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(*With a sketch map in text*).

## ON A COLLECTION OF FISH FROM TRAVANCORE

BY

E. G. SILAS, B.SC.

(With a sketch map in text)

Communicated by Dr. S. L. Hora, D.Sc., F.N.I., etc.

### INTRODUCTION

The fresh-water fish fauna of Travancore has received considerable attention in recent years. After Day's 'Fishes of Malabar' (1865)\* and 'Fishes of India' (1876-1888), Pillay (1929), John (1936), Hora and Law (1941), Hora and Nair (1941), Raj (1941 a) and Chacko (1948) have reported on the fishes of Travancore.

The present collection was made from two areas in April 1949; one from the hill-streams of Balamoore and Thadikarakonam in Southern Travancore and the other from the canals in Alleppey, Northern Travancore.

The fish fauna of Southern Travancore is perhaps of special interest when the system of waterways is taken into account. All the rivers and lakes south of Calicut from Ponnani in Malabar to Trivandrum in Travancore are connected by canals and backwaters to form a continuous 'System'. But the rivers and streams south of the river Neyyar in Southern Travancore form a separate 'System' and are not connected with those of the north. So far no exhaustive collection seems to have been made from this Southern section. In view of the discontinuity between the water-ways of the southern from the northern sections of the State and the continuity and similarity in the topography of the land in the southern section to that of the Tinnevely District, there is a likelihood of a considerable affinity between their respective fish faunas. Observations on the fish fauna of the streams in the plains have already shown the presence of a number of sluggish forms similar to those of the Madras Province. The Western ghats at this region are of lesser elevation than those of the north and a few miles south they end in the form of low hills. The rainfall is much less and the terrain is more rocky and consequently the forests are less dense. The hill-streams also flow abruptly into the plains and are torrential in nature.

The Kalikayam and Thadikarakonam streams are perennial and are characterized by a series of rapids, falls and pools along their respective courses. Collections from the above streams contain a number of forms previously recorded only from northern and central Travancore. At the time of making the collections, in addition to the fishes, the writer noted the presence of a number of insect larvae also, such as those of Trichoptera (caddis flies), Ephemeroptera (may-flies), Chironomidae (gnats) and a few Coleopterans (water beetles) crustaceans and some frogs in these streams.

In this paper an account is given of the ecological factors that govern fish life in the various types of habitats. The number of specimens with measurements with the list of species collected therefrom are also given.

### ECOLOGICAL OBSERVATIONS AND LISTS OF SPECIES

*Kalikayam Stream*:—The Kalikayam stream, which passes through the Balamoore area, is about 40 feet wide with an average depth of about 2½ feet

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\*Geographically and faunistically conditions in Malabar, Cochin and Travancore are more or less identical.

and has a rocky bottom with a number of pools along its course. During the time of collection in April its water was clear. The largest pool in its course has a surface area of about an acre and the flow beyond this pool was moderate. Collections of fish were made from the pools as well as the running stream.

The following species were collected from the pools:—

Name of species	Number of specimens	Standard length in millimeters	
<i>Barilius bakeri</i> Day	...	9	42-78
<i>Barbus (Puntius) tilamentosus</i> (C. & V.)	...	4	26.5
<i>Barbus (Tor) khudree malalaricus</i> (Jerdon)	...	10	76-87
<i>Garra mullya</i> (Sykes)	...	8	48-91
<i>Aplocheilus lineatus</i> (C. & V.)	...	6	22-36
<i>Ophicephalus gachua</i> (Ham.)	...	1	47
<i>Mastacembelus guentheri</i> Day	...	3	137-172

The following species were collected from the running waters:—

Species	Number of specimens	Standard length in millimeters	
<i>Barilius bakeri</i> Day	...	14	35-86
<i>Danio aequipinnatus</i> (McClell.)	...	38	26-61
<i>Barbus (Puntius) melanampyx</i> Day	...	16	27-46
<i>Garra mullya</i> (Sykes)	...	4	43-73
<i>Nemachilus triangularis</i> Day	...	6	33-66.5
<i>Batasio travancoria</i> (Hora & Law)	...	5	88-93
<i>Mystus cavasius</i> (Ham.)	...	1	39
<i>Mastacembelus guentheri</i> Day	...	2	38-119

*Thadikarakonam Stream*:—In addition to rocky rapids and pools, the stream at Thadikarakonam had intermittent patches of muddy areas along its course. There was overhanging vegetation on either side of the stream. The banks in some places were covered with aquatic and semi-aquatic vegetation. Accumulations of fallen and decaying leaves were present in shallow places along the sides of the stream. Stagnant water isolated here and there in crevices and depressions of the rocks formed excellent breeding grounds for mosquito. Separate collections were made from the pools, running water and muddy areas along the course of the stream.

