

RESULTS OF THE AUSTRIAN-CEYLONESE HYDROBIOLOGICAL MISSION 1970 OF THE
1ST ZOOLOGICAL INSTITUTE OF THE UNIVERSITY OF VIENNA (AUSTRIA) AND THE
DEPARTMENT OF ZOOLOGY OF THE UNIVERSITY OF CEYLON, VIDYALANKARA
CAMPUS, KELANIYA (SRI LANKA)

Collection of Fishes (Osteichthyes)

by

A. C. RADDA *

In spite of the fact that the macrofauna of the fresh waters of Ceylon is rather well known (DAY, 1878-1888 ; DERANIYAGALA, 1952 ; 1958 ; FERNANDO, 1956 ; 1961 ; 1964 ; MENDIS, 1954 ; MUNRO, 1955) it seems to be of interest to get more information about the ecology and water chemistry of Ceylonese habitats in connection with faunistic data like it was done p.e. by COSTA and FERNANDO (1967) or GEISLER (1967). Therefore in this paper as much data as possible of each collecting locality are given.

The material studied was collected mainly in the hilly and mountain regions of the South-west and South of Ceylon by Prof. Dr. F. STARMÜHLNER, Vienna and Prof. H. H. COSTA, Kelaniya during the period of November 9th to December 28th, 1970 and preserved in formalin.

The author wishes to thank Dr. D. THYS VAN DEN AUDENAERDE, Tervuren for the identification of the material of gobioids of this collection. The help given in getting the literature by Prof. Dr. F. STARMÜHLNER, Prof. Dr. H. H. COSTA and DR. P. KÄHSBAUER, curator of the fish collection of the Museum of Natural History in Vienna is also gratefully acknowledged.

SPECIMEN LIST

A total of 378 specimens belonging to the following 31 species of fish were collected. The number of specimens of each species is given in brackets ().

- Danio malabaricus* (JERDON) (67)
- Esomus danrica* (HAMILTON-BUCHANAN) (1)
- Rasbora daniconius* (HAMILTON-BUCHANAN) (34)
- Chela laubua* (HAMILTON-BUCHANAN) (2)
- Barbus bimaculatus* (BLEEKER) (32)
- Barbus chola* (HAMILTON-BUCHANAN) (2)
- Barbus cumingi* (GÜNTHER) (1)
- Barbus dorsalis* (JERDON) (16)
- Barbus filamentosus* (CUVIER ET VALENCIENNES) (4)
- Barbus nigrofasciatus* (GÜNTHER) (8)
- Barbus sarana* (HAMILTON-BUCHANAN) (2)
- Barbus titteya* DERANIYAGALA (6)

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- Barbus vittatus* (DAY) (3)
Cyprinus carpio LINNE (1)
Garra lamta (HAMILTON-BUCHANAN) (39)
Noemacheilus botia (HAMILTON-BUCHANAN) (1)
Noemacheilus notostigma BLEEKER (17)
Lepidocephalus thermalis (CUVIER ET VALENCIENNES) (9)
Mystus keletius (CUVIER ET VALENCIENNES)
Clarias dussumieri (CUVIER ET VALENCIENNES) (1)
Xenetodon cancila (HAMILTON-BUCHANAN) (1)
~~*Aplocheilus day* (STEINDACHNER) (11)~~
Poecilia reticulata (PETERS) (32)
Xiphophorus helleri (HECKEL) (7)
Channa orientalis (BLOCH ET SCHNEIDER) (17)
Gobius grammepomus BLEEKER (6)
Sicydium halei (DAY) (1)
Anabas testudineus (BLOCH) (1)
Belontia signata (GÜNTHER) (55)
Mastocembelus armatus (GÜNTHER) (2)
Macrogathus aculeatus (BLOCH) (1)

COLLECTING LOCALITIES AND ECOLOGICAL DATA

I. Region Deniyaya

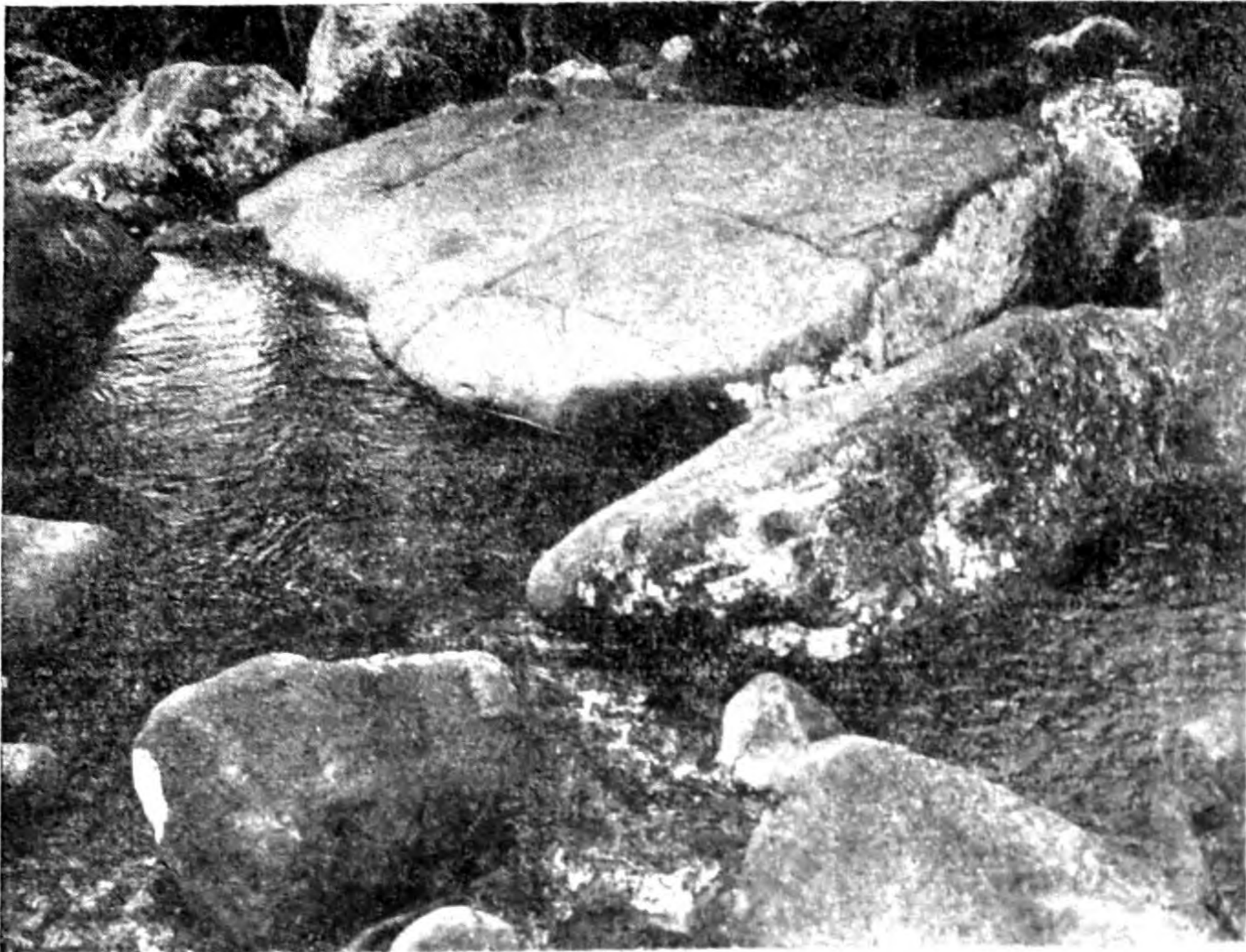
(a) LOCALITIES ALONG THE TRIBUTARIES OF THE GIN GANGA SYSTEM

