



CHECKLIST OF FRESHWATER FISHES OF THE VAMANAPURAM RIVER, KERALA

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Abstract: Freshwater fish diversity of Vamanapuram river, one of the five rivers originating from the western slope of Agasthyamalai hill ranges of South Western Ghats has been studied and 39 species of freshwater fishes belonging to 20 families has been identified. A checklist with 58 species of freshwater fishes belonging to 22 families is prepared by incorporating all the freshwater fishes being reported from the river. Out of valid identifications, 6 species were assessed as threatened on IUCN Red List.

Key words: Vamanapuram river, freshwater fish, Red list

INTRODUCTION

Vamanapuram river (other wise known as the Attingal river) originating from the Agasthyamalai hill ranges in the South Western Ghats is poorly-known with regard to the diversity and distribution of freshwater fishes. From an extensive survey of literature, it was clear that very few studies on freshwater fish diversity and distribution are available for Vamanapuram river. Remadevi et al., (1996) mentions the occurrence of 10 species of freshwater fishes in various regions of Vamanapuram river as part of an effort to understand the freshwater fish species available in collections made by Dr. K.C. Jayaram and deposited in the Southern Regional Station of the Zoological Survey of India. Subsequently, another study (Cherian et al. 2001) recorded the presence of only seven species of freshwater fishes in the Vamanapuram river.

Morphological characteristics and their overlap with the fish community in Vamanapuram river was studied by Kingston et al. (2007), who reported the presence of 19 fish species, in 12 sites along the various regions of the river. Johnson and Arunachalam (2009) made an extensive study of

diversity, distribution and assemblage structure of freshwater fishes from Southern Western Ghats region, of which one river selected was Vamanapuram. Their checklist records 17 species. The most recent and extensive effort on identifying the diversity, distribution and threats faced by freshwater fishes in Vamanapuram was made by Abraham et al., (2011), which reported the presence of 25 species of freshwater fishes. Current work aims at compiling a checklist of native freshwater fishes reported from various regions of Vamanapuram river.

STUDY AREA

Vamanapuram river is one of the major west flowing rivers that originate from the Southern most region of Western Ghats part of the Western Ghats-Sri Lanka biodiversity hotspot. Length of Vamanapuram river is 88 km ("Rivers of Kerala," 2019) and catchment area of river basin is estimated to be 787 Sq. km. (Ajjin et al., 2013). Catchment area falls in Thiruvananthapuram and Kollam districts of Kerala state and spans from Kottarakkara thaluk in north to Nedumangad thaluk in South, and Tamil Nadu in east. The river finally drains in between Anchuthengu

lake and Kadinamkulam lake near Attingal on the west. Vamanapuram river basin falls between latitudes 8° 35' 30" in south to 8° 50' 32" in north and longitudes 76° 46' 27" west to 77° 12' 27" in east.

Major tributaries that contribute water to Vamanapuram river are formed from Agasthyamala Biosphere Reserve in Western Ghats biodiversity hotspot. Suryakanthi aar is the major tributary of Vamanapuram river that originates from Chemmunji mottai at 1583 m above msl with another tributary, Kallar joining the former from northern aspect of Chemmunji mottai. Another major tributary is Kallapparai aar formed at an altitude of 1341 m above msl, which joins the Suryakanthi aar, together forming the major trunk of Vamanapuram river flowing as the Kallar tributary. Two small tributaries also join the Kallar stream, one that originates from Merchiston estate at an altitude of 935 m and another from Ponmudy at 813 m. Another stream originates from an altitude of 792 m in Palode Reserved Forests and flows via vithura and joins the main Vamanapuram trunk near Vattakkayam. Another stream namely Chittar originates from above Braemore estate at an altitude 969 m and joins the main Vamanapuram trunk above Anakulam. All these tributaries originate from Palode Reserved Forest areas in Agasthyamala hills.

Five more major tributaries supply water to the Vamanapuram river which forms in the mid land altitudes from the non-forest areas. Though the upper catchments are formed in rainforest and evergreen forest areas, major portion of the river flowing downstream passes through heavily degraded urban areas with mainly rubber and oil palm plantations. The river flows westwards and joins the Anchuthengulake in southern end and Kadinamkulam lake in its northern extremity. It is further drained in to Arabian sea near Perumathura.

METHODS

Sampling was carried out at 32 locations distributed at three different altitude ranges (below 10m, 10-75m and above 75m) along the course of the main river and its tributaries. Experimental fishing was carried out in pre-monsoon (April – May), monsoon (Aug – Sep) and post-monsoon (Dec- Jan) seasons at the selected locations to identify fish species richness and in particular the abundance of native species. Species level identification was carried out following Jayaram, (1999) and Talwar and Jhingran, (1991) and species names adhere to the CAS— Catalog of Fishes (Fricke et al., 2019). The current checklist is prepared by comparing our findings with those recorded by earlier workers from the Vamanapuram river basin.

