

## ON THE FISH FAUNA OF TEHRI-GARHWAL, UTTAR PRADESH

*By*

RAJ TILAK AND S. P. BALONI\*

*Zoological Survey of India, Dehra Dun*

### INTRODUCTION

The fishery resources of Himalaya and particularly of Tehri-Garhwal region are immeasurable although they are slowly and gradually annihilated because of a large number of natural and man-made factors. But conservation of this renewable resource of the area is very essential for stabilising the economy of the area and for maintenance of the biosphere which depends upon its judicious prospecting and exploitation. With a view to attaining these ends, it is essential that the various components of the aquatic biosphere are studied in detail. The role of the proper identification of fish of an area is manifestly of great importance. For this, a comprehensive knowledge on the fish species, inhabiting the waterways in the area, is very essential. The earliest record available on the fish fauna of Garhwal region is that of Day (1878) who made a general reference to fishes of Himalaya. Grover and Baloni (1977) reported 19 species of fishes from Tehri-Garhwal. The record of *Barilius barna* and *Clupisoma garua* by Grover and Baloni (op. cit.) is not correct and is due to misidentification.

The fish fauna of the areas adjoining Tehri-Garhwal has been worked out by a few workers and since that fauna has common elements with these of Tehri-Garhwal District, a mention of these works has been made here. Fowler (1924) reported 12 species of fishes from Dehra Dun and Hora and Mukerji (1936) surveyed the eastern Doon Valley and reported 21 species of fishes with certain notes on their habits. Lal and Chatterjee (1962) recorded 33 species from the Doon valley with certain notes on their bionomics. Singh (1964) also surveyed the western part of the Doon valley and reported 47 species of fishes. Tilak (1970) reported the presence of *Puntius carletoni* in Doon valley and gave description of the species. Grover (1971) collected fishes from the Song river in Doon valley, Uttar Pradesh and recorded 44 species of fishes. Tilak and Husain (1971 & 1973) gave

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Present address :

\*Lecturer in Biology, Government College, Mussouri,  
Dehra Dun, (U. P.)

distributional and morphological notes on some glyptothoracoid fishes of Doon valley. Badola and Pant (1973) reported 18 species of fishes from Uttarkashi District of the Garhwal region. Badola (1975) reported 43 species from Pauri-Garhwal, but in his list there are several species which are now not valid. Tilak and Husain (1976) described a new species of the genus *Glyptothorax* Blyth from river Yamuna, Uttar Pradesh. Tilak and Husain (1977) described a new species of the genus *Noemacheilus* (*N. doonensis*) from district Dehra Dun. Baloni (1980) reported 16 species of fishes from Kedar valley, Chamoli-Garhwal and gave certain notes on their adaptations and ecology. 22 species, have been recorded from Tehri-Garhwal area and an account of these is presented below.

#### SYSTEMATIC LIST

- Class : Osteichthyes  
 Sub-Class : Actinopterygii  
 Division : III  
 Super-Order : Ostariophysi  
 Order : Cypriniformes  
 Sub-Order : Cyprinoidei  
 Family : Cyprinidae  
 Genus : *Barilius* Hamilton
1. *Barilius bendelisis* Hamilton
  2. *Barilius vagra* Hamilton  
 Genus : *Crossocheilus* Van Hasselt
  3. *Crossocheilus latius* (Hamilton)  
 Genus : *Garra* Hamilton
  4. *Garra gotyla gotyla* (Gray)  
 Genus : *Labeo* Cuvier
  5. *Labeo dero* (Hamilton)  
 Genus : *Schizothorax* Heckel
  6. *Schizothorax richardsonii* (Gray)  
 Genus : *Schizothoraichthys* Misra
  7. *Schizothoraichthys* (*Racoma*) *progastus* (McClelland)

Genus : *Tor* Gray

8. *Tor chilinoides* (McClelland)
9. *Tor putitora* (Hamilton)
10. *Tor tor* (Hamilton)

Family : COBITIDAE

Genus : *Botia* Gray

11. *Botia dayi* Hora

Genus : *Noemacheilus* Van Hasselt

12. *Noemacheilus beavani* Guenther
13. *Noemacheilus botia* (Hamilton)
14. *Noemacheilus montanus* (McClelland)
15. *Noemacheilus rupicola* (McClelland)

Order : SILURIFORMES

Family : SISORIDAE

Genus : *Glyptothorax* Blyth

16. *Glyptothorax brevipinnis alaknandi* Tilak
17. *Glyptothorax cavia* (Hamilton)
18. *Glyptothorax garhwali* Tilak
19. *Glyptothorax pactinopterus* (McClelland)

Genus : *Pseudecheneis* Blyth

20. *Pseudecheneis sulcatus* (McClelland)

Family : SCHILBEIDAE

Genus : *Clupisoma* Swainson

21. *Clupisoma montana* Hora

Super-Order : ACANTHOPTERYGII

Order : MASTACEMBELIFORMES

Family : MASTACEMBELIDAE

Genus : *Mastacembelus* (Gronovius) Scopoli

22. *Mastacembelus armatus* Lacèpède

#### SYSTEMATIC NOTES

The material studied here has been collected from Laster stream, Badiyar stream, Bhardari stream, Jalkur stream, Bal Ganga stream, Nagni stream, Gular stream, Aglar stream, Alaknanda river, Mandakini river, Bhagirathi river and Bhilangna river in Tehri-Garhwal region.