FC 1d/9.11.1970 : Meda Dola, altitude 1000 m above sea level. The collecting locality is situated in a virgin forest in the reaches of the Sinharaja-Range. The ground consists of granite rocks, the river's edge is sandy and covered with washed-up debris of wood and other material. Breadth of the stream 3-6 m, depth 0,05-0,16 m, current 0,30-0,75 m/sec. Water temperature 20,2° (11°), pH 5,8 total hardness 1,5° dH, carbonate hardness 0.84° dH, CaO 2 mg/l, alkalinity 0,3 mval.

Species collected : *Garra lamta* (5 specimens)
Noemacheilus notostigma (1 specimen)

FC 3d/10.11.1970 : Hola Dola (Fig. 1), altitude 700 m above sea level. This locality is situated along a torrent flowing out of the forest and running through tea plantations. Ground with granite rocks and sandy edges. Breadth of the stream 5-8 m, depth 0.05-0,30 (in pools deeper), current 0/75-1,0 m/sec., in pools 0,30-0,50 m/sec., on the edge 0,10 m/sec. Water temperature 21,1° C (9³⁰)-21,7° (12°) on the edge 21,5° (9³⁰)-22,2° (12°), pH 5,8 total hardness 0.25° dH, carbonate hardness 2,28° dH, CaO 2 mg/l alkalinity 0,1 mval.

Species collected : *Garra lamta* (8)
Noemacheilus notostigma (5)



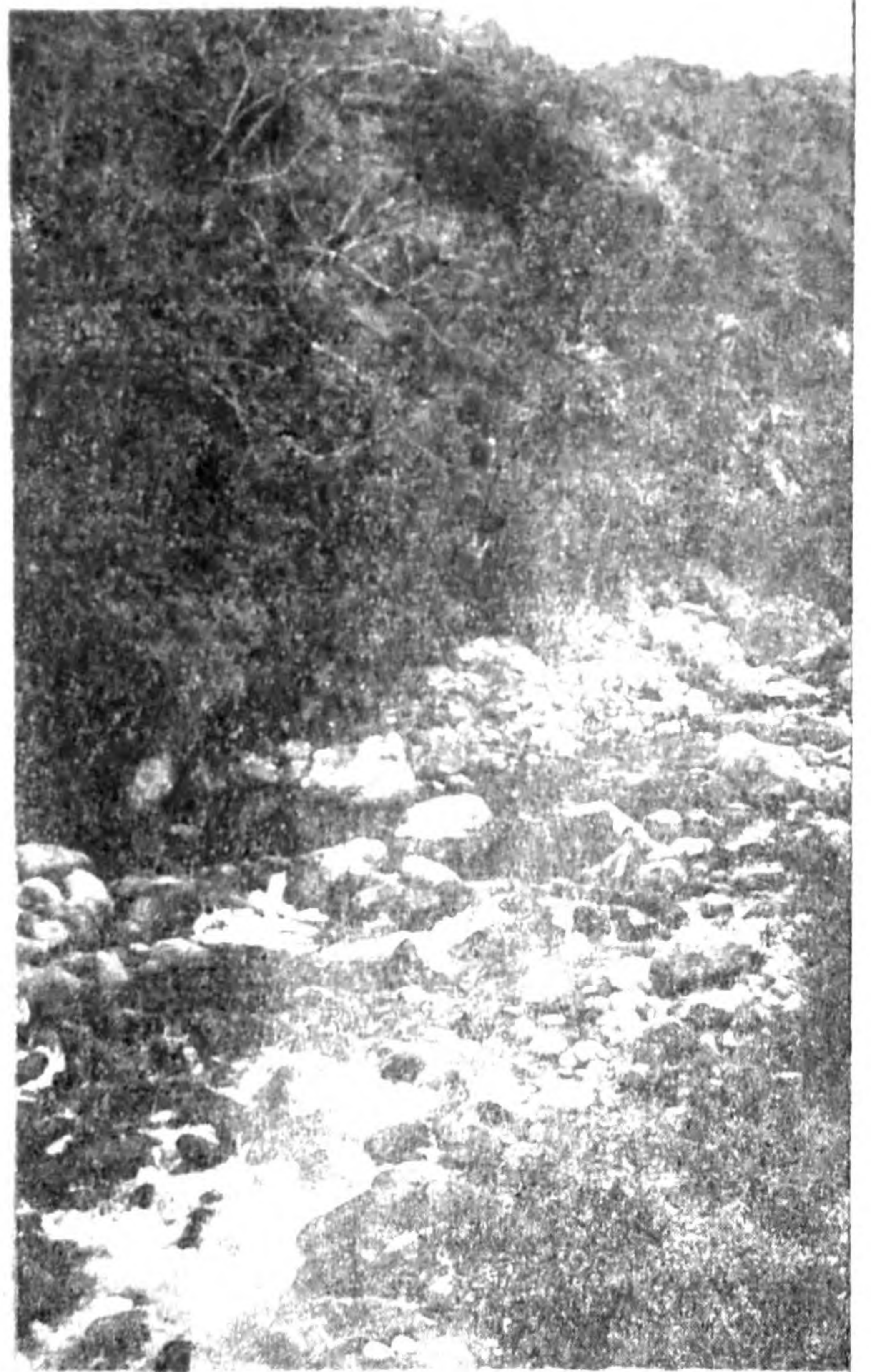
1



3



2



4



5

Fig. 1. Hola Dola, Region Deniyaya, Collecting locality F.C. 3. Fig. 2. Campden Hill Dola, Region Deniyaya, F.C. 5.
Fig. 3. Kalu Ganga, near Mallwala, Region Ratnapura F.C. 13. Fig. 4. Kirikatu Oya, Region Belihul oya, F.C. 25.
Fig. 5. Kelani Ganga near Hanwella, Region Kitulgala F.C. 38. All photographs by Prof. F. STARMUHLNER.

