga, 6th May, 2001; two examples, (55.2-60.8 mm) SL, Panbari, 8th July, 2002.

**Vernacular names**: Assamese: *Darikona*; English: *Scissor tail rasbora*; Khasi (Meghalaya): *Shalynnai*.

**Diagnostic features**: Anal fin with seven rays, dorsal fin inserted behind origin of anal fin. Barbels absent; lateral line with 28 scales and without
distinctive colour patterns. Caudal fin with a well defined black hind margin; predorsal length shorter, dorsal-hypural distance falling at anterior border of the eye; lateral stripe of regular width, not extending in a precaudal spot.

**Description:**

**Counts:** D ii 7; P i 13; V i 8; A ii 5; C 19. Lateral line scales 28. Scales from back to lateral line 5.5. Scales from lateral line to pelvic base 2.5.

**Proportional measurements:** Head length 4.32 (4.06-4.68), body depth 3.75 (3.61-3.79), predorsal distance 1.76 (1.60-1.88), postdorsal distance 2.18 (2.05-2.38), height of dorsal fin 4.44 (4.23-4.68), pectoral fin length 3.93 (3.87-4.00), pelvic fin length 6.45 (6.31-6.53), anal fin height 7.16 (7.01-7.35), caudal peduncle length 8.83 (8.74-8.92) in the standard length. Head depth 1.24 (1.13-1.42), head width 1.86 (1.72-1.95), eye diameter 3.72 (3.66-3.80), snout length 5.32 (5.14-5.46), width of gape of mouth 4.96 (4.77-5.13), postorbital length 1.96 (1.72-2.08) in the head length. Eye diameter 1.00 (0.91-1.07), snout length 1.42 (1.33-1.49) in the interorbital width. Caudal peduncle depth 0.91 (0.83-1.00) to its length.

Body elongated and slender, moderately deep, laterally compressed, its depth 3.75 times in the standard length. Abdominal profile more convex than the dorsal. Head fairly large. The length of the head 1.24 times and its width 1.86 times in the head length. Mouth upwardly directed, with a projecting lower jaw; lower jaw with a symphysial process, upper jaw notched medially. Pharyngeal bone with one rows of teeth. Eyes placed laterally, not visible from below ventral surface. Diameter of eye 3.72 times in the head length and 1.00 times in the interorbital width. Barbels absent. Dorsal fin inserted behind origin of pelvic fins. Dorsal-hypural distance, when carried forward, falling at anterior border of the eye. Anal fin with seven rays. Caudal fin deeply emerginate. Scales are of moderate
size. Lateral line complete, concave, with 28 scales. Scales from back to lateral line 5.5 and from lateral line to pelvic base 2.5.

**Colour:** Silvery, a faint streak along the side, caudal usually tipped with black.

**Habitation:** Inhabitants of rivers, streams etc. Attains a length of 13 cm in the standard length.

**Distribution:** N. E. India: All the seven N. E. states except Mizoram.

Rest of India: Gangetic provinces.

Other parts: Pakistan, Bangladesh, Burma and Thailand.

**Relationship:** The genus *Rasbora* differs from other genera by having lower jaw with a symphysial process, anal fin with seven rays, insertion of dorsal fin behind origin of anal fin, absence of barbels, 28 scales in lateral line and without distinctive colour pattern. Important species characters include well defined black border in the caudal fin and dorsal-hypural distance falling at anterior border of the eye.

**Remarks:** Three specimens are collected from Manas river at Lenghtisinga and two from Manas river at Panbari. This small fish is also available in all adjoining wetlands and are regularly seen in the markets. The fish is not evaluated in CAMP.

**Subfamily: SCHIZOTHORACINAE: snow trout; snow minnow**

Mouth inferior to terminal; hard and papillated labial plate sometimes present. Dorsal fin with or without a spine. A tie-like row of scales present, enclosing vent and anal fin base. Scales very small.
Genus: *Schizothoraichthys* Misra


*Schizothoraichthys progastus* (McClelland)
(Figs. 37, 125)


Material examined: Three examples, (249-263.1 mm) SL, Bashbari, 30th January, 2001; one example, 136 mm SL, Bashbari, 18th March, 2002; two examples, (66.5-128.9 mm) SL, Panbari, 8th July, 2002.

Vernacular names: Assamese: Neul mach; English: Dinnawah snowtrout; Hindi: Dinnawah; Kashmiri: Alwan.

Diagnostic features: A tile like row of scales present, enclosing vent and anal fin base. Scales very small. Barbels two pairs; last undivided ray of dorsal fin osseous and serrated; pharyngeal teeth in three rows. Lateral line straight. Lateral line scales 111-114. Dorsal fin inserted almost midway between tip of snout and caudal fin base.

Descriptions:
Counts: D iii 8; P i 18; V i 10; A iii 5; C 19. Lateral line scales 111-114. Scales from back to lateral line 28. Scales from lateral line to pelvic base 23. Barbels two pairs.
Proportional measurements: Head length 3.89 (3.82-4.02), body depth 4.11 (3.93-4.25), predorsal distance 2.01 (1.97-2.04), postdorsal distance 2.03 (1.94-2.09), height of dorsal fin 3.62 (3.25-3.91), pectoral fin length 5.46 (5.29-5.69), pelvic fin length 5.85 (5.66-6.04), anal fin height 5.29
(5.11-5.53), caudal peduncle length 6.05 (5.99-6.15) to the standard length. Head depth 1.54 (1.45-1.66), head width 1.87 (1.71-1.96), eye diameter 5.47 (5.19-5.84), snout length 2.32 (2.08-2.52), width of gape of mouth 4.49 (4.26-4.64), postorbital length 2.36 (2.21-2.63) in the head length. Eye diameter 1.36 (1.09-1.61), snout length 0.74 (0.67-0.78) in the interorbital width. Caudal peduncle depth 1.37 (1.28-1.56) to its length.

Body elongated, sub-cylindrical, both dorsal and ventral profiles are arched. Depth of body 4.11 times in the standard length. Abdomen rounded. Head large, pointed anteriorly, its length 3.89 times in the standard length. Head width 1.87 times to its length. Snout obtusely pointed; its length 2.32 times in the head length and 0.74 times in the interorbital width. Mouth sub-terminal, horizontal and arch-shaped, protrac tile. Depth of cleft of mouth equals the width of the gape. Upper jaw projecting. Lips thick and fleshy, having a free posterior edge in its whole circumference; upper lip elevated in the center, lower with a central lobe and a lateral one on either side. Lips internally covered with a thin deciduous, cartilaginous layer. Eyes laterally placed, not visible from below ventral surface. Interorbital space nearly flat. Diameter of eye 5.47 times in the head length and 1.36 times in the interorbital width. Barbels two pairs, rostral and maxillary; rostral as long as orbit. Dorsal fin commences slightly in advance of the ventral and is almost midway between the end of the snout and caudal fin base; its osseous ray strong, coarsely serrated, and as long as the head behind the angle of the mouth. Pectoral does not reach the ventral, nor the latter the anal. Anal when laid flat nearly reaches the base of the caudal, which is deeply forked. Scales small, base of the anal fin in a sheath covered by an enlarged row arranged like tiles. Lateral line complete, straight with 111-114 scales. Scales from back to lateral line 28 and from lateral line to pelvic base 23.
Colour: Uniformly silvery, often with a few fine spots. Fins dark edged.

Habitation: Inhabits in the hilly streams. Primarily carnivorous. Attains a length of 50 cm.

Rest of India: Jammu and Kashmir valley, Ganga river in Uttar Pradesh.
Other parts: Nepal, Bhutan.

Relationship: The subfamily have the peculiar character of presence of a tile like row of scales enclosed vent and anal fin base. Important species characters are moderately protractile mouth, premaxillies formed a movable rim and helps in projecting the mouth forward, when opened; groove behind lower lip in addition to two lateral lobes, body depth 4.11 times in the standard length and insertion of the dorsal fin almost midway between snout tip and caudal base.

Remarks: Four specimens are collected from Beki river at Bashbari. One specimen is collected from Manas river at Panbari. The fish has a high demand at Barpeta Road market and are sold more than Rs.100/- per Kg. Big size fishes are seen in the markets weighing 3-4 Kg. These are probably fished illegally within Manas National Park. The species is categorized as low risk near threatened (LRnt) in CAMP report.

Genus: *Schizothorax* Heckel

1838. *Schizothorax* Heckel (*Partim*), *Fische aus Caschmir* : 11 (type-species: *Schizothorax plagiostomus* Heckel = *Cyprinus richardsonii* Gray)


1987. Oreinus: Tilak, Fauna of India, Pisces: 47-79 (Status discussed)


Schizothorax richardsonii (Gray)
(Fig. 38)


1877. Oreinus simuatus (Heckel): Day, Fishes of India: 529, pl. 124, fig. 4.


1984. ? Schizothorax nepalensis: Terashima, Jap. J. Ichthyol., 31 (3): 131, fig. 3c, 4c, 5c, 8 (type-locality: Rara lake, Nepal).


Diagnostic features: Mouth inferior, hard and papillated labial plate ("sucker") on chin present, more or less crescentic, lower jaw with a hard, horny and sharp edge. Body depth 4.54 times in the standard length. Head length 4.76 times in the standard length. Barbels smaller than eye diameter. Snout length 2.40 times in the head length. Dorsal fin inserted nearer tip of snout than caudal base.

Description:

Counts: D iiii 8; P i 16; V i 8; A iiii 5; C 19. Lateral line scales 104. Scales from back to lateral line 21.5. Scales from lateral line to pelvic base 18.5. Barbels two pairs.

Proportional measurements: Head length 4.76 (4.08-5.12), body depth 4.54 (4.13-4.93), predorsal distance 2.04 (1.92-2.12), postdorsal distance 1.80 (1.73-1.91), height of dorsal fin 5.29 (5.11-5.59), pectoral fin length 4.99 (4.91-5.08), pelvic fin length 5.50 (5.33-5.83), anal fin height 4.79 (4.79-4.86), caudal peduncle length 5.58 (5.36-5.81) in the standard length. Head depth 1.16 (1.01-1.25), head width 10.20 (10.05-10.29), eye diameter 7.04 (7.00-7.13), snout length 2.40 (2.16-2.75), width of gape of mouth 1.86 (1.77-1.93), postorbital length 1.74 (1.71-1.80) in the head length. Eye diameter 3.62 (3.45-3.87), snout length 1.33 (1.21-1.46) in the interorbital width. Caudal peduncle depth 1.31 (1.25-1.46) to its length.

Body streamline, sub-cylindrical, its depth 4.54 times in the standard length. Abdomen rounded. Head larger and pointed anteriorly, its length 4.76 times in the standard length. Interorbital space rather convex. Snout
rounded, with a very slight appearance of pores, its length 2.40 times in the head length. Mouth inferior, transverse. Lips thick, fleshy. Lower lip well developed, rugose, entire, having a free posterior edge, and forming an adhesive sucker. The posterior edge is slightly lobed in the middle. Inner side of lower lip covered with cartilage which is extended on to its inferior surface, where it is not so horned. Eyes large, laterally placed, not visible from below ventral surface. Eye diameter 7.04 times in the head length and 3.62 times in the interorbital width. Barbels two pairs, maxillary and rostral, smaller than eye diameter. Scales very small. 104 scales in the lateral line. Scales from back to lateral line 21.5 and from lateral line to pelvic base 8.5. Tiled row to vent minute, each scale in it being from one third to half the diameter of the orbit. Dorsal fin commences a little before the ventral, and slightly nearer to the snout than it does to the base of the caudal fin; its spine is rather strong, moderately serrated and rather longer than the head without the snout, the fin is rather higher than the body below it, its last ray is divided into two. Pectorals extending above halfway to the ventral, which last reaches two thirds of the distance to the anal, its last rays divided to its base. The anal has a narrow base with five branched rays. Caudal fin forked.

**Colour:** Steel grey, becomes gradually lighter below; belly yellowish white, body often with small grey spots. Dorsal and caudal fins greyish-white; pectoral, pelvic and anal fins ochre-yellowish.

**Habitation:** Inhabits rivers, prefers to live among rocks, primarily a bottom feeder. It breeds during April-May, before the monsoon flood the rivers and streams; the fry grows to such a size as to bear the rigours of the flood waters. Attains a length of 6 cm.
**Distribution**: N. E. India: Assam, Arunachal Pradesh.
   Rest of India: Along the Himalayas, from Jammu & Kashmir to Sikkim.
   Other parts: Bhutan, Nepal, Pakistan and Afghanistan.

**Relationship**: The genus *Schizothorax* can be differentiated from related genera by inferior mouth, head and papillated labial plate on chin, lower jaw with a hard, horny and sharp edge. Species characters include head length 4.76 times, body depth 4.54 times in the standard length, smaller barbels than eye diameter, snout length 2.40 times in the head length, dorsal fin inserted nearer to tip of snout than caudal base.

**Remarks**: All the specimens are collected from Beki river at Bashbari. This species is restricted to the upper reaches of the rivers which falls under Manas National Park. In the Barpeta road market, this species regularly appears which are definitely poached from Manas National Park. There is very high demand for this species in the markets and are sold around Rs. 100/- to 150/- per kg. This species is categorized as lower risk near threatened (LRnt) in CAMP.

**Subfamily**: GARRINAE

Mouth inferior. A suctorial disc formed by the lower lip on ventral surface of head present or absent. Pharyngeal bone with three rows of teeth. Barbels one or two pairs, rarely absent. Pectoral fins laterally inserted. No groove between upper lip and snout.
Genus: *Crossocheilus* kuhl et van Hasselt


*Crossocheilus latius* (Hamilton-Buchanan)
(Figs. 39, 126)


1877. *Cirrhina latia*: Day (partim), *Fishes of India*: 548, pl. 130, fig. 4.


![Image of Crossocheilus latius](image-url)

**Fig.39. Crossocheilus latius** (Hamilton-Buchanan)

**Material examined** : Four examples, (101.3-128 mm) SL, Bekipar, 3rd February, 2001; six examples, (93.1-110.2 mm) SL, Nagarzar, 25th March, 2001; three examples, (101.3-115.9 mm) SL, Nagarzar, 30th March, 2001.


**Diagnostic features** : Lower lip not modified into a suctorial disc; upper and lower lips not continuous, but with a narrow frenulum connecting the upper lips with the lower jaw or with lower lip. Lateral line scales 39. Diameter of eye 3.84 to 4.10 times in the head length. Gill rakers 37-39 on first arch.
Description:
Counts: D iii-iv 80; P i 13; V i 8; A ii 5; C 19. Lateral line scales 39. Scales from back to lateral line 5.5. Scales from lateral line to pelvic base 4.5. Gill rakers 37-39 on the first arch. Barbels two pairs.
Proportional measurements: Head length 4.84 (4.53-5.07), body depth 4.51 (4.17-5.00), predorsal distance 2.30 (2.21-2.43), postdorsal distance 1.83 (1.76-1.95), height of dorsal fin 3.90 (3.69-4.04), pectoral fin length 5.05 (4.85-5.20), pelvic fin length 5.39 (5.02-5.76), anal fin height 5.56 (5.31-5.73), caudal peduncle length 7.68 (7.39-8.03) in the standard length. Head depth 1.27 (1.22-1.33), head width 1.45 (1.39-1.63), eye diameter 3.97 (3.84-4.07), snout length 2.23 (2.03-2.38), width of gape of mouth 2.35 (2.08-2.56), postorbital length 3.24 (3.05-3.38) in the head length. Eye diameter 1.92 (1.85-1.95), snout length 1.02 (0.97-1.12) in the interorbital width. Caudal peduncle depth is 1.18 (1.12-1.24) to its length.

Body more or less elongate, dorsal profile more convex than the ventral; its depth 4.51 times in the standard length. Head flat and compressed, upper surface rather broad, its length 4.84 times in the standard length. Snout very prominent, obtusely pointed, overhanging the jaws and having a small lateral lobe. Mouth inferior, upper lips deeply indented on the edge. Lower lip with a strong sharp horny covering, the lip at the angle having a sort of pendulous lobe, the under surface of the jaws with a round, callous, and rather elevated spot with a free anterior edge. Gill rakers 37-39 on the first arch. Eyes moderate, situated behind the middle of the head, its diameter 3.97 times in the head length. The nostrils are in the middle, between the eyes and end of the nose. Barbels two pairs, a rostral pair is often rudimentary. Scales moderate in size, cycloid. Lateral line complete with 39 scales. Scales from back to lateral line 5.5 and from lateral line to pelvic base 4.5. Dorsal fin inserted midway between pectoral and pelvic fins and is nearer the snout than the base of the caudal fin and is...
without any spine. Pectoral fin is as long as head, its outer 3,4 rays thickened. The ventral fin with nine rays. Anal fin short and slopes backward. Caudal fin deeply forked with its upper lobe a bit larger than the lower.

**Colour** : Upper half of body greyish or light brownish, with irregular dark punctuations, lower half yellowish, a faint longitudinal stripe on flank which somewhat broadens near base of caudal fin. Dorsal and caudal fins yellowish grey. Other fins orange.

**Habitation** : Freshwater rivers. Attains a length of 12.4 cm.

**Distribution** : N. E. India : All the seven N. E. states.

Rest of India : Drainages of the Ganga in the northern India, Mahanadi river drainage in Orissa, Western Ghats, south to the headwaters of the Krishna river.

Other parts : Bangladesh, Nepal, Pakistan.

**Relationship** : The genus have peculiar characters like lower lip not modified into a suctorial disc; upper and lower lips not continuous, but with a narrow frenulum connecting the upper lip with the lower jaw. Species characters having peculiarities are, 39 scales in lateral line, eye diameter 3.84-4.10 times in the head length, 37-39 gill rakers on first arm.

**Remarks** : Four specimens are collected from Beki river at Bekipar. Nine specimens are collected from Manas river at Nagarzar. This species sometimes appears in the local markets and are sold in moderate range. Generally preferred by all communities. The species is categorized as data deficient (DD) in CAMP due to lack of adequate informations.
Genus: *Garra* Hamilton-Buchanan

1822. *Garra* Hamilton-Buchanan, *Fishes of Ganges*: 343, 393 (type-species: *Cyprinus lamta* Hamilton-Buchanan)


Body short, subcylindrical, ventral surface flat. Head slightly depressed anteriorly. Mouth inferior, transverse, semicircular. Lips thick, fleshy, upper and lower lips continuous. Proboscis may or may not be present. Cornified lower jaw invariably covered by a thick labial fold, a suctorial disc on chin, formed on lower lip, consisting of semi-cartilaginous pad. Gill openings restricted to sides. Scales moderate size, lateral line complete.

*Garra annandalei* (Hora)
(Figs. 40, 127)


![Fig.40. Garra annandalei (Hora)](image)

**Material examined** : Two examples, (110.6-114.8 mm) SL, Bashbari, 31<sup>st</sup> January, 2001; one example, 104.3 mm SL, Nagarzar, 26<sup>th</sup> March, 2001; one example, 126 mm SL, Panbari, 8<sup>th</sup> July, 2002.


**Diagnostic features** : Lower lip modified into a suctorial disc; upper and lower lips continuous. Dorsal and caudal fins without any markings. Distance between vent and the anal fin 2.93 to 3.11 in that between origins of pelvic and anal fin.
Description:
Counts: D ii-iii 7-8; P i 11-12; V i 7; A ii 5; C 19. Lateral line scales 33-34. Scales from back to lateral line 3.5. Scales from lateral line to the pelvic base 3.5. Predorsal scales 10. Barbels 2 pairs.

Proportional measurements: Head length 4.11 (3.90-4.28), body depth 4.46 (4.04-4.80), predorsal distance 2.15 (2.08-2.19), postdorsal distance 1.86 (1.77-1.98), height of dorsal fin 4.92 (4.75-5.11), pectoral fin length 5.09 (5.04-5.20), pelvic fin length 5.68 (5.47-6.01), anal fin height 6.38 (6.20-6.66), caudal peduncle length 6.26 (6.22-6.30) to the standard length. Head depth 1.45 (1.40-1.51), head width 1.32 (1.28-1.40), eye diameter 5.63 (5.32-5.88), snout length 2.10 (2.07-2.15), width of gape of mouth 2.67 (2.56-2.89), postorbital length 2.61 (2.36-2.82) in the head length. Eye diameter 2.44 (2.28-2.56), snout length 0.91 (0.89-0.94) in the interorbital width. Caudal peduncle depth 1.30 (1.21-1.46) to its length. Distance between vent and anal fin 2.93 to 3.11 times in that between origin of pelvic and anal fin. Body short, sub-cylindrical, ventral surface flat. Depth of body 4.46 times in the standard length. Head slightly depressed anteriorly, its length 4.11 times in the standard length. Snout obtuse, smooth, its length 2.10 in the head length and 0.91 times in the interorbital width. Mouth overhanging by snout, semi-circular, inferior, jaws sub-equal. Eyes directed slightly upwards and outwards and situated in the commencement of the head. Interorbital space convex. Diameter of eye 5.63 times in the head length and 2.44 times in the interorbital width. Lips thick, fleshy, upper and lower lip continuous, without any lateral lobes. A suctorial disc of the semi-cartilaginous pad present on the chin, formed on the lower lip. Barbels two pairs, rostral and maxillary, shorter than eye diameter. Jaws subequal. Gill openings restricted to the sides. The dorsal fin arises midway between the end of the snout and the base of the caudal fin, and anterior to the origin of the ventral fin, it is usually less in height than the body. The pectoral shorter
than the head. Caudal fin deeply emerginate. Scales moderate size; lateral line with 33-34 scales. Scales from back to lateral line 3.5 and from lateral line to pelvic base 3.5. Predorsal scales 10. Breast and belly scaled, but scales on breast greatly reduced.

**Colour**: Greenish, with a bluish-green band along the center of the body, and extending along the middle of the caudal fin. A dark spot behind the gill openings. Abdomen yellowish green. Fins yellowish, stained darker at their margins.

**Habitation**: Inhabits in the flowing streams, more commonly in the hills than plains. Attains a length of 9.5 cm.

**Distribution**: N. E. India: Assam, Meghalaya, Mizoram, Manipur, Arunachal Pradesh
Rest of India: Northern Bengal, Bihar.
Other parts: Bangladesh, Eastern Nepal (Kosi drainage).

**Relationship**: The genus *Garra* differs from close genus *crossocheilus* by presence of suctorial disc and continuous upper and lower lip. It differs from other *Garra* species by well developed sucker, two pairs of barbels, absence of proboseis, 33-34 scales in lateral line and absence of markings in the dorsal and caudal fins.

**Remarks**: Two specimens are collected from Beki river at Bashbari. One specimen is from Manas river at Nagarzar and another one is also from Manas river at Panbari. This hill stream fish is restricted to upper reaches of the rivers. The species is not evaluated in CAMP.
Garra gotyla (Gray)
(Figs. 41, 128)

1832. Cyprinus gotyla Gray, Illutr. Indian zool., I : pl. 88, fig. 3, 3a (type-locality: northern India).

1877. Discognathus lamta (nec Hamilton-Buchanan) Day (partim), Fishes of India : 527, pl. 123. fig. 1


1999. Garra gotyla gotyla : Jayaram, Freshwater fishes of India : 154

2000. Garra gotyla gotyla : Nath and Dey, Fish and fisheries of N. E. India : 64, fig. 54.

Material examined: Two examples, (44.2-45.5 mm) SL, Bashbari, 14th September, 2001; five examples, (40.3-49 mm) SL, Mathanguri, 22nd December, 2001; four examples, (38.5-59.6 mm) SL, Bashbari, 20th March, 2002.


Diagnostic features: Lower lip modified into a suctorial disc; upper and lower lips continuous. Breast and belly scales. Distance of vent from anal fin 4.1 to 4.8 times in interdistance between pelvic fin origin and anal fin. Body depth 4.13-4.27 times in the standard length.

Description:
Counts: D iii 7; P i 13; V i 8; A ii 5; C 19. Lateral line scales 31-34. Scales from back to lateral line 4.5. Scales from lateral line to pelvic base 3.5. Predorsal scales 10. Barbels two pairs.
Proportional measurements: Head length 3.80 (3.55-4.01), body depth 4.20 (4.13-4.27), predorsal distance 2.07 (2.02-2.17), postdorsal distance 1.82 (1.78-1.87), height of dorsal fin 3.98 (3.85-4.08), pectoral fin length 4.22 (4.02-4.37), pelvic fin length 4.89 (4.73-5.03), anal fin height 4.49 (4.27-4.64), caudal peduncle length 6.25 (5.97-6.58) in the standard length. Head depth 1.40 (1.35-1.45), head width 1.22 (1.16-1.30), eye diameter 4.25 (4.00-4.57), snout length 2.11 (2.06-2.16), width of gape of mouth 2.62 (2.50-2.78), postorbital length 3.06 (2.85-3.28) in the head length. Eye diameter 2.12 (2.10-2.16), snout length 1.20 (1.00-1.48) in the interorbital width. Caudal peduncle depth 1.04 (0.88-1.17) to its length. Distance of vent from anal fin 4.40 (4.10-4.80) in the interdistance between pelvic and anal fin.

Body short, sub-cylindrical, ventral surface flat, its depth 3.80 times in the standard length. Head slightly depressed anteriorly, its length 3.80 times in the standard length. Snout with a well developed median proboscis and a transverse lobe at tip; free extremity of proboscis, transverse lobe and lateral sides of head in front of nostrils, covered with several large spiny tubercles. Mouth inferior, transverse, semicircular. Lips thick, fleshy, upper and lower lip continuous. A suctorial disc of semi-cartilaginous pad present on the chin formed on the lower lip. Jaws subequal. Mental disc broader than long. Gill openings restricted to sides. Eyes fairly large, preorbital longer than postorbital, in the posterior half of head, lateral, not visible from ventral surface. Diameter of eye 4.25 times in the head length and 2.12 times in the interorbital width. Barbels two pairs, maxillary and rostral, shorter than orbit. Dorsal fin inserted nearer tip of snout than to caudal fin base, and anterior to the origin of the ventral. Pectoral fin shorter than the head. Distance of the vent from anal fin 4.1 to 4.8 times in the inter-distance between pelvic fin origin and anal fin. Scales fairly large and cycloid. Lateral line complete with 31-34 scales. Scales from back to
lateral line 4.5. Scales from lateral line to pelvic base 3.5. Predorsal scales 10. Breast and belly scaled.

**Colour**: Greenish, with a bluish green band along the center of the body, and extending along the middle of the caudal fin. A dark spot behind the gill openings. Abdomen yellowish green. Fins yellowish, stained darker at their margins.

**Habitation**: Inhabitants of hill streams with high currents. Attain a length of 14 cm.

**Distribution**: N. E. India: All the seven N.E. states.

Rest of India: All along the Himalayas, Chota-Nagpur plateau, Vindhya-Satpura mountains of the Indian peninsula.

Other parts: Bangladesh, Pakistan, Upper Burma.

**Relationship**: The peculiar generic characters are lower lip modified into a suckorial disc, upper and lower lips continuous. Specific species characters include well-developed sucking disc, two pairs of barbels, well developed proboscis with well defined lateral tubercular area and body depth 4.13 to 1.27 in the standard length.