### 1. *Barilius bendelisis* Hamilton

1807. *Cyprinus bendelisis* Hamilton, *Journey Mysore*, 3, p. 345, pl. 32. (Type-locality : rivers of Mysore).

*Material examined* : 56 specimens, 34-140 mm total length, collected from Badiyar stream, near Maliyasu Village, 19.3.76, 10.8.76, 22.6.77 ; Laster stream at Tilwara 2.9.75, 11.6.77 and 19.9.78 ; Jalkur stream at Lambagaun, 15.4.78 ; Bal Ganga stream at Ghansali 21.5.77 and 25.7.78.

Fin Formula :—

B. III, D. II/7, P. I/14, V. I/8, A. III/8-9, C. 18; L. 1. 43, L. tr. 8/5, Barbels 2 pairs.

*Distribution* : Badiyar, Laster, Jalkur and Balganga streams in Tehri Garhwal district, Uttar Pradesh, freshwaters all over India ; Pakistan, Bangladesh and Ceylon.

*Remarks* : This species is a predominant fish of hill streams and shows a marked sexual dimorphism. It closely resembles *Barilius vagra* from which it can be distinguished on the basis of fin ray counts, number of scales along the lateral line and a few other morphometric characters.

### 2. *Barilius vagra* Hamilton

1822. *Cyprinus (Barilius) vagra* Hamilton, *Fish Ganges*, p. 269, 385. (Type-locality : the Ganges at Patna).

*Material examined* : 21 exs., 75 mm-112 mm total length, collected from Nagani stream at Shiv puri on 31.5.78, 10.6.78, 15.8.78, 21.9.78, 1.10.78, 19.2.79 ; Gular stream at Gular on 30.5.78 and 16.8.78 and Aglar stream on 15.6.78.

Fin Formula :—

B. III, D. II/7, p. I/15, V. I/8, A. II/10-12, C. 19, L. 1. 42-44, L. tr. 7 1/2/4, Barbels 2 pairs.

*Distribution* : Rivers in the Himalaya (Nagani, Gular and Aglar streams of Tehri-Garhwal, U. P.) and Sub-Himalayan ranges, Jamuna and Ganges, Panjab, Assam, West Bengal, Bihar ; Nepal, Pakistan and Ceylon.

*Remarks* : The closest ally of this species is *Barilius bendelisis* from which it can be easily distinguished on the basis of morphometric and meristic characters as stated under *Barilius bendelisis*.

### 3. *Crossocheilus latius* (Hamilton)

1822. *Cyprinus latius* Hamilton, *Fish Ganges*, p. 345, 346, 393 (Type-locality : the Tista).

1934. *Crossocheilus latia latia* Mukerji, *J. Bombay. nat. Hist. Soc.*, 38, part I.

*Material examined* : 25 exs. (125-231 mm. total length), collected from Alaknanda river Kilkileshwar, 15.10.76 and 13.4.77 ; Bhagirathi river at Sirain on 18.11.76 and 17.5.78 ; Bhilangana river at Ghansali on 7.9.79 ; Mandakini river at Rudraprayag on 8.9.77, 15.10.77 and 19.10.78.

*Fin Formula* : B.III, D.III/8, P.I/15, V.I/8, A.II/5, C.19, L.1.39, L.tr. 6/6, Barbels 1 pair.

*Distribution* : Hill stream of Tehri Garhwal and other areas of Uttar Pradesh, Bihar, Orissa, West Bengal, Punjab, Deccan and all along the Himalaya ; Pakistan.

*Remarks* : Mukerjee (1934) divided *latius* into three sub-species,  
1. *C. latius punjabensis*—from western Himalaya.

2. *C. latius latius*—from central part of Himalaya and eastern part of India.

3. *C. latius burmanicus*—from Burma.

Heckal (1838) described a species, *C. diplochilus* which has been found to be similar to *C. latius punjabensis* Mukerji. According to law of priority now this stock of *latius* is named *C. diplochilus* with *C. latius punjabensis* as its synonym. *C. latius* and *C. diplochilus* are systematically treated as two different species and can be easily distinguished from each other in morphometric characters.