FC 4c/10.11.1970 : Pasumale Dola, altitude 800 m above sea level. A cascading stream flowing over flat granite rocks, in between deep pools. The area lies in tea plantations and has no tall vegetation. Breadth of the stream 10–20 m, depth in cascades 0,005–0,01 m, in pools 0,5 m, current 1–1,5 m/sec., in cascades, 0,3 m/sec. in pools. Water temperature 27,7° (15°) in cascades, 28,5° (15°) in pools. pH 5,8, total hardness 0,60° dH, carbonate hardness 0,56° dH, CaO 2 mg/l alkalinity 0,2 mval.

Species collected : *Noemacheilus notostigma* (2)

FC 5e/11.11.1970.: Campden Hill Dola (Fig. 2), altitude 700 m above sea level. A cascading stream with granite rocks and pebbles in tea plantations very similar to FC 4. Breadth of the stream 3–10 m, depth 0,10–0,20 m, current 0,75–1,0 m/sec. in cascades, 0,15 cm in pools. Water temperature 24,1°C (9°)–24,7° C (10³⁰), pH 5,8, total hardness 0,60° dH, carbonate hardness 0,56° dH, CaO 2 mg/l, alkalinity 0,2.

Species collected : *Rasbora daniconius* (1)

Garra lamta (8)

Channa orientalis (2)

Belontia signata (22)

FC 6f/11.11.1970 : Kiriwel Dola, altitude 700 m above sea level. Stream in an open valley near the Enselwatte tea factory running through tea plantations and cultivated area. The ground consists of gravel and pebble stones and sand. Breadth of the stream 5–10 m, depth 0,3–0,5 m, current 0,30–0,75 m/sec. Water temperature 23,8° C (15°), electrical conductivity 26/μS²⁰, pH, 5,8 total hardness 0,60° dH, carbonate hardness 0,56° dH, CaO 2 mg/l, alkalinity 0,2 mval.

Species collected : *Garra lamta* (1)

Noemacheilus notostigma (2)

Channa orientalis (4)

Belontia signata (10)

(b) LOCALITIES ALONG THE TRIBUTARIES OF NILWALA GANGA SYSTEM

FC 7f/12.11.1970 : Thanipita Dola, altitude 600 m above sea level. The torrent flows through forests and plantations, partially in the open. The ground consists of pebbles and stones with sand in between granite rocks. Breadth of the stream 3–5 m, depth 0,05–0,20 m, current 0,5 m/sec., in cascades 1,0 m/sec. Water temperature 25,1° C (9³⁰)–27,3° (12°) electrical conductivity 35/μS²⁰, pH 6,0, total hardness 1,2° dH, carbonate hardness 0,84° dH, CaO 4 mg/l, alkalinity 0,3 mval.

Species collected : *Rasbora daniconius* (6)

Lepidocephalus thermalis (1)

Channa orientalis (3)

Belontia signata (4)

FC 8e/13.11.1970 : Nagahaketa Dola, altitude 500 m above sea level, flowing through forest and plantations, partially in the open. The ground consists of granite rocks, pebble stones and sand. Breadth of the stream 8–10 m, depth 0,05–0,10 m in cascades, 0,3–0,5 in pools, current 0,5–

1,0 m/sec. in cascades, 0,05–0,10 m/sec. in pools. Water temperature; 24,2° C (9°°)–25,4° C (10°°), electrical conductivity 35 μS^{20} , pH 5,8, total hardness 1,0° dH, carbonate hardness 0,65° dH, CaO 2 mg/l alkalinity 0,2 mval.

Species collected : *Barbus bimaculatus* (12)
Garra lamta (1)
Noemacheilus notostigma (2)
Channa orientalis (1)
Macrogathus aculeatus (1)

II. Region Ratnapura

LOCALITIES ALONG THE TRIBUTARIES AND ALONG THE MAIN COURSE OF THE KALU GANGA SYSTEM

FC 9f/17.11.1970 : Bodathpitiya Ela, altitude 500 m above sea level. Waterfall of a height of 50 m, thereafter a stream with cascades and large pools in the open. The ground consists of rocks and pebble stones (in cascades) as well as quartz sand with debris (in pools). Breadth of the stream 5–30 m, depth 0,10–0,5 m, current 0,75–1,0 m/sec., in cascades 0,5 m/sec. on pebble ground, 0,25 m/sec. on the edge. Water temperature 26,0° C (10°°)–27,2° C (13°°), electrical conductivity 35 μS^{20} , pH 6,0, total hardness 1,1° dH, carbonate hardness 0,84° dH, CaO 2 mg/l, alkalinity 0,3 mval.

Species collected : *Barbus filamentosus* (2)
Xenetodon cancila (1)
Aplocheilus dayi (1)
Belontia signata (3)
Gobius grammepomus (1)

FC 10e/18.11.1970 : Katugas Ela, altitude 500 m above sea level. A torrent with waterfalls flowing through a narrow, shady gorge with a bottom of granite rocks, gravel and sand. Breadth of the stream 1,0 (gorge) –10m, depth 0,01 m in cascades –1,0 m in pools, current 1,0 m/sec. in cascades, 0,3–0,5 m/sec. in pools. Water temperature 25,1° C (9°°)–25,3° (12°°), electrical conductivity 29/ μS^{20} , pH 5,8, total hardness 0,6° dH, carbonate hardness 0,2° dH, CaO 2 mg/l alkalinity 0,2 mval.

Species collected : *Rasbora daniconius* (3)
Barbus bimaculatus (1)
Garra lamta (3)
Noemacheilus botia (1)
Lepidocephalus thermalis (3)
Aplocheilus dayi (1)
Belontia signata (3)

FC 11e/19.11.1970 : Rajanawa Dola, altitude about 100 m above sea level. A strongly shaded locality in the forest along a torrent with waterfall. The ground consists of granite rocks and pebble stones. Breadth of the stream 0,5–3,0 m, depth 0,01–0,03, m in cascades, 0,1–0,3 m in

the open, current 1 m/sec. in cascades, 0,3–0,75 m in between cascades and 0,1 m/sec., in pools, Water temperature 24,6°C (9°) –25,8° C (12°) –26, 1° C (12°), electrical conductivity 29 / μ S²⁰, pH: 5,8, total hardness 0,60° dH, carbonate hardness 0,56° dH, CaO 2 mg/l, alkalinity 0,2 mval.

Species collected : *Rasbora daniconius* (1)
Barbus bimaculatus (1)
Garra lamta (1)
Channa orientalis (2)
Belontia signata (1)

FC 12e/20.11.1970 : Kalu Ganga near Ratnapura, altitude 50m. above sea level. The river flows in a deeply-cut valley with forest and habitation along the edges. On the edges granite rocks alter with large sandy creeks. The ground consists of pebble and gravel stones. Breadth of the river 20–30 m. depth 3,0 m, current 0,3–0,5 m/sec., in cascades 1 m/sec. Water temperature 26,6°, C (11°) electrical conductivity 46/ μ S²⁰, pH 6,5, total hardness 1,2° dH, carbonate hardness 1, 12°, dH, CaO 6 mg/l alkalinity 0,4 mval.

