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Research Article

ICHTHYOFAUNAL DIVERSITY IN CHIKLIHOLE (TRIBUTARY OF RIVER CAUVERY), CENTRAL WESTERN GHATS

Krishna M.P*

Department of Zoology, Field Marshal K. M. Cariappa Mangalore University College, Madikeri 571201, Karnataka, India

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A B S T R A C T

A preliminary fresh water fish diversity analysis has been conducted in Chiklihole (tributary of river Cauvery) during post monsoon season (November 2017 to February 2018). Fishes were collected with the help of local fisherman and identified with the help of standard reference materials. A total 15 species out of 27 species are endemic to Western Ghats, 11 species are endemic to Indian sub-continent and 1 exotic species *Oreochromis mossambica* and four endangered species *Garra gotyla,, Parluciosoma daniconius, Puntius melanostigma, Channa orientalis* and *Tor khudree* a critically endangered species have been recorded. The study revealed that many species in the area are being threatened by various major activities are habitat modification, removal of riparian vegetation, agricultural activities and destructive fishing. Therefore conservation action plans are needed to conserve rare, highly threatened and critically endangered fish species in this region.

INTRODUCTION

The Western Ghats forms an important water shed regions in the entire peninsular India and being the source of 37 west-flowing rivers and three major east flowing rivers and their numerous tributaries. The east flowing rivers are Krishna, Godavary, and Cauvery which confluence in the Bay of Bengal (Babu, K.K.S and Nayar, C.K.G 2004; Dahanukar, N *et al.,* 2004). Annual rainfall on the Western Ghats averages 2500mm. The Western Ghats receive much of its rain from south-west monsoon. The varied climate and diverse topography create a wide array of habitats that support unique sets of plant and animal species. The level of endemism is high and the region is considered one of the world's biodiversity hotspots (Menon, 1999). Fish constitute almost half of the total number of vertebrate in the world. They live in almost all conceivable aquatic habitats. They exhibit enormous diversity of size, shape and biology in the habitat they occupy. Of the 39,900 species of vertebrates in the world. (Nelson 1994) estimated 21,723 extant species of fish under 4.044 genera, 445 families and 50 orders in the world. Of these, 8,411 are freshwater species and 11,650 are marine (Jayaram, K. C. 1999). India is one of the mega biodiversity countries in the world and occupies the ninth position in terms of fresh water mega biodiversity (Myers *et al.,* 2000). India is home for more than 10% of global fish biodiversity with 2546 species of fish belonging to 969 genera, 254 families and 40 orders (Talwar, P. K and Jhingran, A .G 1991).

Corresponding author:* **Krishna M.P
Department of Zoology, Field Marshal K. M. Cariappa Mangalore University College, Madikeri 571201, Karnataka, India

Out of which 477 species are known to be distributed in Karnataka. They include 201 species of freshwater and 276 species of marine fishes belonging to 106 families, 23 orders and 241 genera. Studies on fish in Western Ghats enlist 318 species, of which 136 species are endemic to the region. Nearly 39.1% of fresh water fishes are under threat 27 species are critically endangered, 55 endangered and 128 are data deficient (Sreekanth, 2006). However it is evident from the literature that there are only few reports on diversity and distribution of fresh water fishes in Cauvery river regions in Tamil Nadu (Jayaram, K.C *et al*.,1982) and (Balasundaram *et al.,*1999) except the report of (Krishna, M. P and Sreepada, K. S 2009) Cauvery river region of Kodagu district Karnataka. No attempt has been made so as far to explore the fresh water fish fauna of Chiklihole tributary of river Cauvery. Hence, a preliminary fish diversity analysis has been conducted in the region.

MATERIALS AND METHODS

Study Area

River Cauvery which is the longest perennial river can be divided into three zones as the mountainous course, plateau course and the plain course. It originates from the Brahmagiri hills of Western Ghats in the Kodagu district of Karnataka at an elevation of 4,400 feet and flows in a south east direction for about 850 km before emptying in to the Bay of Bengal in Thanjavur district of Tamil Nadu. River Cauvery which is the longest perennial river. The river Chiklihole is the major tributary that joins the Cauvery River. It originates at the contemporary area of Western Ghats in the Kodagu district a small reservoir has been built across the river Chiklihole

before confluence with Cauvery. Reservoirs are biologically very potential and rich in flora, fauna and natural habitat for feeding, breeding grounds for fishes other tributaries of Cauvery is Kannike, Kadanurhole, Harangi, Hemavathi, Lakshmanthirtha, Kabini, Nugu, Shimsha and Arkavathi. Survey has been carried out during post monsoon season (November 2017 to February 2018) Fishes were collected with the help of local fisherman and our team using small hand operated drag nets and cast nets. The fishes which were caught in the cast net were kept in a bucket of water and then preserved in 4% formalin. The fishes were identified with the help of standard reference materials (Talwar, P. K and Jhingran, A. G 1991; Jayaram, K.C 1999: Daniels, R. J.R 2003). The details on fishes collected along with their global threat status are given in the (Table.1)