### 4. *Garra gotyla gotyla* (Gray)

1832-33. *Cyprinus gotyla* Gray, *Ill. Ind. Zool. Hardwicke*, II, pl. 88, figs. 3, 3a (Type-locality : Northern India).

1964. *Garra gotyla gotyla* : Menon, *Mem. Indian Mus.*, 14, p. 233, pl. 13, figs. 1-4.

*Material examined* : 32 exs. (90-221 mm total length), collected from river Mandakini at Rudreprayag on 8.10.76, 12.4.77 ; 11.5.77. ; 24.7.78 ; Alaknanda near Chaurash on 16.3.76 ; 15.5.77, 7.8.78 ; and 16.8.78 ; river Bhagirathi at Serain on 11.9.76 ; 13.9.76 ; and Bilangna near Tehri on 17.4.78 ; 19.5.78 and 27.6.78.

*Fin-Formula* : B.III, D.II./9, P.I/15, V.I/8, A.II/5, C.17, L.1.32-35, L.tr.4½/3½-5, Barbels 2 pairs.

*Distributions* : Asia, India—Assam, all along the Himalaya, Chhota Nagpur plateau and Vindhya Satpura mountains of the Peninsula, Himachal Pradesh, Punjab, Uttar Pradesh (Mandakini, (Alaknanda, Bhagirathi and Bhilangna rivers of Tehri Garhwel) Burma and Pakistan.

*Remarks* : *Garra gotyla gotyla* is different from *Garra lamta* which is also found in northern India, particularly in the characters of the proboscis. Menon (1964) has clearly differentiated this species from the other species of the genus *Garra*.

### 5. *Labeo dero* (Hamilton)

1822. *Cyprinus dero* Hamilton, *Fish. Ganges*, p. 277, 385, pl. 17, fig. 78. (Type-locality : the Brahmaputra).

*Material examined* : 18 exs. (200-441 mm total length), collected from Bhilangana river on 19.10.78 at Tehri and on 12.6.78 at Ghansali ; Alaknanda river at Srinagar on 15.5.79 and at Rudraprayag on 30.6.79, 23.9.79 ; Bhagirathi River at Serain on 16.5.79 ; Laster stream at Tilwara on 10.8.78 and 19.8.78 ; and Nagani stream at Shiv Puri on 31.5.79.

*Fin-Formula* : B.III, D.II-III/9-10, P.I/16, V.I/8, A.III/5, C.19, L.1.41.43, L.tr. 8-9½/6½-9, Barbels 1 pair.

*Distribution* : Freshwaters of Assam, Derjeeling, Eastern Himalaya, Punjab, Uttar Pradesh (Bhilangana, Alaknanda, Bhagirathi and Nagani rivers of Tehri-Garhwal district), Western Himalaya ; Pakistan Bangladesh and China.

*Remarks* : It is an important species of *Labeo* in the hilly region and is differentiated from its closest ally, *Labeo dyocheilus* in the shape of the snout, the position of pores on the snout and cheek and the nature of the inner side of the lower-lip. The marked sexual dimorphism found in *Labeo dero* is absent in *Labeo dyocheilus*.

### 6. *Schizothorax richardsonii* (Gray)

1830-32. *Cyprinus richardsonii* Gray, *Ill. Indian Zool.*, I, pl. 94, fig. 2 (Type-locality : Unknown).

1838. *Schizothorax plagiostomus* Heckel, *Fisch. Caschmir*, p. 16, pl. 1. (Type-locality : Kashmir).

1965. *Schizothorax richardsonii* : Menon, *Rec. zool. Surv. India*, 63, p. 195-205.

*Material examined* : 115 exs. (25 mm to 560 mm total length), river Mandakini 15.8.78, 13.3.79 ; collected from river Alaknanda at Rudraprayag on 12.3.76, 25.4.77, 11.6.77 and 5.8.78 ; River Bhagirathi at Sirain 15.8.76, and 10.5.78 ; River Bhilangna at Ghansali 18.5.77 and

15.4.78 ; Badiyar stream at Seragaun 25.4.77, 7.5.77, 15.8.78 and 3.4.79 ; Bhardari stream near Kotali village 24.4.77 ; Aglar stream near Tuna village 1.6.78 ; Nagani stream at Shiv Puri 28.6.78 ; Laster stream on 16.7.77. This species is found in all rivers and streams of Garhwal.

*Fin-Formula* : B. III, D. III/8, P. I/16, V. I/9, A. II/5, C. 19, L. 1. 108-110, Barbels 2 pairs.

*Distribution* : Assam and Eastern Himalaya through Bhutan, Sikkim and Nepal to Punjab (Mandakini, Alaknanda, Bhagirathi, Bhilangna, Badiyar, Bhardasi, Aglar, Nagani and Laster streams of Tehri Garhwal), Jammu and Kashmir and Afghanistan.