**Remarks**: Six specimens are collected from Beki river at Bashbari and five are collected from Manas river at Mathanguri. This hill stream fish is seen in the markets of Bashbari and preferred by local communities. It is categorized as vulnerable (VU) in CAMP report.
Garra nasuta (McClelland)
(Figs. 42, 129)


1999. *Garra nasuta*: Jayaram, *Freshwater fishes of India*: 155, fig. 84 C.


**Material examined**: Four examples, (54.1-68.9 mm) SL, Bashbari, 20th March, 2002.

**Vernacular names**: Assamese: *Shilkamra*; English: *Khasi garra*.
**Diagnostic features**: Lower lips modified into a suctorial disc; upper and lower lips continuous. Proboscis trilobed. Two pairs of barbels present.

**Description**:  

**Counts**: D ii 8; P i 14; V i 7; A i 5; C 18. Lateral line scales 33. Scales from back to lateral line 4.5. Scales from lateral line to the pelvic base 3.5. Predorsal scales 10. Barbels two pairs.

**Proportional measurements**: Head length 4.00 (3.82-4.19), body depth 4.50 (4.29-4.78), predorsal distance 2.20 (2.11-2.29), postdorsal distance 1.77 (1.70-1.82), height of dorsal fin 3.91 (3.89-3.94), pectoral fin length 4.50 (4.41-4.63), pelvic fin length 5.19 (5.08-5.29), anal fin height 5.29 (5.22-5.36), caudal peduncle length 8.30 (8.11-8.46) to the standard length. Head depth 1.50 (1.38-1.69), head width 1.50 (1.33-1.74), eye diameter 6.13 (6.10-6.28), snout length 2.10 (2.00-2.31), width of gape of mouth 3.37 (3.21-3.53), postorbital length 2.93 (2.82-3.01) in the head length. Eye diameter 2.63 (2.51-2.74), snout length 0.90 (0.88-1.00) in the interorbital width. Caudal peduncle depth 0.92 (0.74-1.03) to its length. Distance of the vent from anal fin 4.82 (4.77-4.94) in the inter-distance between pelvic fin origin and anal fin. Body short, strongly depressed, sub-cylindrical, ventral surface flat; depth of the body 4.50 times in the standard length. Head slightly depressed anteriorly, its length 4.00 times in the standard length. Snout with a prominent trilobed proboscis, the lateral lobes small and in front of nostrils; tip of snout marked off into a transverse lobe. Snout length 2.10 times in the head length. Mouth inferior, transverse, semicircular. Lips thick, fleshy, upper and lower lip continuous. A suctorial disc of semi-cartilaginous pad present on the chin, formed on the lower lip. Gill openings restricted to sides. Barbels two pairs; rostral one is shorter than the eye diameter, maxillary one hardly visible. Eyes small, in the posterior half of the head, dorsolateral, not visible from below the ventral surface. Diameter of eye 6.13 times in the
head length and 2.63 times in the interorbital width. Dorsal fin inserted slightly ahead of the pelvic fins, with ten rays and no spine. Paired fins horizontally inserted and not plaited. Anal fin short with six rays. Caudal fin slightly emerginate. Scales are moderate size, no sheath-like row anywhere. Lateral line complete with 33 scales. Scales from back to the lateral line 4.5 and from lateral line to the pelvic base 3.5. Predorsal scales 10. Breast and belly scaled. Distance of vent from anal fin 4.82 times in the inter-distance between origin of pelvic fin and anal fin.

**Colour**: Dark brown on upper surface, fading to dirty white on flanks and belly. Dorsal fin with black spots at bases of its rays, and membrane between rays dusky.

**Habitation**: Inhabits rapid running waters, maintaining themselves against swift currents by clinging to the substratum by their suctorial disc and also by the horizontally placed paired fins especially the pectorals. Attains a length of 10 cm.

**Distribution**: N. E. India: Assam, Meghalaya, Arunachal Pradesh, Manipur, Mizoram.
Rest of India: Not found in other parts.
Other parts: Burma, South China, Vietnam.

**Relationship**: This genus can be differentiated from close associate *Crossocheilus* by modification of the lower lip into the suctorial disc and continuation of the upper and lower lips. Important species characters include well developed sucking disc, two pairs of barbels and trilobed proboscis.
Remarks: All the specimens are collected from Beki river at Bashbari. As per comment from local communities, this is a rare fish. The species is not evaluated in CAMP.

Family: PSILORHYNCHIDAE

Body flattened on ventral surface, covered with small scales. Jaws and palate without teeth. Gill openings narrow. Gill membranes united with isthmus. Four to nine of pectoral and two of pelvic rays are simple. Airbladder greatly reduced, free in abdominal cavity.

Genus: *Psilorhynchus* McClelland


Mouth small, ventral and transverse. Lips entire, fleshy, continuous at angle of mouth, reflected off from both jaws, and with glands and folds. A distinct lateral groove on either side from the postlabial groove passing to the sides of the snout may be present. Upper lip exposed. Lateral line complete.

*Psilorhynchus balitora* (Hamilton-Buchanan)
(Figs. 43, 130)


1877. *Psilorhynchus balitora*: Day, *Fishes of India*: 527, pl. 121. fig. 7 and pl. 122, fig. 3.


2000. *Psilorhynchus balitora*: Nath and Dey, *Fish and fisheries of N. E. India*: 70, fig. 60.


Material examined: Three examples, (30.6-38.5 mm) SL, Bekipar, 2nd February, 2001; ten examples, (26.3-37.8 mm) SL, Bekipar, 3rd February, 2001; four examples, (35.6-40.1 mm) SL, Bashbari, 18th March, 2002.


**Description**:  
**Counts**: D ii 8; P vi; 10-11; V ii 7; A ii 5; C 18. Scales from back to lateral line 3.5. Scales from lateral line to pelvic fin base 2.5. Predorsal scales 10. Barbels absent.  
**Proportional measurements**: Head length 4.71 (4.62-4.81), body depth 5.02 (4.81-5.34), predorsal distance 2.10 (2.00-2.19), postdorsal distance 1.84 (1.79-1.89), height of dorsal fin 4.35 (4.22-4.54), pectoral fin length 4.10 (3.85-4.52), pelvic fin length 5.55 (5.42-5.64), anal fin height 5.67 (5.30-5.95), caudal peduncle length 9.87 (9.50-10.12) in the standard length. Head depth 1.62 (1.60-1.68), head width 1.37 (1.35-1.42), eye diameter 3.74 (3.23-4.00), snout length 2.04 (2.00-2.12), width of gape of mouth 4.12 (3.65-4.70), postorbital length 4.30 (4.00-4.72) in the head length. Eye diameter is 1.53 (1.50-1.60), snout length 0.87 (0.80-0.97) in the interorbital width. Caudal peduncle depth is 1.15 (1.13-1.18) to its length.

Body rather robust moderately elevated. Head rather small, conical and somewhat depressed. A deep cleft extending from the snout to the angle of mouth. It length 4.71 times in the standard length. Mouth sub-ventral and narrow, its gape width greater than length of lower jaw. The jaws have sharp edges, but are destitute of any horny covering. Lips rather thick and reflected from off either jaw. Edges of lips not fringed, their surface covered with round hard pores. Some fine pores also on the cheeks and snout. A distinct lateral groove passes on either side from postlabial groove to side of snout. The nostrils projects beyond the mouth, which are
small and transverse, and has fleshy lips. The eyes are far back on the sides of the head, and are small and globular, not visible from underside of head, and are small and globular, not visible from underside of head. Eye diameter 3.74 times in the head length. Barbels absent. Dorsal fin commences in advance of pelvic fins. The fin slopes behind, the first of its rays is short, and, like the second undivided, the others are branched, and the last divided to the root. Pectoral and pelvic fins nearly horizontal. The outer six rays of pectoral are simple and first two of pelvic are simple. Pelvic fin placed near the vent. The anal fin is remote from the vent, with five branched rays. Caudal fin deeply forked with eighteen rays. Scales fairly large; lateral line with 32-34 scales. Scales from back to lateral line 3.5. Scales from lateral line to pelvic base 2.5. Predorsal scales 10. Anterior portion of breast devoid of scales. Air bladder rather large, divided by a constriction into an anterior and posterior portion, and not enclosed by bone.

**Colour**: Reddish brown, with irregular black blotches forming badly defined bands, in places passing over the back. Three bars on the caudal and some black on the anterior half of the dorsal.

**Habitation**: The species is found in the fast streams and shallow rivers, especially where the bottom is rocky, adhering tightly to the rocky substratum with the expanded paired fins and the breast applied to the rocks. Like other torrential fishes, it always points its head against the flow of current. The variegated colouration of the fish harmonises so perfectly with the surroundings that it is hard to defect its presence even from a short distance.
Distribution: N. E. India: Assam, Meghalaya, Arunachal Pradesh, Nagaland.
Rest of India: North Bengal, Upper reaches of Jamuna river, Gomti river at Lucknow.
Other parts: Bangladesh, Nepal and Burma.

Relationship: It differs from related genus by having spindle shaped body, presence of scales on the chest, free air bladder. From closely related species it has peculiarity like simple pectoral fin rays six, gape width greater than mandible length.

Remarks: Thirteen specimens are collected from Beki river at Bekipar and four are also collected from Beki river at Bashi. This small fish have very little importance as food fish to the local community. The species is not evaluated in CAMP.

*Psilorhynchus sucatio* (Hamilton-Buchanan)
(Figs. 44, 131)


Fig. 44. *Psilorhynchus sucatio* (Hamilton-Buchanan)

**Material examined**: Seven examples, (36.3-47.3 mm) SL, Panbari, 29th March, 2001; eleven examples, (24.3-52.1 mm) SL, Mathanguri, 23rd December, 2001.

**Vernacular names**: English : *Sucatio minnow*.

**Description:**

**Counts:** D ii 7; P iv 8; V i 7; A ii 5; C 19. Lateral line scales 30-32. Scales from back to the lateral line 3.5. Scales from the lateral line to pelvic base 2.5. Barbels absent.

**Proportional measurements:** Head length 5.05 (4.94-5.16), body depth 5.97 (5.77-6.18), predorsal distance 2.40 (2.28-2.52), postdorsal distance 1.70 (1.67-1.74), height of dorsal fin 3.87 (3.77-3.91), pectoral fin length 5.42 (5.11-5.73), pelvic fin length 5.96 (5.87-6.06), anal fin height 6.59 (6.54-6.64), caudal peduncle length 5.89 (5.73-6.05) in the standard length. Head depth 1.82 (1.82-1.82), head width 1.43 (1.37-1.50), eye diameter 3.62 (3.50-3.75), snout length 1.98 (1.90-2.06), width of gap of mouth 1.06 (1.00-1.13), post orbital length 3.02 (2.95-3.10) in the head length. Eye diameter is 1.76 (1.53-2.00), snout length 0.98 (0.90-1.06) in the interorbital length. Caudal peduncle depth is 2.82 (2.73-2.91) to its length.

Body spindle-shaped, its dorsal profile greatly arched, flattented ventrally, anteriorly depressed, becoming cylindrical with lateral compression posteriorly. Head is blunt, short, depressed, dotted, its length is 5.05 times in the standard length. Snout flat, obtusely pointed anteriorly. A shallow depression present on the cheek. Mouth small, inferior and transverse. Barbell absent. Eyes large, dorsolateral in posterior half of head, slightly visible from underside of head. Nostrils extend beyond the mouth, which is small and transverse. Jaws protrude in opening. Lips entire, fleshy, continuous at angle of mouth, reflected off from both jaws and with glands and folds. A distinct lateral groove on either side from the postlabial groove passing to the sides of the snout present. Upper lip exposed. Jaws with sharp cutting horn-y edges. Upper jaw overhanging the mouth. Jaws and palate with teeth. Dorsal fin inserted in advance of pelvic fins. The fin slopes backward, and contains nine rays, of which the first is short. Both
first and second ray undivided, the others are branched, and the last is divided to the root. Pectoral fins greatly expanded, horizontally placed. The ventral fins are as large as the pectorals and are rounded, each contains eight rays. The anal fin is nearer the end of the caudal than the vent, and has seven rays. Caudal fin deeply forked and with nineteen distinct rays, besides small compacted ones. Scales moderate size. Body including belly fully scaled with 30-32 scales. Scale from back to lateral line 3.5 and from lateral line to the pelvic base 2.5. Air bladder much reduced, anterior chamber partly covered with thick fibrous tissue, but free.

**Colour** : Dorsal side is greenish with scattered dots; on the sides these are collected into clouds, and below the body is whitish and diaphanous. The fins of the back, breast and tail are dotted. Eyes are brown, with a narrow golden circle round the pupil.

**Habitation** : Inhabitants primarily the edges of sandy streams; seems to be most abundant near emergent or overhanging vegetation from easily accessible lowland areas.

**Distribution** : N. E. India : Assam, Meghalaya, Tripura.
Rest of India : Eastern Himalaya, Ganga river system in Uttar Pradesh and Bihar.
Other parts : Bangladesh.

**Relationship** : From closely related genus it differs by having spindle shaped body, presence of scales on the chest, lateral line scales 30-32 and free air bladder. From related species it has peculiarity like simple pectoral fin rays four and deeply forked caudal fin.
Remarks: Seven specimens are collected from Manas river at Panbari and eleven specimens are collected from Manas river at Mathanguri. This small fish sometimes come to the nets of the fishermen and have a very less preference as food fish due to the small size. The species is not evaluated in CAMP.

Family: BALITORIDAE: Loaches

Head and body depressed, flattened below. Body covered with small cycloid scales, scales often present on head also. Jaws and palate edentate. Lateral line well marked and complete.

Subfamily: NEMACHEILINAE

Head and body depressed, flattened on the ventral side. Paired fins not inserted horizontally. Airbladder reduced to two connected lateral parts and a small posterior part. No spine under or before eye.

Genus: Acanthocobitis Peters

Acanthocobitis botia (Hamilton-Buchanan)
(Figs. 45, 133)

1822. Cobitis botia Hamilton-Buchanan, Fishes of Ganges : 350, 394
(type-locality : rivers of north-eastern Bengal).

1861. Botia nebulosa Blyth, J. Asiat. Soc. Beng., 29 : 165 (type-locality :
Darjeeling).


1878. Nemacheilus botia : Day (partim), Fishes of India : 614, pl. 156.
fig. 5.


1889. Nemacheilus botia : Day (partim), Fauna Br. India : Fishes, 1 :
227.

(type-locality : Cheriyadhang and Joulasal in Nainital dist., UP.;
nr. Siripur in Bengal; and purnahia in Champaran dist., Bihar).

1922. Botia nebulosa : Hora, Rec. Indian Mus., 24 (3) : 315 (Status
discussed).

1987. Noemacheilus botia : Menon, Fauna of India, Pisces, 4 : 141, pl. 5,
fig. 5.

1991. Nemacheilus botia : Talwar and Jhingran, Inland fishes of India,
Vol. 1 : 472, fig. 161.

1999. Acanthocobitis botia : Jayaram, Freshwater fishes of India : 173,
fig. 92.

2000. Acanthocobitis botia : Nath and Dey, Fish and fisheries of N. E.
India : 77, fig. 68.

2002. Acanthocobitis botia : Vishwanath, Fishes of N. E. India : 102,
fig. 78.
Material examined: Three examples, (60.1-67.4 mm) SL, Nagarzar, 27\textsuperscript{th} March, 2001; five examples, (46.5-59.8 mm) SL, Jogighopa, 8\textsuperscript{th} May, 2001; two examples, (50.2-53.1 mm) SL, Panbari, 6\textsuperscript{th} July, 2002.


Diagnostic features: Body at least partly covered with scales although minute; belly straight and horizontal. Body with a lateral band. Anal opening at a distance 2.6-3.0 times in the distance between pelvic and anal fins. A dark spot on the middle of the caudal base. Body slender, its depth about 4.63 times in standard length.

Description:
Counts: D ii-iii 10-11; P i 11; V i 7; A iii 5; C 16. Bars along lateral line 10-12. Barbeurs three pairs.
Proportional measurements: Head length 3.91 (3.84-3.96), body depth 4.63 (4.36-5.06), predorsal distance 2.20 (2.20-2.21), postdorsal distance 1.89 (1.84-1.92), height of dorsal fin 4.38 (4.18-4.64), pectoral fin length 4.81 (4.61-5.04), pelvic fin length 6.13 (5.88-6.50), anal fin height 5.76 (5.39-6.04), caudal peduncle length 8.17 (7.90-8.32) in the standard length. Head depth 1.53 (1.49-1.57), head width 1.65 (1.52-1.80), eye
diameter 4.24 (3.98-4.75), snout length 2.00 (1.94-2.07), width of gape of mouth 3.46 (3.23-3.68), postorbital length 2.49 (2.23-2.87) in the head length. Eye diameter 1.22 (1.03-1.43), snout length 0.61 (0.55-0.67) in the interorbital width. Caudal peduncle depth 0.98 (0.88-1.08) to its length.

Body slender, dorsal profile more convex than ventral. Depth of the body 4.63 times in the standard length. Head is of moderate size, cylindrical, points anteriorly. Its length 3.91 times in the standard length. Preorbital spine entirely concealed by the skin. Snout somewhat pointed. Mouth small, sub terminal. Lips thick, fleshy, papillated, continuous at angle of mouth. Jaws and palate are without teeth. Eyes moderate, not visible from underside of the head; its diameter 4.24 times in the head length and 1.22 times in the interorbital width. Nostrils close to each other, anterior not tubular. Barbels well developed, three pairs, two pairs maxillary and one pair rostral, the maxillary pair as long as eye. Insertion of dorsal fin midway between pectorals and ventrals and nearer the snout than to the base of the caudal fin. The pectoral fins end in a point and each has twelve rays. Anal fin with eight rays. Caudal fin slightly emerginate. Scales conspicuous and imbricate, considerably reduced on breast. Lateral line complete.

**Colour** : Greyish with ten to twelve short vertical bands on lateral line and a number of irregular blotches above it, sometimes forming bands over the back. Dorsal fin orange with rows of black spots. Caudal with about seven "->" shaped irregular bands. A black ocellus on the upper portion of the base of caudal fin.

**Habitation** : Inhabitants of sub-montane zones. Attains a length of about 9 cm.
**Distribution**: N. E. India: All the N. E. states except Mizoram.
   Rest of India: Northern India, Ganga basin.
   Other parts: Pakistan (Indus basin).

**Relationship**: The genus *Nemacheilus* has special characters like vent placed much nearer to anal fin, pelvic fins do not extended to anal opening, body partly covered with minute scales and straight and horizontal belly. Important species characters include slender body and body depth 4.63 times in the standard length.

**Remarks**: Three specimens are collected from Manas river at Nagarzar. Five specimens are collected from Manas river at Jogighopa and two are also from Manas river at Panbari. This beautiful fish is also available in the adjoining wetlands. The species is categorized as lower risk threatened (LRnt) in CAMP.

**Genus: Nemacheilus Bleeker**


Body elongate and cylindrical. Abdomen rounded, straight and horizontal. No subocular spine on head. Lips narrow, deeply furrowed in most species. Dorsal fin short, inserted opposite pelvic fins with seven to ten branched rays. Scales minute. Lateral line complete or incomplete.

*Nemacheilus corica* (Hamilton-Buchanan)  
(Figs. 46, 134)


Material examined: Fifteen example, (40.3-49.6 mm) SL, Bekipar, 3\textsuperscript{rd} February, 2001; six examples, (38.3-47.9 mm) SL, Bekipar, 31\textsuperscript{st} March, 2001.

Vernacular names: Not available.

Diagnostic features: Body at least partly covered with scales although minute; belly straight and horizontal. Anal opening at a distance of 2.79 times in the distance between pelvic and anal fins. A dark spot on the middle of the caudal base. Body without any lateral stripes, but with spots. A ray of pectoral fin greatly elongate.

Description:
Counts: D ii 8; P i 10; V i 7; A ii 5. Barbels three pairs.
Proportional measurements: Head length 4.33, body depth 5.44, predorsal distance 2.08, postdorsal distance 1.92, height of dorsal fin 4.45, pectoral fin length 3.45, pelvic fin length 5.69, anal fin height 5.56, caudal peduncle length 7.00 in the standard length. Head depth 1.61, head width 1.63, eye diameter 4.91, snout length 2.82, width of gape of mouth 4.03, postorbital length 2.40 in the head length. Eye diameter 1.30, snout length 0.75 in the interorbital width. Caudal peduncle depth 1.66 to its length.

**Colour**: Upper part are of a bluish colour and somewhat diaphanous with many large spots, composed of black dots. Lower parts are silvery, as are the eyes.

**Habitation**: Hill streams and semi torrential water bodies. Attains a length of 4.2 cm in standard length.

**Distribution**: N. E. India: Assam, Meghalaya, Arunachal Pradesh.
Rest of India: Sub-Himalayan range from Darjeeling, through Kumaon to Himachal Pradesh and Punjab (Sutlej basin)
Other parts: Bangladesh, Nepal, Pakistan.

**Relationship**: The genus have peculiar characters like body partly covered with minute scales, straight and horizontal belly. Specific characters include spotted body and a ray of pectoral fin greatly elongated.
Remarks: All the specimens are collected from Beki river at Bekipar. This small and beautiful fish sometimes comes to the nets of the fishermen. The species is categorized as lower risk near threatened (LRnt) in CAMP report.

Genus: Schistura McClelland


Schistura beavani (Gunther)
(Figs. 47, 132)


Fig. 47. Schistura beavani (Gunther)
Material examined: Three examples, (70.0-72.5 mm) SL, Mathanguri, 23rd December, 2001; eight examples, (60.1-76.5 mm) SL, Bashbari, 20th March, 2002; two examples, (67.5-71.9 mm) SL, Panbari, 6th July, 2002.

Vernacular names: Assamese: Botia.

Diagnostic features: Body at least partly covered with scales although minute; belly straight and horizontal. Seven to eight broad black bands on body, broader than interspaces; dorsal fin with one and caudal fin with two bands.

Description:
Counts: D iii 8; P i 10; V i 7; A ii 5; C 18. Barbels three pairs.
Proportional measurements: Head length 4.31 (4.11-4.58), body depth 5.51 (5.43-5.62), predorsal distance 1.96 (1.95-1.98), postdorsal distance 1.94 (1.93-1.96), height of dorsal fin 5.32 (5.27-5.44), pectoral fin length 4.73 (4.69-4.78), pelvic fin length 6.06 (5.81-6.25), anal fin height 6.13 (6.04-6.19), caudal peduncle length 7.21 (6.97-7.65) in the standard length. Head depth 1.73 (1.58-1.82), head width 1.73 (1.58-1.82), eye diameter 6.15 (6.07-6.20), snout length 2.43 (2.25-2.73), width of gape of mouth 5.26 (5.06-5.46), postorbital length 2.19 (2.07-2.35) in the head length. Eye diameter 1.82 (1.68-2.00), snout length 0.69 (0.63-0.78) in the interorbital width. Caudal peduncle depth 1.18 (1.11-1.23) to its length.

Body elongate of almost uniform depth, compressed posteriorly. Depth of body 5.51 times in the standard length. Head compressed. Length of head 4.31 times in the standard length. Its depth and width 1.73 times in the head length. Snout blunt, its length 2.43 times in the head length and 0.69 times in the interorbital width. Mouth semi-circular, lips fleshy. Upper lip slightly furrowed, continuous. Lower lip interrupted in the middle, moderately furrowed. Nostrils close to each other. Eyes small, not visible.
from below ventral surface. Diameter of the eye is 6.15 times in the head length and 1.82 times in the interorbital width. Barbels well developed, all longer than eye. Dorsal fin inserted midway between tip of snout and caudal fin base. Pectoral fin with ten branched rays. Pelvic fin inserted just behind dorsal and with eight rays. Anal fin short with seven rays. Caudal fin forked. Scales minute and inconspicuous, more prominent posteriorly, absent on ventral surface. Lateral line complete.

**Colour**: Seven to eight broad black bands on the body, broader than inter-spaces; a dark, broad and conspicuous band at base of caudal fin. Dorsal fin with a row of dark spots; and caudal fin with two “U” shaped bands.

**Habitation**: Inhabitants of the torrential and semi torrential waters. Attains a length of 3.1 cm in the standard length.

**Distribution**: N.E. India: Assam, Meghalaya and Arunachal Pradesh.

Rest of India: Himalayan region of North Bengal, Uttar Pradesh.

Other parts: Bhutan, Nepal.

**Relationship**: The genus *Nemacheilus* can be distinguished from other related genera by non horizontal insertion of pectoral and pelvic fins, only outermost ray of pectoral fin simple, body partly covered with minute scales and straight and horizontal belly. Peculiar species characters include seven to eight broad black bands on body, broader than inter-spaces; dorsal fin with one and caudal fin with two bands.

**Remarks**: Three specimens are collected from Manas river at Mathanguri. Eight specimens are collected from Beki river at Bashbari
and two are from Manas river at Panbari. This beautiful fish is confined only in upper reaches of the rivers. The species is not evaluated in CAMP.

Family : COBITIDAE : Loaches

Body short, low, more or less cylindrical, posteriorly compressed but never depressed. Suborbital or preorbital spine present. Mouth subterminal to inferior. Lips thick, fleshy, papillated. Barbels three pairs. Gill membranes free from each other. Scales cycloid and small, often not easily discernible, usually immersed in mucous.

Subfamily : COBITINAE

Body oblong to cylindrical, compressed. Suborbital or preorbital spine present. Mouth inferior to subterminal. One pair of rostral barbels always present, very rarely absent. Caudal fin usually rounded or slightly emarginate.

Genus : Lepidocephalichthys Bleeker


Body elongate, low, with a laterally compressed caudal peduncle. Abdomen rounded. Eyes small, superior, covered with transparent skin in anterior part of head. Lips thick, fleshy. Barbels six pairs. Dorsal fin origin
variable. Inner ray of pectoral fins in males ossified as a flat osseous vertical plate-like structure. Scales imbricate, with eccentric focal area.

*Lepidocephalichthys guntea* (Hamilton-Buchanan)
(Figs. 48, 135)


1878. *Lepidocephalichthys guntea*: Day, *Fishes of India*: 609, pl. 155. fig. 4 (var. balgara) and pl. 156, fig. 12.


**Fig. 48. Lepidocephalichthys guntea* (Hamilton-Buchanan)

**Material examined**: Four examples, (50.1-56.5 mm) SL, Jogighopa, 11th May, 2001; three examples, (39.8-50.8 mm) SL, Lengtisinga, 27th May, 2001; three examples, (40.6-60.1 mm) SL, Bekimukh, 27th January, 2003; one example, 53.8 mm SL, Kalgachia, 16th June, 2003.


**Diagnostic features**: Scales over sides and vertex of head present. Lateral line absent. Rostral barbels one pair. Body not elongate, depth of the body 5.09 times in the standard length. A dark lateral bands on body. A patch of scales extends from below eye to upper part of operculum. Dorsal fin inserted slightly behind pelvic fin origin.
Description:

Counts: D ii 7; P i 6; V i 6; A ii 5; C 16. Lateral line absent. 28 rows of scales between back of the body and base of anal fin. Barbels three pairs.