Species collected : *Danio malabaricus* (11)
Esomus danrica (1)
Rasbora daniconius (5)
Barbus dorsalis (6)
Barbus sarana (1)
Barbus titteya (1)
Barbus vittatus (3)
Garra lamta (2)
Aplocheilus dayi (5)
Channa orientalis (1)
Anabas testudineus (1)

FC 13e/21.11/1970 : Upper Branch of the Kalu Ganga near Malwala (Fig. 3), altitude 100m. above sea level. The river flows in the open through plantations. The ground consists of granite rocks, in creeks sand, and in the current rocks, pebbel and gravel stones with higher aquatic plants. Breadth of the river 15-20 m, depth about 3 m, current 0,5-0,75 m/sec., in pools 0,05-0,1 m/sec. Water temperature 26,7°, C (13°)-26,3° C (16°), electrical conductivity 41/ μ S²⁰ pH 7,2, total hardness 1,15° dH, alkalinity 0,4 mval, CaO 6, 38 mg/l, MgO 3,68 mg/l, SiO₂ 9, 7 mg/l, P₂ O₅, 0,12 mg/l, Cl⁻ 1,94 mg/l, NO₃⁻, 0,90 mg/l, NH₄ 0,16 mg/l.

Species collected : *Danio malabaricus* (1)
Rasbora daniconius (1)
Barbus filamentosus (1)
Barbus sarana (1)
Belontia signata (1)
Mastocembelus armatus (1)

FC 15e/23.11.1970 : Ira Handa Pana Ela altitude 100m., above sea level. Right-side tributary of the Kalu Ganga. The ground consists of granite rocks, pebble and gravel stones. Breadth of the river 2-4 m, depth 0,1-0,2 m, in pools 0,3-0,4m, current 0,2-0,5 m/sec. in cascades 1 m/sec. Water temperature 25 / μS^{20} pH 6,7, total hardness 0,5° dH, alkalinity 0,25 mval, CaO 2,35 mg/l. MgO 1,90 mg/l, SiO₂, 7,4 mg/l Cl⁻ 1,8 mg/l, NO₃⁻, 0,10 mg/l, P₂O₅ 0,0 mg/l, NH₄⁺, 0,08 mg/l.

Species collected : *Rasbora daniconius* (1)
Barbus bimaculatus (2)
Barbus titteya (5)
Clarias dussumieri (1)
Aplocheilus dayi (4)
Channa orientalis (1)
Belontia signata (2)

III. Region Maskeliya

FC 16e/28.11.1970 : Mocha Dola, altitude 1,800m above sea level. Tributary of the Maskeliya Oya, near Adam's Peak Estate. Situated in the open it flows over shingle and sand through tea plantations. Breadth of the stream 2-5 m, depth 0,2-0,5 m, current 1 m/sec. in cascades, 0,5 m/sec. in pools. Water temperature : 18,7°C (9³⁰)-20,7° (12°), electrical conductivity 25 μS^{20} pH 6,1, total hardness 0,4° dH, alkalinity 0,12 mval, CaO 2,57 mg/l, MgO 1,02 mg/l SiO₂, 4,44 mg/l, Cl⁻ 2,84 mg/l, NO₃⁻ 0,28 mg/l, P₂O₅ 0,17 mg/l, NH₄⁺ 0,1 mg/l,

Species collected : *Danio malabaricus* (40)
Cyprinus carpio (1)
Garra lamta (1)
Xiphophorus helleri (2)

FC 20d/1.12.1970 : Maskeliya Dola at the foot of Adam's Peak. A stream flowing into the Maskeliya-reservoir, about 1 km before the entrance of the stream in the Maskeliya-reservoir, altitude 1,800m. above sea-level. The ground consists of rocks, pebble and gravel stones, in between sandy pools. Breadth of the stream 5-8 m, depth 0,2-0,5 m, in pools >1 m, current 0,30-0,75 m/sec. in cascades >1 m/sec. in pools 0-3,0 m/sec. Water temperature 18,3° C (11^b) 19,9°, (13^b), electrical conductivity 11/ μS^{20} , pH 6,4, total hardness 0,15° dH, alkalinity 0,07 mval, CaO 0,84 mg/l, MgO 0,44 mg/l, SiO₂, 3,15 mg/l, Cl 1,7 mg/l, NO₃⁻, 0,04 mg/l, P₂O₅ 0,0 mg/l NH₄⁺ 0,15 mg/l.

Species collected : *Danio malabaricus* (3)

FC 23c/3.12.1970 : Dick Oya on the road between Maskeliya and Hatton, altitude 1,800 m above sea level. The river is situated in the open and polluted by the waste water of the town (Hatton) edges with sand. Breadth of the river 5-10 m, depth 0,2-1,0 m, current 1 m/sec. on the edge stagnant. Water temperature 18,6° C (11°)-20,8°C (13°) electrical conductivity 36/ μS^{20} pH 6,4, total hardness 0,60° dH, alkalinity 0,4 mval, CaO 4,1 mg/l, MgO 1,3 mg/l, SiO₂ 7,2 mg/l, Cl 4,9 mg/l, NO₃⁻ 0,13 mg/l, P₂O₅ 0,07 mg/l, NH₄⁺ 0,04 mg/l.

Species collected : *Danio malabaricus* (4)
Poecilia reticulata (32)
Xiphophorus helleri (5)

IV. Region Belihuloya

(a) TRIBUTARIES OF THE WALAWE GANGA

FC 24e/7.12.1970 : Belihul Oya, altitude 650 m above sea level. River in exposed area with a bottom of granite rocks, gravel stones and sand. Breadth of the river 5-6 m depth 0.3-0.5 m, in pools 1,0 m, current 0,5-0,8 m/sec., in creeks 0-0,3 m/sec., in cascades 1m/sec. Water temperature 21,3° C (15°°) -21,4° C (17°°) -18,3° C (7°°), electrical conductivity 23/ μ S²⁰ pH 6,6, total hardness 0,55° dH, alkalinity 0,3 mval, CaO 2,3 mg/l, MgO 2,3 mg/l, SiO₂ 9,0 mg/l, NO₃⁻ 0,12 mg/l, P₂O₅ 0,17 mg/l, NH₄⁺ 0,03 mg/l.