*Remarks* : There are two species of genus *Schizothorax* in Himalaya for example, *S. richardsonii* and *S. kumaonensis*. They can easily be distinguished from each other in the ratio of head length to standard length. The head is smaller in *kumaonensis* than that of *richardsonii*.

### 7. *Schizothoraichthys (Racoma) progastus* (McClelland)

1839. *Oreinus progastus* McClelland. *Asiat. Res.*, 19, p. 274, 343, pl. 40, fig. 4 (Type-locality : Upper Assam).

1877. *Schizothorax progastus* : Day, *Fish. India*, p. 532, pl. CXXII, fig. 7.

*Material examined* : 6 exs. (150-429 mm total length), collected from River Alaknanda at Rudraprayag on 24.6.78, 3.12.78 ; Mandakini River at Tilwara on 13.3.79 ; Bhilangna river on 15.4.78 ; Bhilangna river on 15.4.78 ; Bhagirathi River at Theri on 12.7.78.

*Fin-Formula* : B.III, D.III/8-9, P.I/18, V.I/10, A.III/5, C.19, L.1 105-112, Barbels 2 pairs.

*Distribution* : From the head-waters of the Gangas and Alaknanda, Mandakini, Bhilangna and Bhagirathi rivers of Tehri-Garhwal to Upper Assam through Nepal, Sikkim, Bhutan and southern Tibet.

*Remarks* : This species resembles *S. richardsonii* but can be easily distinguished from in the absence of hard papillated strip at the chin and the post-labial groove uninterrupted. The uninterrupted groove forms an intermediate lobe and two lateral lobes of the lower lip which is a character of the sub-genus *Racoma* McClelland.

### 8. *Tor chilinoides* (McClelland)

1839. *Barbus cheilynoides* McClelland, *Asiat. Res.*, XIX pl. 2, p. 271, 340, pl. 57, fig. 5. (Type-locality : Assam).

*Material examined* : 84 exs. (25-248 mm Total length), collected

from Laster stream at Tilwara on 17.10.76, 5.5.77, 29.11.78 ; Badiyar stream near Kotali village on 21.2.77, 7.3.78 ; Mandakini river at Maiki Mandi on 18.1.76, 19.7.76 and 12.3.77 ; river Alaknanda at Rudraprayag on 23.6.78 and 27.4.73 ; river Bhagirathi at Sirain on 10.8.77 and 6.5.78 ; river Bhilangna at Tehri on 18.10.77 ; Aglar stream at Tuna Village on 1.6.78.

*Fin-Formula* : B.III, D.III/7, P.I/16, V.I/8, A.II/5, C.19, L.1. 32-35. L.tr.  $5\frac{1}{2}/3\frac{1}{2}/2-6$ , Barbels 2 pairs.

*Distribution* : Himalaya, as far to the east as Assam, also found in Ganges (Day 1878) and Laster, Badiyar, Mandakini, Alaknanda, Bhagirathi, Bhilangna and Aglar streams of Tehri Garhwal district.

*Remarks* : It is dark Mahseer which does not grow to a larger size and differ from *T. putitora* and *T. tor* in the number of scales along lateral line, ratio of the length of head with height of the body and condition of the lower-lip.

### 9. *Tor putitora* (Hamilton)

1822. *Cyprinus putitora* Hamilton, *Fish. Ganges*, p. 308, 388 (Type-locality : Eastern part of Bengal).

1939. *Barbus (Tor) putitora* : Hora, *J. Bombay nat. Hist. Soc.*, 41, p. 272-285.

*Material examined* : 33 exs., (60-650 mm total length), collected from river Alaknanda at Chaurash on 6.8.77, 14.4.78 and 19.10.78 ; Mandakini at Mai Ki Mandi on 5.7.76, 13.10.76, 23.6.78 ; Laster stream at Tilwara on 14.8.76, and 19.9.77 ; Badiyar stream near Kotali village on 24.5.77 ; Jalkur stream 24.5.76 ; Aglar stream on 1.6.78 ; Bhagirathi river, 16.5.79 ; Bhilangna, 19.10.79.

*Fin-Formula* : B.III, D.III/9, P.I/17, V.I/8, A.II/5, C.19, L.1.25-28, L.tr.  $4\frac{1}{2}/2\frac{1}{2}$ , Barbels 2 pairs.

*Distribution* : India-freshwaters of Punjab, Uttar Pradesh (Alaknanda, Mandakini, Laster, Badiyar, Jalkur and Aglar stream of Tehri Garhwal), Western Himalaya, Darjeeling, West Bengal, Assam, Eastern Himalaya ; Pakistan, Bangladesh and Nepal.

*Remarks* : This is normally called the yellow-finned Mahseer and grows to the much bigger size than the other species of Mahseer. The head in this species is much longer than that of *Tor tor* and *Tor chalinoides*.