The following were collected from the pools where the flow of water was very slow:—

Species	Number of specimens	Standard length in millimeters	
<i>Danio aequipinnatus</i> (McClell.)	...	9	22-45
<i>Barbus (Puntius) melanampyx</i> (Day)	...	8	20.5-38
<i>Barbus (Puntius) amphibius</i> (C. & V.)	...	1	43.2
<i>Aplocheilus lineatus</i> (C. & V.)	...	5	17.5-34

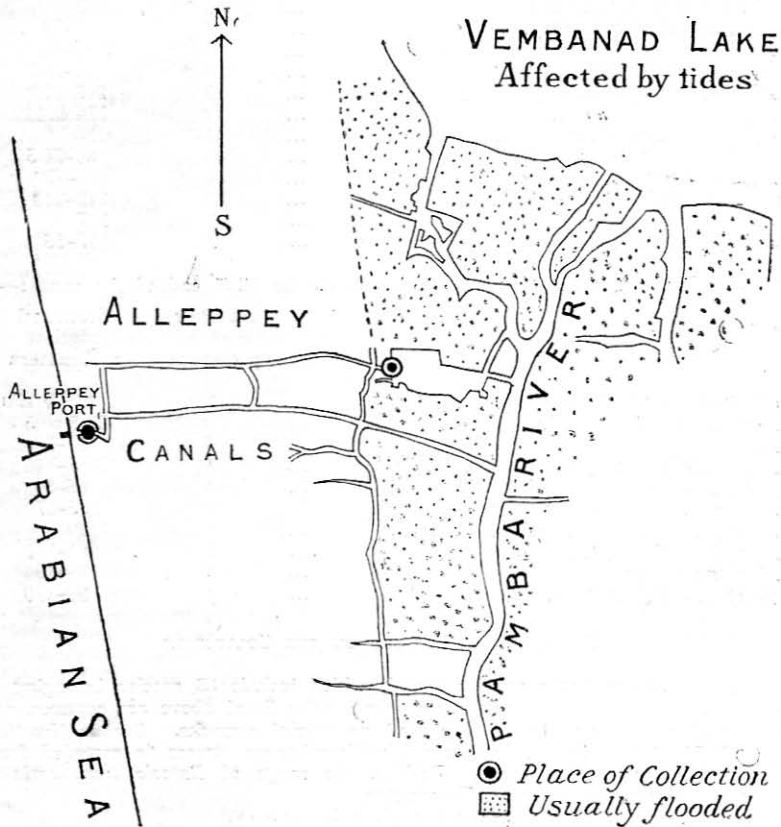
The following were collected from moderately running waters:—

Species	Number of specimens	Standard length in millimeters	
<i>Danio aequipinnatus</i> (McClell.)	...	11	21-47
<i>Rasbora daniconius</i> (Ham.)	...	1	67
<i>Barbus (Puntius) melanampyx</i> (Day)	...	9	21-36
<i>Barbus (Puntius) dorsalis</i> (Jerdon)	...	3	32-26
<i>Barilius bakeri</i> Day	...	1	27
<i>Garra mullya</i> (Sykes)	...	1	29

The following were collected from muddy areas:—

Species	Number of specimens	Standard length in millimeters
<i>Garra mullya</i> (Sykes)	...	1
<i>Aplocheilichthys lineatus</i> (C. & V.)	...	2
<i>Ophicephalus gachua</i> (Ham.)	...	4
		59
		24 & 49
		36.5-68

*Alleppey Canals*:—A collection was made from the canal system in Alleppey town which consists of three interconnected parallel canals starting from the Vembanad lake and the Pamba river (fig.). The water in these canals is



subject to tidal influence to a considerable extent as a result of which their salinity is greater towards the lake end than towards the blind ends. The salinity is highest during the summer months when the freshwater outflow from the rivers into the lake is less. The rich aquatic vegetation and micro-phyto-plankton present in these canals give plenty of food, shelter and shade for the fishes. In some places the overgrowth of the water-hyacinth (*Eichornia crassipes*) results in the death and decomposition of the submerged vegetation and the water in such places becomes impure—a condition not congenial for normal fish life. But hardy air-breathing forms, such as, *Anabas testudineus*,

*Ophicephalus gachua*, *Ophicephalus striatus*, *Heteropneustes fossilis*, etc., are found to live in such places.

According to the degree of the salinity of the water the fishes collected from the canals can be arranged into two groups, namely, those collected from places near the mouth of the canal where the salinity is greater, and those collected towards the blind ends of the canal where the salinity is very low.

The following were collected from near the mouth of the canal:—

Species	Number of Specimens	Standard length in millimeters
<i>Lutjanus argentimaculatus</i> (Blkr.)	...	3 65-73.5
<i>Synaptura orientalis</i> (Day.)	...	5 93.5-98
<i>Paraplagusia bilineata</i> (Blkr.)	...	1 99
<i>Equula edentula</i> (Bloch)	...	1 35
<i>Ambassis thomasi</i> (Day.)	...	7 48-53
<i>Ambassis dayi</i> (Blkr.)	...	5 39.5-44
<i>Glossogobius giuris</i> (Ham.)	...	6 61-152
<i>Heteropneustes fossilis</i> (Bloch)	...	3 207 214
<i>Anabas testudineus</i> (Bloch.)	...	2 114 & 119
<i>Ophicephalus striatus</i> (Bloch)	...	1 124
<i>Etroplus maculatus</i> (Bloch)	...	48 30-54.5
<i>Etroplus suratensis</i> (Bloch)	...	4 71-73
<i>Mastacembelus gentheri</i> (Day.)	...	3 219-224
<i>Elops saurus</i> (Linn.)	...	1 107
<i>Scatophagus argus</i> (Bloch)	...	2 47-55