Proportional measurements: Head length 5.18 (5.00-5.49), Body depth 5.09 (4.86-5.35), predorsal distance 1.88 (1.62-2.20), postdorsal distance 2.01 (1.86-2.29), height of dorsal fin 4.34 (4.00-4.82), pectoral fin length 4.41 (4.00-4.89), pelvic fin length 6.14 (5.88-6.53), anal fin height 6.01 (5.72-6.35), caudal peduncle length 8.30 (8.00-8.81) in the standard length. Head depth 1.51 (1.41-1.72), head width 2.22 (2.00-2.51), eye diameter 5.73 (5.64-5.93), snout length 2.72 (2.41-3.00), width of gape of mouth 6.41 (5.98-6.82), postorbital length 1.94 (1.82-2.01) in the head length. Eye diameter is 1.57 (1.31-1.88), snout length 0.75 (0.68-0.84) in the interorbital width. Caudal peduncle depth is 0.94 (0.86-1.01) to its length.

Body elongated, low, slightly compressed anteriorly and strongly posteriorly, its depth 5.09 times in the standard length. Abdomen rounded. Head is oblong, compressed and blunt. Mouth inferior, narrow, slightly arched. Eyes smaller, superior, covered with transparent skin in anterior part of head, not visible from below ventral surface of head; its diameter 5.73 times in the head length. Lips thick, fleshy, continuous at angle of mouth, lower lip interrupted in middle. Jaws and palate without teeth, upper jaw is the longest. Barbels are of three pairs, one pair each rostral, mandibular and maxillary. Mental lobe well developed, and the short thread-like elongations of the lobe are not barbels. A large erectile, bifid suborbital spine in front of eyes. Gill covers are rounded behind and dotted. Dorsal fin inserted slightly behind level of origin of pelvic fins, nearer to caudal fin base than to snout tip. The first and second rays are undivided and closely united, the other are divided into two, the last of them to the root. Each of the pectoral fins contains eight rays. Pelvic fin
with seven rays. The anal fin contains five branched rays. Caudal fin convex with rounded corners. Scales very small, imbricate, scales on head in patches below and behind eyes, and upper part of operculum; on ventral side of head scales extend interiorly beyond isthmus. 20 rows of scales between back of the body and base of the anal fin; sub dorsal scales oval, with eccentric focal area. Lateral line absent.

**Colour**: The dorsal side of the body is olive coloured, with a coppery stripe along each side, and below this is somewhat diaphanous. The gill covers are greenish. The sides are clouded with dark coloured dots, collected into clusters, of which, on the middle of each side, there is a row more remarkable than the others. The rays of the back and the tail fins are spotted with olive and white, those of the other fins with black and brozen.

**Habitation**: Inhabitants flowing or even clear standing waters. Attains a length of 15 cm. It is a good aquarium fish.

**Distribution**: N. E. India: All the seven N.E. states.
Rest of India: Northern India.
Other parts: Pakistan, Bangladesh, Nepal, Burma, Thailand.

**Relationship**: From related genus it differs by having scales on sides of the head and absence of lateral line. From related species it shows distinction like body depth 5.09 times in the standard length, patch of scales extends from below eye to upper part of operculum, dorsal fin inserted slightly behind pelvic origin.

**Remarks**: Four specimens are collected from Manas river at Jogighopa, three from Lengtisinga, three from Beki river at Bekimukh and one at
Kalagachia. This fish is very common in adjoining wet land and frequently appears in the markets. The species is not evaluated in CAMP.

**Subfamily: BOTIINAE**

Body oblong, short, compressed. Erectile spine present. Two pairs of rostral barbels placed very close to each other. Caudal fin well forked.

**Genus: Botia Gray**


**Botia dario** *(Hamilton-Buchanan)*

(Figs. 49, 136)

1822. *Cobitis dario* Hamilton-Buchanan, *Fishes of Ganges*: 354, 394, pl. 29, fig. 95 (type-locality: northern rivers of Bengal).
1822. *Cobitis geto* Hamilton-Buchanan, *Fishes of Ganges*: 355, 394, pl. 11, fig. 96 (type-locality: northern rivers of Bengal).

![Fig. 49. Botia dario (Hamilton-Buchanan)](image_url)
Material examined: Three examples, (60.6-68.5 mm) SL, Nagarzar, 29th March, 2001; one example, 76 mm SL, Bekpar, 31st March, 2001; three examples, (69.1-71.5 mm) SL, Jogighopa, 27th May, 2001.

Vernacular names: Assamese: Botia, Gethu; Bengali: Batya; Hindi: Bucktee; English: Necktie loach; Manipuri: Sareng khoibi; Khasi (Meghalaya): Dohser; Tripura: Rani mach.

Diagnostic features: Two pairs of the rostral barbels, caudal fin deeply forked. Eye diameter 3.0 times in snout length.

Description:
Counts: D ii-iii 8-9; P 13; V i 7; A ii 5; C 19. Barbels four pairs. Vertical bands 7 to 8.
Proportional measurements: Head length 3.43 (3.34-3.48), body depth 3.56 (3.45-3.64), predorsal distance 1.97 (1.92-2.07), postdorsal distance 2.03 (1.98-2.11), height of dorsal fin 5.30 (5.06-5.68), pectoral fin length 5.33 (5.14-5.54), pelvic fin length 6.44 (6.28-6.68), anal fin height 6.40 (6.30-6.50), caudal peduncle length 9.95 (9.78-10.21) in the standard length. Head depth 1.26 (1.22-1.28), head width 1.82 (1.76-1.88), eye diameter 6.54 (6.21-7.03), snout length 1.89 (1.70-2.15), width of gape of mouth 5.13 (4.94-5.45), postorbital length 3.21 (3.05-3.47) in the head length. Eye diameter 2.89 (2.71-3.06), snout length 0.83 (0.72-0.94) in the interorbital width. Caudal peduncle depth 0.70 (0.65-0.76) to its length. Eye diameter 2.98 (2.96-3.02) times in the snout length.

Body strongly compressed, both the profiles equally curved. Abdomen rounded. Depth of the body 3.56 times in the standard length. Head of moderate size, long, pointed; its length 3.43 times in the standard length. Snout conical shaped, acute. Mouth small, sub-inferior, narrow. Anterior
nostril tubular. Lips thick, fleshy, jaws equal, without any teeth. Lower lip fringed with 4-5 thick blunt lobes. Eyes moderately large, superior, in mid part of the head without any skin covering them, not visible from below ventral surface. Diameter of the eye 6.54 times in the standard length, 2.89 times in the interorbital width and 2.98 times in the snout length. A bifid erectile suborbital spine in front of eyes present. Barbels four pairs, two pairs rostral, one maxillary and one madibular pair. Dorsal fin inserted above origin of ventral or slightly ahead and is situated midway between the end of snout and the base of the caudal fin. The pectoral fins are low, much smaller than the head, and sharp above with thirteen rays. The ventral fins are nearly as large as the pectorals having eight rays. Caudal fin forked. Scales very minute, cycloid. Lateral line complete.

**Colour**: Greyish with 7 to 8 brownish oblique vertical bands descending from back to abdomen. Caudal fin with 2 to 3 oblique thin black bars on each lobe.

**Habitation**: Inhabits freshwater rivers and wetlands. Attains a length of 9 cm.

**Distribution**: N. E. India: All the seven N. E. states.
Rest of India: Ganga drainage
Other parts: Bangladesh.

**Relationship**: The important generic characters include two pairs of rostral barbels and deeply forked caudal fin. The species differs from other related species by moderately large eyes and eye diameter around three times in snout length.
Remarks: Three specimens are collected from Manas river at Nagarzar. One specimen is from Beki river at Bekipar and three are from Manasa river at Jogighopa. This ornamental fish is abundantly found in all adjoining wetlands. This species is not evaluated in CAMP.

Botia rostrata (Gunther)
(Figs. 50, 137)

2000 Botia rostrata: Nath and Dey, Fish and fisheries of N.E. India: 80, fig. 70.

Material examined: Four examples, (60.5-81.3 mm) SL, Panbari, 6th July, 2002.

Diagnostic features: Two pairs of rostral barbels; caudal fin deeply forked. Snout considerably longer than remaining part of head; pectoral, pelvic and anal fins conspicuously striped with brownish crossbands.

Description:
Counts: D ii 8; P i 11; V i 7; A ii 6; C 19. Barbels four pairs.
Proportional measurements: Head length 3.62 (3.55-3.73), body depth 3.78 (3.68-3.86), predorsal distance 2.01 (1.89-2.11), postdorsal distance 1.86 (1.70-1.93), height of dorsal fin 4.95 (4.81-5.01), pectoral fin length 4.80 (4.62-4.93), pelvic fin length 4.84 (4.76-4.90), anal fin height 5.12 (5.00-5.25), caudal peduncle length 7.56 (7.43-7.89) to the standard length. Head depth 1.34 (1.23-1.63), head width 2.08 (2.03-2.14), eye diameter 8.35 (8.26-8.48), snout length 1.96 (1.88-2.01), width of gape of mouth 5.96 (5.83-6.04), postorbital length 2.78 (2.64-3.00) in the head length. Eye diameter 2.60 (2.46-2.78), snout length 0.61 (0.54-0.72) in the interorbital width. Caudal peduncle depth 0.80 (0.72-0.94) to its length.

Body oblong, short, moderately deep; its depth 3.78 times in the standard length. Both dorsal and ventral profiles are equally arched. Head long, narrow and pointed; its length 3.62 times in the standard length. Snout conical, ventrally flattened and considerably longer than remaining part of the head. Length of snout 1.96 times in the head length. Mouth small, sub-inferior. Lips thick and fleshy. Jaws equal without any teeth. Eyes are moderate, superior, without any covering of skin, not visible from below ventral surface, located in the posterior half of the head. Diameter of eye 8.35 times in the head length and 2.60 times in the interorbital width. A
bifid erectile sub-orbital spine in front of eyes present. Barbels four pairs; two pairs of rostral, one each of maxillary and mandibular. Barbels are longer than orbit. Dorsal fin inserted ahead of ventral and are nearer to the caudal fin base than to snout tip. Pectoral fin with 12 rays. Ventral fin with 8 rays. Anal fin short with 8 rays. Caudal fin deeply forked. Scales very minute and indistinct. Lateral line present, complete.

**Colour** : Yellowish with brown cross-bands of irregular pattern, which occasionally form blotches. Dorsal and anal fins with two brown cross-bands; pectoral and pelvic fins, and each caudal lobe with three brown cross-bands.

**Habitation** : Inhabitants of hill streams. It usually remains attached to the rocks and boulders of torrential waters.

**Distribution** : N. E. India: Assam, Meghalaya, Arunachal Pradesh, Tripura.
Rest of India: West Bengal.
Other parts: Bangladesh.

**Relationship** : Two pairs of rostral barbels and deeply forked caudal fin are distinguishing characters for the subfamily Botiinae. This species can be differentiated from other related species by long snout and pectoral, pelvic and anal fins with brownish cross-bands.

**Remarks** : All the specimens are collected from Manas river at Panbari. This species is not very common. It is not evaluated in CAMP.
Order: SILURIFORMES

Skin naked or with bony scutes or plates, never with true scales. Eyes small. Maxilla usually rudimentary and serve as a support for a barbel. Vomer usually toothed. Nearly always one to four pairs of barbels. Adipose fin generally present. Anterior vertebrae, second, third, fourth ossified to form “complex vertebra”. Air bladder subdivided, reduced in many species.

Family: BAGRIDAE: Bagrid catfishes

Body naked, rather elongate and compressed posteriorly. Teeth on premaxillaries, mandible and vomer. Nostrils wide apart. Gill openings wide, gill membranes free from each other and also from the isthmus. Adipose dorsal fin smooth. Pectoral fin with a strong serrated spine.

Genus: Sperata Holly

*Sperata aor* (Hamilton-Buchanan)
(Figs. 51, 138)


![Fig. 51. *Sperata aor* (Hamilton-Buchanan)](image)

**Material examined**: Three examples, (129-161.3 mm) SL, Lengtisinga, 6th May, 2001; one example, 236 mm SL, Bekimukh, 27th January, 2003.


**Diagnostic features**: Interneural shield (between basal bone of dorsal fin and occipital process) present. Snout rounded. Width of gape of mouth less than 1/2 head length. Caudal fin with 17 rays. Maxillary barbels extend to base of caudal fin or even beyond.

**Description**:

**Counts**: D i 7; P i 9; V i 5; A iii-iv 8-9; C 17. Barbels four pairs.
Proportional measurements: Head length 3.84 (3.65-4.03), body depth 4.78 (4.52-5.05), predorsal distance 2.66 (2.47-2.86), postdorsal distance 1.60 (1.51-1.64), height of dorsal fin 4.01 (3.77-4.25), pectoral fin length 6.74 (6.62-6.86), pelvic fin length 5.55 (5.37-5.73), anal fin height 6.48 (6.11-6.86), caudal peduncle length is 5.85 (5.63-6.07) in the standard length. Head depth 1.72 (1.50-1.94), head width 1.67 (1.48-1.87), eye diameter 4.14 (4.08-4.21), snout length 2.49 (2.38-2.60), width of gape of mouth 2.15 (2.15-2.16), postorbital length 2.43 (2.22-2.64) in the head length. Eye diameter 1.59 (1.46-1.73), snout length 0.89 (0.88-0.90) in the interorbital width. Caudal peduncle depth 2.38 (2.26-2.50) to its length.

Body elongated, wide anteriorly and gradually compressed posteriorly, its depth 4.78 times in the standard length. Abdomen flat. Head long, dorsoventrally flattened, its length 3.84 times in the standard length. Snout broad, chisel shaped, rounded. Mouth sub-terminal, transverse and moderately wide. Width of gape of mouth less than half of head length. Cleft of mouth does not extend half way upto the orbit. Lips thin, jaws sub-equal, upper being longer than the lower. Upper surface of head rugose with tuberculated ridges. The median longitudinal groove on the head reaches the base of occipital process. A distinct interneural shield in between basal bone of dorsal fin and occipital process present. Teeth uniformly villiform on jaws and palate, in a continuous semi-lunar band across the palate. Barbels four pairs, the maxillary extends to the base of caudal fin or even slightly beyond; the outer mandibular reaches to the middle of pectorals. First dorsal rayed, second dorsal adipose with a broad base, gaps between dorsals rather small. First dorsal overlaps second dorsal. Origin of adipose dorsal in advance of anal. Rayed dorsal and pectorals with a spine serrated at its inner edge. Caudal fin deeply forked with pointed lobes, the three outer rays in the upper lobe being much
elongated. Caudal fin with seventeen rays. Lateral line complete, almost straight.

**Colour** : Dark bluish, gradually fading to whitish on flanks and belly; a small black spot often present on basal bone of dorsal fin; a well defined dark spot at tip of adipose dorsal fin. Fins yellowish; dorsal and caudal fins stained black.

**Habitation** : Inhabitants of freshwater rivers, ponds, lakes, channels and reservoirs. Breeds before the onset of the monsoons. Attains a length of 1.8 meter.

**Distribution** : N. E. India : Assam, Mizoram, Arunachal Pradesh, Manipur, Tripura.
Rest of India : Northern India upto Krishna river system in the south.
Other parts : Bangladesh, Nepal, Upper Burma, Pakistan.

**Relationship** : Important generic characters include short anal fin, pelvic fin rays, four pairs of barbels, absence of pores on ventral surface and sides of head, longer maxillary barbels and presence of interneural shield. It differs from *A. seenghala* by rounded snout, extention of maxillary barbels to base of caudal fin, width of mouth less than half of head length and seventeen caudal fin rays.

**Remarks** : Three specimens are collected from Manas river at Lenghtisinga and one from Beki river at Bekimukh in the confluencing point. It is widely preferred as food fish. Market demand is high. Frequently available in the markets. This species is not evaluated in CAMP.
Genus: *Batasio* Blyth


Body short high and compressed, flattened ventrally to pelvic fins. Head small, compressed, conical, with pores ventrally and on sides. Mouth inferior and crescentic. Teeth villiform, in broad continuous bands on jaws. Barbels four pairs.

*Batasio tengana* (Hamilton-Buchanan)

(Figs. 52, 139)


![Fig. 52. *Batasio tengana* (Hamilton-Buchanan)](image)
Material examined: Six examples, (62.6-77.0 mm) SL, Bashbari, 14th September, 2001; two examples, (50.6-69.3 mm) SL, Bashbari, 18th March, 2002; four examples, (30.6-59.9 mm) SL, Panbari, 8th July, 2002.

Vernacular names: English: Assamese Batasio; Bengali: batashi; Manipur: Nga-rang.

Diagnostic features: Barbels generally short including the maxillary pair and not extending beyond head; ventral surface of head with sensory pores. Eyes moderate size, with free orbital rim, not visible from underside of hand. Pectoral fins shorter, do not extend to pelvic fins. Body with oblique, saddle shaped bands. A black spot on nape. Base of adipose dorsal fin equal to anal fin base.

Description:
Counts: D i 7; P i 8; V i 5; A iii 9; C 15.
Proportional measurements: Head length 4.09 (4.01-4.18), body depth 4.18 (4.04-4.31), predorsal distance 2.75 (2.61-2.80), postdorsal distance 1.52 (1.46-1.63), height of dorsal fin 6.75 (6.60-6.81), pectoral fin length 6.11 (6.03-6.19), pelvic fin length 7.19 (7.11-7.30), anal fin height 5.92 (5.88-5.97), caudal peduncle length 9.05 (9.01-9.09) in the standard length. Head depth 1.39 (1.31-1.48), head width 1.40 (1.36-1.48), eye diameter 4.70 (4.64-4.78), snout length 2.80 (2.61-2.89), width of gape of the mouth 3.76 (3.61-3.88), postorbital length 2.35 (2.31-2.43) in the head length. Eye diameter 1.45 (1.40-1.50), snout length 0.86 (0.81-0.93) in the interorbital width. Caudal peduncle depth 1.06 (1.01-1.11) to its length.

Body short, high and compressed, broad anteriorly and gradually tapering towards the tail. Head is short, rather thick, oval, and a little sharp, with a slight ridge above each eye. Occipital process extends to basal bone of
dorsal fin, the median longitudinal groove on head reaches base of occipital process. Head with pores ventrally and on sides. Snout rounded or slightly pointed. Mouth inferior, crescentic, horizontal, not wide. Eyes of moderate size, situated nearer the snout than to the posterior end of the opercle, not visible from below ventral surface. Jaws sub-equal, upper jaw slightly the longer. Lips fleshy, fimbriated. Behind the lower lip are five slit-like oval pores, and four pores between mandibular barbels and gill openings. Teeth uniform in bands on jaws and palate, band on lower jaw continuous. Barbels four pairs, one pair each of nasal and maxillary, two pairs mandibular, all not extending beyond head. Dorsal spine moderately strong and inserted above opposite to three fourth of pectoral. Adipose fin well marked, its base equal to or shorter than anal fin base. It is placed between ventral and anal. Pectoral fin with a spine, serrated at its inner edge. Ventral fin smaller than the pectorals and with six rays. Anal fin with 12 rays. Caudal fin deeply forked. Lateral line complete, with some sensory pores anteriorly.

**Colour** : Body diaphanous, having a gloss of gold on the sides. On the back are many black dots which are collected into a blotch above the pectoral fins, and another exists on the crown of the head. Dorsal and caudal fins dotted, edges nearly black.

**Distribution** : N. E. India : Assam (Brahmaputra river), Arunachal Pradesh.
Rest of India : Punjab, North Bengal.
Other parts : Bangladesh, Burma, Thailand.

**Relationship** : It differ from its closely related genus by having moderate size eye, with free orbital rim, not visible from underside of head, pectoral fins shorter, do not extend to pelvic fins. From its close allay *B. batasio*, it has speciality like body marked with oblique vertical bands or spots, no
black spot above pectoral fin, a dusky blotch present on nape, base of adipose fin equal to anal fin base.

**Remarks**: Eight specimens are collected from Beki river at Bashbari and four from Manas river at Panbari. Locally it is regarded as a rare one and seldom appears in the markets. Not very much preferred as a food fish. The species is not evaluated in CAMP.

**Genus: Mystus Scopoli**


**Mystus cavasius** (Hamilton-Buchanan)

(Figs. 53, 140)


**Material examined**: Five examples, (99.8-115 mm) SL, Kalgachia, 25th March, 2001;


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Fig. 53. *Mystus cavasius* (Hamilton-Buchanan)
**Kontia, Tenga;** Punjabi: **Kinger;** Tamil: **Vella kellettee;** Telegu: **Thella jella.**

**Diagnostic features:** Inteneural shield absent. Barbels long, maxillary pair longer than head; ventral surface of head without any pores. Median longitudinal groove on head extends to base of the occipital process; a dark spot on base of caudal fin often present.

**Description:**

**Counts:** D i 7; P i 8; V i 5; A iii 8; C 17. Barbels four pairs.

**Proportional measurements:** Head length 4.79 (4.71-4.92), body depth 3.74 (3.61-3.82), predorsal distance 2.94 (2.82-2.99), postdorsal distance 1.55 (1.49-1.63), height of dorsal fin 3.83 (3.72-3.94), pectoral fin length 4.95 (4.80-5.04), pelvic fin length 6.05 (6.01-6.13), anal fin height 5.83 (5.68-5.94), caudal peduncle length 5.52 (5.31-5.84) in the standard length. Head depth 1.15 (1.08-1.23) head width 1.21 (1.11-1.36), eye diameter 3.42 (3.31-3.49), snout length 2.35 (2.28-2.41), width of gape of mouth 3.24 (3.18-3.29), postorbital length 2.92 (2.81-3.04) in the head length. Eye diameter 1.24 (1.13-1.36), snout length 0.85 (0.77-0.93) in the interorbital width. Caudal peduncle depth 2.47 (2.41-2.59) to its length.

Body elongated, wide anteriorly and compressed posteriorly; its depth 3.74 times in the standard length. Abdomen nearly flat. Dorsal profile slightly raised at nape. Head is of moderate size, dorso-ventrally flattened, its length 4.79 times in the standard length. Snout rather obtuse, upper jaw a little the longer; cleft of mouth extends half-way to below the orbit. Upper surface of the head slightly roughened, its median longitudinal groove rather wide and extends to the base of the occipital process, which last is narrow and three and half times as long as wide at its base, and with a shallow groove along its last half; no interspace between its posterior
extremity and the basal bone of the dorsal fin. Mouth moderately wide, subterminal. Lips thin. Teeth villiform in bands on jaws, vomerine patch crescentic and continuous. Nostrils distinctly placed and separated by a nasal barbel. Eyes moderately large, supralateral, in anterior part of head, not visible from below ventral surface and with free circular margins. Eye diameter 3.42 times in the head length and 1.24 times in the interorbital width. Barbels four pairs, the longest maxillary pair reaching middle of the ventral fin. Rayed dorsal inserted above last quarter of pectoral fin. Dorsal spine is entire, pointed and is as long as the head excluding the snout and is lesser than the body. The adipose dorsal fin commences just behind the rayed dorsal and is fairly long. Its base is nearly three times as long as the base of the rayed dorsal fin. Pectoral spine is as long as the dorsal spine but is stronger than the dorsal and is smooth externally while denticulated internally. Ventral fin arises behind the last dorsal ray, caudal fin forked with its upper lobe longer and more pointed. Anal with 11 rays. Lateral line complete.

**Colour**: Greyish with a well defined midlateral longitudinal stripe, also a less well defined longitudinal stripe ventral to the midlateral stripe; a dark humeral spot emphasized by a pale area along its ventral margin. Dorsal and caudal fins dusky; paired fins and anal fin dull white.

**Habitation**: Inhabitants of freshwater and tidal rivers and lakes; also beels, ponds, ditches and inundated fields. Attains a length of 40 cm in the standard length.

**Distribution**: N.E. India: Assam, Meghalaya, Arunachal Pradesh, Manipur, Tripura.
Rest of India: Throughout the country.
Other parts: Sri Lanka, Burma, Pakistan, Thailand, Nepal, Bangladesh.
**Relationship**: The important distinguishing characters include absence of interneural shield, occipital process extends to basal bone of the dorsal fin, adipose dorsal fin long, inserted immediately behind rayed dorsal fin, continuous vomarine teeth-band and extention of maxillary barbels up to middle of the ventral fin.

**Remarks**: All the specimens are collected from Beki river at Kalgachia. This species is more abundantly found in wetlands. Moderate demand is there in the markets. In CAMP report the species is kept in lower risk near threatened (LRnt) category.

**Mystus vittatus (Bloch)**
(Figs. 54, 141)


1877. *Macrones vittatus*: Day, *Fishes of India*: 448, pl. 98, fig. 3 and pl. 99, fig. 4.


Material examined: Six examples, (62.3-75.9 mm) SL, Bekimukh, 3rd April, 2001.

Vernacular names: Assamese: Singorah, Tingarah; English: Striped dwarf catfish; Bengali: Tengra; Hindi: Kuggur, Tengra; Malayalam: Kallen, Coori, Ettachulli, Chillan; Oriya: Kuntiah, Tengra; Punjabi: Kaba Kander; Tamil: Natlu kellettee; Telegu: Suku jella.

Diagnostic features: Inter-neural shield absent. Barbels long, maxillary pair longer than head; ventral surface of head without any pores. Eye diameter 4.35 times in the head length; pectoral fin with 9 soft rays; body marked with 3 longitudinal pale black bands above and below lateral line. A dark shoulder spot present. Pectoral fin with nine soft rays.

Description:
Counts: D i 7; P i 9; V i 5; A ii 7; C 17. Branchiostegal rays 10. Barbels four pairs.
Proportional measurements: Head length 3.58 (3.41-3.76), body depth 3.26 (3.09-3.41), predorsal distance 2.63 (2.50-2.75), postdorsal distance 1.56 (1.50-1.63), height of dorsal fin 3.76 (3.72-3.79), pectoral fin length 5.28 (5.19-5.40), pelvic fin length 6.35 (6.30-6.41), anal fin height 4.68
(4.51-4.79), caudal peduncle length 12.50 (12.11-12.76) in the standard length. Head depth 1.24 (1.06-1.58), head width 1.25 (1.20-1.29), eye diameter 4.35 (4.26-4.43), snout length 2.98 (2.88-3.06), width of gape of mouth 2.75 (2.60-2.89), postorbital length 2.32 (2.15-2.49) in the head length. Eye diameter 1.87 (1.81-1.98), snout length 1.28 (1.15-1.38) in the interorbital width. Caudal peduncle depth 0.68 (0.57-0.76) to its length.

Body moderately elongated, compressed. Dorsal profile elevated at nape. Depth of body 3.26 times in the standard length. Abdomen rounded. Head depressed, its length 3.58 times in the standard length. Occipital process about 3 times as long as broad at its base, reaching basal bone of the dorsal fin; median longitudinal groove on head short, not extending to the base of the occipital process. Inter-neural shield absent. Snout obtusely pointed. Mouth terminal, transverse, moderately wide, lips thin. Jaws sub-equal. Upper one being large. Teeth in an uninterrupted semilunar band across the palate. Eyes moderately large, supralateral, in the anterior part of the head, not visible from below ventral surface and with free circular margins. Diameter of eye 4.35 times in the head length and 1.87 times in the interorbital width. Barbels four pairs; the maxillary reaches up to ventral and nasal up to operculum. Dorsal spine weak, finely serrated on its inner edge; adipose dorsal twice the base of the rayed dorsal, inserted much behind rayed dorsal fin but in advance of the anal fin. Pectoral spine is denticulated internally with 15 teeth and 9 soft rays. Ventral fin with six rays. Anal fin short with nine rays. Caudal fin is forked and its upper lobe is longer than the lower. Lateral line present; complete and simple.

