

## REFERENCES

- AHLANDER, ERIK (1988): *Monotreta travancorica* -en rund och mycket liten fisk. *Fauna Och Flora* 5: 208-211.
- BIJU, C.R., K. RAJU THOMAS & C.R. AJITHKUMAR (1999): Occurrence of *Tetraodon travancoricus* (Hora and Nair) in the Chalakudy, Periyar and Kechery rivers, Kerala. *J. Bombay nat. Hist. Soc.* 96(1): 161.
- BRITZ, R. & M. KOTTELAT (1999): *Carinotetraodon imitator*, a new freshwater puffer fish from India (Teleostei: Tetraodontiformes). *J. South. Asian Nat. Hist.* 4(1): 39-47, 9 fig.
- HORA, S.L. & K.K. NAIR (1941): Notes on the fishes in the Indian Museum XLI, New records of fresh water fish from Travancore. *Rec. Indian Mus.* XLIII(3): 387-393.
- INASU, N.D. (1993): Sexual dimorphism of a freshwater puffer fish, *Tetraodon (Monotretus) travancoricus* Hora and Nair, collected from Trichur district, Central Kerala, *J. Bombay nat. Hist. Soc.* 90: 523-524.
- REMA DEVI, K., T.J. INDRA & K.J. EMILYAMMA (1996): On the fish collections from Kerala, deposited in Southern Regional Station, Zoological Survey of India by NRM Stockholm. *Rec. zool. Surv. India* 95(3-4): 129-146.

## 21. FISH FAUNA OF IDUKKI AND NEYYAR WILDLIFE SANCTUARIES SOUTHERN KERALA, INDIA

Kerala state, though small, has 44 rivers, and a large number of dams have been constructed across many rivers in order to use the water for irrigation and hydroelectric projects. These dams are mostly in the forests, hence their catchment areas have to be protected. Keeping this in mind, forests around many reservoirs of dams have been constituted as wildlife sanctuaries. Such sanctuaries are intended to ensure preservation of natural conditions necessary to protect nationally significant species, biotic communities or physical features of the environment (Basha 1997).

The freshwater fish fauna studies of sanctuaries and national parks in southern Kerala have gained the attention of various researchers in the past, of which several studies were conducted in the Periyar Tiger Reserve (PTR). Raj (1941a, b) described three new fish from Periyar lake, namely *Lepidopygopsis typus*, *Barbus (Puntius) ophicephalus* and *Barbus (Puntius) micropogon periyarensis*. Chacko (1948) listed 35 species of fishes from Periyar lake (PTR), and according to him mahseer (*Tor khudree*) is the commonest fish in the lake. Indra and Rema Devi (1990) collected 19 species from Thekkady Wildlife Reserve (PTR). Arun *et al.*

(1996) recorded six species in addition to Chacko's (1948) list. Menon and Jacob (1996) described a new Cyprinid fish *Crossocheilus periyarensis* from PTR. Zacharias *et al.* (1996) collected 35 species from PTR. Very recently, Zacharias and Minimol (1999) reported *Nemacheilus menoni* as a new species from PTR. Fish fauna studies of Chinnar Wildlife Sanctuary were carried out by Easa and Shaji (1996) and Raju Thomas *et al.* (1999a). Recently Biju *et al.* (1999) recorded 40 fish species from the Parambikulam Wildlife Sanctuary. Ichthyofaunal studies of the Eravikulam National Park were undertaken by Raju Thomas *et al.* (1999b). The present study gives information on the status and distribution of fishes in the Idukki and Neyyar Wildlife Sanctuaries.

Idukki Wildlife Sanctuary is situated in Idukki district above the Idukki arch dam (9° 45'-9° 55' N; 76° 50'-77° 05' E). The Sanctuary is drained by Periyar river and its tributary Cheruthoni river. Idukki reservoir is formed by the construction of three dams across Periyar and Cheruthoni river. Cherian (1990) studied the impact of reduction in the water flow below the Idukki dams, in the Periyar river. Detailed studies conducted by Kurup (1983) on the dead

specimens from these waters in 1980-83 revealed that the fishes had died due to the high levels of toxicity in the water.