The following were collected from towards the blind end of the canal:—

Species	Number of specimens	Standard length in millimeters
<i>Ophicephalus striatus</i> (Bloch)	...	2 175 & 220
<i>Etroplus maculatus</i> (Bloch)	...	30 29.5 to 58
<i>Etroplus suratensis</i> (Bloch)	...	6 68-72
<i>Barbus (Puntius) pinnauratus</i> (Day.)	...	3 138.5-144
<i>Barbus (Puntius) amphibious</i> (C. & V.)	...	4 65-89
<i>Barbus (Puntius) filamentosus</i> (C. & V.)	...	6 55-67
<i>Amblypharyngodon melettina</i> (C. & V.)	...	1 79
<i>Myxus ocellatus</i> (C. & V.)	...	2 91-108
<i>Myxus vittatus</i> (Bloch)	...	36 88-104
<i>Glossogobius giuris</i> (Ham.)	...	5 83-170

#### GENERAL OBSERVATIONS ON THE COLLECTION

In all 370 specimens were collected, which include 33 species belonging to 23 genera and 16 families. Many of the species listed above are common and widely distributed and hence they need no special remarks. *Barbus (Puntius) dorsalis* (Jerdon) collected from the Thadikarakonam stream is recorded from Travancore for the first time. Besides, the range of *Batasio travancoria* is extended within the limits of Travancore.

Notes on some of the species are given below:—

#### **Barbus (Puntius) dorsalis** (Jerdon).

*Barbus dorsalis*, Hora, (1936) *Rec. Ind. Mus.* xxxviii: 1-7. 3 specimens. Length 34 to 42.2 mm.

Stream at Thadikarakonam, South Travancore.

*Barbus dorsalis* is a new record from Travancore. The specimens showed the following characters:—

The dorsal fin starts in front of the ventral and is midway between the end of the snout and the base of the caudal fin. The dorsal spine is weak and not serrated. Upper 2/3 of the body is slightly darker. All the scales are dotted with fine black spots, the spots being denser towards their bases. There is a deep black spot at the basal portions of the dorsal starting from the fifth ray

and extending backwards. A similar spot is also present at the centre of the base of the caudal fin on each side. This species does not attain large size.

The variations in the colour of the body found during growth has been the main reason for its being described under different species by various authors. This aspect has been pointed out and clarified by Hora (1936) who has given a series of figures showing these variations in three main types of coloration along with the transitional stages. Very young specimens measuring about 23 mm. show a dark spot each at the base of the dorsal, caudal and anal fins. In specimens measuring about 34 mm. the anal spots disappear, but the dorsal and the caudal spots which persist are very distinct. These spots become reduced and lighter in specimens measuring more than 83 mm. The specimens under observation resemble the 34 mm. stage described by Hora.

The measurements of the specimens in millimeters are as follows:—

Total Length	...	34	40.5	42.2
Length of caudal	...	8.5	9.2	10.1
Length of head	...	7.1	8	9.8
Height of head	...	5	5.3	6.3
Width of head	...	4	5	5.1
Depth of body	...	7	8.5	9.5
Diameter of eye	...	2	2.5	2.5
Length of snout	...	1.8	2	2
Interorbital distance	...	2.5	3	3
Length of dorsal	...	7.1	8.5	9
Length of pectoral	...	5.5	6.8	7
Length of anal	...	5	5.5	6
Length of caudal peduncle	...	3.8	4.9	5
Least height of caudal peduncle	...	3.2	4.2	4.5

#### ***Barbus (Puntius) pinnauratus* (Day).\***

*Barbus pinnauratus*. Hora and Law, (1941) *Rec. Ind. Mus.* xliii: 247.

4 specimens. Length 138.5 to 144 mm.

Canals in Alleppey, North Travancore.

Cuvier and Valenciennes (1849)<sup>1</sup> described a specimen collected from Alleppey as *Barbus gibbosus*. Topotypes obtained from the same locality by the writer resemble Day's description of *Barbus pinnauratus* in all essentials. Hence this helps to confirm that *Barbus gibbosus* is a synonym of *Barbus pinnauratus*.

#### ***Batasio travancoria* Hora and Law.**

*Batasio travancoria*. Hora and Law, (1941) *Rec. Ind. Mus.* xliii: 40-42.

5 specimens. Length 88-93 mm.

Kalikayam stream—South Travancore.

Hora has described specimens collected from Perunthenaruvu, Kallada river, and Kulathupujha in Central Travancore and River Palode, north of Trivandrum. The present collection shows its extended distribution to the south. The nearest related species of this genus are found in widely separated areas.

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\*=*Barbus (Puntius) sarana* (Ham.).

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