**Colour:** Golden with dark bluish shoulder spot. A broad black longitudinal band extends along and on either side of the lateral line. Another broad band is present below and above these bands. A band is
also present along the dorsal side of the body. A small black spot at the base of the dorsal fin is present. Fins edged black.

**Habitation** : Inhabits in standing and flow waters; occurring within the tidal influence also. Attains a length of 21cm in the standard length.

**Distribution** : N. E. India : Assam, Meghalaya, Arunachal Pradesh, Tripura.
Rest of India : Throughout.
Other parts : Bangladesh, Nepal, Burma, Thailand, Sri Lanka, Pakistan.

**Relationship** : The genus *Mystus* has peculiarities like short anal fin, pelvic fin rays 6, four pairs of barbels, absence of pores on ventral surface and sides of head and absence of inter-neural shield. Peculiar species characters include eye diameter 4.35 times in the head length, 9 soft rays in pectoral fin and presence of three longitudinal black bands.

**Remarks** : All the specimens are collected from Beki river at Bekimukh where the river falls at Brahmaputra. The fish is easily available in the ponds, beels etc. and frequently found in the markets and can be purchased in the moderate range. It is categorized as vulnerable (VU) in CAMP.

**Family : SILURIDAE : Eurasian catfishes**

Genus: *Ompok* Lacepede


Body strongly compressed. Head small, broad, depressed. Mouth superior, moderately wide, its cleft oblique, not extending to front border of eyes. Eyes small, their ventral border on level with corner of mouth, visible from below ventral surface of head. Adipose dorsal fin absent. Branchiostegal rays 12 to 15.

*Ompok bimaculatus* (Bloch)

(Figs. 55, 142)


1877. *Callichrous bimaculatus*, *Fishes of India*: 476, pl. 110, figs. 4, 5.


1999. *Ompok bimaculatus*: Jayaram, *Freshwater fishes of India*: 244, fig. 121A.


Fig. 55. *Ompok bimaculatus* (Bloch)
Material examined: One example, 96 mm SL, Bashbari, 14th September, 2001; one example, 71.5 mm SL, Bekipar, 25th March, 2001; one example, 70.5 mm SL, Panbari, 6th July, 2002.

Vernacular names: Assamese: Pabho, Pava, Pahboh; English: Butter cat-fish; Bengali: Pabda, Puffta; Hindi: Pufta, Gugli, Jalkapoor, Chechera; Kannada: Godla, Kembari; Malayalam: Mungee wahlah, Manja vala, Velappothu, Chotra-vahlay; Kannada: Godla, Kembari; Manipuri: Ngaton; Meghalaya: Kha babia; Marathi: Moone, Goongwaree, wanz; Oriya: Pobtah, Pabtah; Punjabi: Pafta, Palius; Tamil: Chotah wahlah, Chaithu velai, Sevalai, Silai-valai; Telegue: Duka duma, Theenuva.

Diagnostic features: Caudal fin forked; eyes visible from underside of head. Mandibular barbels is of one pair, sometimes rudimentary. Pelvic fins not reaching anal fin origin. Anal fin insertion 2.0 to 4.0 times eye diameter behind last dorsal fin ray. Anal fin with 57-58 branched rays; maxillary barbels extend posteriorly to anal fin base.

Description:
Counts: D i 3; P i 13; V i 8; A ii-iii 57-58; C 17. Barbels two pairs.
Proportional measurements: Head length 4.49 (4.24-4.64), body depth 4.57 (4.46-4.79), predorsal distance 3.07 (3.03-3.14), postdorsal distance 1.46 (1.41-1.52), height of dorsal fin 9.26 (9.10-9.80), pectoral fin length 5.85 (5.70-6.03), pelvic fin length 15.21 (15.07-15.54), anal fin height 12.47 (12.11-12.78) in the standard length. Head depth 1.58 (1.07-1.84), head width 1.65 (1.61-1.70), eye diameter 5.68 (5.65-5.77), snout length 2.87 (2.73-3.06), width of gape of mouth 2.30 (2.17-2.43), postorbital length 1.51 (1.21-1.66) in the head length. Eye diameter 2.43 (2.07-2.77), snout length 1.54 (1.23-1.98) in the interorbital width.
Body elongated, laterally much compressed and narrowed towards tail. Dorsal profile raised at nape region. Depth of the body 4.57 times in the standard length. Head of moderate size, dorsoventrally flattened, its length 4.49 times in the standard length. Snout bluntly rounded, depressed. Mouth superior, moderately wide, its cleft oblique, not extending to front border of eyes. Lips thin. Jaws sub-equal. Lower jaw is prominent and is slightly longer than the upper. Teeth uniformly villiform, depressible in bands on jaw, in two separate patches on palate. Vomerine teeth are not continuous and are small oval patches. Eyes moderate, situated opposite to the angle of the mouth, its lower border below level of cleft of mouth. Eye diameter 5.68 times in the standard length and 2.43 times in the interorbital width. Barbels two pairs; maxillary barbels long and extend to anal fin origin, the mandibular pair very short. Dorsal fin short, weak without spine and commences at 2/7 of the body and its origin in advance of pelvic origin. It is near to snout end than caudal base. Adipose dorsal fin absent. Pectoral with a moderately strong spine, serrated internally. Pectoral spine is usually as long as the head behind the angle of the mouth. Pectoral surpassing pelvic fins. Pelvic fins not reaching anal fin origin. Anal fin with 57-58 branched rays, its insertion 2.0 to 4.0 times eye diameter behind last dorsal fin ray. Caudal fin is forked with its upper lobe slightly longer. Lateral line present, complete and simple.

**Colour**: Silvery shot with purple, a black spot on the shoulder behind the gill opening and above the middle of the pectoral fin. Sometimes the caudal fin is tipped with black.

**Distribution**: N. E. India: Assam, Meghalaya, Arunachal Pradesh, Nagaland, Tripura.
Rest of India: Throughout.
Other parts: Bangladesh, Sri Lanka, Burma, Thailand, Java, Sumatra, Borneo, China, Afghanistan, Pakistan.
**Habitation**: Inhabitants of plains and sub-montane regions. Spawns during the monsoons and thrives well in confined waters. Attains a length of 45 cm standard length.

**Relationship**: This species differs from other species of *Ompok* by pelvic fin with 9 rays, anal fin with 57-58 branched rays, extension of maxillary barbels posterior to anal fin base.

**Remarks**: One specimen is collected from Beki river at Bashbari. Another specimen is collected from Beki river at Bekipar. Third specimen is collected from Manas river at Panbari. This is an extremely rare species and suddenly appears in the markets. For its delicious taste, market prices is very high and fetched upto 300 rupees per kg. The species is categorized as endangered (EN) in CAMP.

**Ompok pabda (Hamilton-Buchanan)**  
(Figs. 56, 143)


1999. *Ompok pabda*: Jayaram, *Freshwater fishes of India*: 244, fig. 121 B.
2000. *Ompok pabda*: Nath and Dey, *Fish and fisheries of N. E. India*: 96, fig. 84.


![Ompok pabda](image)

**Fig. 56. Ompok pabda** (Hamilton-Buchanan)

**Material examined**: Three examples, (129.1-151.6 mm) SL, Jogighopa, 11\(^{th}\) May, 2001; two examples, (102-151.6 mm) SL, Lengtisinga, 27\(^{th}\) May, 2001; two examples, (95-101.1 mm) SL, Bekimukh, 29\(^{th}\) January, 2003.


**Diagnostic features**: Caudal fin forked; eyes visible from underside of head. Mandibular barbels one pair, sometimes rudimentary. Pelvic fins reaching anal fin origin. Anal fin insertion opposite to behind last dorsal fin ray. Anal fin with 50-53 branched rays. Maxillary barbels much shorter, extend only to tip of pectoral fin

**Description**:

**Counts**: D i 4; P i 11; V i 6-7; A ii 50-53; C 18. Barbels two pairs.
**Proportional measurements**: Head length 4.66 (4.50-4.85), body depth 3.79 (3.75-3.84), predorsal distance 2.94 (2.91-2.96), postdorsal distance 1.49 (1.48-1.51), height of dorsal fin 8.52 (8.36-8.63), pectoral fin length 6.49 (6.33-6.74), pelvic fin length 14.15 (14.11-14.19), anal fin height 14.39 (14.22-14.61) in the standard length. Head depth 1.51 (1.36-1.61), head width 1.42 (1.34-1.54), eye diameter 6.11 (5.87-6.30), snout length 2.62 (2.53-2.79), width of gape of mouth 1.94 (1.92-1.98), postorbital length 2.27 (2.01-2.47) in the head length. Eye diameter 3.44 (3.33-3.52), snout length 1.52 (1.37-1.65) in the interorbital width.

**Colour** : Silvery-grey with a tinge of yellow, dark on back, fading to dull grey on belly, often with two dark lateral bands on body, a dark oval shoulder spot on lateral line.

**Distribution** : N. E. India: Assam, Meghalaya, Arunachal Pradesh, Manipur, Tripura. 
Rest of India: Ganga river system.
Other parts: Bangladesh, Burma, Afghanistan, Pakistan (Indus plain and adjoining hilly areas).

**Habitation** : Inhabitants of rivers, tanks and ponds. Attains a length of 17 cm.

**Relationship** : The genus differs from other related genera by forked caudal fin, one pair of mandibular barbel and visible of eye from below ventral surface. Peculiar species characters include pelvic fins reaching anal fin origin, insertion of anal fin opposite to behind last dorsal fin ray.

**Remarks** : Three specimens are collected from Manas river at Jogighopa in the confluencing point of the river Manas with Brahmaputra. Two specimens are collected from Manas river at Lengtisinga and another two are also from Manas at Nagarzar. It is one of the esteemed food fish and there is a very high demand for the fish in the local markets. Market prices varies from Rs. 200/- to 300/- per Kg. But the specimen is very rare. It is categorized as endangered (EN) in CAMP.

**Family : SCHILBEIDAE : Schilbid catfishes**

Body elongate, compressed. Nostrils widely separated, anterior wide, along front border of snout. Gill openings very wide. Teeth generally
villiform in band on jaws. Barbels two to four pairs. Branchiostegal rays 5 to 12.

Subfamily: AILIINAE

Dorsal fin and spine absent, a small adipose fin is present. Anal fin very long with 58 to 90 rays.

Genus: *Ailia* Gray


*Ailia coila* (Hamilton-Buchanan)

(Figs. 57, 144)


**Fig. 57. Ailia coila** (Hamilton-Buchanan)

**Material examined**: Eight examples, (98-106 mm) SL, Bekipar, 1st February, 2001; six examples, (80.3-85.7 mm) SL, Kalgachia, 14th June, 2003.


**Diagnostic features**: Rayed dorsal fin absent, anal fin very long with 61-66 rays, not confluent with caudal. Adipose dorsal fin small, short, posteriorly free. Ventral profile not pronouncedly arched. Body colour silvery without any black blotch on caudal fin base or along side of body.
Description:
Counts: P ii 14; V i 5; A 61-66; C 19. Barbels four pairs.

Proportional measurements: Head length 5.03 (4.88-5.18), body depth 4.37 (4.03-4.72), pectoral fin length 5.19 (5.03-5.36), pelvic fin length 20.22 (19.65-20.80), anal fin height 10.16 (9.96-10.37), caudal peduncle length 14.00 (13.18-14.82) in the standard length. Head depth 1.22 (1.11-1.34), head width 1.70 (1.65-1.75), eye diameter 5.49 (5.32-5.66), snout length 2.96 (2.89-3.03), width of gape of mouth 2.16 (2.06-2.26), postorbital length 1.62 (1.42-1.83) in the head length. Eye diameter is 2.32 (2.29-2.36), snout length 1.25 (1.24-1.26) in the interorbital length. Caudal peduncle depth is 0.59 (0.46-0.73) to its length.

Body elongate, its ventral profile not pronouncedly arched. Head is oval, small, but wider than the body and blunt. Length of head 5.03 times in the standard length. Upper jaw the longer and rather overhung by the snout. Cleft of the mouth reaching half way to the orbit opposite the center of the eye. The lips are fleshy. The nostrils are circular, and near the jaw. The eye are of a moderate size, near the middle, round and protuberant. The gill covers expose part of their membranes. Teeth villiform in jaws in bands and in two small patches on palate. Barbels four pairs, one each of maxillary, nasal and two of mandibular, all more or less of uniform length and longer than head. Rayed dorsal fin absent. Adipose dorsal fin small, inserted above last sixth of anal fin. Plectoral spine slender, finally serrated along its inner edge and extend beyond the vent; each contains fifteen rays. The ventral fins are minute, each containing six rays, of which one on each side is undivided. The anal fin contains 61-66 rays of nearly equal length. The caudal fin is divided into two sharp lobes, of which the under is the longest, and contains nineteen distinct rays, besides many small compacted ones. Lateral line complete, simple. Air bladder tubular, transverse, horse-shoe shaped, curved forwards and upwards on each side,
the lateral horns lying in recesses behind, formed by parapophyses of IVth and Vth vertebrae.

**Colour**: Silvery white. Fins greyish at their edges, caudal fin edged with black.

**Distribution**: N. E. India: Assam (Brahmaputra river system), Meghalaya, Tripura, Arunachal Pradesh.
Rest of India: Jamuna, Ganga and Mahanadi river system.
Other parts: Bangladesh, Nepal, Pakistan (Indus plain).

**Habitation**: Inhabitants freshwater rivers and connected waters. A surface to midwater fish, lives in shoals and is confirmed to the large rivers. Attains a length of 30 cm and common size is about 18 cm.

**Relationship**: This genus is distinct by absence of rayed dorsal fin and long anal fin. From related species it differs by presence of pelvic fins and 61-66 rays in anal fin.

**Remarks**: Eight specimens are collected from Beki river at Bekipar, six specimens are also collected from Beki river at Kalgachia. Market demand is higher. The species is declared as vulnerable (VU) in CAMP report. More or less common locally.

**Subfamily: SCHILBEINAE**

Dorsal fin present, with a short base and a spine. Adipose dorsal fin vestigial, small, may be absent. Anal fin moderate. Teeth on vomer large.
Genus: *Clupisoma* Swainson


Body elongate and compressed, with the part between pelvic fins and vent or abdominal edge keeled. Cleft of mouth not extending to front edge of eye. Rayed dorsal fin inserted above near base of pectoral fins, with six to nine rays and a spine. A small adipose dorsal fin may be present or absent.

*Clupisoma garua* (Hamilton-Buchanan)
(Figs. 58, 145)


![Fig. 58. *Clupisoma garua* (Hamilton-Buchanan)](image)

**Material examined**: Nine examples, (143.4-149 mm) SL, Jogighopa, 10th May, 2001; two examples, (124.1-127.9 mm) SL, Lengtisinga, 27th May, 2001.


**Diagnostic features**: Vomero-palatine teeth in a transverse or semilunar band, not interrupted in middle; airbladder greatly reduced; posterior nostrils wide and prominent. Nasal barbels short, extending upto orbit. Dorsal rays eight. Abdominal edge keeled between pelvic and vent. Pectoral fins not reaching pelvics. Maxillary barbells just reaching pelvic fin. Anal fin with 28-32 rays.
Description:

Counts: D i 7; P i 11; V i 5; A iii 28-32; C 17. Barbels four pairs.

Proportional measurements: Head length 4.27 (4.15-4.39), body depth 4.77 (4.48-5.07), predorsal distance 3.36 (3.32-3.40), postdorsal distance 3.02 (1.42-1.60), height of dorsal fin 6.40 (5.97-6.83), pectoral fin length 5.90 (5.72-6.09), pelvic fin length 9.27 (9.08-9.47), anal fin height 8.05 (7.86-8.25), caudal peduncle length 8.83 (8.31-9.35) in the standard length. Head depth 1.77 (1.48-2.07), head width 1.60 (1.54-1.67), eye diameter 6.55 (6.44-6.66), snout length 2.78 (2.66-2.91), width of gape of mouth 3.16 (3.14-3.18), postorbital length 2.55 (2.22-2.88) in the head length. Eye diameter is 3.46 (3.06-3.86), snout length 1.46 (1.38-1.54) in the interorbital width. Caudal peduncle depth is 1.08 (0.93-1.23) to its length.

Body elongated, compressed, almost herring-shaped; with the part between pelvic fins and vent or abdominal edge keeled. Head is of moderate size, and rather wider than the body, but by no means flattened above and its length 4.27 times in the standard length. Snout rounded. Mouth subterminal, transverse, its gape 3.16 times in the head length. Cleft not extending to front edge of eye. Lips thin. Upper jaw is longer. Occipital process about four times as long as it is wide at its base, and does not quite reach the basal bone. Teeth is a semilunar band across the palate, those of the vomer contiguous to those of the palatines, and each patch being semicircular internally; sometimes the two vomerine patches have an interspace between them. Rayed dorsal fin inserted above near base of interspace between them. Rayed dorsal fin inserted above near base of pectoral fins, with seven branched rays. Dorsal spine rather slender, rugose anteriorly and feebly serrated posteriorly. Pectoral fins with twelve rays and a spine serrated along inner edge with antrose teeth. Adipose dorsal fin absent. Pelvic fin with six rays. The anal fin does not
approach the caudal, and, near the body, is covered by a thick skin. It contains 28-32 branched rays. The first three undivided rays are contiguous to each other, and increase much in length from the first, which is very short. The other branched rays decrease gradually in length to the end, which is rather angular. The caudal fin deeply forked with longer lower caudal lobe. Lateral line complete, simple. Air bladder greatly reduced, thick-walled, flat; closely applied to the ventral surface of anterior vertebrae.

**Colour** : Silver with the back yellowish-green and the head and shoulder with a golden gloss. Fins hyaline, dorsal and pectoral fins dotted with black; caudal fin pale yellow.

**Distribution** : N. E. India : Assam (Brahmaputra river system), Meghalaya, Tripura, Manipur, Arunachal Pradesh.
Rest of India : Large river of northern India, West Bengal, Bihar.
Other parts : Bangladesh, Nepal, Pakistan (Indus plain and adjacent hilly areas).

**Habitation** : This is a bottom feeder species and feeds on insects, shrimps, other crustaceans and small fish. Many people avoid eating the fish because of its filthy feeding habits. It is very destructive in tanks. The fish is never taken on fly or fly spoon. As it is an animal feeder near the bottom of the water, it takes a worm put on a light tackle well below the surface of the water. It takes the bait well during rain. Worms and mole crickets are its best bait.

**Relationship** : It differs from related genus by having vomeropalatine teeth in a transverse or similar band, not interrupted in middle; air bladder
greatly reduced; posterior nostrils wide and prominent. From allied species it has peculiarity like anal fin rays 32-35; maxillary barbels extend to base of pelvic fins.

**Remarks**: Nine specimens are collected at Jogighopa where Manas river falls in the mighty Brahmaputra. The other specimens are collected from Manas river at Lengtisinga. Considered as a good food fish. Moderately available in the markets. The species is categorized as vulnerable (VU) in CAMP.

**Genus**: *Eutropiichthys* Bleeker


Body elongate, compressed, almost Indian-trout shaped. Abdomen rounded. Head is of moderate size; snout rather pointed, usually sharp but often slightly blunt. Mouth subterminal, transverse, ascending wide, its cleft reaching below orbit or slightly beyond. Rayed dorsal fin inserted above half of pectoral fins with seven rays and spine. Anal fin long. Branchiostegal rays 5 to 11.

**Eutropiichthys murius** *(Hamilton-Buchanan)*

(Figs. 59, 146)


**Material examined**: Three examples, (150.0-171.1 mm) SL, Bekimukh, 6th April, 2001; two examples, (99.6-141.2 mm) SL, Lengtisinga, 11th May, 2001; three examples, (140.6-165.5 mm) SL, Bekimukh, 27th Janauary, 2003.


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Fig. 59. *Eutropiichthys murius* (Hamilton-Buchanan)
**Diagnostic features**: Mouth wide, its cleft extending to front edge of eye or beyond to its posterior border; airbladder greatly reduced, tubular, horseshoe shaped. Branchiostegal rays 5; cleft of mouth extends to anterior edge of orbit; vomeropalatine band of teeth narrower than or just as wide as maxillary band; nasal barbels extend slightly beyond posterior edge of orbit.

**Description**:

**Counts**: D i 7; P i 10; V i 5; A iii 38; C 17. Barbels 4 pairs. Branchiostegal rays 5.

**Proportional measurements**: Head length 4.07 (4.01-4.17), body depth 4.16 (4.09-4.23), predorsal distance 2.58 (2.48-2.62), postdorsal distance 1.62 (1.57-1.69), height of dorsal fin 6.01 (5.99-6.08), pectoral fin length 5.33 (5.28-5.39), pelvic fin length 13.24 (13.18), anal fin height 7.69 (7.60-7.78), caudal peduncle length 16.55 (16.50-16.63) in the standard length. Head depth 1.42 (1.36-1.49), head width 1.68 (1.61-1.74), eye diameter 4.72 (4.68-4.76), snout length 3.17 (3.11-3.24), width of gape of the mouth 2.18 (2.11-2.24), postorbital length 2.03 (2.00-2.08) in the head length. Eye diameter 1.55 (1.49-1.61), snout length 1.04 (1.01-1.08) in the interorbital width. Caudal peduncle depth 0.63 (0.55-0.70) to its length.

Body elongate and laterally compressed. Dorsal profile elevated upward from the head to the dorsal fin origin, belly prominent. Head blunt, oval with a groove between the eyes. The groove extends to the end of the occipital process which is narrow, short, half as wide at its base as it is long, and with a long interspace between it and the basal bone of the dorsal fin. The mouth is of moderate size and descends obliquely from snout. Cleft of mouth extends to front border of orbit. Lips almost absent. Upper jaw is slightly longer than the lower. Jaws are crowded with teeth. Teeth villiform in bands on jaws, interrupted at posterior end at sides of
upper jaw, vomeropalatine band of teeth semilunar-shaped, just as wide as maxillary band. Nostrils are nearer the jaw than the eyes. Gill covers are rounded behind. Eyes are lateral and very slightly on the lower surface of the head, each with a broad, circular, adipose lid. Barbels four pairs. Nasal barbels reach to a short distance behind the posterior edge of the orbit, the maxillary to the base of the pectoral fin, whilst the two mandibular pairs are a little longer than the head. Dorsal fin short, inserted much anterior to pelvic fins, with a weak spine, very thinly serrated externally. Adipose dorsal fin short, posteriorly free. Pectoral spine also weak, rough externally, serrated internally. The ventral fins are much smaller with six rays. Anal fin long with 38 branched rays. Caudal fin deeply forked. Branchiostegal rays 5.

**Colour**: Greenish along the back, silvery along the sides and below. Dorsal, pectoral and caudal fins with dusky tips.

**Distribution**: N. E. India: Assam, Manipur.
Rest of India: Yamuna, the rivers of West Bengal, Bihar and Orissa.
Other Parts: Bangladesh, Nepal.

**Habitation**: Basically inhabitants of rivers.

**Relationship**: The genus *Eutropiichthys* can be differentiated from its closely related category by having mouth ascending wide, its cleft reaching below orbit, rayed dorsal fin inserted above half of pectoral fins with seven rays and a spine. Anal fin is long with 41 rays. It differentiated from closely related *E. vacha* by teeth on palate in a band narrower than premaxillary band or just equal to it. Nasal barbels reach a short distance behind posterior edge of eyes.
Remarks: Six specimens are collected from Beki river at Bekimukh where the river falls in the mighty Brahmaputra and two from Manas river at Lenghtisinga. As per local information the fish is more commonly available during the rainy season. Locally high preference is given as food fish. It is categorized as lower risk near threatened in CAMP.

Genus: *Pseudeutropius* Bleeker


Body elongate and compressed. Part of abdomen more or less keeled. Mouth moderately wide. Eyes large, ventro-lateral, partly below and behind level of cleft of mouth. Teeth small, villiform, in narrow bands on jaws and palate. In palate teeth are in two small widely separated but narrow patches, occasionally connected by a linear series. Rayed dorsal fin inserted above half of pectoral fin with five or six rays and a spine. Adipose dorsal fin short, posteriorly free.

*Pseudeutropius atherinoides* (Bloch)  
(Figs. 60, 147)


1877. *Pseudeutropius acutirostris* : Day, *Fishes of India* : 472, pl. 109. fig. 2


**Material examined** : Five examples, (56.2-71.5 mm) SL, Panbari, 6th July, 2001.

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Fig. 60. *Pseudeutropius atherinoides* (Bloch)

Diagnostic features: Teeth on palate in two distinct patches, widely separated, often connected by a linear series, air bladder large, posterior nostrils narrow. Eye diameter 2.75 times in head length. Nape well elevated. Maxillary barbels reach anal fin base. Head length 4.64 times in the standard length.

**Description:**

**Counts:** D i 5; P i 6; V i 5; A ii 36; C 17. Barbels four pairs. Branchiostegal rays 6.

**Proportional measurements:** Head length 4.64 (4.44-4.92), body depth 3.97 (3.82-4.04), predorsal distance 2.86 (2.80-2.99), postdorsal distance 1.47 (1.41-1.62), height of dorsal fin 7.44 (7.31-7.62), pectoral fin length 7.15 (7.10-7.31), pelvic fin length 10.67 (10.61-10.73), anal fin height 17.87 (17.82-17.94) in the standard length. Head depth 1.19 (1.10-1.42), head width 1.50 (1.41-1.59), eye diameter 2.75 (2.70-2.84), snout length 3.85 (3.77-3.92), width of gape of mouth 4.27 (4.20-4.35), postorbital length 2.02 (2.00-2.08) in the head length. Eye diameter 1.33 (1.21-1.39), snout length 1.87 (1.62-1.98) in the interorbital width.

Body elongated and strongly compressed, herring shaped. Depth of the body 3.97 times in the standard length. Part of the abdomen more or less keeled. Head short, compressed, its length 4.64 times in the standard length. Nape markedly elevated. Snout conical shaped, obtuse. Mouth terminal, the upper jaw projecting considerably beyond lower jaw; teeth villiform in bands on jaws; vomero-palatine teeth in two narrow separate crescentic patches. Eye large, ventro-lateral, partly below and behind level
of cleft of mouth with broad circular adipose lids, visible from below ventral surface. Diameter of eye 2.75 times in the head length and 1.33 times in the interorbital width. Air bladder oval, slightly longer than broad, lying free in an abdominal cavity, supported anteriorly by bony ventral elements. Barbels four pairs, one pair each of maxillary and nasal, two pairs mandibular, the nasal barbels slightly longer than head and the maxillary pair extend to anal fin base. Dorsal fin inserted anterior to pelvic fins. Adipose dorsal short and posteriorly free. Rayed dorsal and each pectoral fin with a spine serrated internally. Anal fin long with 38 rays. Caudal fin forked. Lateral line complete, simple.