Neyyar Wildlife Sanctuary is the southernmost protected area of Kerala (8° 30'-8° 37' N, 77° 8'-77° 17' E). It is very near to

Peppara WLS (north) and Agasthya Vanam Biological Park, Thiruvananthapuram district. The state boundaries of the Sanctuary are the Mundanthurai and Kalakkad Sanctuaries in Tamil Nadu (Nair 1991). This Sanctuary is drained by the Neyyar river and its tributaries.

TABLE I  
FISHES COLLECTED FROM IDUKKI NEYYAR  
WILDLIFE SANCTUARIES AND THEIR ABUNDANCE

S. No.	Species	Idukki	Neyyar
I. Family: Anguillidae			
1.	<i>Anguilla bengalensis</i> (Gray)	++	+
II. Family: Cyprinidae			
2.	<i>Catla catla</i> (Ham.)	++	++
3.	<i>Cyprinus carpio communis</i> Linn.	+++	++
4.	<i>Hypselobarbus curmuca</i> (Ham.)	+++	-
5.	<i>H. kurali</i> Menon & Rema Devi	++	++
6.	<i>Labeo rohita</i> (Ham.)	++	++
7.	<i>Barbodes carnaticus</i> (Jerdon)	++	++
8.	<i>B. sarana subnasutus</i> (Val.)	++	++
9.	<i>Puntius amphibius</i> (Val.)	+++	+++
10.	<i>P. arulius</i> (Jerdon)	-	+++
11.	<i>P. filamentosus</i> (Val.)	+++	+++
12.	<i>P. melanampyx</i> (Day)	++	++
13.	<i>P. ticto</i> (Ham.)	+++	-
14.	<i>Tor khudree</i> (Sykes)	+++	+++
15.	<i>Salmostoma boopis</i> (Day)	-	++
16.	<i>Barilius bakeri</i> Day	++	+++
17.	<i>B. gatensis</i> (Val.)	++	++
18.	<i>Danio aequipinnatus</i> (McClelland)	+++	++
19.	<i>D. malabaricus</i> (Jerdon)	-	+++
20.	<i>Parluciosoma daniconius</i> (Ham.)	++++	+++
21.	<i>Garra mullya</i> (Sykes)	+++	+++
III. Family: Balitoridae			
22.	<i>Bhavana australis</i> (Jerdon)	++	++
23.	<i>Noemacheilus guentheri</i> Day	++	++
24.	<i>N. triangularis</i> Day	++	++
IV. Family: Cobitidae			
25.	<i>Lepidocephalus thermalis</i> (Val.)	-	++
V. Family: Bagridae			
26.	<i>Horabagrus brachysoma</i> (Günther)	+	-
27.	<i>Mystus armatus</i> (Day)	+++	++
28.	<i>M. malabaricus</i> (Jerdon)	-	++
29.	<i>M. oculatus</i> (Val.)	+++	++
30.	<i>M. vittatus</i> (Bloch)	+	-
VI. Family: Claridae			
31.	<i>Clarias batrachus</i> Linn.	+	-

TABLE I(contd)  
FISHES COLLECTED FROM IDUKKI NEYYAR  
WILDLIFE SANCTUARIES AND THEIR ABUNDANCE

S. No.	Species	Idukki	Neyyar
VII. Family: Heteropneustidae			
32.	<i>Heteropneustes fossilis</i> (Bloch)	+	-
VIII. Family: Siluridae			
33.	<i>Ompok bimaculatus</i> (Bloch)	++	++
34.	<i>Wallago attu</i> (Schneider)	++	++
IX. Family: Sisoridae			
35.	<i>Glyptothorax madraspatanus</i> (Day)	+	-
X. Family: Belonidae			
36.	<i>Xenentodon cancila</i> (Ham.)	++	++
XI. Family: Aplocheilidae			
37.	<i>Aplocheilus lineatus</i> (Val.)	+++	+++
XII. Family: Nandidae			
38.	<i>Pristolepis marginata</i> Jerdon	-	++
XIII. Family: Ambassidae			
39.	<i>Parambassis thomassi</i> (Day)	+++	++
XIV. Family: Cichlidae			
40.	<i>Etroplus maculatus</i> (Bloch)	+++	+++
41.	<i>E. suratensis</i> (Bloch)	++	+
42.	<i>Oreochromis mossambica</i> (Peters)	+++	+++
XV. Family: Gobidae			
43.	<i>Glossogobius giurus</i> (Ham.)	++	-
XVI. Family: Channidae			
44.	<i>Channa marulius</i> (Ham.)	++	+
45.	<i>C. orientalis</i> (Bloch & Schneider)	+	+
XVII. Family: Mastacembelidae			
46.	<i>Mastacembelus armatus</i> (Lacepede)	++	++
Total		40	38