Species collected : *Garra lamta* (1)

Noemacheilus notostigma (4)

FC 25e/28.12.1970 : Kirikatu Oya (Fig. 4), altitude 700 m, above sea level. This stream rises from the Horton-Plains and falls from a steep slope several hundred meters. The ground consists of granite rocks, pebble and gravel stones and sand. Breadth of the river 5-8 m depth 0,2-1,0m, current 0,4-0,5 m/sec., in cascades 1 m/sec. on the edge 0-0,2 m/sec. Water temperature 18,8° C (19°°)-19,6° C (12°°), electrical conductivity 34 μ S²⁰ pH 7,1 total hardness 1,0° dH, alkalinity 0,45 mval, CaO 4,7 mg/l, MgO 3,8 mg/l, SiO₂ 11,0 mg/l, Cl⁻ 1,42 mg/l, NO₃ 0,07 mg/l, P₂O₅ 0,14 mg/l, NH₄⁺ 0,03 mg/l.

Species collected : *Rasbora daniconius* (8)

Barbus bimaculatus (3)

Garra lamta (2)

Noemacheilus notostigma (1)

Belontia signata (1)

(b) TRIBUTARY OF THE MENIK GANGA SYSTEM

FC 27d/9.12.1970 : Kuda Oya, tributary of the Menik Ganga near Buttala in the South-eastern lowlands flowing through shaded forest area, altitude about 140 m above sea level. Breadth of the river 10-15 m, depth 0,2-1,0 m current 0,3-0,5 m/sec. Water temperature 25,5° C (11°°) electrical conductivity 295 μ S²⁰, pH 7,7 total hardness 9,2, dH, alkalinity 3,55 mval, CaO 52,0 mg/l, MgO 28,9 mg/l, SiO₂ 28,8 mg/l, Cl 7,1 mg/l, NO₃ 0,11 mg/l, P₂O₅ 0,11 mg/l, NH₄⁺ 0,02 mg/l.

Species collected : *Chela laubuca* (2)

Barbus bimaculatus (4)

Barbus dorsalis (7)

Gobius grammepomus (2)

(c) KALU GANGA—SYSTEM

FC 30d/10.12.1970 : Wegan Oya, upper part of the We Ganga, a tributary of the Kalu Ganga near Balangoda on the road from Belihuloya to Pelmadulla, altitude 550 m above sea level. The ground consists of granite rocks, edges with muddy creeks with reed. Breadth of the river 5-20 m, depth 1 m in pools and creeks, current 0,3-0,5 m/sec. in pools, 1 m/sec. in cascades.

0.-0,2 m/sec. in creeks. Water temperature 24,7° C (10°) 25,6° C (12°), electrical conductivity 89° μS^{20} , pH 7,2, total hardness 2,35° dH, alkalinity 0.97 mval, CaO 15,6 mg/l, MgO 5,7 mg/l, SiO₂ 24,8 mg./l, Cl⁻ 4,82 mg/l, NO₃⁻ 0,05 mg/l, P₂O₅ 0.17 mg/l, NH₄⁺ 0,04 mg/l.

Species collected : *Rasbora daniconius* (2)

Barbus bimaculatus (2)

V. Region Kitulgala

LOCALITIES ALONG THE TRIBUTARIES AND ALONG THE MAIN COURSE OF THE KELANI GANGA

FC 34c/ 26.12.1970 : Bibili Oya, partially shaded tributary of the Kelani^rGanga near Kitulgala, altitude about 250 m above sea level. The ground consists of granite rocks and pebbles, on edges sand, aquatic plants on rocks. Breadth of the river 6-10 m, depth 0,2-1,0 m current 0,5-1,0 m/sec. Water temperature 25,4° C (14°) 25,8° C (16°), pH about 6,0 total hardness <1° dH.

Species collected : *Danio malabaricus* (1)

Rasbora daniconius (1)

Garra lamta (1)

Barbus cumingi (1)

Channa orientalis (1)

Gobius garammepomus ()

Sicydium halei (1)

Belontia signata (3)

Mastocembelus armatus (1)

FC 35d 27.12.1970 : Hal Oya near Ginigathhena, altitude 700 m above sea level. Breadth of the stream 1-5 m, depth 0,1-0,5 m (in pools 1,0 m), current 0,3-0,5 m/sec. Water temperature 22°,5C (9°)-23,1° C (11°), electrical conductivity 36 μS^{20} , pH 6,8, total hardness 0,82° dH, alkalinity 0.4 mval, CaO 5,15 mg/l, MgO 2,16 mg/l, SiO₂ 12,3 mg/l, Cl 1,99 mg/l, NO₃ 0.05 mg/l, P₂O₅ 0,16 mg/l, NH₄⁺ 0,03 mg/l.

Species collected : *Garra amta* (1)

Channa orientalis (2)

FC 36d/28.12.1970 : Rambukpoth Oya near Pitawala, altitude 650 m. above sea level. Breadth of the stream 5-8 m, depth 0,05-0,03, in pools 0,5 m, current 0,3-0,75 m/sec. Water temperature 25,1° C (13°), electrical conductivity 19 μS^{20} , pH 6,7, total hardness 0,36° dH, alkalinity 0,14 mval, CaO 0,89 mg/l, MgO 1,92 mg/l, SiO₂ mg/l, Cl⁻ 1,7 mg/l, NO₃ 0,04 mg/l, P₂O₅ 0,18 mg/l, NH₄⁺ 0,03 mg/l.

Species collected *Garra lamta* (3)

FC 37 3/28.12.1970 : Kelani Ganga near the Resthouse of Kitulgala, altitude about 100 m. above sea level, Ground consists of granite rocks pebble and gravel stones ; on the edges sand. Breadth of the river 30 m, depth 0.3-0,5 m, current 0,5-1,0 m/sec. Water temperature 26,4° C (18°)

-24,3° C (7°)—24,5° C (9°)—25.8° C (11°), electrical conductivity 334 μS^{20} , pH 6, 7, total hardness 0.7° dH, alkalinity 0,28 mval, CaO 4,48 mg/l, MgO 1,84 mg/l, SiO₂ 6,5 mg/l, Cl 2,41 mg/l, NO₃ 0,13 mg/l P₂O₅ 0,18 mg/l, NH₄ 0,08 mg/l.

Species collected : *Danio malabaricus* (7)
Rasbora daniconius (4)
Barbus dorsalis (3)
Barbus filamentosum (1)
Barbus nigrofasciatus (8)
Garra lamta (1)
Lepidocephalus thermalis (5)
Mystus keletius (1)
Belopntia signata (4)
 1 juv. ex. ? Cyprinidae

FC 38/28.12.1970 : Kelani Ganga near Hanwella (Fig. 5), altitude 30 m above sea level, the ground consists of mud and sand. Breadth of the river 50 m, current 0.3 m/sec. Water temperature 27,2° C (15^h) electrical conductivity 27 μS^{20} , pH 6, 4, total hardness 0,36 °dH, alkalinity 0,03 mval, CaO 2,52 mg/l, MgO 0,08 mg/l, SiO₂ 3,5 mg/l, Cl 2,84 mg/l, NO₃ 0,16 mg/l, P₂O₅ 0,02 mg/l, NH₄⁺ 0,01 mg/l

Species collected : *Rasbora daniconius* (1)
Barbus chola (2)

SPECIES LIST

All measurements of the standard length (SL.) are given in millimeters.