**Colour**: Silvery, greenish along the back, and with three bands along the sides formed by black spots. Occiput and anterior portion of dorsal fin dark coloured.

**Habitation**: Inhabitants of freshwaters and tidal rivers. Attains a length of 10 cm.

**Distribution**: N. E. India: Assam, Meghalaya, Arunachal Pradesh, Tripura.

Rest of India: Peninsular India (not below the Cauvery system), eastern Himalaya.

Other parts: Pakistan, Bangladesh, Nepal and Burma.

**Relationship**: The distinguishing generic characters include four pairs of barbels, villiform teeth on jaws; teeth on palate in two distinct patches, widely separated, air bladder large. Posterior nostrils narrow. The species differs from *P. mitchelli* by smaller head, exntention of maxillary barbels upto middle of pelvic fins, eye diameter 2.75 times in the head length.
**Remarks** : All the specimens are collected from Manas river at Panbari. Not very common in the areas. It is categorised as an endangered (EN) species in CAMP.

**Family : AMBLYCIPTIDAE : Torrent catfishes**

Dimunitive loach-like fishes with body depressed anteriorly up to pelvic fins, strongly compressed and rectangular behind. Barbels four pairs. Gill openings wide, extending very far forwards. Gill membranes united with each other, but free from isthmus. Lateral line entirely absent.

**Genus : Amblyceps Blyth**


Body elongate, subcylindrical, compressed. Abdomen rounded. Mouth anterior, wide, transverse. Development of prominent fold of skin (cup-like) in front of the pectoral fin in which the gill membrane rests when the gill- openings are closed. Teeth small, villiform in bands of jaws, palate edentate. Lateral line generally absent.

*Amblyceps mangois* (Hamilton-Buchanan)  
(Figs. 61, 148)


1877. *Amblyceps mangois* : Day, *Fishes of India* : 490, pl. 102, fig. 6 and pl. 117, fig. 1.


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*Material examined*: Six examples, (90.5-109.2 mm) SL, Bashbari, 30th January, 2001; ten examples, (60.8-116.1 mm) SL, Bashbari, 14th September, 2001.
Vernacular names: Chakashang (Manipur): Akhuterapu; Hindi: Billi; Nishing (Arunachal Pradesh): Tayek; Tangkhul (Manipur): Corelei.

Diagnostic features: Nostrils close together separated by a barbel; no teeth on roof of mouth; dorsal and pectoral spines weak. Lateral line entirely absent; gill membranes free from isthmus.

Description:
Counts: D i 6; P i 7; V i 5; A ii 7-8; C 19. Branchiostegal rays 12. Vertebrae 40-41. Barbels four pairs.
Proportional measurements: Head length 5.34 (5.11-5.57), body depth 7.05 (6.99-7.11), predorsal distance 3.59 (3.50-3.69), postdorsal distance 1.31 (1.31-1.32), height of dorsal fin 5.92 (5.80-6.04), pectoral fin length 7.50 (7.12-7.89), pelvic fin length 10.77 (10.64-10.90), anal fin height 15.43 (15.26-15.60), caudal peduncle length 5.29 (4.93-5.65) in the standard length. Head depth 1.53 (1.45-1.61), head width 1.20 (1.19-1.22), eye diameter 14.30 (13.90-14.70), snout length 2.95 (2.90-3.00), width of gape of mouth 2.02 (1.94-2.10), postorbital length 1.73 (1.73-1.73) in the head length. Eye diameter is 5.90 (5.80-6.00), snout length 1.09 (1.03-1.16) in the interorbital width. Caudal peduncle depth is 1.74 (1.60-1.89) to its length.

Body elongate, sub-cylindrical, compressed, its depth 7.05 times in the standard length. It is covered with thick skin. Abdomen is rounded. Head small, broad, depressed, its length 5.34 times in the standard length. Snout broadly rounded and its length 2.95 times in the head length. Mouth anterior, wide, transverse and its gape 2.02 times in the head length. Lips are fleshy. Jaws sub-equal, lower jaw longer than the upper. Teeth small, villiform in bands on jaws; palate edentate. Nostrils, not visible from below ventral surface. Eye diameter 14.3 times in the head length and 5.9
times in the interorbital width. Barbels four pairs, one pair each of maxillary and nasal, two pairs of mandibular; maxillary barbels with broad bases. Gill openings wide, extending very far forwards, gill membranes united with each other, but free from isthmus. Rayed dorsal fin covered by thick skin and its height 5.92 times in the standard length. It is inserted above pectoral fins, with one weak concealed spine and six soft rays. Adipose dorsal long, inserted between ventrals and anals. Pectoral fin length 7.50 times in the standard length and the fin with one weak spine and seven soft rays. Ventral fin length 10.77 times in the standard length and with six rays. Height of anal fin 15.43 times in the standard length and with nine to ten rays. Caudal fin truncate. Lateral line absent. Branchiostegal rays 12. Airbladder greatly reduced, divided into two lateral chambers, partially endorsed in bone. Vertebrae 40-41.

**Colour** : Olive brown, lighter below; often with a dark lateral band.

**Distribution** : N. E. India : Assam, Meghalaya, Arunachal Pradesh, Nagaland, Manipur, Tripura. 
Rest of India : Along the foot-hills of the Himalaya upto Kangra valley. 
Other parts : Bangladesh, Pakistan, northern Burma, Thailand.

**Habitation** : Inhabitants pebbly beds in swift currents at the base of hills. Attains a length of 12.5 cm.

**Relationship** : The genus has peculiar characters like nostrils close together, separated by a barbel, no teeth on roof of mouth and weak dorsal and pectoral spines. Peculiar species characters include edentate palate,
presence of a fold of skin above and anterior to pectoral fin base, and immediately behind gill openings and absence of lateral line.

**Remarks** : All the specimens are collected from Beki river at Bashbari. This hill stream fish seldom comes to fishermen. Market demand is of moderate nature. This species is categorized as lower risk near threatened (LRnt) in CAMP.

**Family : Sisoridae : Sisorid catfishes**

Small to medium sized fishes with head and anterior part of body depressed, and tail compressed or entire body compressed. Nostrils generally approximate to each other, slit-like, separated by a nasal barbel. Barbels four pairs. Gill openings wide or narrow, generally restricted to sides, gill membranes generally united to isthmus. Lateral line present, complete.

**Genus : Bagarius Bleeker**


Body and abdomen elongate, flattened to pelvics. Head broad, moderately or strongly depressed. Head and body entirely or almost entirely covered by heavily keratinised skin superficially differentiated into unculiferous plaques or tubercles. Maxillary bone of each side evidently composed of two ossifications instead of a single ossification. Dentition of lower jaw
markedly heterodont. Caudal fin deeply forked, upper lobe longer and both lobes sometimes produced into soft filamentous prolongations.

**Bagarius yarrellii Sykes**

(Figs. 62, 149)


1877. *Bagarius yarrellii*: Day (partim), *Fishes of India*: 495, pl. 115, fig. 3.


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Fig. 62. *Bagarius yarrellii* Sykes
Material examined: Four examples, (172.1-205.0 m) SL, Nagarzar, 25\textsuperscript{th} March, 2001; two examples, (101.3-116.4 mm) SL, Panbari, 6\textsuperscript{th} July, 2002.

Vernacular names: Assamese: Gooreah, Bagh machch, Garua; Bengali: Baghari, Baghar; English: Bagarius, Goonch; Hindi: Boonch, Goonch, Vaghair, Baghar, Gaunch, Boonch; Kannada: Konida; Manipur: Nagalem; Marathi: Mutanda, Tharota, Kheerd, Gaweh, Khirit; Oriya: Sahulum, Budia; Punjabi: Goonch, Retha; Telegu: Raati jella, Gaddi chepa.

Diagnostic features: Dentition of lower jaw markedly heterodont, head and body covered by heavily keratinised skin superficially differentiated into unculiferous plaques or tubercles. Gill openings wide. Adipose dorsal fin long, smooth. Both lobes of caudal fin prolonged, but not very long. Pelvic fin inserted posterior to base of last dorsal fin ray; adipose fin origin slightly posterior to base of last dorsal fin ray; adipose fin origin slightly posterior to origin of anal fin; pectoral fin rays 13; gill rakers 11 on first arch.

Description:

Counts: D i 7; P i 12; V i 5; A iii 10; C 17. Barbels four pairs. Gill rakers 11 on first arch. Abdominal vertebrae 23.

Proportional measurements: Head length 2.90 (2.82-3.01), body depth 5.04 (5.00-5.08), predorsal distance 2.36 (2.31-2.41), postdorsal distance 1.70 (1.64-1.73), height of dorsal fin 3.38 (3.34-3.42), pectoral fin length 2.09 (2.01-2.14), pelvic fin length 5.18 (5.11-5.23), anal fin height 5.39 (5.32-5.44), caudal peduncle length 8.54 (8.49-8.71) in the standard length. Head depth 2.18 (2.07-2.32), head width 1.37 (1.28-1.46), eye diameter 11.75 (1.01-12.06), snout length 2.06 (1.98-1.12), width of gape
of the mouth 1.95 (1.89-2.01), postorbital length 2.22 (2.19-2.28) in the head length. Eye diameter 3.90 (3.82-3.98), snout length 0.68 (0.54-0.79) in the interorbital width. Caudal peduncle depth 2.40 (2.28-2.53) to its length.

Body very long in proportion to its breadth, rather flattened, more prominent above than below. It tapers gradually from dorsal fin origin to tail region. Body depth 5.04 times in the standard length. Head depressed, large and blunt and its length 2.9 times in the standard length. Body entirely or almost entirely covered by heavily keratinised skin, superficially differentiated into unculiferous plaques or tubercles. Snout sharply conical, not pointed. Mouth inferior and crescentic. Lower jaw is the shortest and has a longitudinal ridge on the center. Lips are fleshy. In each jaw are crowded many teeth of unequal sizes and bands on jaws, those on lower jaw markedly heterodont, consisting of two rows of relatively numerous, close-set conical teeth, and one inner rows of ten numerous, widely separated, and much larger conical teeth; Palate edentate. Eyes are very small, are far up and back, and have a pupil shaped like the ace of hearts. Barbels four pairs. The maxillary with broad bases and rather longer than the head, the nasal pair short. Gill membranes free from each other, continued for forward ventrally and overlapping, free from isthmus; Dorsal spine smooth, with an elongated soft termination, the osseous portion as long as the head excluding the snout; length of the base of the adipose dorsal as long as that of the rayed fin. Dorsal fin inserted nearer to adipose fin than to snout-tip. Adipose fin origin slightly posterior to a vertical line through anal fin origin. Pectoral fins with 13 rays and a spine serrated along inner edge and also with a soft prolongation. Pelvic fins inserted posterior to a vertical line through base of last dorsal fin ray. Anal fin short with 13 rays. Caudal fin deeply forked, upper lobe longer and both lobes produced into soft filamentous

**Colour** : Colour is greenish ash, very pale below; and not only on the body, but on the fins, are scattered large irregularly shaped black marks. The eyes are golden-coloured.

**Distribution** : N. E. India : Assam (States not clear in other states)  
Rest of India : Throughout the country.  
Other parts : Bangladesh, Pakistan (Sutlej river drainage), Thailand, Burma, Laos, Kampuchea, Borneo, Java, Vietnam, Sumatra.

**Habitation** : This fish lies mostly at the bottom of the water and can even withstand the forceful current amongst rocks. It takes spoon and spinning bait, and also live-bait. The fish is usually speared in the Ganga. Breeding season is prior to the commencement of the monsoon rains. The name ‘Fresh-water shark’ is often applied to this fish because of its voracious feeding habits and overslung mouth. Owing to its ugly shape, this fish is undesirable to anglers who are interested in mahseer. It lives in mahseer waters and is a source of annoyance to anglers because it is likely to break the tackle. It is a most powerful fish in freshwaters of India.

**Relationship** : From closely associated genus it differs by possessing characters like gill openings wide, long adipose dorsal fin, smooth, both lobes of caudal fin prolonged, but not very long. From its nearest species *B. bagarius*, it has pelvic fin origin posterior to a vertical line through base of dorsal fin ray and pectoral fin rays 13.
**Remarks:** All the specimens are collected from Manas river at Nagarzar and Panbari. This species is often confused with *B. bagarius* which is relatively small, primarily entomophagous species, apparently not exceeding 19 cm in the standard length. Talwar & Jhingran (1991) mention that “According to Roberts (1983) most references to *Bagarius bagarius* including those of Hora (1939a) are wholly or at least partly based on *B. yarrellii* and that the only previously published figure of the true *B. bagarius* seems to be that of Hamilton-Buchanan”. The fish is eaten only by certain communities and therefore market demand is not very high. It is not evaluated in CAMP.

**Genus: Erethises Muller & Troschel**


Body short, compressed. Abdomen flattened upto pelvic base. Head large and broad, with the superficial bones granulated and form strong armature, scapular and cubito-humeral processes pronounced. Gill membranes fused with each other and also with isthmus. Pectoral fins with five rays and a spine serrated along both edges. Serrations along outer edge arranged in the form of divergent spines. Lateral line complete, may be with tubercles.

*Erethistes pussilus* Muller & Troschel

(Figs. 63, 150)

1877. *Erethistes hara* (nec Hamilton-Buchanan) Day (*partim*), *Fishes of India* : 452, pl. 102, fig. 2.


**Fig. 63. Erethistes pussilus** Muller & Troschel

**Material examined** : Ten examples, (53.8-55.2 mm) SL, Bashbari, 14th September, 2001; three examples, (53.7-54.1 mm) SL, Bashbari, 18th March, 2002.

**Vernacular names** : English : *Gangetic erethistes*; Hindi : *Tinkantia*. 
**Diagnostic features**: Serration on outer edge of pectoral spine in form of divergent spines; body spider like. Barbels not annulated, small, does not reach to pectoral. Lips thin. Dorsal spine distinctly serrated; pelvic fins shorter, not extending to anal fin; pectoral spine with 9-10 serrae.

**Description**:

Counts: D i 6; P i 6; V i 5; A iii 8; C 15. Barbels four pairs.

Proportional measurements: Head length 3.64 (3.60-3.68), body depth 3.31 (3.02-3.60), predorsal distance 2.14 (2.14-2.14), postdorsal distance 1.67 (1.65-1.69), height of dorsal fin 4.83 (4.65-5.02), pectoral fin length 3.66 (3.30-4.02), pelvic fin length 6.58 (6.33-6.83), anal fin height 4.33 (4.25-4.42), caudal peduncle length 7.38 (6.99-7.78) in the standard length. Head depth 1.34 (1.23-1.45), head width 0.91 (0.89-0.94), eye diameter 15.90 (14.80-1701), snout length 1.89 (1.76-2.02), width of gape of mouth 2.98 (2.96-3.00), postorbital length 2.81 (2.67-2.96) in the head length. Eye diameter 7.20 (6.00-8.40), snout length 0.74 (0.71-0.77) in the interorbital length. Caudal peduncle depth 1.87(1.75-2.00)to its length.

Body short, compressed. Abdominal flattened upto pelvic base. Dorsal profile elevated at nape. Head sharply pointed anteriorly, almost as wide as long. It is naked, granulated, dorsal surface covered with very short, backwardly directed spines. Median longitudinal groove on the head shallow and reaches to opposite the hind edge of the eye. Occipital process as long as wide at its base. Humero-cubital process elongated and rugose, having two rounded osseous projections posteriorly between the humero-cubital and occipital process is a third intermediate one, the scapular, directed somewhat downwards, the basal bone of the dorsal fin considerably dilated externally. Mouth small, subterminal. Lips thin and upper lips longer than lower. Teeth in villiform bands on jaws, palate edentate. Eyes dorsal, situated in middle of the head, not visible from
below ventral surface. Barbels small four pairs, one pair each of nasal and maxillary and two pairs mandibular. Maxillary barbels with broad bases and shorter than head. Gill membranes fused with each other and also with isthmus. Rayed dorsal fin inserted above half of pectoral fins with six rays and a spine serrated along both edges; serrations along outer edge arranged in the form of divergent spine and with 9-10 divergent serrae on anterior edge. Anal fin short with 11 rays, caudal fin emerginate or partly forked. Lateral line complete. Body with 4 rows of tubercles. Air bladder divided into two globular lateral lobes and not enclosed in bone.

**Colour** : Yellowish brown, banded or blotched with darker, fins with black bands or markings; all the barbels annulated with black.

**Distribution** : N. E. India : Arunachal Pradesh, Manipur.

Rest of India : Bihar, Orissa, West Bengal.

Other parts : Bangladesh, Burma (Tenasserim).

**Habitation** : Primarily an inhabitant of hill stream. Prefers shallow regime of the water covering with sand and pebbles. Species is found in plain also that is washed away during flood.

**Relationship** : It differs from its close genus *Erethistoides* by having serrations along outer margin of pectoral spine in divergent form. The species has distinctive characters like dorsal spine distinctly serrated, pelvic fins not exceeding to anal fin. Pectoral spine with 9-10 serrae.

**Remarks** : All the specimens are collected from Beki river at Bashbari in two different seasons. This small species has very little commercial value, but as a ornamental fish it has good prospect. The species is not evaluated in CAMP.


**Genus: Erethistoides Hora**


Body elongate, greatly depressed, covered with small backwardly directed spines on dorsal surface. Head small. Snout projecting like a broad hood in front of mouth. Gill membranes fused with each other, and also with isthmus; portion of gill opening in front and somewhat inner to base of pectoral spine modified into a spoutlike formation. Caudal fin emerginate, lower portion greatly produced, but not filiform.

**Erethistoides montana Hora**

(Figs. 64, 151)

Material examined: Four examples, (30.6-37 mm) SL, Mathanguri, 23rd December, 2001; eight examples, (36.5-42.8 mm) SL, Bhalukadoba, 6th July, 2002.

Vernacular names: Not available

Diagnostic features: Serrations on outer edge of the pectoral spine directed towards base (antrorse) in the proximal half and towards tip (retorse) in the distal half. Depth of the body 6.28 times in the standard length; body densely tuberculated; body banded.

Description:
Counts: D i 5; P i 6; V i 5; A ii 7. Barbels four pairs. Branchiostegal rays 6.
Proportional measurements: Head length 3.46 (3.27-3.65), body depth 6.28 (6.08-6.49), predorsal distance 2.30 (2.25-2.35), postdorsal distance 1.68 (1.65-1.72), height of dorsal fin 5.22 (5.00-5.44), pectoral fin length 3.38 (3.36-3.41), pelvic fin length 7.07 (6.85-7.30), anal fin height 4.33 (4.11-4.56), caudal peduncle length 5.65 (5.60-5.70) to the standard length. Head depth 1.68 (1.61-1.76), head width 1.04 (1.00-1.08), eye diameter 5.85 (5.65-6.06), snout length 2.19 (2.12-2.26), width of gape of mouth 2.76 (2.63-2.89), postorbital length 3.39 (3.03-3.76) in the head.
length. Eye diameter 1.75 (1.50-2.00), snout length 0.61 (0.60-0.63) in the interorbital width. Caudal peduncle depth 3.10 (3.00-3.20) to its length.

Body elongated, greatly depressed, covered with small backwardly directed spines on the dorsal surface. Depth of the body is 6.28 times in the standard length. Abdomen flat and horizontal. Head small, depressed, broadly pointed in front, covered. Head length 3.46 times in the standard length. Head and anterior part of the body with strong cover of thick strong bones and markedly denticulate. Snout projecting like a broad hood in front of mouth; snout length 2.19 times in the head length. Mouth distinctly inferior, teeth villiform in bands on jaws, teeth in upper jaw visible externally; palate edentulous. Lips thin. Nostrils close to each other, separated by a flap-bearing barbel. Eyes small, dorso-laterally situated in the posterior half of the head, not visible from below ventral surface. Diameter of eye 5.85 times in the head length and 1.75 times in the interorbital width. Barbels four pairs, one pair each of maxillary, and two pairs mandibular. Gill openings narrow; gill membranes confluent with the isthmus. No thoracic adhesive apparatus present. Rayed dorsal fin with a strong spine and 5 soft rays; adipose fin short and low. Paired fins horizontally placed; pectoral fin with a strong serrated spine, the denticles along the outer edge anttorose (directed towards the base) in proximal half while along the distal half retrorse (directed towards the tip); pelvic fin rays 6. Caudal fin emerginate. Lateral line complete.

**Colour**: Dusky above and dirty white below; a dark band on nape and three similar bands on the body, one below rayed dorsal fin, second below adipose fin and third band in front of caudal fin. Both dorsals and also caudal fin with bands near their distal portions.

**Habitation**: Inhabits torrential streams. Attains a length of 48 cm.
**Distribution**: N. E. India: Assam.  
Rest of India: Eastern Himalayas, Darjeeling.  
Other parts: Not available

**Relationship**: The genus can be distinguished from other related genera by absence of adhesive thoracic apparatus, serrations on the outer edge of pectoral spine antrore in proximal half and retrorse in the distal half. The species can be distinguished by body depth 6.28 times in the standard length, densely tuberculated and banded body.

**Remarks**: Four specimens are collected from Mathanguri where the main Manas river bifurcated into Beki and Manas. Eight specimens are collected at Bhalukadoba from an offshoot of Manas river known as Mora Manas. This is a rare species and due to its small size and ugly look local communities don’t prefer it as a food fish. The species is not evaluated at CAMP.

**Genus: Gagata Bleeker**


Body short, compressed, abdomen rounded. Head compressed and snubnosed, a distinct median groove bordered by prominent longitudinal ridges present. Snout obtusely rounded. Barbels four pairs. Mandibular pair of barbels inserted on a transverse line at the same level. Rayed dorsal
fin inserted above half of pectoral fins with not more than six rays. Body smooth.

**Gagata cenia** *(Hamilton-Buchanan)*
(Figs. 65, 152)


1877. *Gagata cenia* : Day (partim), *Fishes of India* : 492, pl. 115, fig. 5.


*Fig. 65. Gagata cenia* (Hamilton-Buchanan)

**Material examined**: Eighteen examples, (61.3-78.8 mm) SL, Bashbari, 31st January, 2001; seven examples, (69.9-76.3 mm) SL, Nagarzar, 25th March, 2001; four examples, (54.3-68.3 mm) SL, Panbari, 8th July, 2002.

Diagnostic features: Mandibular pair of barbels inserted on a transverse line at the same level. Gill membranes broadly united with isthmus. Ventral surface of the head compressed and narrow. Maxillary barbels shorter than head; pectoral fins without any filamentous prolongation. Snout much longer than eye. Head length 3.61 times in the standard length. Anal fin with 14-15 rays.

Description:

Counts: D i 6; P i 7-9; V i 5; A ii 12-13; C 18. Barbels four pairs.

Proportional measurements: Head length 3.61 (3.50-3.73), body depth 4.67 (4.53-4.93), predorsal distance 2.65 (2.54-2.80), postdorsal distance 1.57 (1.55-1.60), height of dorsal fin 5.36 (5.13-5.55), pectoral fin length 4.38 (4.26-4.45), pelvic fin length 6.97 (6.86-7.06), anal fin height 5.93 (5.88-6.02), caudal peduncle length 10.49 (10.20-10.85) in the standard length. Head depth 1.48 (1.37-1.63), head width 1.72 (1.64-1.84), eye diameter 4.23 (4.00-4.45), snout length 2.47 (2.43-2.53), width of gape of mouth 5.26 (5.08-5.44), postorbital length 2.51 (2.43-2.67) in the head length. Eye diameter 1.42 (1.32-1.60), snout length 0.76 (0.73-0.83) in the interorbital width. Caudal peduncle depth 1.42 (1.31-1.62) to its length.

Body short, compressed, its depth 4.67 times in the standard length. Abdomen rounded. Head short, snub-nosed though globular, somewhat elevated with a distinct median groove bordered by prominent ridges. Length of the head 3.61 times in the standard length. Its depth 1.48 and width 1.72 times in the head length. Snout somewhat compressed, overhanging the mouth. The median longitudinal groove on the head deep,
and extends to the posterior end of the occipital process, which is narrow and almost touches the basal bone of the dorsal fin. Mouth ventral, transverse, narrow. Lips thick, fimbriated. Jaws sub-equal. Teeth uniformly villiform on jaws in bands. Palate edentate. Eyes moderate, dorso-lateral in position. Diameter of eye 4.23 times in the head length and 1.42 times in the interorbital width. Barbels four pairs; nasal barbels minute, likely to be overlooked; maxillary barbels with stiff basal portions, slightly shorter than head; mandibular barbels considerably shorter, their base close together and in a transverse line behind lower jaw; two finger-like processes often present between bases of inner mandibular barbels, represented by nodules attached to the posterior lip. Rayed dorsal fin inserted above half of pectoral fins, with six rays and a spine. Adipose dorsal short, posteriorly free. Pectoral fins with seven to nine rays and a spine serrated along inner edge. Pelvic fins with six rays. Anal fin short with fourteen to fifteen rays. Caudal fin deeply forked. Lateral line complete.

**Colour**: Dull grey, the outer two-thirds of the pectoral, the outer halves of both dorsals, ventral and the anal black. Caudal whitish.

**Habitation**: Inhabitants of rivers, also tidal rivers. Attains a length of 15 cm in the standard length.

**Distribution**: N. E India : Assam, Meghalaya, Arunachal Pradesh, Mizoram, Manipur, Tripura.
Rest of India : Punjab, Delhi, Uttar Pradesh, Bihar, West Bengal, Orissa.
Other parts : Pakistan (Indus plain), Bangladesh, Nepal, Burma (Chindwin drainage).
**Relationship**: The genus *Gagata* has peculiar characters like absence of adhesive thoracic apparatus, serrations along outer edge of pectoral spine absent, maxillary barbels with osseous and stiff bases, lying in a groove anteriorly, insertion of mandibular barbels on a transverse row at the same level and confluence of the gill membranes with isthmus. *G. cenia* differs from other species of the genus by median longitudinal groove on head extends only to base of occipital process, narrow isthmus, maxillary barbels shorter than head and absence of filamentous prolongation on pectoral fins.

**Remarks**: Eighteen specimens are collected from Beki river at Bashbari. Seven specimens are collected from Manas river at Nagarzar and four are also from Manas river at Panbari. The fish sometimes appears in the local markets of upward areas and preferred for eating by the local people. This fish is not evaluated in CAMP.

**Genus: Glyptothorax Blyth**


Body laterally depressed or cylindrical. Body smooth or rough with granules or tubercles. Mouth inferior, transverse or narrow. Ventral
surface of body provided with an adhesive apparatus with or without a central pit or depression on thorax. Caudal fin deeply forked.

**Glyptothorax telchitta** (Hamilton-Buchanan)

(Figs. 66,153)

1877. *Glyptosternum telchitta* : Day, *Fishes of India* : 498, pl. 116, fig. 2

Fig. 66. *Glyptothorax telchitta* (Hamilton-Buchanan)
Material examined: One example, 56.5 mm SL, Bashbari, 14th September, 2001; two examples, (59-71.5 mm) SL, Mathanguri, 22nd December, 2001; one example, 73.1 mm SL, Bashbari, 18th March, 2002.