(+) = Very rare, (++) = Rare, (+++) = Common, (++++) = Very common, (-) = Absent

MISCELLANEOUS NOTES

Samples were collected from October 1998 to April 1999 to study the status and distribution of fish fauna. Sampling was done using cast nets, hooks and a modified form of cast net for small fish. The specimens were preserved in 10% formalin.

A total of 40 species belonging to 16 families and 29 genera were collected from the Idukki Sanctuary, and 38 species belonging to 13 families and 26 genera were recorded from the Neyyar Sanctuary (Table 1). Three culture fishes were collected from both the sanctuaries. Most of the species are widely distributed in Kerala and other parts of the Western Ghats. The following eight species were collected only from the Idukki WLS: *Hypselobarbus curmuca*, *Puntius ticto*, *Horabagrus brachysoma*, *Mystus vittatus*, *Clarias batrachus*, *Heteropneustes fossilis*, *Glyptothorax madraspatanus* and *Glossogobius giuris*. A few species were collected only from the Neyyar WLS, namely *Puntius arulius*, *Danio malabaricus*, *Salmostoma boopis*, *Lepidocephalus thermalis*, *Pristolepis marginata* and *Mystus malabaricus*. The abundance of these species is given in Table I. *Hypselobarbus curmuca* was seen abundantly in Idukki WLS and *Tor khudree* was collected in plenty from Idukki reservoir and below Meenmutty waterfalls, Neyyar WLS. *Glyptothorax madraspatanus*, *Clarias batrachus*, *Heteropneustes fossilis*, *Horabagrus brachysoma*, *Channa orientalis* and *Mystus vittatus* were found to be very rare in the Idukki WLS. In Neyyar WLS, the very rare species were

*Anguilla bengalensis*, *Etroplus suratensis*, *Channa marulius* and *C. orientalis*.

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REFERENCES

- ARUN, L.K., C.P. SHAJI & P.S. EASA (1996): Record of new fishes from Periyar Tiger Reserve. *J. Bombay nat. Hist. Soc.* 93(1): 103.
- BASHA, S.C. (1997): Management and Conservation of Wildlife. The Natural Resources of Kerala. Eds K. Balachandran Thampi, N.M. Nayar and C.S. Nair. World Wide Fund for Nature-India, Thiruvananthapuram.
- BIJU, C.R., K. RAJU THOMAS & C.R. AJITHKUMAR (1999): Fishes of Parambikulam Wildlife Sanctuary, Palakkad District, Kerala. *J. Bombay nat. Hist. Soc.* 96(1): 82-87.
- CHACKO, P.I. (1948): Development of fisheries of the Periyar lake. *J. Bombay nat. Hist. Soc.* 48: 191-192.
- CHERIAN, P.T. (1990): Studies on some ecological impacts of the reduction in the flow of water below the Idukki dams, in the Periyar river in Kerala. *Rec. zool. Surv. India* 86(3 & 4): 437-442.