10. *Tor tor* (Hamilton)

1822. *Cyprinus tor* Hamilton, *Fish. Ganges*, p. 305, 388 (Type-locality : the river Mahananda).

1940. *Barbus (Tor) tor* : Hora, *J. Bombay nat. Hist. Soc.*, 41 p. 518-525.

*Material examined* : 27 exs. (115-658 mm Total length), collected from river Alaknanda at Srinagar on 10.7.76 ; at Rudraprayag on 12.4.77, 27.6.78 ; Mandakini at Tehri Agustmuni, 2.8.76 and at Rudraprayag, 29.5.78 ; river Bhilangna at on 19.5.78 ; river Bhilangna at Tehri on 15.5.78 ; Laster stream at Tilwara on 10.8.78 ; Nagani stream at Shiv Puri on 30.5.78 and 2.6.78.

*Fin-Formula* : B.III, D.III/9, P.I/17, V.I/8, A.III/5, C.19, L.tr.4 $\frac{1}{2}$ /2 $\frac{1}{2}$ , Barbels 2 pairs.

*Distribution* : India-freshwaters of northern India along Himalaya (Alaknanda, Mandakini, Bhagirathi, Bhilangna, Laster and Nagain river of Tehri Garhwal and extends southwards to Madhya Pradesh, Pakistan; Bangladesh and China.

*Remarks* ; This is normally called the red-finned Mahseer. This species can be distinguished from *Tor putitora* and *Tor chalinoides* in the number of scales along the lateral line and the ration of the head to the body depth.

11. *Botia dayi* Hora

1878. *Botia geto* : Day (*nec.* Hamilton) (in part), *Fish. India*, p. 606, pl. 154, fig. 2.

1932. *Botia dayi* : Hora, *Rec. Indian Mus.*, 34 ; p. 571-572. (Type-locality : the Mahanadi at the base of Darjeeling Hills).

1977. *Botia dayi* : Tialk and Husain, *Zool. Jb. (Syst.)*, 104 p. 268, 283, 297.

1979. *Botia dayi* : Tilak and Sinha, *Zool. Jb. (Syst.)*, 106 p. 180, 189.

*Material examined* : 6 exs. (65-119 mm total length), collected from river Alaknanda at Rudraprayag on 24.6.78, 3.12.78 ; Mandakini river at Tilwara on 13.3.79 ; Bhilangna river on 15.4.78 ; Bhagirathi river at Tehri on 12.7.78.

*Fin-Formula* : B.III.D.II/9, P.II/11-12, V.I/6, A.II/5, C.19, Barbels 4 pairs.

*Distribution* : Assam, West Bengal, Uttar Pradesh (Alaknanda, Mandakini, Bhilangna and Bhagirathi rivers of Tehri Garhwal), Himachal Pradesh, Jammu and Kashmir.

*Remarks* : The fish ia a bottom feeder and stays at the bottom for life functions. The population of this species is rather poor because

it is rarely represented in the fish catches from the area. The brightly coloured and compressed body with a clearly bifid caudal fin differentiate this fish from other cobitids in the area.

## 12. *Noemacheilus beavani* Guenther

1868. *Nemacheilus beavani* Guenther, *Cat. Fish. Brit. Mus.*, 7, p. 350, (Type-locality : River Kosi).

*Material examined* : 18 exs. (55-110 mm total length) collected from river Alaknanda on 21.7.79, 9.8.79 ; Badiyar stream near Kotali village on 24.5.77 and 4.6.78 ; Bhardari stream near Maliyasu village on 25.3.77 and 22.4.78 ; Laster stream 10.5.78 and 16.12.78 ; Jalkur stream on 17.7.78. Bol Ganga stream on 19.7.78.

*Fin-Formula* : B.III, D.II/8, P.I/9, V.I/6, A.I/5, C.19, Barbels 3 pairs.

*Distribution* : Assam, Eastern Himalaya and Uttar Pradesh (Alaknanda, Badiyar, Bhardari, Laster, Jalkur and Balganga streams of Tehri Garhwal district).

*Remarks* : It closely resembles *N. denisonii* Day but can be distinguished from it in the various morphometric and meristic characters and colouration of the body.

## 13. *Noemacheilus botia* (Hamilton)

1822. *Cobitis botia* Hamilton, *Fish. Ganges*, p. 350, 394 (Type-locality : the rivers of north-eastern parts of Bengal).

*Material examined* : 21 exs. (58-110 mm total length), collected from Nagani stream near Shiv Puri on 4.3.77, 30.4.78, 31.5.78, 15.8.78, 23.9.78 ; Gular stream on 17.8.78, 9.10.78 and 12.1.79.

*Fin-Formula* : B.III, D.II/10-12, P. I/12, V.I/7, A.II/5, C.18, Barbels 3 pairs.