Table 1 List of Fresh water Fishes with Family, scientific names, Endemicity And IUCN status

Family	Scientific name	Endemism	IUCN status
Notopteridae	*Notopterus notopterus*	ENWG	LC
Bagridae	*Mystus seenghala*	ENIS	LC
	Mystus malabaricus	ENIS	NT
	Mystus cavesius	ENIS	LC
Nemacheilidae	*Nemacheilus danisonii*	ENWG	LC
Cyprinidae	*Barilus barila*	ENWG	VU
	Osteochilus nashi	ENWG	VU
	Catla catla	ENIS	VU
	Garra gotyla	ENWG	EN
	Labeo rohita	ENIS	LC
	Parluciosoma daniconius	ENWG	EN
	Salmostoma boopis	ENWG	NT
	Puntius amphibious	ENWG	NE
	Puntius caveriansis	ENWG	LC
	Puntius vittatus	ENWG	VU
	Puntius melanostigma	ENWG	EN
Siluridae	*Wallago attu*	ENWG	NT
Ambassidae	*Parambasis thomassi*	ENIS	VU
Cichilidae	*Oreochromis mossambica*	EX	NE
Nandidae	*Tor khudree*	ENWG	CR
Channidae	*Channa orientalis*	ENIS	EN
	Channa striata	ENIS	LC
	Channa marulius	ENIS	LC
	Channa punctatus	ENIS	NT
Belonidae	*Xenentodon cancila*	ENWG	LC
Mastacembelidae	*Macrognathus punctatus*	ENIS	LC
Anguillidae	*Anguilla anguilla*	ENWG	VU

NE= Not Evaluated, CR= Critically Endangered, VU= Vulnlerrable, NT= Near Threatened,
LC= Least concern, EN = Endangered, ENIS= Endemic to Indian Subcontinent, ENWG= Endemic to Western Ghats, Ex= Exotic,

RESULTS AND DISCUSSION

Around 27 species 7 orders 12 families and 19 genera were collected from the study area. Of these 40.75% of the species belong to the family Cyprinidae, 14.82% of the species belong to family Channidae, 11.12% of the species belong to family Bagridae and 3.7% each of the species belong to family Notopteridae, Nemacheilidae, Siluridae, Ambassidae, Cichilidae, Nandidae, Belonidae, Mastacembelidae and Anguillidae. A total 15 species out of 27 species are endemic to Western Ghats, 11 species are endemic to Indian sub-continent one exotic species *Oreochromis mossambica,* have been recorded. As per IUCN status 10 species belongs to least concerned, 6 species Vulnerable, 4 species near threatened, 2 species not evaluated four endangered species *Garra gotyla,, Parluciosoma daniconius, Puntius melanostigma, Channa orientalis* and *Tor khudree* a critically endangered species have been recorded (Table.1). In these reported species family Cyprinidae was comparatively more dominance 40.75% than remaining 11 families. Most of the earlier investigators diversity of fresh water fish species in the Cauvery River regions in Tamil Nadu (Jayaram, K. C *et al*., 1982., Balasundaram *et al.,* 1999) and in Karnataka regions (Krishna, M.P and Sreepada, K.S 2009) have reported the more dominance of Cyprinidae family our results are corroborating with these findings. The study revealed that sand mining and dynamite fishing to be the most destructive threat to freshwater fishes of this area. These practices seen to have caused severe habitat destruction and declines of rare substrate dwelling local fishes. Pollution, introduction of invasive exotic food fishes into dam reservoirs and low land river areas were the other most critical threats. The study also revealed that many species in the area are being threatened by various major activities are habitat modification, removal of riparian vegetation, agricultural activities and destructive fishing. Habitat modification are very common in the streams were the channels are locally modified for various purposes like extraction for water drinking and agriculture, as a result there is low surface flow of water available in downstream areas creates threats to many localized species. In addition increased sedimentation due to removal of riparian vegetation and entry of agricultural runoff causes severe threats to fish diversity.

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