- EASA, P.S. & C.P. SHAJI (1996): Freshwater fishes of Pambar river, Chinnar Wildlife Sanctuary, Kerala. *J. Bombay nat. Hist. Soc.* 93(2): 304-306.
- INDRA, T.J. & K. REMA DEVI (1990): On a small collection of fish from Thekkady Wildlife Sanctuary, Western Ghats. *Rec. zool. Surv. India.* 87(3): 249-257.
- KURUP, M.B. (1983): Studies on the systematics and biology of the fishes of the Vembanad lake. Ph.D. Thesis, University of Cochin, Kochi. Pp. 300.
- MENON, A.G.K. & P.C. JACOB (1996): *Crossocheilus periyarensis* a new Cyprinid fish from Thanikudy (Thekkady), Kerala, India. *J. Bombay nat. Hist. Soc.* 93(1): 62-64.
- NAIR, S.C. (1991): The Southern Western Ghats — a biodiversity conservation plan, INTACH, New Delhi.
- RAJ, S.B. (1941a): A new genus of Schizothoracine fish from Travancore, south India. *Rec. Ind. Mus.* 43: 209-214.
- RAJ, S.B. (1941b): Two new Cyprinid fishes from Travancore, south India, with remarks on *Barbus (Puntius) micropogon* Cuv. & Val. *Rec. Ind. Mus.* 43: 375-386.
- RAJU THOMAS, K., C.R. BIJU & C.R. AJITHKUMAR (1999a): Additions to the fish fauna of Pambar river, Kerala. *J. Bombay nat. Hist. Soc.* 96(2): 330-332.
- RAJU THOMAS, K., C.R. BIJU., C.R. AJITHKUMAR & M. JOHN GEORGE (1999b): Ichthyofauna of Eravikulam National Park with notes on trout culture in Rajamalai, Munnar, Kerala. *J. Bombay nat. Hist. Soc.* 96(2): 199-202.
- ZACHARIAS, V.J., A.K. BHARDWAJ & P.C. JACOB (1996): Fish fauna of Periyar Tiger Reserve. *J. Bombay nat. Hist. Soc.* 93(1): 39-43.
- ZACHARIAS, V.J. & K.C. MINIMOL (1999): *Noemacheilus menoni*, a new species of fish from Malappara, Periyar Tiger Reserve, Kerala. *J. Bombay nat. Hist. Soc.* 96(2): 288-290.

## 22. *ECTEINASCIDIA SLUITERI* HERDMAN (PEROPHORIDAE), A NEW RECORD OF A COLONIAL ASCIDIAN (PROCHORDATA) TO INDIAN WATERS

(With one text-figure)

A colonial ascidian, *Ecteinascidia sluiteri* Herdman 1906 is reported for the first time from Ervadi coast of Tamil Nadu, India. So far only 4 species of the genus *Ecteinascidia* are reported from India (Das 1938; Renganathan 1984, 1986; Renganathan and Krishnaswamy 1985). Of these, *Ecteinascidia bombayensis* was reported from the west coast, whereas the other three species, *Ecteinascidia garstangi*, *E. imperfecta*, *E. krishnani* were from the east coast. The specimen studied has been deposited in the National Collections of the Zoological Survey of India, Chennai (AS. 16).

### *Ecteinascidia sluiteri* Herdman 1906

**Occurrence and distribution:** A few individuals of a damaged colony attached to calcareous stones were collected from the littoral zone of the Ervadi coast (9° 11' N; 78° 43' E). This species has been previously reported from Sri Lanka (Herdman 1906), Palau Islands (Tokioka 1950), Singapore (Millar 1975) and Australia (Kott 1985).

**Synonymy:** *Ecteinascidia sluiteri* Herdman, 1906, p. 300. Tokioka, 1950, p. 126. Millar, 1975, p. 267. Kott, 1985, p. 98.

**Taxonomy:** Class: Ascidiacea, Order: Enterogona, Suborder: Phlebobranchia, Family: Perophoridae, Genus: *Ecteinascidia*, Species: *sluiteri*.

**Description:** The colony consists of upright zooids, 0.7 x 0.3 cm, attached by a short stalk from the posteroventral corner of the body to a common basal mat of stolons. Branchial aperture terminal and atrial aperture subterminal. Both apertures on very low, conical siphons and have inconspicuous lobes. Test transparent, firm, naked. Zooids are pale green in life, but become colourless in preservative.

The body wall is thin, delicate, vascularised, and the arrangement of muscles is peculiar, in that the transverse muscles are short and grouped to form three longitudinal bands (one mid-dorsal and two lateral). On the left side, the band does not extend beyond the gut loop. Circular and longitudinal muscles are present