Order Cypriniformes

Suborder Cyprinoidei

Family Cyprinidae

Subfamily Rasborinae

Danio malabaricus (JERDON, 1849)

(1) Region Ratnapura, Kalu Ganga near Ratnapura (FC 12) 11 specimens SL. 47/46/40/39/35/33/30/29/27/26/17. (2) Region Ratnapura, Kalu Ganga near Malwala (FC 13) 1 specimen SL. 44
 (3) Region Maskeliya, Mocha Dola (FC 16), 40 specimens SL. 62/61/60/60/59/59/59/58/58/58/57/56/55/55/54/53/52/52/52/52/51/51/50/50/49/49/48/48/47/46/46/41/39/35/34/31/31/30/29. (4) Region Maskeliya, Maskeliya Dola FC (20) 3 specimens SL. 47/46/36/. (5) Region Maskeliya, Dick Oya (FC 23) 4 specimens SL. 70/68/64/63. (6) Region Kitulgala, Bibili Oya FC (34) 1 specimen SL. 56.
 (7) Region Kitulgala, Kelani Ganga (FC 37) 7 specimens SL, 45/28/24/22/22/20/18.

For this morphologically highly variable species, sometimes the senior synonym *Danio aequipinnatus* (MC CLELLAND, 1839) is used. In Ceylon *D. malabaricus* can be frequently found in very different habitats mostly of running waters as channels, drainage canals, brooks, streams, rivers, from the lowlands up to the high mountain region. Besides Ceylon the Giant Danio can be found also on the western coast of India.

Esomus danrica (HAMILTON-BUCHANAN, 1822)

- (1) Region Ratnapura, Kalu Ganga near Ratnapura (FC 12) 1 specimen SL. 46.

In Ceylon it is a very common species living always in the running waters of the lowlands. The Flying Barb is also found in India, Thailand and Singapore.

Rasbora daniconius (HAMILTON-BUCHANAN, 1822)

- (1) Region Deniyaya, Campden Hill Dola (FC 5) 1 specimen SL. 31. (2) Region Deniyaya Thanipita Dola (FC 7) 6 specimens SL. 74,5/61/59/52,5/45/36. (3) Region Ratnapura, Katugas Ela (FC 10) 3 specimens SL. 77/52/40. (4) Region Ratnapura, Rajanawa Dola (FC 11) 1 specimen SL. 55. (5) Region Ratnapura Kalu Ganga near Ratnapura (FC 12) 5 specimens SL. 55/55/50/44/34. (6) Region Rarnapura, Kalu Ganga near Malwala (FC 13) 1 specimen SL. 31. (7) Region Ratnapura Ira Handa PanaEla (FC 15) 1 specimen SL. 38. (8) Region Belihuloya, Kirikatu Oya (FC 25) specimens SL. 49/42/40/39/36/34/25/20. (9) Region Belihuloya, Wegan Oya (FC 30) 2 specimens SL. 45/38. (10) Region Kitulgala, Bibili Oya (FC 34) 1 specimen SL. 40. (11) Region Kitulgala Kelani Ganga, Kitulgala (FC 37) 4 specimens SL. 50/31/26/25. (12) Region Kitulgala, Kelani Ganga near Hanwella (FC 38) 1 specimen SL. 23.

The Common Rasbora is a very common fish of the habitats such as ponds, paddy-fields, canals, brooks, streams and rivers in the lowlands as well as in the region of hills and mountains, but not of the highest parts of Ceylon. *R. daniconius* lives also in the south-eastern parts of India, in Burma, Thailand and on the Sunda Islands.

Subfamily Cultrinae*Chela laubuca* (HAMILTON-BUCHANAN, 1822)

- (1) Region Belihuloya, Kuda Oya (FC 27) 2 specimens SL, 62/55.

This species inhabits ponds, irrigation reservoirs and rivers of the dry parts of the low country. Besides Ceylon *Ch. laubuca* is found in India and on the Malayan Archipelago.

Subfamily Barbinae*Barbus bimaculatus* (BLEEKER, 1864)

- (1) Region Deniyaya, Nagahaketa Dola (FC 8) 12 specimens SL. 28/28/27/27/26/24/24/23/22/19/19/78,5. (2) Region Ratnapura, Katugas Ela (FC 10) 1 specimen SL. 34. (3) Region Ratnapura, Rajanawa Ela (FC 11) 1 specimen SL. 18. (4) Region Ratnapura, Kaluganga near Ratnapura, (FC 12), 7 specimens SL. 48/35/35/34/29/29/25. (5) Region Ratnapura, Ira Handha Pana Ela (FC 15), 2 specimen SL. 31/27. (6) Region Belihuloya, Kirikatu Oya (FC 25) 3 specimens SL. 30/29/27. (7) Region Belihuloya, Kuda Oya (FC 27) 4 juv. specimens SL. 13/13/12/12/12. (8) Region Belihuloya, Wegan Oya (FC 30) 2 specimens SL. 19/14.

B. bimaculatus inhabits slow running waters as well as torrential streams of the inner parts of, the lowlands and of hills and is frequently found only in Ceylon (endemic species).

Barbus chola (HAMILTON-BUCHANAN, 1822)

- (1) Region Kitulgala, Kelani Ganga near Hanwella (FC 38) 2 specimens SL. 33/24.

This species is very common in paddyfields, ponds, irrigation reservoirs and streams of the coastal lowlands. It is also found very frequently in the eastern parts of India.

Barbus cumingi (GÜNTHER, 1868)

- (1) Region Kitulgala, Bibili Oya (FC 43) 1 specimen SL. 34.

Cuming's Barb inhabits streams at higher elevations. It is not very common and is endemic Ceylon.

Barbus dorsalis (JERDON, 1849)

- (1) Region Ratnapura, Kalu Ganga near Ratnapura (FC 12) 6 specimens SL. 49/49/48/47/46/46.
 (2) Region Belihuloya, Kuda Oya (FC 27) 7 specimens SL. 93/88/83/74/69/62/60. (3) Region Kitulgala, Kelani Ganga near Kitulgala (FC 37) 3 specimens SL. 71/69/31.

This larger species inhabits streams, rivers, ponds and irrigation reservoirs in the lowlands. It is found in Ceylon and in South India (Madras, Mysore).

Barbus filamentosus (CUVIER ET VALENCIENNES, 1844)

- (1) Region Ratnapura, Bodathpitiya Ela (FC 9) 2 juv. specimens SL. 22/18. (2) Region Ratnapura, Kalu Ganga near Malwala (FC 13) 1 specimen SL. 80. (3) Region Kitulgala, Kelani Ganga near Kitulgala (FC 37) 1 juv. specimens SL. 20.