Vernacular names: Not available.

Diagnostic features: Cubito-humaral process inconspicuous, hidden by skin; barbels not annulated; adipose dorsal fin distinctly apart from rayed dorsal fin. Occipital process separated from basal bone of dorsal fin. Nostrils separated from the snout by a distance equal to eye diameter. Caudal peduncle depth 2.59 times to its length.

Description:
Counts: D i 6-7; P i 7-9; V i 5; A ii 9; C 18. Barbels four pairs.
Proportional measurements: Head length 4.02 (3.76-4.35), body depth 5.48 (5.21-5.81), predorsal distance 2.73 (2.62-2.93), postdorsal distance 1.52 (1.47-1.59), height of dorsal fin 5.56 (5.36-5.86), pectoral fin length 5.44 (5.09-5.81), pelvic fin length 7.88 (7.63-8.11), anal fin height 5.56 (5.22-5.93), caudal peduncle length 6.04 (5.90-6.11) in the standard length. Head depth 1.55 (1.50-1.66), head width 1.43 (1.33-1.59), eye diameter 15.90 (15.00-18.00), snout length 1.99 (1.89-2.18), width of gape of mouth 2.37 (2.05-2.73), postorbital length 2.49 (2.15-2.88) in the head length. Eye diameter 3.56 (3.10-3.90), snout length 0.53 (0.46-0.64) in the interorbital width. Caudal peduncle depth 2.59 (2.12-2.92) to its length.

Body spindle-shaped, rough with tubercles. Depth of the body 5.48 times in the standard length. Abdomen slightly flat. Head small, covered with thick skin, depressed, bluntly pointed anteriorly. Length of the head 4.02 times in the standard length. Head depth 1.55 and head width 1.43 times in the head length. Occipital process separated from basal bone of the dorsal fin. Mouth inferior, transverse, narrow. Jaws sub-equal, upper jaw the
longer. Width of gape of mouth 2.37 times in the head length. Lips not fringed. Occipital process three times as long as wide at its base. Eyes dorsal, small not visible from below ventral surface. Diameter of eye 15.90 times in the head length and 3.56 times in the interorbital width. Gill membranes united with each other and also with isthmus. Cubito-humeral process indistinct, covered by skin. Adhesive thoracic apparatus spindle shaped, much longer than broad, without a central pit. Barbels four pairs, all shorter than head. Rayed dorsal fin inserted above half of the pectoral fins with six to seven rays and a spine. Adipose dorsal of moderate height, the extent of its base equaling that of the rayed fin. Pectoral spine broad, smooth externally, form 13-14 teeth internally, and not plaited below. Caudal fin deeply forked. Skin everywhere covered with small longitudinal elevations like scales imbedded in it.

**Colour** : Dark brown above and on sides. Dorsal, anal and paired fins with spotted bands.

**Habitation** : Primarily a hill stream fish which descends to the plains from the mountains in the fast flowing waters during rains. Attains a length 10 cm.

**Distribution** : N. E. India : Assam, Meghalaya, Mizoram, Tripura.

Rest of India : Uttar Pradesh, Madhya Pradesh, Bihar, North Bengal.

Other parts : Pakistan (Indus river basin), Bangladesh, Nepal.

**Relationship** : The genus can be distinguished from related genera by distinct and well developed adhesive thoracic apparatus, dentition of the lower jaw not heterodont, gill membranes united with isthmus and inconspicuous cubito-humeral process, non-annulated barbels, adipose
dorsal fin distinctly apart from rayed dorsal fin. Peculiar species characters include separation of occipital process from basal bone of the dorsal fin.

**Remarks**: Two specimens are collected from Beki river at Bashbari. Another two are collected from Jong-rong stream, a small tributary of Beki river near Mathanguri. This hill stream fish is a rare one and seldom comes to the fishermen. It is categorized as lower risk near threatened (LRnt) in CAMP report.

**Genus: Laguvia Hora**


Body moderately elongate and subcylindrical. Head small, slightly depressed, covered with skin. Gill openings wide, gill membranes free from each other, but united narrowly with isthmus. Ventral surface of body corrugated or with faint V-shaped groove forming an inconspicuous adhesive apparatus. Paired fins not plaited.

**Laguvia shawi (Hora)**

(Figs. 67, 154)


**Fig. 67. Laguvia shawi* (Hora)

**Material examined**: Six examples, (31.3-37.6 mm) SL, Mathanguri, 23rd December, 2001; eight examples, (34.3-40 mm) SL, Bashbari, 18th March, 2002.

**Vernacular names**: Not available.

**Diagnostic features**: Barbels not annulated; body mostly smooth but with free bony tubercles on flanks. Dorsal spine entire along both edges; pelvic fins inserted distinctly nearer caudal fin base than to snout tip. Body with two bands, posterior one below entire width of adipose fin.

**Description**:

**Counts**: D i 5; P i 7; V i 5; A i 8; C 15. Barbels four pairs.
Proportional measurements: Head length 3.63 (3.57-3.70), body depth 4.40 (4.30-4.51), predorsal distance 2.40 (2.38-2.42), postdorsal distance 1.71 (1.70-1.72), height of dorsal fin 6.32 (6.16-6.49), pectoral fin length 4.15 (4.12-4.18), pelvic fin height 5.74 (5.52-5.97), anal fin height 4.49 (4.44-4.55), caudal peduncle length 5.98 (5.88-6.09) to the standard length. Head depth 1.43 (1.42-1.45), head width 1.13 (1.08-1.19), eye diameter 9.20 (8.90-9.50), snout length 1.57 (1.53-1.62), width of gape of mouth 3.36 (3.02-3.70), postorbital length 2.75 (2.73-2.77) in the head length. Eye diameter 2.82 (2.80-2.85), snout length 0.48 (0.46-0.50) in the interorbital width. Caudal peduncle depth 1.62 (1.50-1.79) to its length.


Colour: Dark greyish-yellow above, dull whitish below, with two broad cross-bands formed by an aggregation of black dots, the anterior band below rayed dorsal fin and posterior one below adipose dorsal fin. Fins indistinctly marked with black transverse bands.
**Habitation**: Inhabitants of hill streams. Attains a length of 3 cm.

**Distribution**: N. E. India: Assam, Meghalaya.
- Rest of India: Tista drainage, Darjeeling Himalaya.
- Other parts: Not Known.

**Relationship**: The genus have special characters like serrations along outer edge of the pectoral spine absent, maxillary barbels not osseous nor stiff at bases, caudal fin lunate, weak thoracic adhesive apparatus and non annulated barbels. Important species characters include entire dorsal spine and insertion of pelvic fins nearer caudal fin base than to snout tip.

**Remarks**: Six specimens are collected from Jong-rong stream, an offshoot of Manas river near Mathanguri within the boundary of Manas National Park. Eight specimens are collected from Beki river at Bashbari. This small hill stream fish sometimes comes to the nets of fishermen and they treat it as valueless fish. Locally it is a rare species. In CAMP report this is mentioned as endangered (EN) species.

**Genus**: *Gangra* Roberts & Ferraris

(type species: *Pimelodus viridescens* Hamilton-Buchanan)

Body short, compressed. Head short and snubnosed. Mouth narrow and ventral. Snout obtusely rounded. Lips thick, fimbriated. Barbels four pairs. Mandibular pairs of barbels inserted on a transverse line at the same level. Rayed dorsal fin inserted above half of pectoral fins, with not more than six rays.
**Gangra nangra (Hamilton-Buchanan)**
(Figs. 68,155)


![Fig. 68. Gangra nangra (Hamilton-Buchanan)](image)

**Material examined**: Three examples, (50.0-62.5 mm) SL, Nagarzar, 25th March 2001; eight examples, (49.1-68.5 mm) SL, Panbari, 31st March, 2001; four examples, (68.1-72.0 mm) SL, Bashbari, 19th March, 2002.

**Vernacular names**: English: *Kosi nangra*. 
**Diagnostic features**: Bases of mandibular barbels inserted in a transverse row at different levels; gill membranes free from isthmus. Ventral surface of head flat and broad. Dorsal fin with 9-10 soft rays; outer mandibular barbels extend beyond pectoral fins; nasal barbels very long, about as long as head.

**Description**:

**Counts**: D i 9-10; P i 9; V i 5; A iii 10; C 18. Barbels four pairs.

**Proportional measurements**: Head length 3.75 (3.63-3.93), body depth 6.77 (6.54-6.94), predorsal distance 2.57 (2.54-2.60), postdorsal distance 1.54 (1.52-1.56), height of dorsal fin 3.90 (3.78-4.02), pectoral fin length 4.78 (4.67-4.90), pelvic fin length 5.57 (5.35-5.84), anal fin height 5.56 (5.31-5.71), caudal peduncle length 5.86 (5.70-6.01) in the standard length. Head depth 2.09 (1.99-2.25), head width 1.58 (1.57-1.59), eye diameter 11.35 (11.20-11.60), snout length 2.43 (2.30-2.52), width of gape of mouth 2.84 (2.76-2.95), postorbital length 2.09 (1.95-2.22) in the head length. Eye diameter 2.68 (2.53-1.86), snout length 0.54 (0.50-0.59) in the interorbital width. Caudal peduncle depth 3.19 (3.00-3.53) to its length.

Body elongated and slender, its depth 6.77 times in the standard length. Head is sharp, long, oval, not wider than the body, and not compressed. On the nape is a small bony plate, from which two slight ridges run to the nose. Length of head 3.75 times in the standard length; head depth 2.09 times and head width 1.58 times in the head length. Median longitudinal groove deep, extending to the occipital process up which it is continued, the occipital process 3 times longer than wide at its base and extending to the basal bone of the dorsal fin. The mouth, situated below and behind the extremity of the head, is large, and extends straight back. The lips are fleshy. The jaws are rough with very minute crowded teeth. The two apertures of each nostril are separated only by a barbel, and are placed
nearer to the jaw than the eye. Eyes rather high up, in the anterior half of the head and covered with skin. Diameter of eye 11.35 times in the head length and 2.68 times in the interorbital width. Gill membranes confluent with each other, and also with isthmus. Barbels four pairs; nasal barbels very long, almost as long as head, the maxillary barbels with stiff basal parts extend to the pectoral fin or beyond; bases of mandibular barbells set wide apart, the inner pair situated in front of those of the outer pair. Outer barbels extend beyond pectoral fins while the inner mandibular pair shorter than the head. Dorsal spine weak and entire, its length 3.90 times in the standard length; the length of the base of the adipose dorsal equals that of the anal, or the interspace between its commencement and the end of the base of the rayed fin; pectoral spine moderately strong, with nine coarse denticulations internally, its length 4.78 times in the standard length; caudal deeply forked, lobes of equal length and pointed. Lateral line complete.

**Colour**: Muddy, with three indistinct vertical greenish half bands.

**Habitation**: Inhabits in fresh and tidal waters. Attains a length of 5 cm in the standard length.

**Distribution**: N. E India: Assam, Tripura.
- Rest of India: Ganga, Hugli, Kosi, Yamuna river systems.
- Other parts: Bangladesh, Nepal, Pakistan (Indus river system).

**Relationship**: The genus *Nangra* has peculiarity from other genera by bases of the mandibular barbels inserted in a transverse row at different levels; gill membranes free from isthmus. It differs from other species of
Nangra by outer mandibular barbels extend beyond pectoral fins. Nasal pair longer than head and dorsal fin with nine to ten rays.

**Remarks** : Three specimens are collected from Manas river at Nagarzar. Eight specimens are also collected from Manas river at Panbari and four are from Beki river at Bashbari. Along with *N. viridescens*, this species also sometimes appears in the markets and preferred by some people. In CAMP report the fish is categorized as vulnerable (VU).

*Gangra viridescens* (Hamilton-Buchanan)  
(Figs. 69, 156)

1999. *Nangra viridescens* : Jayaram, *Freshwater fishes of India* : 276, fig.144 A.
Material examined: Four examples, (74.1-76.5 mm) SL, Mathanguri, 23rd December 2001; Five examples, (55.6-66.5 mm) SL, Bashbari, 18th March, 2002.

Vernacular names: Assamese: Keyakatta; English: Huddah nangra; Hindi: Huddah, Balsohani; Manipuri: Ngarang; Punjabi: Muji.

Diagnostic features: Bases of mandibular barbels inserted in a transverse row at different levels; gill membranes free from isthmus. Ventral surface of head flat and broad. A pair of finger-like processes present between bases of inner mandibular barbels. Maxillary barbels with stiff bases, lying in a groove.

Description:
Counts: D i 6-7; P i 8; V i 5; A iv 8; C 18. Barbels four pairs.
Proportional measurements: Head length 3.32 (3.24-3.40), body depth 4.02 (3.98-4.06), predorsal distance 2.54 (2.41-2.68), postdorsal distance 1.61 (1.59-1.64), height of dorsal fin 8.78 (8.65-8.92), pectoral fin length 6.45 (6.37-6.54), pelvic fin length 7.85 (7.82-7.88), anal fin height 5.87 (5.70-6.04), caudal peduncle length 10.70 (10.57-10.83) in the standard length. Head depth 1.65 (1.46-1.84), head width 1.25 (1.22-1.28), eye
diameter 5.12 (5.00-5.25), snout length 2.54 (2.27-2.81), width of gape of mouth 2.38 (2.27-2.50), postorbital length 2.38 (2.04-2.73) in the head length. Eye diameter 1.64 (1.55-1.74), snout length 0.81 (0.75-0.87) in the interorbital width. Caudal peduncle depth 2.16 (2.04-2.28) to its length.

Body short, compressed, its depth 4.02 times in the standard length. Abdomen rounded. Head greatly depressed, large and broad. Length of head 3.32 times in the standard length. Its depth 1.65 and width 1.25 times in the head length. Snout overhanging the mouth which is transverse. Length of snout 2.54 times in the head length and 0.81 times in the interorbital width. Gill openings wide, the membranes being notched. Median longitudinal groove on the head deep, having raised edges, and reaching the base of the occipital process, which latter is three times as long as wide, and does not quite reach the basal bone. Osseous processes from occiput and over base of the pectoral fin well developed. Mouth ventral, transverse, narrow. Lips thick, fimbriated. Jaws sub-equal. Teeth uniformly villiform in bands on the jaws. Palate edentate. Eyes moderate, dorso-lateral in position; not visible from the ventral surface of the head. Diameter of eye 5.12 times in the head length and 1.64 times in the interorbital width. Barbels four pair; one pairs each of maxillary, nasal and two of mandibular; maxillary pairs with stiff bases; mandibular pair of barbels inserted on a transverse line at different levels. A pair of figure-like processes in between inner mandibular pair present. Dorsal spine strong and smooth; adipose fin small and well marked. Pectoral spine strong, serrated strongly on the inner edge. Caudal fin deeply forked. Lateral line complete.

**Colour**: Glossy greenish-brown on the back, with two very light green bands passing one from the base of either dorsal fin to the middle of the
depth of the body. A dark band on the dorsal fin and spots on either lobe of the caudal.

**Habitation**: Inhabitants of hill streams. Attains a length of 8.5 cm in the standard length.

**Distribution**: N. E India: Assam, Meghalaya, Tripura.

Rest of India: Yamuna at Delhi, Bihar, West Bengal.

Other parts: Bangladesh, Nepal.

**Relationship**: The genus *Gangra* has peculiarity from other genera by bases of mandibular barbels inserted in a transverse row at different levels; gill membranes free from isthmus. It differs from other species of *Gangra* by dorsal fin with 8-7 soft rays, outer mandibular barbels do not extend beyond pectoral fins, nasal barbels small, a pair of finger-like processes present between bases of inner mandibular barbels and greatly depressed head.

**Remarks**: Four specimens are collected from Manas river at Mathanguri. Five specimens are collected from Beki river at Bashbari. This species frequently appears in the markets at Bashbari and are sold at moderate range. It is categorized as lower risk near threatened (LRnt) in CAMP report.

**Genus: Sisor Hamilton-Buchanan**


Body elongate, whip-like, anteriorly depressed and posteriorly compressed. Head moderate, anteriorly depressed, with numerous rough ridges, covered by very thin skin. Six pairs of barbels, one pair maxillary, five short mandibular pairs arising from lower labial fold. Caudal fin truncate, upper caudal ray prolonged into a very long filament.

**Sisor rhabdophorus** (Hamilton-Buchanan)
(Figs. 70, 157)


Fig. 70. *Sisor rhabdophorus* (Hamilton-Buchanan)
Material examined: One example, 94 mm SL, Panbari, 28th March, 2001; one example, 127.3 mm SL, Bashbari, 14th September, 2001; two examples, (142-145.3 mm) SL, Nagarzar, 29th March, 2001.

Vernacular names: English: *Sisor catfish*; Hindi: *Chennuah, Bistuiya*; Punjabi: *Kirlu, Kirla*.

Diagnostic features: Body whip-like; adipose dorsal fin rudimentary, consisting of a small spine; upper caudal fin rays considerably elongate and filamentous, equal to about length of body; jaws and palate edentate. Gill openings small.

Description:
Counts: D i 6; P i 8; V i 7; A ii 4; C 11. Barbels six pairs. Branchiostegal rays four.

Proportional measurements: Head length 4.82 (4.70-4.91), body depth 9.79 (9.10-10.40), predorsal distance 3.20 (3.17-3.24), postdorsal distance 1.44 (1.43-1.46), height of dorsal fin 7.62 (7.47-7.88), pectoral fin length 5.44 (5.22-5.88), pelvic fin length 7.65 (7.21-7.88), anal fin height 8.46 (8.30-8.78), caudal peduncle length 4.29 (4.14-4.53) to the standard length. Head depth 2.23 (2.09-2.33), head width 1.27 (1.24-1.30), eye diameter 6.61 (6.25-6.89), snout length 1.83 (1.65-2.02), width of gape of mouth 5.37 (5.22-5.55), postorbital length 2.95 (2.86-3.07) in the head length. Eye diameter 1.33 (1.19-1.51), snout length 0.35 (0.27-0.42) in the interorbital width. Caudal peduncle depth 10.53 (10.35-10.76) to its length.

Body elongate, whip-like, anteriorly depressed and posteriorly compressed. Depth of the body 9.79 times in the standard length. Head moderate, anteriorly depressed, with numerous rough ridges, covered by
very thin skin. Length of the head 4.82 times in the standard length. Snout rather pointed, its length 1.83 times in the head length and 0.35 times in the interorbital width. Median longitudinal groove on the head reaches the base of the occipital process. There is a slight inter-space between the end of the occipital process and the basal bone of the dorsal fin. Mouth small and inferior, lips thick, fleshy and papillated; no teeth on jaws and palate. Eyes small, nearer gill openings than end of the snout, not visible from below ventral surface. Diameter of the eye 6.61 times in the standard length and 1.33 times in the interorbital width. Gill openings narrow; gill membranes confluent with each other and also with isthmus. Barbels six pairs; one pair maxillary, five short mandibular pairs arising from lower labial fold. Maxillary pair dilated at base. Branchiostegal rays 4. Dorsal fin rather higher than long, its undivided ray weak, finely serrated anteriorly. Pectoral spine compressed, not quite so long as the head, serrated on both edges, but mostly strongly so on the external one. Ventral rays arise under the posterior dorsal rays. The anal commences behind the vertical from the spine on the back. Upper caudal ray with a long prolongation. A series of bony plates from the basal bone of the dorsal fin to the base of the caudal fin. Lateral line with a series of small rough bony plates.

**Colour**: Blackish above, lighter below.

**Habitation**: Inhabits primarily rivers of the base of Himalayas.

**Distribution**: N. E. India: Assam (Brahmaputra river systems), Arunachal Pradesh, Manipur. Rest of India: Ganga and Yamuna river systems. Other parts: Bangladesh, Pakistan (Indus river system).
Relationship: This species can be distinguished from other sisorids by whip-like body, rudimentary adipose dorsal fin, elongation of the upper caudal fin rays and edentulous jaws and palate.

Remarks: The first specimen is collected from Manas river at Panbari. The second fish is collected from Beki river at Bashbari and two are collected from Manas river at Nagarzar. The species is not seen in the markets. Probably it is not preferred by local communities. It is categorized as endangered (EN) in CAMP.

Family: CHACIDAE: Squarehead or Angler catfishes

Robust large sized ugly fishes with head extremely long, broad and flattened, nearly square in outline viewed from above. Mouth terminal, very broad. Gill rakers absent. Adipose dorsal fin smooth, confluent with caudal fin.

Genus: Chaca Gray


Body short, depressed, ahead of anal fin, but strongly compressed and sharply tapering behind. Head very large, strongly depressed. Caudal fin rounded with a long upper procurent dorsal and a shorter ventral part. Lateral line complete, marked by a prominent papillated and tuberculated ridge.
**Chaca chaca** (Hamilton-Buchanan)
(Figs. 71, 158)

1822. *Platystacus chaca* Hamilton-Buchanan, *Fishes of Ganges*: 140, 374, pl. 28, fig. 43 (type-locality: rivers and ponds of northeastern part of Bengal).

1877. *Chaca lophioides* Valenciennes: Day (partim), *Fishes of India*: 481, pl. 112, fig. 2.


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**Material examined**: One example, 104.5 mm SL, Kalgachia, 14th June, 2003.
Vernacular names: Assamese: Chega, Gajeb-baken; English: Indian chaca; Bengali: Chaga, Chaca; Hindi: Pema, Pauawa, Chakawa; Manipuri: Samu Khongpak; Oriya: Gajeb, Mechi, Coor-curriah.

Diagnostic features: Head broad and depressed, body compressed posteriorly; anal fin short, clearly separate from the caudal fin. Flattened flaps of skin present along dorsal surface of head and immediately posterior to eyes; pectoral spine with 10 serrae.

Description:
Counts: D ii 4; P i 5; V i 5; A i 8. Barbels three pairs. Number of serrae on pectoral spine 10.
Proportional measurements: Head length 1.97, body depth 4.30, predorsal distance 1.80, postdorsal distance 2.17, height of dorsal fin 7.85, pectoral fin length 4.54, pelvic fin length 4.35, anal fin height 74.64, in the standard length. Head depth 2.63, head width 1.13, eye diameter 26.50, snout length 3.53, width of gape of mouth 1.29, postorbital length 1.42 in the head length. Eye diameter 12.20, snout length 1.62 in the interorbital width.

Body tadpole-shaped, anteriorly broad. Depth of body 4.30 times in the standard length. Head strongly depressed, its width 1.13 times in the head length and length 1.97 times in the standard length. Mouth sub-terminal, arcuate, very wide. Lips thick, fleshy. Jaws sub-equal, lower jaw prominent. Teeth are small, villiform on jaws, palate edentate. The whole upper surface is covered with tubercles and soft spines which are found along the edge of the lower lip also. Chin is provided with an adhesive apparatus. Eyes are small, in the anterior fourth of the head, the width of the interorbital space equals half of the length of the head, and along it runs a deep antral groove. Diameter of eye 26.50 times in the head length.
and 12.2 times in the interorbital width. Barbels three pair, one pair maxillary, two pairs mandibular. Gill membranes free upto pectoral base and united with isthmus. Dorsal spine slightly serrated on both the sides, pectoral spine with 8-10 serrae along its anterior edge. Pairs of slender, conical papillae along a line that runs above the lateral line of the dorsal spine to caudal peduncle. Lateral line complete, marked by a prominent papillated and tuberculated ridge.

**Colour**: Brownish marbled with darker. Fins dark brown, with black blotches and whitish to fawn edges.

**Habitation**: Inhabits of rivers and other channels connected with rivers. Attains a length of 20 cm.

**Distribution**: N. E. India: Assam, Meghalaya, Tripura.
Rest of India: Ganga drainage.
Other parts: Bangladesh, Nepal.

**Relationship**: The family of Chacidae has peculiar characters like broad and depressed head, compressed body posteriorly, short anal fin. Species characters include flattened flaps of skin present along dorsal surface of the head and immediately posterior to eye and 8-10 serrae in the pectoral spine.

**Remarks**: The single specimen is collected from Beki river at Kalgachia. The species is not preferred by local communities and is regarded as a weed fish. The fish is not evaluated in CAMP.
Family: OLYRIDAE

Loach-like, elongate, small sized fishes with body flattened in front of pelvics and compressed behind. Mouth small and terminal. Gill openings very wide, extending to far forwards; functional part greatly restricted by flaps of skin along lower edges.

Genus: Olyra McClelland


Body long, slender. Abdomen subcylindrical, behind pelvics. Head small and depressed, snout obtusely rounded. Rayed dorsal fin inserted above pelvic fins. Caudal fin long, lanceolate or forked, filiform, upper part better developed than lower. Pectoral spine serrated on both edges.

*Olyra longicaudata* (McClelland)

(Figs. 72, 159)

Material examined: Ten examples, (90.3-120.7 mm) SL, Bashbari, 18th March, 2002.

Vernacular names: Assamese: Nadir Singi; English: Himalayan Olyra; Bengali: Botsinghi.

Diagnostic features: Dorsal fin without spine; eyes small and subcutaneous. Pectoral fin with 4-5 soft rays; upper lobe of caudal fin about twice as long as lower lobe. Body depth 8.55 times in the standard length. Anal fin rays 18-20.
Description:
Counts: D i 6-7; P i 4-5; V i 5; A iii 15-17 C 19. Barbels four pairs.

Proportional measurements: Head length 5.35 (5.22-5.55), body depth 8.55 (8.18-8.81), predorsal distance 2.53 (2.26-2.68), postdorsal distance 1.52 (1.49-1.57), height of dorsal fin 7.66 (7.48-7.76), pectoral fin length 10.13 (9.37-10.54), pelvic fin length 8.54 (8.05-8.82), anal fin height 16.03 (16.01-16.05), in the standard length. Head depth 1.82 (1.76-1.91), head width 1.38 (1.29-1.44), eye diameter 10.60 (10.44-10.77), snout length 3.59 (3.23-3.86), width of gape of mouth 2.66 (2.55-2.83), postorbital length 1.61 (1.55-1.70) in the head length. Eye diameter 4.24 (3.88-4.90), snout length 1.14 (1.11-1.16) in the interorbital width. Caudal peduncle depth 1.56 (1.16-1.87) to its length.

Body elongate and low, the dorsal profile nearly horizontal. Abdomen sub-cylindrical, behind the pelvic. Depth of the body 8.55 times in the standard length. Head small, dorso-ventrally flattened, covered superiorly with soft skin. Length of head 5.35 times in the standard length. Snout obtusely rounded, its length 3.59 times in the head length and 1.14 times in the interorbital width. Mouth narrow, transverse, terminal. Jaws sub-equal, upper jaw slightly longer than the lower. Teeth villiform on jaws, a continuous band on palate. Lips thin, continuous, not fleshy. Gill openings wide, the gill membranes not being confluent with the skin of the isthmus, but notched nearly to the chin. Nostrils remote from one another, the posterior provided with a barbel. Eyes superior, small, in anterior part of the head, not visible from below the ventral surface. Diameter of the eye is 10.60 times in the head length and is 4.24 times in the interorbital width. Barbels four pairs, one pair each of maxillary, nasal and two of mandibular, the maxillary pair reaches upto base of the ventral and the nasal run beyond orbit. Rayed dorsal fin inserted above pelvic fins with seven to eight rays and without a spine. Adipose dorsal short, low,
posteriorly free. Pectoral fins with 4-5 rays and a strong serrated spine. Pelvic fins with six rays. Anal fin moderately long with 18-20 rays, fin rays increasing in length posteriorly. Caudal fin long, lanceolate. Lateral line complete.