*Distribution* : India-freshwaters of Punjab, Uttar Pradesh (Nagani and Gular streams of Tehri Garhwal), Western Himalaya, Darjeeling, West Bengal, Eastern Himalaya, Assam, Bihar ; Pakistan and Bangladesh.

*Remarks* : The species inhabits slow moving water and is distinguishable from all other species of *Noemacheilus* in colouration and more number of branched rays of the dorsal fin.

#### 14. *Noemacheilus montanus* (McClelland)

1838. *Schistura montanus* McClelland, *J. Asiat. Soc. Beng*, 7 p. 947, pl. 55, fig. 1, (Type-locality : Mountain streams of Simla).

1839. *Schistura montanus* McClelland, *Asiat. Res.*, 19, pp. 307, 440, pl. 57, fig. 1.

*Material examined* : 59 exs. (45-112 mm total length), collected from Laster stream at Tilwara on 15.4.76, 18.6.77, 29.11.78, 18.12.78 ; Badiyar stream near Maliyasu village on 25.5.77, 11.6.77, 7.4.78 ; Jalkur stream on 29.5.78 ; Nagani stream at Shiv Puri on 11.6.78, 15.6.78 ; Aglar stream on 28.5.77 ; Alaknanda river at Rudraprayag 11.7.78, 15.7.78 ; Mandakini river at Rudraprayag on 17.8.78.

*Fin-Formula* : B.III, D.II/7-8, P.I/9, V.I/6, A.II/5. C.19, Barbels 3 pairs.

*Distribution* : Himachal Pradesh and hills in Western Himalaya, Laster, Badiyar, Jalkur, Nagani, Aglar, Alaknanda and Mandakini rivers of Tehri Garhwal.

*Remarks* : This species inhabits fast flowing streams and has exclusive colouration which distinguished it from the other species of the genus found in the area.

#### 15. *Noemacheilus rupicola* (McClelland)

1838. *Schistura rupicola* McClelland, *J. Asiat. Soc. Beng*, 7, pl. 55, fig. 3 (Type-locality ; mountain streams of Simla).

1839. *Schistura rupicola* McClelland, *Asiat. Res.*, 19, p. 309, pl. 57, fig. 3.

*Material examined* : 108 exs., (40-108 mm total length), Collected from Laster stream at Tilwara on 19.3.77, 15.5.77, 17.6.78 ; Badiyar stream near Seragaun on 18.10.77, 24.4.78, 7.5.78 ; Jalkur stream on 24.6.78, 13.8.78 ; Bal Ganga stream on 29.6.78 ; Nagani stream at Shiv Puri 1.6.78 ; Bhardari stream near Maliyasu village on 25.3.77, 22.4.78 ; Bhagirathi river at Tehri on 16.5.79 ; Bhilangna river at Tehri on 19.10.78 ; Alaknanda river at Rudraprayag on 11.7.78, 15.7.78 ; Mandakini river at Rudraprayag on 17.8.78.

*Fin-Formula* : B.III, D.II/7, P.I/10, V.I/7, A.II/5, C.18, Barbels 3 pairs.

*Distribution* : All along the Himalaya (Laster, Badiyar, Jalkur, Bal Ganga, Nagani, Bhardari, Bhagirathi, Alaknanda, Mandakini rivers of Tehri-Garhwal, U. P.) and Tibar at 5100 metres above the sea level.

*Remarks* : This species is very versatile and has been recorded in Himalaya from 450 metres to an altitude of 5100 metres. The coloura-

tion of the body and the depressed head with a peculiar spout formation of the lower jaw distinguish this species from all other species dealt within this work.

### 16. *Glyptothorax brevipinnis alaknandi* Tilak

1969. *Glyptothorax brevipinnis alaknandi* Tilak, *J. Inland Fish. Soc. India*, I, pp. 42-44, fig. 8, 9, 10 and 11.

*Material examined* : 22 exs. (34-105 mm total length), collected from Alaknanda river at Chaurash on 15.10.76, 9.3.77, 17.4.78 ; Bhardari stream near Kotali village on 7.8.78, 14.4.78, 27.6.78 ; Badiyar stream at Seragaun on 21.5.77, 29.6.77, 11.6.78 ; Laster stream at Tilwara on 17.3.78, 25.7.78, 27.7.78 ; Aglar stream near Tuneta village on 11.6.78 ; Mandakini river at Rudraprayag on 17.8.78 ; Bhilangna river at Tehri on 15.5.78.

*Fin-Formula* : B. VI, D. I/6, P. I/7, V. I/5, A. III/7, C. 17, Barbels 4 pairs.

*Distribution* : Tilak (1969) recorded the fish from Pauri-Garhwal, river Alaknanda for the first time with definite locality data. Bhardari, Badiyar, Laster, Aglar, Mandakini and Bhilangna rivers of Tehri Garhwal district, Uttar Pradesh.