B. filamentosus shows two completely different colour patterns in the juvenile and adult stages. The Filamented Barb is medium sized and is found in Ceylon and the western part of South India.

It inhabits rivers, large streams and irrigation reservoirs.

Barbus nigrofasciatus GÜNTHER, (1868)

- (1) Region Kitulgala, Kelani Ganga near Kitulgala, (FC 37) 8 specimens SL. 46/41/29/28/27/26/24/24.

The small sized *B. nigrofasciatus* inhabits shaded parts of running streams in hill country. This species is found only in southern Ceylon (endemic species).

Barbus sarana (HAMILTON-BUCHANAN, 1822)

- (1) Region Ratnapura, Kelani Ganga near Ratnapura (FC 12) 1 specimen SL. 71. (2) Region Ratnapura, Kalu Ganga near Malwala (FC 13) 1 specimen SL. 60.

This is the largest of all species of the genus *Barbus* of Ceylon and inhabits rivers, ponds, lakes and irrigation reservoirs of the lowland. The geographic distribution of *B. sarana* includes Ceylon, India, Burma and Thailand.

Barbus titteya (DERANIYAGALA, 1929)

- (1) Region Ratnapura, Ira Handa Pana Ela (FC 15) 5 specimens SL. 28/26/25/24/15.

The Cherry Barb is a small species and is found in small streams and rivulets at the foothills. *B. titteya* is endemic to Ceylon.

Barbus vittatus (DAY, 1865)

(1) Region Ratnapura, Kalu Ganga near Ratnapura (FC 12) 3 specimens SL. 29/25/23.

The small sized Striped Barb is a very common fish in paddy fields, ponds and streams of the coastal lowlands. *B. vittatus* is also found very frequently in India.

Subfamily Cyprininae*Cyprinus carpio* LINNE (1758)

(1) Region Maskeliya, Mocha Dola (FC 16) 1 specimen SL. 134.

The Common Carp was introduced to Ceylon for commercial reasons.

Subfamily Garrinae*Garra lamta* (HAMILTON-BUCHANAN, 1822)

(1) Region Deniyaya, Meda Dola (FC 1) 5 specimens SL. 67/27,5/27,5/24/23. (2) Region Deniyaya, Hola Dola FC (2) 8 specimens SL. 71/61/58/58/52,5/50/47/35,5. (3) Region Deniyaya, Campden Hill Dola (FC 5) 8 specimens SL. 80/56/31/36/25,5/12,5/11,5/10. (4) Region Deniyaya, Kiriwel Dola (FC 6) 1 specimen SL. 59. (5) Region Deniyaya, Nagahaketa Dola (FC 8) 1 specimen SL. 22. (6) Region Ratnapura, Katugas Ela (FC 10) 3 specimen SL. 70/56/23. (7) Region Ratnapura, Rajanawa Dola (FC 11) 1 specimen SL. 37. (8) Region Ratnapura, Kalu Ganga near Ratnapura (FC 12) 2 juv. specimen SL. 24/12. (9) Region Maskeliya, Mocha Dola (FC 16) 1 specimen SL. 105. (10) Region Belihuloya, Belihul Oya (FC 24) 1 specimen SL. 34. (II) Region Belihuloya, Kirikatu Oya (FC 25) 2 specimens SL 30/24. (12) Region Kitulgala, Bibli Oya (FC 34) 1 juv. specimen SL. 18. (13) Region Kitulgala, Hal Oya near Ginigathena (FC 35) 1 juv. specimen SL. 17. (14) Region Kitulgala, Rambukpotha Oya (FC 36) 3 juv. specimens SL. 20/17/16. (15) Region Kitulgala, Kelani Ganga near Kitulgala (FC 37) 1 juv. specimen SL. 18.

This species inhabits flowing streams mainly in the hill country. These fish are capable of climbing vertical rock faces against the current with the aid of their suckers. *G. lamta* is distributed through India until Syria and Aethiopia. There is a subspecies *G. lamta ceylonensis* described from Ceylon.

Family Cobitidae**Subfamily : Noemacheilinae***Noemacheilus botia* (HAMILTON-BUCHANAN, 1822)

(1) Region Ratnapura, Katugas Ela (FC 10) 1 specimen SL 43.

N. botia lives in small streams of the low and hill country. Besides Ceylon it is found in Punjab, India, Burma and Thailand.

Noemacheilus notostigma BLEEKER, (1864)

(1) Region Deniyaya, Meda Dola, (FC 1) 1 specimen SL. 31. (2) Region Deniyaya, Hola Dola (FC 3) 5 specimens SL. 39/30/29,5/10,5/10,5. (3) Region Deniyaya Pasumale Dola (FC 4) 2 specimens SL. 45,5/32,5. (4) Region Deniyaya, Kiriwel Dola (FC 6) 2 specimens SL. 50,5/27,5

(5) Region Deniyaya, Nagahaketa Dola (FC 8) 2 specimens SL. 34/14. (6) Region Belihuloya, Belihul Oya (FC 24) 4 specimens SL. 43/27/22/17. (7) Region Belihuloya, Kirikatu Oya (FC 25) 1 specimen SL. 29.

The Spotted Loach is endemic to Ceylon and inhabits hill and mountain country streams.

Subfamily Cobitinae

Lepidocephalus thermalis (CUVIER ET VALENCIENNES, 1846)

(1) Region Deniyaya, Tanipita Dola (FC 7) 1 specimen SL. 42. (2) Region Ratnapura, Katugas Ela (FC 10) 3 specimens SL. 37/36/34. (3) Region Kitulgala, Kelani Ganga near Kitulgala (FC 37) 5 specimens SL. 38/34/30/27/24.

L. thermalis can be found in muddy pools of streams mainly in hill country. This species is also found on the Malabar coast of South India.

Order Siluriformes

Family Bagridae

Mystus keletius (CUVIER ET VALENCIENNES, 1849)

(1) Region Kitulgala, Kelani Ganga near Kitulgala (FC 36), 1 specimen SL. 50.

For this species also the generic name *Macrones* is used. This Catfish can be found in rivers and streams of the inner lowland. Geographic distribution : Ceylon, South India.

Family Clariidae

Clarias dussumieri (CUVIER ET VALENCIENNES, 1844)

(1) Region Ratnapura, Ira Handa Pana Ela (FC 15), 1 specimen SL. 81.

C. dussumieri inhabits muddy streams and ponds in the lowland. Geographic distribution : Ceylon, Malabar coast of India.

Order Atheriniformes

Suborder Exocoetoidei

Family Belonidae

Xenetodon cancila (HAMILTON-BUCHANAN, 1822)

(1) Region Ratnapura, Bodathpitiya Ela (FC 9) 1 juv. specimen SL. 21.