**Colour**: Olivaceous-brown with two pale longitudinal bands on each side of the lateral line and a dark brown band along the lateral line; belly dull white. Fins dull white.

**Habitation**: Inhabitants of small rocky streams at the base of the hills. Attains a length of 11 cm in the standard length.

**Distribution**: N. E. India: Assam, Meghalaya, Nagaland, Tripura, Arunachal Pradesh.
Rest of India: Base of Darjeeling Himalaya.
Other parts: Burma.

**Relationship**: It differs from other related family by dorsal fin without a spine, small and sub-cutaneous eyes. Peculiar species characters include lanceolate caudal fin and 4-5 soft rays in the pectoral fin.

**Remarks**: All the specimens are collected from Beki river at Bashbari. Local community told that the species comes to the fishermen frequently. When appears in the market the species is preferred by some communities. The fish is not evaluated in CAMP.

**Order**: SYNGNATHIFORMES

Body elongate, snout long, tube shaped. Complete or partial external armour in form of bony plates. Pelvic fin usually present. Branchiostegal rays one to three.
Family: SYNGNATHIDAE: Seahorses and Pipefishes


Genus: *Microphis* Kaup


Body elongated, nearly as high as broad; covered with transversely straited shields. Trunk region heptagonal, tail tetragonal. Trunk rings 15 to 22; total rings 39 to 55. Caudal fin rays typically nine; brood pouch originates on 1st to 3rd trunk ring; pouch plates well developed.

*Microphis deocata* (Hamilton-Buchanan)
(Figs. 73,160)


**Fig. 73. Microphis deocata** (Hamilton-Buchanan)

**Material examined**: Eleven examples, (159-169 mm) SL, Nagarzar, 27th March, 2001; eight examples, (103-119 mm) SL, Panbari, 31st March, 2001; nine examples, (110-189.1 mm) SL, Panbari, 8th July, 2002.

**Vernacular names**: Assamese: Ghorialor Kan singa; English: Deocata pipefish.

**Diagnostic features.** Caudal fin well-developed; trunk ring 16 to 17, the first not much longer than second; male brood area under trunk; lateral trunk ridge confluent with inferior tail ridge. Tail rings 30-31; lateral snout ridge poorly defined.

**Description**:

**Counts**: Trunk rings 16-17; tail rings 30-31; D 34-36; P 20; C 18. Subdorsal rings 2.5 - 1.75 + 50. Barbels absents

**Proportional measurements**: Head length 7.24 (6.92-7.80), body depth 26.63 (26.01-27.00), predorsal distance 2.39 (2.11-2.60), postdorsal distance 1.70 (1.66-1.77), pectoral fin length 48.66 (48.33-49.09) in the standard length. Head depth 5.54 (5.30-5.79), head width 4.77 (4.60-4.92),
eye diameter 11.10 (10.80-11.50), snout length 1.64 (1.17-1.93), width of gape of mouth 19.9 (19.2-20.70), postorbital length 2.96 (2.89-3.00) in the head length. Eye diameter is 1.93 (1.86-2.00), snout length 0.21 (0.19-0.22) in the interorbital width.


**Colour**: Generally brown; bright red under the lateral line and dotted with blue. Lower surface is red, vertically banded with darker stripes edged with blue, at the upper end of each dark stripe is a white dot or angular mark.

**Distribution**: N. E. India: Assam, Arunachal Pradesh.
Rest of India: North Bengal, Bihar.
Other parts: Bangladesh.

**Habitation**: A freshwater inhabitants. Attains a length of 15 cm.
**Relationship**: Differs from other genus by having lateral trunk ridge confluent with inferior tail ridge. The species characteristics are tail rings 30-31, lateral snout ridge poorly defined.

**Remarks**: Eleven specimens are collected from Manas river at Nagarzar and seventeen specimens are collected also from Manas river at Panbari. Locally it is known as *Gharialor kan Singa*, and usually not regarded as a fish. It has no value as a food fish. The fish is not evaluated in CAMP.

**Order**: PERCIFORMES

Skin with scales, commonly etenoid. Dorsal, anal and pelvic fin spines present. Mouth may be protractile, particularly upper jaw, with the premaxillary having ascending, articular and lateral (maxillary) processes.

**Suborder**: PERCOIDEI

Pelvic fins thoracic or jugular, typically each with a spine and five soft rays; pelvic bones directly attached to cleithra.

**Family**: AMBASSIDAE : Glassfishes

Body short, elevated, oblong, compressed, slightly translucent. Moderate to small, deciduous cycloid scales on head and body. A forwardly directed recumbent spine in front of dorsal fin present.

**Genus**: *Chanda* Hamilton-Buchanan

Body ovate and fairly transparent fishes, with the vertebral column and its adjoining elements (like swimbladder, etc.) visible as X-ray photographs. Lower limb of preopercle with a double serrated edge; opercle without a prominent spine. Lateral line complete.

**Chanda nama (Hamilton-Buchanan)**
(Figs. 74,161)


Material examined: Four examples, (45.5-50.3 mm) SL, Bekimukh, 6th April, 2001; thirteen examples, (33.1-48.9 mm) SL, Nagarzar, 29th March, 2001; three examples, (41.3-51.2 mm) SL, Lengtisinga, 8th May, 2001; one example, 49 mm SL, Lengtisinga, 27th May, 2001.

Vernacular names: Assamese: Sondah, Chanda; Bengali: Chanda, Nama Chanda; English: Glossy perchlet; Hindi: Channe, Chanari, Channa; Kannad: Sipari menu, Gajina meenu; Marathi: Gaude chiri, Kachki, Chembardi; Oriya: Cart kana, Goa chappi; Punjabi: Mucknee, Cheddwhah, Sheesha, Makhni, Sheesha machi; Tamil: Kakkachee; Telegu: Akku rati, Aku rati.

Diagnostic features: Canine teeth on lower jaw; scales minute, 103-106 in longitudinal series, mouth particularly large, with very prominent lower jaw, which is unequal and the lower jaw is longer than the upper. Third anal spine longest.
Description:
Counts: D VII + I 15-16; P i 11-12; VI 5; A III 15 C 17. Scales in longitudinal series. Barbels absent.

Proportional measurements: Head length 2.93 (2.77-3.01), body depth 2.05 (1.95-2.13), predorsal distance 2.83 (2.62-3.03), postdorsal distance 1.65 (1.51-1.85), height of dorsal fin 4.04 (3.85-4.48), pectoral fin length 4.19 (4.00-4.26), pelvic fin length 4.53 (4.80-4.69), anal fin height 3.62 (3.33-3.79), caudal peduncle length 10.45 (9.94-10.88) in the standard length. Head depth 1.02 (0.95-1.09), head width 2.59 (2.21-2.87), eye diameter 2.28 (2.08-2.73), snout length 1.79 (1.39-1.95), width of gape of mouth 1.48 (1.39-1.79), postorbital length 1.50 (1.37-1.80) in the head length. Eye diameter is 0.76 (0.66-0.91), snout length 1.00 (0.83-1.15) in the interorbital width. Caudal peduncle depth is 0.68 (0.65-0.69) to its length.

Body ovate and strongly compressed, the dorsal and abdominal profiles equally convex, a considerable rise from the occiput to the base of the first dorsal fin. Body depth is 2.05 times in the standard length. Head short, compressed. Snout sharp. Mouth wide, protractile, extending to front border of orbit. Jaws unequal. Lower jaw much longer than the upper. The maxilla reaches to below the anterior third of the orbit. Preorbital with three denticulations along its posterior-superior margin, also a denticulation behind them at the middle of the front edge of the orbit, and another at its posterior-superior angle. Vertical limb of preopercle entire, except near its angle, where there are two or three denticulations which become blunted with age; the double border, very slightly denticulated at its lower edge. Sub and inter-opercles entire. Jaws, palate, and tongue with villiform teeth; jaw teeth in two main rows, teeth in outer row with strongly curved crowns directed laterally and those in the inner row with similarly curved crowns directed medially. There are two dorsal fins
united, but clearly distinguishable. The first dorsal with seven rays projects a little beyond the intermediate membranes. The first is very short, the second is the longest and the other diminish suddenly in length to the last. The second dorsal with one simple and fifteen to sixteen branched rays. The pectoral fins are short and sharp above with 12-13 rays. The ventral fins are short with six rays and have even edges. The anal fin contains three spines and the third one is the longest. Caudal fin is forked with seventeen distinct rays, besides several short compacted ones on each side. Scales cycloid, very small, 103-106 scales in longitudinal series, frequently deciduous. Cheek, gill cover, predorsum above lateral line and body just below base of dorsal fin without scales. Lateral line is incomplete. Pseudobranchiae well developed.

**Colour**: The upper part of the head, the back, belly and tail, are diaphanous, so as to discover the ribs and back bone, a silver line running along the latter, and the former being seen over a silvery membrane that lines the visceral cavity. The lower part of the head, especially the gill covers, are opaque and silvery. Over the back and its fins, together with those of the tail and vent, are scattered black dots, which, on each shoulder, are collected into an oblong mark, and into another on the summit of the back fin.

**Distribution**: N. E. India: Assam, Meghalaya, Arunachal Pradesh, Manipur, Tripura. Rest of India: Throughout the country. Other parts: Bangladesh, Nepal, Burma, Pakistan.

**Habitation**: Inhabitants fresh and brackish waters, both in standing and running waters. Attains a length of 11-cm. The species could effectively be used in the control of guinea worms and also for malarial control.
**Relationship**: The genus differs from others by having canine teeth on lower jaw, scales minute, 103-106 in longitudinal series, large mouth and prominent lower jaw. Single species is represented of the genus.

**Remarks**: Four specimens are collected from Beki river at Bekimukh at the confluencing point of Beki with Brahmaputra. Thirteen specimens are collected from Manas river at Nagarzar and four specimens are collected from Manas river at Lengtisinga. This species is more commonly found in the ponds, beels etc. and are frequently available in the markets. Market rate is not very high and mainly preferred by low-income category people. The species is not evaluated in CAMP.

**Genus: Parambassis Bleeker**


Body elongate, compressed. Supraorbital ridge dentate; interoperculum generally entire, often poorly serrated posteriorly. Scales very small to moderate. Lateral line complete.

*Parambassis ranga* (Hamilton-Buchanan)  
(Figs. 75,162)


1875. *Ambassis ranga* : Day (Partim), *Fishes of India* : 51, pl.14, fig. 6.


2000. *Chanda ranga*: Nath and Dey, *Fish and fisheries of N. E. India*: 136, fig. 120.


![Fig. 75. *Parambassis ranga* (Hamilton-Buchanan)](image-url)

**Material examined**: Seven examples, (20.9-27.5 mm) SL, Jogighopa, 11th May, 2001; five examples, (22.0-28.6 mm) SL, Kalgachia, 16th June, 2003.

Diagnostic features: Supraorbital ridge dentate; interoperculum generally entire, often poorly serrate posteriorly. Preopercular hind edge smooth, often with few serrations; lower gill rakers 15.

Description:

Counts: D vii+i 14; P i 11; V i 5; A i ii 14; C 17. Scales in longitudinal series 50-53. Scales in transverse series seven. Gill rakers 15 on lower arm of the first arch.

Proportional measurements: Head length 2.48 (2.47-2.50), body depth 1.69 (1.68-1.70), predorsal distance 2.15 (2.11-2.20), postdorsal distance 1.76 (1.76-1.77), height of dorsal fin 2.65 (2.55-2.75), pectoral fin length 4.03 (3.91-4.15), pelvic fin length 4.91 (4.78-5.05), anal fin height 3.99 (3.92-4.07), caudal peduncle length 7.54 (7.33-7.75) in the standard length. Head depth 1.35 (1.27-1.44), head width 2.61 (2.47-2.75), eye diameter 3.14 (3.06-3.23), snout length 3.95 (3.86-4.04), width of gape of mouth 3.09 (3.76-4.05), postorbital length 2.76 (2.69-2.75) in the head length. Eye diameter 0.80 (0.75-0.85), snout length 0.98 (0.96-1.00) in the interorbital width. Caudal peduncle depth 1.01 (0.95-1.07) to its length.

Body stout, deep and compressed; its depth 1.69 times in the standard length. Dorsal and abdominal profiles both very convex, but the profile over the eyes is slightly concave. Preopercular hind edge smooth, almost with two serrations at angle. Head short, compressed. Length of head 2.48 times in the standard length; its width 2.61 and depth 1.35 times in the head length. Snout sharp. Length of snout 3.95 times in the head length and 0.98 times in the interorbital width. Mouth wide, protractile. The maxilla reaches to below the middle of the orbit. Lips thin, lower jaw longer than upper. Preorbital is with denticulations on its inferior edge, a strong tooth on its antero-superior angle is directed towards the eye, and five more teeth along the upper edge of the same are also present. There is another spine at the middle of the posterior margin of the orbit and its
upper half has five more spines which decreases in size along its upper half. Teeth villiform on jaws, vomer and palate but none on the tongue. Eyes large, superior, not visible from below ventral surface. Diameter of the eye 3.14 times in the head length and 0.80 times in the interorbital width. Barbels absent. First dorsal inserted above posterior half of the pectorals. Anal situated almost opposite to the 4th spine of the first dorsal fin. Third dorsal spine longest and the second anal spine shorter than the third. Scales small. Lateral line interrupted, broken at the posterior end of the pectoral fin. 50-53 scales in the longitudinal series. Transverse scale rows in cheek 7. Gill rakers 15 on lower arm of the first arch.

**Colour**: Transparent, having a dark mark composed of spots on the shoulder. The margins of the vertical fins are usually somewhat dark.

**Habitation**: Inhabitants of fresh and brackish waters. Attains a length of 7 cm.

**Distribution**: N.E. India: All the N. E. states except Nagaland.
Rest of India: Throughout the country.
Other parts: Bangladesh, Malaysia, Myanmar, Pakistan.

**Relationship**: The genus has peculiar characters like smaller scales, edentate tongue, 7 transverse scale rows in cheek, absence of canine teeth on the lower jaw, supraorbital ridge dentate, interoperculum entire and poorly serrate posteriorly. The species has distinguishing characters from other species of *Pseudambassis* like 50-53 scales in the longitudinal series, preopercular hind edge smooth and lower gill rakers 15.

**Remarks**: Seven specimens are collected from Manas river at the confluencing point of the river at Jogighopa. Five specimens are collected
from Beki river at Kalgachia. This is a common fish in the adjoining wetlands and preferred by poor community due to low price. This species is not evaluated in CAMP.

**Family : NANDIDAE : Leaf fishes**


**Subfamily : BADINAE**

Mouth relatively small and slightly protrusible. Operculum distinctly triangular with a spine. Lateral line scales 26 to 30.

**Genus : Badis Bleeker**


Body moderately elongate and slightly compressed. Mouth relatively small, slightly upturned, terminal, slightly protractile. Lower jaw longer, villiform teeth on jaws, vomer and palatines; none on tongue. Opercle with one sharp spine, other bones of head armed. Airbladder large and simple.
Badis badis (Hamilton-Buchanan)
(Figs. 76,163)

1822. Labrus badis Hamilton-Buchanan, Fishes of Ganges: 70, 368, pl. 25, fig. 23 (type-locality: Gangetic Provinces).

1875. Badis buchanani: Bleeker: Day, Fishes of India: 128, pl. 31, fig. 6


Material examined: Four examples, (40.0-45.1 mm) SL, Lengtisinga, 9th May, 2001; three examples, (46.9-53.5 mm) SL, Panbari, 6th July, 2002.

Vernacular names: Assamese: Nabat, Randolnee; Bengali: Botkoi, Bhedo, Darhi; Hindi: Sumha; Manipuri: Ngamhai; Nishing: Khen ngoi; Punjabi: Kalapootiah, Chiri; Oriya: Bundej, Kahleepoce, Kunkakie; Telegu: Kundala, Kasundara.

Diagnostic features: Dorsal fin with eight to nine soft rays; operculum distinctly triangular. Lower jaw longer. Villiform teeth on jaws, vomer and palatines, none on tongue. Opercle with one sharp spine, other bones of head armed.

Description:
Proportional measurements: Head length 2.97 (2.91-3.03), body depth 3.15 (3.05-3.26), predorsal distance 2.68 (2.60-2.76), postdorsal distance 1.64 (1.53-1.75), height of dorsal fin 6.51 (6.33-6.70), pectoral fin length 5.38 (5.26-5.51), pelvic fin length 4.57 (4.50-4.65), anal fin height 5.71
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(5.44-5.98), caudal peduncle length 7.45 (7.16-7.75) in the standard length. Head depth 1.44 (1.19-1.70), head width 1.74 (1.64-1.85), eye diameter 3.64 (3.40-3.89), snout length 3.54 (3.52-3.57), width of gape of mouth 3.00 (2.93-3.08), postorbital length 1.01 (0.96-1.07) in the head length. Eye diameter 0.95 (0.88-1.02), snout length 0.95 (0.92-0.98) in the interorbital width. Caudal peduncle depth 0.67 (0.65-0.70) to its length.

Body moderately elongate, relatively low and slightly compressed. Abdomen rounded. Depth of body 3.15 times in the standard length. Head of moderate size, compressed. Length of head 2.97 times in the standard length. Its depth 1.44 times and width 1.74 times in the head length. Snout obtusely pointed. Mouth relatively small, slightly upturned, terminal, slightly protractile, cleft not extending to the anterior margin of eye. Lips thin. Lower jaw longer. Villiform teeth on jaws, vomer and palatines; tongue edentate. Opercle with one sharp spine, other bones of head armed. Eyes large, supero-lateral in anterior part of head, not visible from below ventral surface. Diameter of eye 3.64 times in head length and 0.95 times in the interorbital width. Barbels absent. A single dorsal fin, inserted above base of pectoral fins, the spinous portion longer than soft portion, 16-17 spines and 8-9 rays. Anal fin with three spines and six rays. Caudal fin rounded. Scales ctenoid, extending over the body and head, there are three small rows along the bases of the dorsal and anal fins, and some minute ones are present on the rays of the vertical fins, one entire row exists between the highest portion of the lateral line and the small scales along the base of the dorsal fin. Lateral line interrupted below the posterior extremity of the dorsal fin. Scales in the longitudinal series 27. Scales in the transverse series 10. Vertebrae 28.
Colour: Variegated with alternate belts of the black and green; a bluish-black spot behind gill openings. Fins yellowish green, bluish or dark blue; a row of dark spots along base of the dorsal fin.

Habitation: Inhabitants of freshwaters, rivers, ponds and ditches. This is a solitary fish spending much of its time motionless. It is a lurking predator that eats only live moving animals. It is a column feeder and feeds on mosquito larvae when a chance permits. The adults are highly territorial. Attains a length of 8 cm.

Distribution: N. E. India: All the seven N. E. states.
Rest of India: Throughout the country.
Other parts: Bangladesh, Myanmar, Nepal, Pakistan.

Relationship: It differs from other relatives by relatively small and slightly protrusible mouth, dorsal fin with 8-9 soft rays and distinctly triangular operculum.

Remarks: Five specimens are collected from Manas river at Lengtisinga and three specimens are also from Manas river at Panbari. This is one of the common fishes that appears in the markets regularly. Preferred by middle and lower class families for low price. This species is not evaluated in CAMP.

Suborder: MUGILOIDEI

Pelvic fins subabdominal, each with a spine and five soft rays; pelvic bones not attached to cleithra; two widely separated dorsal fins, the first with four spines; lateral line vestigial or absent
Family: MUGILIDAE: Mullets

Body oblong to elongate, compressed, may be depressed anteriorly to a little extent. Head broad and depressed. Two dorsal fins short, widely separated. Pyloric appendages generally few.

Genus: *Rhinomugil* Gill


Body fairly stout; head concave between eyes. Mouth distinctly ventral and protrusible. Adipose eyelids absent. Two dorsal fins well separated: first inserted in between pelvic and anal fins, with four spines, second with eight rays. Scales ctenoid in adults, cycloid in young.

*Rhinomugil corsula* (Hamilton-Buchanan)
(Figs. 77, 164)

1822. *Mugil corsula* Hamilton-Buchanan, *Fishes of Ganges*: 221, 381, pl. 9, fig. 97 (type-locality: Ganges river).


**Material examined**: Three examples, (90.2-110 mm) SL, Kalgachia, 15th June, 2003.

**Vernacular names**: Assamese: Keshi; Bengali: Corsula, Elanga, Kananua; English: Corsula mullet; Hindi: Undula, Answari; Punjabi: Hardwarhe; Oriya: Kakunda; Telegu: Mazhugumee.

**Diagnostic features**: Head concave between eyes, eyes projecting above this level; anterior nostrils at level of eye center; mouth conspicuously ventral. Adipose eyelids absent; upper lip not forming tip of snout or part of dorsal profile, first dorsal fin inserted in between pelvic and anal fins, with four spines.

**Description**:

**Counts**: $D_1$ iv; $D_2$ i 8; $P$ 16; $V$ i 5; $A$ iii 9; C 18. Scales in longitudinal series 49. Barbels absent.

**Proportional measurements**: Head length 3.85, body depth 5.94, predorsal distance 1.88 (first), postdorsal distance 2.15 (first), height of dorsal fin 9.40, pectoral fin length 4.66, pelvic fin length 7.33, anal fin height 5.94, caudal peduncle length 4.41 in the standard length. Head depth 2.02, head width 1.96, eye diameter 5.08, snout length 7.12, width of gape of mouth 3.47, postorbital length 1.57 in the head length. Eye
diameter 0.71, snout length 1.00 in the interorbital width. Caudal peduncle
depth 2.49 to its length.

Body elongated, stout, compressed. Abdomen rounded. Depth of body
5.94 times in the standard length. Head moderate, concave between eyes,
the latter projecting above this level. Length of head 3.85 times in the head
length. Head depth 2.02 times and width 1.96 times in the head length.
Snout flat, short, overhanging. Length of snout 7.12 times in the head
length and 1.00 times in the interorbital width. Mouth distinctly ventral
and protrusible. Lips thin; upper lip not forming tip of snout or part of
dorsal profile, but distinctly ventral, overhanging by snout. Jaws equal,
symphysial knob present. Teeth indistinct. Anterior edge of preorbit
without a spine. Eyes prominent, bulging, placed in line with dorsal profile
of head, not visible from below ventral surface. Diameter of eye 5.08
times in the head length and 0.71 times in interorbital width. Barbels
absent. Dorsal fin two, well separated. First dorsal is inserted between
ventral and anal fin, above the 16th scale of lateral row. The second dorsal
arises above the 34th scale. Spines about half as long as head excluding the
snout. Anal with three spines and nine rays. Caudal fin slightly
emerginate. Scales are ctenoid with a slightly raised line along the middle
of each scale. 49 scales in longitudinal series.

**Colour**: Dull brown dorsally, silvery below. Fins hyaline with a golden
tinge.

**Habitation**: Inhabitants of fresh and brackish waters. Attains a length of
45 cm.
**Distribution** : N. E. India : Assam, Meghalaya, Tripura

Rest of India : Mahanadi, Chilka lake, Ganga, Cauvery river systems, Bhima river near Ujni dam, Pune district, Maharashtra.

Other parts : Bangladesh, Myanmar, Nepal.

**Relationship** : The distinguishing characters of the genus *Rhinomugil* are absence of spine on operculum, concave head between eyes, projection of eye in the same level with head and conspicuously ventral mouth. *R. corsula* is the only known species so far.

**Remarks** : All the three specimens are collected from Beki river at Kalgachia. This is a rare fish and during the study period the species is never seen in local markets. In CAMP report this fish is categorized as vulnerable (VU).

**Suborder : GOBIOIDEI**

Pelvic fins placed below pectoral fins, each with one spine and four or five rays, often united; head generally with mucous canals and open pores; parietals absent; infraorbitals unossified or absent.

**Family : GOBIIDAE : Gobies**

Pelvic fins when well-developed, united, usually forming an adhesive or sucking disc. Head generally with mucous canals and open pores. Scales ctenoid or cycloid (rarely absent).
Subfamily: GOBIINAE

No scales between and before eyes on head. Teeth simple, top of teeth not incised. Pelvic fins entirely or nearly totally united, only attached in their bases to the belly; base membrane often wanting.

Genus: Glossogobius Gill


Body elongate, anteriorly cylindical, compressed. Head depressed, pointed, scaled above behind eyes. Mouth slightly oblique, lower jaw prominent. Teeth on both jaws in several rows. Caudal fin oblong to rounded. 28 to 36 scales along lateral series.

Glossogobius giuris (Hamilton-Buchanan)
(Figs. 78, 165)

1822. Gobius giuris Hamilton-Buchanan, Fishes of Ganges: 51, pl. 33, fig. 15 (type-locality: Gangetic provinces).


**Material examined** : Eight examples, (49.6-70.0 mm) SL, Lengtisinga, 8th May, 2001; two examples, (50.1-54.6 mm) SL, Bekimukh, 27th January, 2003.


**Diagnostic features** : Prevomer edentate, dorsal spines all thin and flexible, shoulder girdle smooth, foremost median scale on nape not unpaired nor enlarged, upper pectoral finrays not free, head without raised flaps, gill membranes fused to a free fold across isthmus, lower pectoral
fin rays branched. Branchiostegal membranes attached to sides of isthmus, body pale, without longitudinal lines, iris without a lappet.

Description:

Counts: D 6 i 8; P i 19-20; V i 5; A i 8; C 17. Scales in lateral line 27-28. Scales from back to lateral line 8.5. Scales from lateral line to pelvic base 10.5. Predorsal scales 18. Barbels absents.

Proportional measurements: Head length 3.10 (3.02-3.19), body depth 5.27 (5.25-5.30), predorsal distance 2.58 (2.44-2.72), postdorsal distance 1.60 (1.59-1.62), height of dorsal fin 5.93 (5.86-6.00), pectoral fin length 4.93 (4.87-5.00), pelvic fin length 4.98 (4.91-5.06), anal fin height 5.60 (5.38-5.82), caudal peduncle length 4.11 (4.08-4.15) in the standard length. Head depth 2.07 (2.04-2.11), head width 1.75 (1.70-1.80), eye diameter 5.00 (4.94-5.07), snout length 2.83 (2.76-2.91), width of gap of mouth 2.69 (2.54-2.85), postorbital length 1.99 (1.98-2.00) in the head length. Eye diameter 0.76 (0.69-0.84), snout length 0.40 (0.34-0.47) in the interorbital width. Caudal peduncle depth 2.45 (2.38-2.53) to its length.