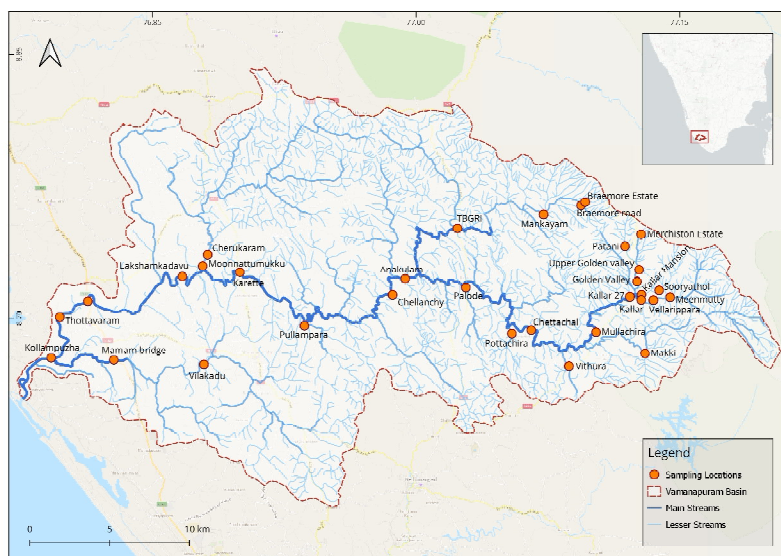


Fig. 1. Map of Vamanapuram river basin along with sampling locations

RESULTS AND DISCUSSION

Our study collected 39 species of freshwater fishes, which concludes the total number of freshwater fishes reported from Vamanapuram river to be 58 species belonging to 22 different families. Among this, 9 species might be probable misidentifications of closely related or similar fishes (Table 1). Out of

valid identifications, 6 species (*Hyporhamphus xanthopterus*, *Dawkinsia assimilis*, *Garra hughi*, *Tor malabaricus*, *Channa diplogramma* and *Carinotetraodon travancoricus*) in Vamanapuram River are assessed as threatened on the IUCN Red List.

Table 1. Checklist of freshwater fishes of the Vamanapuram river

No.	Species	Authority	IUCN	Endemism	Reported by
	Anguillidae				
1	<i>Anguilla bengalensis</i>	Gray 1831	NT		5, 6
	Belontiidae				
2	<i>Xenentodon cancila</i>	Hamilton 1822	LC		3, 5, 6
	Hemiramphidae				
3	<i>Hyporhamphus xanthopterus</i>	Valenciennes 1847	VU	KL	3, 6
	Clupeidae				
4	<i>Dayella malabarica</i>	Day 1873	LC	WG	6
	Balitoridae				
5	<i>Bhavana australis</i>	Jerdon 1849	LC	WG	1, 4, 6
6	<i>Travancoria jonesi</i> ^{#a}	Hora 1941	EN	KL	5
	Botiidae				
7	<i>Botia striata</i> ^{#b}	Narayan Rao 1920	EN	WG	4
	Cobitidae				
8	<i>Lepidocephalichthys thermalis</i>	Valenciennes 1846	LC		4
	Cyprinidae				
9	<i>Dawkinsia assimilis</i>	Jerdon 1849	VU	WG	6
10	<i>Dawkinsia filamentosa</i>	Valenciennes 1844	LC	WG	3, 4, 5, 6
11	<i>Garra hughi</i>	Silas 1955	EN	KL	4, 5
12	<i>Garra mullya</i>	Sykes 1839	LC		1, 2, 3, 4, 5, 6
13	<i>Garra cf. mullya</i>				6
14	<i>Haludaria fasciata</i> ^{#c}	Jerdon 1849	LC	WG	4, 5
15	<i>Haludaria melanampyx</i>	Day 1865	DD	KL	1, 3, 4, 6
16	<i>Hypselobarbus curmuca</i> ^{#d}	Hamilton 1807	EN		5
17	<i>Hypselobarbus kurali</i>	Menon & Rema Devi 1995	LC	WG	1, 4, 6
18	<i>Pethia punctata</i>	Day 1865	LC	KL	6
19	<i>Pethia ticto</i> ^{#e}	Hamilton 1822	LC		3
20	<i>Puntius amphibius</i>	Valenciennes 1842	DD		1, 3
21	<i>Puntius cf. parrah</i>	Day 1865	LC	KL	6
22	<i>Puntius dorsalis</i>	Jerdon 1849	LC	WG	5
23	<i>Puntius mahecola</i>	Valenciennes 1844	DD	WG	5, 6
24	<i>Puntius vittatus</i>	Day 1865	LC		2, 3, 6
25	<i>Systomus sarana</i>	Hamilton 1822	LC		3, 6
26	<i>Tor khudree</i> ^{#f}	Sykes 1839	EN	WG	4
27	<i>Tor cf. malabaricus</i>	Jerdon 1849	EN		5, 6
	Danionidae				
28	<i>Amblypharyngodon microlepis</i>	Bleeker 1853	LC		1, 6
29	<i>Barilius bakeri</i>	Day 1865	LC	KL	3, 4, 5, 6
30	<i>Barilius cf. malabaricus</i>	Jerdon 1849	NE	KL	6
31	<i>Barilius gatensis</i>	Valenciennes 1844	LC	WG	1
32	<i>Devario aequipinnatus</i> ^{#g}	McClelland 1839	LC		3, 4, 5