X. cancila is found in shaded streams in hill countries of Ceylon, India and Burma.

Suborder Cyprinodontoidei

Family Cyprinodontidae

Aplocheilus dayi (STEINDACHNER, 1892)

(1) Region Ratnapura, Bodathpitiya Ela (FC 9) 1 female specimen SL. 39. (2) Region Ratnapura, Katugas Ela (FC 10) 1 male specimen SL. 30. (3) Region Ratnapura, Kalu Ganga near Ratnapura (FC 12) 5 specimens (4 males, 1 female) SL. 39/34/30/28/24. (4) Region Ratnapura Ira Handa Pana Ela (FC 15) 4 specimens (2 males, 2 females), SL. 43/40/40/38.

A. dayi is found very frequently in fresh waters like channels, brooks, streams and also in paddy-fields and ponds of the coastal plains and low hills of the wet zone in the South-west of Ceylon. This species seems to be endemic to Ceylon.

Family Poeciliidae

Poecilia reticulatus (PETERS, 1859)

(1) Region Maskeliya, Dick Oya (FC 23) 32 specimens, 15 females SL. 34/34/33/33/31/29/28/28/27/27/26/25/24/22, 15 males SL. 22/21/20/20/20/19/19/19/18/18/18/18/17/17/15/, 2 juveniles 13/13.

The south-american Guppy was introduced to Ceylon for mosquito larvae control.

Xiphophorus helleri HECKEL (1848)

(1) Region Maskeliya, Mocha Dola (FC 16) 2 specimens, 1 male 1 female SL. 50/46. (2) Region Maskeliya, Dick Oya (FC 23) 5 specimens 1 male 2 females, 2 juveniles SL. 50/43/31/17/15.

This species is derived from southern Mexico and was introduced to Ceylon for mosquito larvae control.

Order Channiformes

Family Channidae

Channa orientalis (BLOCH ET SCHNEIDER 1801)

(1) Region Deniyaya, Campden Hill Dola (FC 5) 2 specimens SL. 81/49. (2) Region Deniyaya, Kiriwel Dola (FC 6) 4 specimens SL. 64/49,5/44/40. (3) Region Deniyaya, Thanipita Dola (FC 7) 3 specimens SL. 42/37/25,5. (4) Region Deniyaya, Nagahaketa Dola (FC 8) 1 specimen SL. 27. (5) Region Ratnapura, Rajanawa Dola (FC 11) 2 specimens SL. 101/70. (6) Region Ratnapura, Kalu Ganga near Ratnapura (FC 12) 1 specimen SL. 49. (7) Region Ratnapura, Ira Handah Pana Ela (FC 15) 1 specimen SL. 49. (8) Region Kitulgala, Bibili Oya (FC 34) 1 specimen SL. 69. (9) Region Kitulgala, Hal Oya near Ginigathhena (FC 35) 2 specimens SL. 104/18.

Ch. orientalis inhabits clear water ponds near streams in lowlands and hill country. Geographic distribution : Afghanistan, Pakistan, India, Ceylon, and the Malayan Archipelago.

Order Perciformes

Suborder Gobioidae

Family Gobiidae

Gobius grammepomus BLEEKER (1849)

(1) Region Ratnapura, Bodathpitiya Ela (FC 9) 1 juv. specimen (female). (2) Region Belihul-oya, Kudā Oya (FC 27) 2 specimens (1 male + 1 female). (3) Region Kitulgala, Bibili Oya (FC 34) 3 specimens (2 females + 1 male).

For this species also the generic or subgeneric names *Awaous* and *Chonephorus* are used. This species is found in streams of the hill country in Ceylon, South India and the Malayan and Indonesian Archipelago.

Sicydium halei (DAY, 1888)

(1) Region Kitulgala, Bibili Oya (FC 41) 1 specimen (female).

For *S. halei* also the generic name *Sicyopterus* is used. This species was described from Ceylon.

Suborder Anabantoidei**Family Anabantidae***Anabas testudineus* (BLOCH, 1795)

(1) Region Ratnapura, Kalu Ganga near Ratnapura (FC 12) 1 specimen SL. 42.

The Climbing Perch is very frequently found in many habitats as ponds, paddy-fields, canals and streams in the lowland country. It is found in India and Ceylon and its distribution extends through the whole Malayan Archipelago and the Philippines until South China.

Family Belontiidae*Belontia signata* (GÜNTHER, 1861)

(1) Region Deniyaya, Campden Hill Dola (FC 5) 22 specimens SL. 50/48/ 47,5/47/46/44/42/41/40,5/36,5/35/33,5/29/27/26,5/26/24/21/19/17/16,5. (2) Region Deniyaya, Kiriwel Dola (FC 6) 10 specimens SL. 45/44/39/37/32,5/29/24/21/21/20. (3) Region Deniyaya, Thanipita Dola (FC 7) 4 specimens SL. 71,5/39,6/23/19. (4) Region Ratnapura, Bodathpitiya Ela (FC 9) 3 specimens SL. 67/36/23. (5) Region Ratnapura, Katugas Ela (FC 10) 4 specimens SL. 51/29/22/12. (6) Region Ratnapura, Rajanawa Dola (FC 11) 1 specimen SL. 74. (7) Region Ratnapura, Kalu Ganga near Malwala (FC 13) 1 specimen SL. 51. (8) Region Ratnapura, Ira Handha Pana Ela (FC 15) 2 specimens SL. 41/36. (9) Region Belihuloya, Kirikatu Oya (FC 25) 1 specimen SL. 19. (10) Region Kitulgala, Bibili Oya (FC 34) 3 specimens SL. 24/24/23. (11) Region Kitulgala, Kelani Ganga near Kitulgala (FC 37) 4 specimen SL. 75/59/59/36.)

B. signata is frequently found in habitats, mostly running water, in the lowlands and hills, It is endemic to Ceylon.

Order Mastocembeliformes**Family Mastocembelidae***Mastocembelus armatus* (GÜNTHER, 1861)

(1) Region Ratnapura, Kalu Ganga near Malwala (FC 13) 1 juv. specimen SL. 30. (2) Region Kitulgala, Bibili Oya (FC 34) 1 specimen SL. 166.

This species inhabits flowing and still waters up to a height of about 1,200 m. above sea level. It can be found over an area from India until South-China including the Indomalayan Archipelago.

Macrogathus aculeatus (BLOCH, 1788)

(1) Region Deniyaya, Nagahaketa Dola (FC 8) 1 specimen SL. 274.

The Lesser Spiny Eel is found in similar habitats like *M. armatus*. The distribution of this species is practically identical with that of the former species.

SUMMARY

A total of 378 specimens from 25 collecting localities belonging to 31 different species of fish collected mainly from the rivers of the hilly and mountain regions of the South-western and Southern Ceylon have been identified and recorded. Ecological data and water analyses of these collecting localities are given.

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