*Remarks* : It is very close to *G. pectinopterus* and can be distinguished from it in the body colouration and length of head.

### 17. *Glyptothorax cavia* (Hamilton)

1822. *Pimelodus cavia* Hamilton, *Gangetic Fishes*, pp. 188, 378 (Type-locality : Northern rivers of Bengal).

1878. *Euglyptosternum lineatum* Day, *Fish. India*, p. 500, pl. CXVI, fig. 7 (Type-locality : Jumna and Suddya in upper Assam).

1929. *Glyptothorax burmanica* Prasad and Mukerji, *Rec. Indian Mus.*, 41, p. 184, fig. 5, pl. VII, fig. 3 (Type-locality : Burma).

*Fin-Formula* : B. VIII, D. I/6, P. I/9, V. I/5, A. III/9, C. 18, Barbels 4 pairs.

*Material examined* : 10 exs. (150-325 mm total length), collected from river Alaknanda at Srinagar on 17.4.77, 15.6.77 ; Bhagirathi river near Sirain on 19.5.78, 18.10.78 ; Bhilangna river at Tehri on 14.5.78, 14.10.78 ; Mandakini river at Tilwara on 21.5.78, 26.8.78, 19.7.79,

*Distribution* : Northern Bengal, Assam, Uttar Pradesh (Alaknanda, Bhagirathi, Bhilangna, Mandakini rivers of Tehri-Garhwal District), Bihar ; Burma and Nepal.

*Remarks* : According to Tilak and Husain (1969) the maximum length of the fish is 335 mm ; it is the largest size of this species so far recorded. The present specimen, measuring 325 mm is also the largest size of this species in the present collection. Its presence in Garhwal Himalaya extends its range of distribution further westwards along Himalaya (Tilak and Husain, 1969).

This species resembles very closely *G. garhwali* Tilak and can be easily distinguished from it in many morphometric characters as mentioned by Tilak (1969).

### 18. *Glyptothorax garhwali* Tilak

1969. *Glyptothorax garhwali* Tilak, *J. Inland. Fish. Soc. India*, I, p. 37-42, fig. 1-3.

*Material examined* : 45 exs. (118-162 mm total length), collected from river Alaknanda at Kilkileshwar Chaurash on 5.5.76, 9.4.77, at Rudraprayag on 25.4.77, 23.6.78 ; 27.4.79 ; Mandakini river at Tilwara on 15.8.77, 17.8.78, 13.3.79 ; Bhilangna river at Tehri on 10.8.78, 7.9.79 ; Laster stream at Tilwara on 16.7.77, 29.11.78, 18.12.78, Badiyar stream at Sevagaun on 5.8.78 ; Bhagirathi river at Tehri 19.5.78.

*Fin-Formula* : B. VIII, D. I/6, P. I/8-9, V. I/5, A. III/8, C. 17, Barbels 4 pairs.

*Distribution* : Tehri-Garhwal region, Uttar Pradesh, Tilak (1969) described this species from river Alaknanda, Pauri-Garhwal for the first time.

*Remarks* : This species closely resembles *Glyptothorax cavia* but differs from it in a number of characters, as mentioned earlier under *Glyptothorax cavia*.

### 19. *Glyptothorax pectinopterus* (McClelland)

1842. *Glyptosternum pectinopterus* McClelland, *Cal. J. nat. Hist.*, II, p. 587 (Type-locality : Simla Hills).

*Material examined* : 25 exs. (33-118 mm total length), collected from Badiyar stream on 14.3.76, 19.6.76, 1.5.77, 15.2.78 ; Laster stream on 16.11.76, 29.1.77, 12.6.78 ; Bhardari stream on 16.4.77, 7.6.78 ; Nagani stream at Shiv Puri on 31.5.78 ; Jalkur stream on 16.5.78 ; Aglar stream on 1.6.78 ; river Alaknanda and Rudraprayag, 5.8.78, 30.6.79 ; river Bhagirathi at Tehri 16.5.79 ; river Bhilangna at Tehri 19.10.78 ; river Mandakini at Rudraprayag on 17.8.78.

*Fin-Formula* : B.X, D.I/6, P.I/9, V.I/5, A.I/9, C.17, Barbels 4 pairs.

*Distribution* : Streams all along Himalaya (All streams of Tehri-Garhwal district, Uttar Pradesh).

## 20. *Pseudecheneis sulcatus* (McClelland)

1842. *Glyptosternum sulcatus* McClelland, *Cal. J. nat. Hist.*, II, p. 587, pl. 6 (Type-locality : Khasi-Hills Assam).

1923. *Pseudecheneis sulcatus* : Hora, *Rec. Indian Mus.*, 25, p. 43.