33	<i>Devario malabaricus</i>	Jerdon 1849	LC	WG	1, 5, 6
34	<i>Rasbora dandia</i>	Valenciennes 1844	NE		1, 3, 4, 5, 6
Nemacheilidae					
35	<i>Mesonoemacheilus triangularis</i>	Day 1865	LC	KL	1, 4, 5, 6
36	<i>Schistura denisoni</i>	Day 1867	LC	WG	4
Aplocheilidae					
37	<i>Aplocheilus blockii</i>	Arnold 1911	LC		2
38	<i>Aplocheilus lineatus</i>	Valenciennes 1846	LC		1, 2, 3, 5, 6
Ambassidae					
39	<i>Parambassis thomassi</i>	Day 1870	LC	WG	5, 6
Gobidae					
40	<i>Awaous gutum</i>	Hamilton 1822	NE		6
41	<i>Glossogobius giuris</i>	Hamilton 1822	LC		2, 3, 5
Pristolepididae					
42	<i>Pristolepis rubripinnis</i>	Britz, Kumar & Baby 2012	NE	KL	6
Bagridae					
43	<i>Mystus armatus</i>	Day 1865	LC	KL	3, 6
44	<i>Mystus malabaricus</i> ^{#h}	Jerdon 1849	NT	WG	5
Clariidae					
45	<i>Clarias dussumieri</i>	Valenciennes 1840	NT		6
Sisoridae					
46	<i>Glyptothorax annandalei</i>	Hora 1923	LC	WG	6
Syngnathidae					
47	<i>Microphis cuncalus</i>	Hamilton 1822	LC		2
Siluridae					
48	<i>Ompok malabaricus</i>	Valenciennes 1840	LC	WG	6
49	<i>Pterocryptis wynaadensis</i> ^{#i}	Day 1873	EN	WG	4
Mastacembelidae					
50	<i>Macroglyphus guntheri</i>	Day 1865	NE		6
51	<i>Mastacembelu sarmatus</i>	Lacepède 1800	LC		6
Channidae					
52	<i>Channa diplogramma</i>	Day 1865	VU	WG	6
53	<i>Channa gachua</i>	Hamilton 1822	LC		4, 5
54	<i>Channa pseudomarulius</i>	Hamilton 1822	LC		5, 6
55	<i>Channa striata</i>	Bloch 1793	LC		5, 6
Cichlidae					
56	<i>Etroplus suratensis</i>	Bloch 1790	LC		3, 5, 6
57	<i>Pseudetroplus maculatus</i>	Bloch 1795	LC		2, 3, 5, 6
Tetraodontidae					
58	<i>Carinotetraodon travancoricus</i>	Hora & Nair 1941	VU	WG	6

#a - Probable misidentification of juveniles of *Bhavana australis*

WG - Western Ghats endemic

#b - Probable misidentification as this is a northern western ghats endemic

KL - Kerala endemic

#c - Probable misidentification of *Haludaria melanampyx*

#d - Probable misidentification of *Hypselobarbus kurali*

1 - Remadevi et al. (1996)

#e - Probable misidentification of *Pethia punctata*

2 - Cherian et al. (2001)

#f - Probable misidentification of *Tor cf. malabaricus*

3 - Kingston et al. (2007)

#g - Probable misidentification of any closely related species

4 - Johnson and Arunachalam (2009)

#h - Probable misidentification of *Mystus armatus*

5 - Abraham et al. (2011)

#i - Probable misidentification of *Ompok malabaricus*

6 - Present Study

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