Body elongated, anteriorly cylindrical and compressed. Abdomen rounded. Depth of body 5.27 times in the standard length. Head depressed, pointed, scaled above behind eyes. Length of head 3.10 times in the standard length. Head depth 2.07 times and head width 1.75 times in the head length. Snout obtusely pointed, not longer than eye. Length of snout 2.83 times in the head length and 0.40 times in the interorbital width. Mouth is a little oblique. Tongue is bilobate. Cleft of mouth extends upto below the anterior margin of the eye. Lips are thick. Lower jaw the longer. Teeth in villiform rows, with an outer enlarged row in the upper jaw, laterally in two rows of which the inner is the larger; in the lower jaw a large row anteriorly, laterally two rows. Eyes large, superior, in middle of the head, not visible from below ventral surface. Interorbital space is
slightly concave. Diameter of eye 5.00 times in the head length and 0.76 times in the interorbital width. Barbels absent. Gill openings continued for forward below eye, isthmus narrow. Anterior scales are cycloid but the posterior scales are ctenoid. Head is scaled above, behind the eyes and on upper part of opercle. Pectoral fin base is scaled. Lateral line complete with 27-28 scales. Scales from back to lateral line 8.5 and from lateral line to pelvic base 10.5. Predorsal scales 18. First dorsal supported by spines and second dorsal fin with rays. Ventral fins united at base. Anal fin with a weak spine. Caudal fin oblong.

**Colour**: Yellowish or greyish with irregular markings and six bands present on the caudal.

**Habitation**: Inhabitants of primarily freshwater and estuaries; also the sea. Attains a length of 30 cm.

**Distribution**: N. E. India: Throughout N. E. states except Nagaland. Rest of India: Throughout India. Other parts: Bangladesh, Myanmar, Nepal, Pakistan, Sri Lanka, East Coast of Africa to Japan, Australia, South Pacific.

**Relationship**: The genus *Glossogobius* has peculiarity like gill membranes fused to a free fold across isthmus and branching of lower pectoral fin rays. Peculiar species characters include branchiostegaleal membranes attached to sides of isthmus; body pale, without longitudinal lines, sometimes with saddles and iris without a lappet.

**Remarks**: Eight specimens are collected from Manas river at Lenghtisinga and two specimens are from Beki river in its confluencing
point at Bekimukh. One of the most common fish in the adjoining wetlands. Sold in the markets in medium ranges. In CAMP the fish is categorized as lower risk near threatened (LRnt).

Suborder: ANABANTOIDEI

A suprabranchial organ present, usually labyrinthine, formed by expansion of first epibranchial; opercular bones serrate or entire. Scales ctenoid and cycloid.

Family: BELONTIIDAE: Gouramies

Body is short, compressed, anteriorly depressed to a slight extent. First ray of pelvic fins modified into a filiform ray, or with few rays. Pelvic fins inserted behind base of pectoral fins. Lateral line vestigial, rudimentary or absent.

Subfamily: TRICHOGASTERINAE

No supraoccipital crest; branchiostegal rays five; lateral line absent; jaws highly protrusible.

Genus: Polyacanthus Cuvier

**Polyacanthus fasciatus** (Schneider)
(Figs. 79, 166)


![Fig. 79. Polyacanthus fasciatus (Schneider)](image)
Material examined: Six examples, (54.5-89.3 mm) SL, Bekimukh, 29th January, 2003.

Vernacular names: Assamese: Koh-lee-hona, khooleehona; English: Banded colisa; Bengali: Khalisha, Cheli; Hindi: Khosti; Manipuri: Ngapemma; Nishing (Arunachal Pradesh): Khen ngoi; Oriya: Kussuah, Coilia; Punjabi: Kun-gee; Telegu: Ponundi.


Description:
Counts: D XV 10; P 9; A XV 14; C 15. Scales in longitudinal series 32. Vertebrae 27.

Proportional measurements: Head length 2.93 (2.88-3.01), body depth 2.59 (2.46-2.63), predorsal distance 2.31 (2.21-2.39), postdorsal distance 1.60 (1.54-1.69), height of dorsal fin 8.65 (8.49-8.74), pectoral fin length 3.44 (3.33-3.52), anal fin height 9.56 (9.41-9.72), caudal peduncle length 36.33 (36.01-36.89) to the standard length. Head depth 1.16 (1.01-1.31), head width 1.60 (1.42-1.73), eye diameter 3.44 (3.21-3.69), snout length 3.50 (3.21-3.84), width of gape of mouth 4.22 (4.01-4.49), postorbital length 2.32 (2.22-2.41) in the head length. Eye diameter 1.38 (1.25-1.49), snout length 1.41 (1.36-1.51) in the interorbital width. Caudal peduncle depth 0.17 (0.11-0.22) to its length.

Body egg-shaped and strongly compressed, depth of the body 2.59 times in the standard length. Snout blunt, its length 3.50 times in the head length. Mouth small, slightly protrusive, cleft of mouth small. Jaws subequal, lower jaw longer than the upper. Lower lip thin, but upper lip thick and papillose. Small villiform teeth on jaws, while vomers and the

**Colour** : Greenish with 14 bluish bars descending obliquely downwards and backwards from back to the anal fin. Vertical fin with alternate dark and pale bars; anal fin with a red margin.

**Habitation** : Inhabitants of large rivers and estuaries, also tanks, ditches and ponds. A rather shy species. Attains a length of 12 cm.

**Distribution** : N. E. India : Assam, Meghalaya, Arunachal Pradesh, Manipur, Tripura.
Rest of India : West Bengal, North India.
Other parts : Bangladesh, Nepal, Upper Burma, Pakistan.

**Relationship** : The genus differs from other related genera by having 15 spines in dorsal fin and 27 vertebrae. Peculiar species characters include body with 14 vertical bars and anal fin scaly at base only.

**Remarks** : All the specimens are collected from Beki river at Bekimukh where the river falls in Brahmaputra. This is one of the best suited ornamental fish. It is also liked by the local community because of its
good taste. The species is abundantly found in almost all adjoining wetlands. It is categorized as lower risk near threatened (LRnt) species in CAMP.

**Suborder : CHANNOIDEI**

Suprabranchial organ present, in form of a simple vascular chamber; dorsal and anal fins long; no fin spines; pelvic fins subabdominal, each with six soft rays.

**Family : CHANNIDAE : Snakeheads, Murrels**

Body with large scales, head with plate-like scales. Cephalic pits present. A single long spineless dorsal fin present and a similar anal fin, both free from caudal fin. Lateral line abruptly curved or almost interrupted.

**Genus : Channa Scopoli**


Body elongated, subcylindrical anteriorly. Head large, depressed with plate like scales. An accessory respiratory organ in the form of a thin bony laminae present in a cavity in gill chamber. Both dorsal and anal fins free from caudal.
Channa gachua Bloch & Schneider
(Figs. 80, 167)

1801. Channa orientalis Bloch & Schneider, Syst. Ichth. : 496, pl. 90, fig.2 (type-locality : India.)

1822. Ophiocephalus gachua Hamilton-Buchanan, Fishes of Ganges: 68, 367, pl. 21, fig. 21 (type-locality: Bengal).


1876. Channa orientalis : Day, Fishes of India : 368, pl. 78, fig. 2.


![Fig. 80. Channa gachua Bloch & Schneider](image)

**Material examined** : One example, 44 mm SL, Bekipar, 1<sup>st</sup> February, 2001;


**Diagnostic features** : Suprabranchial organ present in form of a simple vascular chamber; dorsal and anal fins long; dorsal fin with 36 rays; no fin spines; pelvic fins subabdominal, each with six soft rays. Pectoral fins with bluish vertical bands, pelvic fin less than 50% of pectoral fin length.
Description:

Counts: D 36; P 14; V 6; A 21; C 12. Lateral line scales 42. Scales from back to lateral line 4.5. Scales from lateral line to pelvic base 6.5. Predorsal scales 12. Barbels are absent.

Proportional measurements: Head length 3.09, body depth 5.50, predorsal distance 2.75, postdorsal distance 1.49, height of dorsal fin 11.00, pectoral fin length 4.63, pelvic fin length 12.94, anal fin height 11.00, caudal peduncle length 16.29 in the standard length. Head depth 1.86, head width 1.57, eye diameter 4.73, snout length 5.07, width of gape of mouth 2.89, postorbital length 1.57 in the head length. Eye diameter 1.53, snout length 1.64 in the interorbital width. Caudal peduncle depth 0.57 to its length.

Body elongated and fairly rounded in cross-section, its depth 5.5 times in the standard length. Abdomen rounded. Head large, depressed with plate like scales, its length 3.09 times in the standard length. Snout somewhat obtuse. Mouth terminal, fairly small, cleft hardly reaching anterior margin of orbit. Lips moderate. Jaws equal. Lower jaw with 15 canines behind a single row of villiform teeth which deepens to about seven rows at symphysis; teeth on vomer and palatines. Eyes lateral, moderate in anterior part of head, not visible from below ventral surface, its diameter 4.73 times in the standard length and 1.53 times in the interorbital width. Barbels absent. Gill openings wide, membranes of two sides connected beneath isthmus. An accessory respiratory organ in the form of a thin bony lanoinae present in a cavity in gill chamber. Dorsal fin originates almost opposite to pectorals. Pectoral fins extend to anal fin. Pelvic fin less than 50% of pectoral fin length. Anal fin long but shorter than dorsal. Both dorsal and anal fins free from caudal. Caudal fin rounded. Scales on summit of head large rosette of head-scales situated behind orbit so that it touches frontal head-scale in front and basal head scale behind. Lateral
line curved downward at 12th scale. Lateral line scales 42. Scales from back to lateral line 4.5 and from lateral line to pelvic base 6.5. Predorsal scales 12.

**Colour**: Blackish with greenish tinge, pectorals with a black base and bluish ventral bands; a large ocellus at the posterior end of dorsal, vertical band alternating each other at caudal.

**Distribution**: N.E. India: All the seven N.E. states.

Rest of India: Throughout.

Other parts: Bangladesh, Nepal, Burma, Afghanistan, Iran, Sri Lanka, East Indies, Pakistan.

**Habitation**: Inhabits mountain streams and lowland waters. Amphibious mode of life. Attains a length of 13 cm standard length.

**Relationship**: The species differs from other *Channa* species by predorsal scales 12, anal fin rays 21, dorsal fin rays 36, bluish vertical bands in pectoral fins, length of pelvic fin less than 50% of pectoral fin length.

**Remarks**: The single specimen is collected from Beki river at Bekipar. This specimen is basically found in the closed water-bodies rather than rivers. It is one of the most common species and preferred by low income category of people. It is categorized as Vulnerable (VU) in CAMP.

**Order**: TETRAODONTIFORMES

Body rounded or broad, inflatable, globular in inflated condition. Gill opening restricted to lateral slits. Teeth coalesced, forming a beak with jaws, each jaw with a median suture.
Suborder: TETRAODONTOIDEA
Family: TETRAODONTIDAE: Puffer fishes

Body more or less short, broadly rounded in the cross-section, heavy and blunt. Skin covering modified into small or large spines or laminae.

Genus: Tetraodon Linnaeus


Body more or less short, with a broad back or compressed into a ridge. Nasal organ an elevated, short, rounded tube with a terminal opening, the border of which may be slightly two-lipped. Jaws equal, both with a median suture. Body covered with fine dermal spines, wholly or partially or the spines may be absent.

*Tetraodon cutcutia* (Hamilton-Buchanan)
(Figs. 81, 168)


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**Fig. 81. Tetraodon cutcutia** (Hamilton-Buchanan)

**Material examined**: One example, 44.5 mm SL, Panbari, 6th July, 2002; two examples, (49.1-66.3 mm) SL, Bekimukh, 27th January, 2003.


**Diagnostic features**: Nasal organ a short rounded tube with a terminal opening, scarcely two-lipped. Dorsal fin with 10-11 rays, anal fin with 10-11 rays; lower border of the eye above level of mouth corner.
Description:


Proportional measurements: Head length 2.41 (2.51-2.33), body depth 1.95 (1.90-2.00), predorsal distance 1.37 (1.43-1.32), postdorsal distance 5.18 (4.86-5.50), height of dorsal fin 4.81 (4.63-5.00), pectoral fin length 6.72 (6.35-7.09), anal fin height 6.00 (5.99-6.01), caudal peduncle length 5.93 (5.86-6.00) to the standard length. Head depth 1.46 (1.20-1.72), head width 1.01 (0.98-1.05), eye diameter 4.65 (4.35-4.96), snout length 2.25 (2.22-2.28), width of gape of mouth 3.61 (3.70-3.53), postorbital length 2.88 (2.73-3.03) in the head length. Eye diameter 2.93 (2.85-3.01), snout length 1.70 (1.62-1.79) in the interorbital width. Caudal peduncle depth 1.65 (1.60-1.71) to its length.

Body more or less short, compressed laterally, dorsal profile rising nearly rectilinear to midst of back, then sloping gradually to caudal fin; interorbital space flat. Depth of the body 1.95 times in the standard length. Head oval shaped, its length 2.41 times in the standard length. Snout somewhat rounded. Mouth horizontal, terminal, cleft narrow. Lips thick, fleshy. Both the jaws with a median suture, upper jaw is slightly longer than the lower. Both have a cutting edge and are covered with a layer of ivory-like substance. Nostril is in the form of a single orifice and is situated in a very short simple tube. Palate edentate. Eyes large, superior, in posterior part of head, not visible from below ventral surface. Diameter of eye 4.65 times in the head length and is 2.93 times in the interorbital width. Barbels absent. Dorsal fin originates slightly in advance of anal, with 10-11 rays. Pectoral fin with 19 rays. Pelvic fin absent. Anal fin with 10-11 rays. Caudal fin fan shaped and rounded. Scales absent. Skin leathery, without dermal spinules. Air bladder horseshoe shaped.
**Colour** : Upper surface greenish black with light bars extending from dorsum to lateral side. The ventral surface is white. A well marked ocellus is just above the anal on either side. Caudal fin tipped with carmine.

**Habitation** : Inhabits in fresh and brackish waters.

**Distribution** : N. E. India : Assam, Meghalaya, Arunachal Pradesh, Manipur, Tripura.

Rest of India : Orissa, West Bengal.

Other parts : Bangladesh, Burma, Sri Lanka, Malay archipelago.

**Relationship** : *Tetraodon* can be distinguished from related genera by nasal organ a short rounded tube with a terminal opening. It differs from *T. travancoricus* by 10-11 dorsal fin rays and 10-11 anal fin rays.

**Remarks** : One specimen is collected from Manas river at Panbari and two are also from Manas river at Lengtisinga. The species is regarded as a poisonous fish and so not consumed by local people. In CAMP report it is mentioned as lower risk near threatened (LRnt) species.
Table 6: Morphometric of different species (Mean is given in parenthesis)

<table>
<thead>
<tr>
<th>Morphometric Index</th>
<th>L. esturinus</th>
<th>L. calcarifer</th>
<th>L. calcarifer</th>
<th>L. calcarifer</th>
<th>L. calcarifer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard length/</td>
<td>4.00-4.12</td>
<td>3.89-4.08</td>
<td>3.84-3.96</td>
<td>3.89-4.12</td>
<td>4.00-4.12</td>
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<td>Height of snout</td>
<td>2.09-2.39</td>
<td>2.05-2.29</td>
<td>2.02-2.26</td>
<td>2.09-2.39</td>
<td>2.09-2.39</td>
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<td>Head width/Length</td>
<td>3.02-3.24</td>
<td>2.98-3.16</td>
<td>2.96-3.19</td>
<td>3.02-3.24</td>
<td>3.02-3.24</td>
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<td>Body depth/Length</td>
<td>2.50-2.62</td>
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<td>2.44-2.57</td>
<td>2.50-2.62</td>
<td>2.50-2.62</td>
</tr>
<tr>
<td>Predorsal distance</td>
<td>5.01-5.23</td>
<td>4.97-5.10</td>
<td>4.94-5.07</td>
<td>5.00-5.23</td>
<td>5.00-5.23</td>
</tr>
<tr>
<td>Posterior distance</td>
<td>1.54-1.66</td>
<td>1.52-1.63</td>
<td>1.50-1.62</td>
<td>1.54-1.66</td>
<td>1.54-1.66</td>
</tr>
<tr>
<td>Standard length/</td>
<td>4.01-4.12</td>
<td>3.98-4.08</td>
<td>3.96-4.07</td>
<td>4.01-4.12</td>
<td>4.01-4.12</td>
</tr>
<tr>
<td>Head length/Length</td>
<td>2.09-2.39</td>
<td>2.05-2.29</td>
<td>2.02-2.26</td>
<td>2.09-2.39</td>
<td>2.09-2.39</td>
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<tr>
<td>Head width/Length</td>
<td>3.02-3.24</td>
<td>2.98-3.16</td>
<td>2.96-3.19</td>
<td>3.02-3.24</td>
<td>3.02-3.24</td>
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<tr>
<td>Body depth/Length</td>
<td>2.50-2.62</td>
<td>2.47-2.60</td>
<td>2.44-2.57</td>
<td>2.50-2.62</td>
<td>2.50-2.62</td>
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<tr>
<td>Predorsal distance</td>
<td>5.01-5.23</td>
<td>4.97-5.10</td>
<td>4.94-5.07</td>
<td>5.00-5.23</td>
<td>5.00-5.23</td>
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<tr>
<td>Posterior distance</td>
<td>1.54-1.66</td>
<td>1.52-1.63</td>
<td>1.50-1.62</td>
<td>1.54-1.66</td>
<td>1.54-1.66</td>
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</table>

*Note: The table continues with similar data for other species.*
<table>
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<tr>
<th>Morphometric Index</th>
<th>L. rohita</th>
<th>N. henseni sp.</th>
<th>O. cosnatius</th>
<th>O. catio</th>
<th>P. chola</th>
<th>P. conchonius</th>
<th>P. puto</th>
<th>P. sarana</th>
<th>P. sophore</th>
<th>P. terio</th>
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<tr>
<td>Standard length/</td>
<td>3.10-3.19(3.13)</td>
<td>4.02-4.18(4.16)</td>
<td>2.57-2.69(2.63)</td>
<td>3.79-4.01(3.90)</td>
<td>3.52-3.72(3.61)</td>
<td>3.35-3.75(3.56)</td>
<td>3.07-3.23(3.12)</td>
<td>3.52-3.63(3.57)</td>
<td>3.40-3.67(3.52)</td>
<td>3.33-3.49(3.40)</td>
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<tr>
<td>Head length</td>
<td>1.91-1.97(1.93)</td>
<td>2.01-2.16(2.03)</td>
<td>1.79-1.98(1.87)</td>
<td>1.83-2.07(1.99)</td>
<td>1.88-2.10(1.99)</td>
<td>2.12-2.20(2.15)</td>
<td>2.05-2.42(2.23)</td>
<td>1.88-2.00(1.93)</td>
<td>1.82-2.11(1.99)</td>
<td>2.01-2.39(2.55)</td>
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<td>1.90-1.97(1.93)</td>
<td>2.01-2.16(2.03)</td>
<td>1.79-1.98(1.87)</td>
<td>1.83-2.07(1.99)</td>
<td>1.88-2.10(1.99)</td>
<td>2.12-2.20(2.15)</td>
<td>2.05-2.42(2.23)</td>
<td>1.88-2.00(1.93)</td>
<td>1.82-2.11(1.99)</td>
<td>2.01-2.39(2.55)</td>
</tr>
<tr>
<td>Postdorsal distance</td>
<td>1.90-1.97(1.93)</td>
<td>2.01-2.16(2.03)</td>
<td>1.79-1.98(1.87)</td>
<td>1.83-2.07(1.99)</td>
<td>1.88-2.10(1.99)</td>
<td>2.12-2.20(2.15)</td>
<td>2.05-2.42(2.23)</td>
<td>1.88-2.00(1.93)</td>
<td>1.82-2.11(1.99)</td>
<td>2.01-2.39(2.55)</td>
</tr>
<tr>
<td>Body depth</td>
<td>0.95-1.04(0.99)</td>
<td>1.00-1.09(1.03)</td>
<td>0.90-1.02(0.97)</td>
<td>1.00-1.12(1.07)</td>
<td>1.00-1.12(1.07)</td>
<td>1.00-1.12(1.07)</td>
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<td>1.00-1.12(1.07)</td>
<td>1.00-1.12(1.07)</td>
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<td>1.00-1.12(1.07)</td>
<td>1.00-1.12(1.07)</td>
<td>1.00-1.12(1.07)</td>
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<td>1.00-1.12(1.07)</td>
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<td>Eye diameter</td>
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<td>2.55-3.55(2.75)</td>
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<td>1.50-1.55(1.65)</td>
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<td>1.50-1.55(1.65)</td>
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<td>Snout length</td>
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<td>1.50-1.55(1.65)</td>
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<td>2.55-3.55(2.75)</td>
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<td>1.50-1.55(1.65)</td>
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<td>Morphometric Index</td>
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<td>T. putitora</td>
<td>T. tor</td>
<td>S. bacala</td>
<td>S. phulo</td>
<td>A. jaya</td>
<td>A. morar</td>
<td>B. barna</td>
<td>B. bendelis</td>
<td>D. rier</td>
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<tr>
<td>Standard length/ Head length</td>
<td>3.49-3.51</td>
<td>2.96-3.38</td>
<td>3.01-3.44</td>
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<td>1.84-1.98</td>
<td>1.89-2.01</td>
<td>1.30-1.42</td>
<td>1.26-1.78</td>
<td>1.74-1.98</td>
<td>1.72-1.81</td>
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<td>Standard length/ Height of dorsal fin</td>
<td>3.79-4.01</td>
<td>3.03-3.27</td>
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<td>9.40-9.83</td>
<td>7.01-7.92</td>
<td>4.45-4.70</td>
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<td>L. shawi</td>
<td>G. naprona</td>
<td>G. viridescens</td>
<td>S. rhodophys</td>
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Table 8: Comparison of Morphometry from Beki and Manas River

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<tr>
<th>Morphometric Index</th>
<th>S. semiplatus</th>
<th>L. rohita</th>
<th>O. Cotio</th>
<th>N. hexagonolepis</th>
<th>O. cosnatis</th>
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<tbody>
<tr>
<td>Standard length/Head length</td>
<td>Beki</td>
<td>Manas</td>
<td>Beki</td>
<td>Manas</td>
<td>Beki</td>
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<td>Standard length/Head depth</td>
<td>3.60 – 3.81</td>
<td>3.60 – 4.03</td>
<td>3.10 – 3.13</td>
<td>3.11 – 3.19</td>
<td>3.79 – 3.97</td>
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<tr>
<td>Standard length/Predorsal distance</td>
<td>2.35 – 2.68</td>
<td>2.23 – 2.50</td>
<td>2.07 – 2.12</td>
<td>2.05 – 2.08</td>
<td>1.90 – 1.99</td>
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<td>Standard length/Postdorsal distance</td>
<td>1.79 – 2.01</td>
<td>1.73 – 2.06</td>
<td>1.93 – 1.94</td>
<td>1.90 – 1.97</td>
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<td>Standard length/Pectoral fin length</td>
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<td>4.30 – 4.04</td>
<td>5.00 – 5.11</td>
<td>5.03 – 5.09</td>
<td>5.05 – 5.12</td>
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<tr>
<td>Standard length/Pelvic fin length</td>
<td>4.95 – 5.06</td>
<td>4.99 – 5.81</td>
<td>5.22 – 5.30</td>
<td>5.25 – 5.36</td>
<td>5.01 – 5.05</td>
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<td>Head length/Head depth</td>
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<td>1.07 – 1.18</td>
<td>1.43 – 1.50</td>
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<td>Head length/Head width</td>
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<td>1.68 – 1.79</td>
<td>1.65 – 1.77</td>
<td>1.74 – 1.89</td>
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<td>Head length/Snout length</td>
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<td>3.16 – 3.65</td>
<td>3.00 – 3.01</td>
<td>3.03 – 3.05</td>
<td>3.20 – 3.29</td>
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<tr>
<td>Head length/Width of gape of mouth</td>
<td>2.18 – 2.60</td>
<td>2.42 – 2.77</td>
<td>4.69 – 4.84</td>
<td>4.64 – 4.90</td>
<td>4.38 – 4.48</td>
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<td>Head length/Postorbital length</td>
<td>2.59 – 2.80</td>
<td>2.54 – 2.83</td>
<td>1.85 – 1.99</td>
<td>1.82 – 1.87</td>
<td>2.05 – 2.23</td>
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<tr>
<td>Interorbital width/Eye diameter</td>
<td>1.15 – 1.30</td>
<td>1.20 – 1.25</td>
<td>2.19 – 2.30</td>
<td>2.25 – 2.36</td>
<td>1.01 – 1.15</td>
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<td>Interorbital length/Snout length</td>
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<td>1.20 – 1.34</td>
<td>1.37 – 1.48</td>
<td>1.36 – 1.44</td>
<td>1.24 – 1.38</td>
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<td>Caudal Peduncle length/Caudal Peduncle depth</td>
<td>1.03 – 1.18</td>
<td>1.11 – 1.20</td>
<td>1.13 – 1.28</td>
<td>1.11 – 1.20</td>
<td>0.48 – 0.55</td>
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<td>P. cholal</td>
<td>P. sarana</td>
<td>S. phulo</td>
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<tr>
<td></td>
<td>Beki</td>
<td>Manas</td>
<td>Beki</td>
<td>Manas</td>
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<tr>
<td>Standard length/Head length</td>
<td>2.99 - 3.38</td>
<td>2.96 - 3.31</td>
<td>3.09 - 3.44</td>
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<td>Standard length/Body depth</td>
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<td>1.41 - 1.80</td>
<td>3.55 - 3.70</td>
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<tr>
<td>Standard length/Predorsal distance</td>
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<td>1.84 - 1.94</td>
<td>1.99 - 2.01</td>
<td>1.89 - 2.00</td>
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<td>Standard length/Postdorsal distance</td>
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<td>1.90 - 1.92</td>
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<td>4.24 - 4.92</td>
<td>4.83 - 5.07</td>
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<td>5.03 - 5.54</td>
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<td>1.53 - 1.70</td>
<td>1.43 - 1.63</td>
<td>1.41 - 1.60</td>
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<td>Head length/Head width</td>
<td>2.09 - 2.30</td>
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<td>1.70 - 1.88</td>
<td>1.53 - 1.80</td>
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<td>Head length/Eye diameter</td>
<td>4.04 - 4.65</td>
<td>4.03 - 4.71</td>
<td>3.63 - 3.79</td>
<td>3.68 - 3.78</td>
<td>3.49 - 3.66</td>
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<tr>
<td>Head length/width of gape of mouth</td>
<td>4.79 - 4.91</td>
<td>4.76 - 4.85</td>
<td>3.43 - 3.63</td>
<td>3.46 - 3.60</td>
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<td>Head length/Postorbital length</td>
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<td>2.15 - 2.22</td>
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<td>1.18 - 1.50</td>
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<td>Interorbital width/Snout length</td>
<td>0.69 - 0.78</td>
<td>0.68 - 0.77</td>
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<td>1.01 - 1.17</td>
<td>1.10 - 1.11</td>
<td>0.99 - 1.00</td>
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From the above figures it is clear that there is no significant difference in morphometry of fishes from Beki and Manas river. That is why morphometry of all specimens are studied together.