*Material examined* : 54 exs. (71-181 mm total length), collected from Laster stream at Tilwara on 15.3.76, 16.5.76, 5.1.77, 9.8.78 ; Badiyar stream at Sevagaun on 2.3.77, 5.9.77, 18.4.78 ; Jalkur stream on 11.3.77, Bal Ganga stream on 8.10.77, 6.10.78 ; Nagani stream on 15.6.78 ; Aglar stream on 1.6.78 ; Alaknanda river at Rudraprayag, 11.7.78, 15.7.78 ; Mandakini river at Rudraprayag on 17.8.78.

*Fin-Formula* : B.VII, D.I/6; P.I/13, V.I/5, A.IV/9, C.17, Barbels 4 pairs.

*Distribution* : All along Himalaya (all stream of Tehri-Garhwal district, Uttar Pradesh) from Yamuna to Assam ; Burma.

*Remarks* : The adhesive thoracic apparatus of this fish is peculiar in having horizontally arranged plaits. The evolution of glyptothoracid fishes has been discussed on the basis of the study of the development of adhesive thoracic apparatus of this species by Tīlak (1976).

## 21. *Clupisoma montana* Hora

1937. *Clupisoma montana* Hora, *J. Bombay nat. Hist. Soc.*, 39 (2), p. 673-677.

*Material examined* : 11 exs. (140-241 mm total length), collected from river Bhagirathi at Serain, 15.6.77, 23.11.77, at Tehri on 9.4.78, 12.7.78 ; Bhilangna river at Tehri on 8.10.77, 17.4.78 ; river Alaknanda at Chaurash on 6.8.77, 19.10.78.

*Fin-Formula* : B.VI, B.I/6-7, P.I/12, V.6, A.41-43, C.17, Barbels 4 pairs.

*Distribution* : Along base of Himalaya in Himachal Pradesh, Uttar Pradesh (Bhagirathi, Bhilangna and Alaknanda rivers of Tehri-Carhwal district) and West Bengal.

*Remarks* : Hora (1937) recognised three species under *Clupioma*.

1. *C. garua* (Hamilton)—from plains of India.
2. *C. montana* Hora—from sub-mountains of Himalaya.

3. *C. prateri* Hora-from extreme eastern part of Himalaya and Burma.

*C. montana* differs from the related species, *C. garua*, in the following characters.

1. Barbels are short in *C. montana* while they are relatively longer in *C. garua*.
2. The dorsal and pectoral spines of *C. montana* are weak ; they are stronger in *C. garua*.
4. Adipose dorsal fin is present in the adults of *C. montana* while it is absent in adults of *C. garua*.
3. A larger number of rays (41-43) is present in the anal fin of *C. montana*. Anal fin rays of *C. garua* are less in numbers (29-36).
5. In *C. montana*. teeth on the jaws form narrow bands which may be interrupted in the middle, those on the palate form two oblong and somewhat curved patches which may be continuous. The teeth on the upper jaw are in advance of the lower jaw. In *C. garua*, the palatine teeth are in a semilunar band, teeth on vomer continuous with those in palate, each patch being semicircular internally and the teeth on the upper jaw are not in advance of the lower jaw.

## 22. *Mastacembelus armatus* Lacépède

1800. *Macrognothus armatus* Lacépède, *Hist. nat. Poiss.*, II, p. 283-286 (Type-locality : Unknown).

1956. *Mastacembelus armatus* : Sufi, *Bull. Raffles Mus.*, 27 B. 134-143, pl. 25, figs. 29-32.

*Material examined* : 2B exs. (83-331 mm total length), collected from Aglar stream (below Mussoorie) on 14.6.76, 23.6.76, 11.6.77, 5.11.77, 15.6.78 ; Nagain stream near Nagani village on 5.10.76 and at Shiv Puri, 30.5.78 ; 12.6.78 ; Gular stream, 11.6.78.

*Fin-Formula* : B. VI, D. 32-39/74-90, p. 23-25, A. 3/75-88.

*Distribution* : India (Aglar, Nagain and Gular streams of Tehri Garhwal district, Uttar Pradesh) ; Baluchistan, Pakistan, Ceylon, Nepal, Burma, Siam, Malaya, Southern China, Sumatra and Java.

*Remarks* : It is one of the freshwater eels which is found in hill streams in this area. Only one species of this genus is present in the area. It is a carnivorous and predatory fish which wriggles through stony boulders at the bed of streams.

## SUMMARY

Fish fauna of Tehri-Garhwal district of Uttar Pradesh has been studied in detail and 22 species have been recorded and classified. Taxonomic notes on the species have been provided.

## ACKNOWLEDGEMENTS

The authors feel grateful to Director, Zoological Survey of India, Calcutta and Officer-in-Charge, Northern Regional Station, Zoological Survey of India, Dehra Dun for providing the necessary facilities to work in the laboratories of the department.

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