

## FISH FAUNA OF THE ANAMALAI HILL RANGES, WESTERN GHATS, INDIA

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## ABSTRACT

Based on the surveys undertaken by the Southern Regional Station, Zoological Survey of India and from earlier reports from Anamalai, Nelliampathi, Parambikulam WLS and Cardamom hills, a comprehensive list of the fish fauna of the Anamalai hill ranges is provided here. It comprises of 88 species including some new species described recently and several new records. A note on endemism and species diversity is provided.

## KEYWORDS

Anamalai hills, Cardamom hills, checklist, freshwater fish, Indira Gandhi Wildlife Sanctuary, Nelliampathi hills, Parambikulam Wildlife Sanctuary, review, Western Ghats

An account of the topography, drainages and taxonomic details of the fish fauna of each drainage in the Anamalai and Nelliampathi hills and their zoogeographical significance was reported by Silas (1951). Subsequently, Jayaram *et al.* (1976) studied the ichthyofauna of the Cardamom and Agastya hill ranges-two spurs of the Anamalai range. Biju *et al.* (1999) surveyed the Parambikulam Wildlife Sanctuary during 1996-1997 and reported the ichthyofaunal diversity. Recently, the Southern Regional Station carried out six extensive surveys of the Indira Gandhi Wildlife Sanctuary in Anamalais during 1996-98 and the fish specimens collected were identified as belonging to 58 species, which includes 29 new reports and one new species. An updated ichthyofaunal list comprising 88 species under 20 families and eight orders of the Anamalai hill ranges is presented here (Table 1) based on the station's collections and from earlier reports. The classification followed here is after Jayaram (1999) and Menon (1999).

## DISCUSSION

Silas (1951) listed 25 species from Anamalai hills and 10 species from Nelliampathi hills (Table 1). His study extended the distribution of several species earlier known only in the central division of the Western Ghats to the southern division below the Palghat gap. Earlier work on the southern Western Ghats after Day (1865, 1875-78) is by Herre (1942, 1945) who described two new species, a sisorid catfish *Glyptothorax housei* and a homolopterid, *Homaloptera montana* and extended the distribution of *Travancoria jonesi* Hora. Silas (1951) in his faunal account discussed the extension of range of *Salmostoma acinaces* Val. (= *Chela argentea* Day), *Barbodes carnaticus* (= *Barbus (Puntius) carnaticus*), *Osteochilus (Osteochilichthys) thomassi* and *Batasio travancoria* and listed two endemic species described by Herre *viz.*, *Homaloptera montana* and *Glyptothorax housei*. He further reported five species from the Cochin part of the Anamalai hills *viz.*, *Barilius bakeri*, *Puntius denisoni*, *Travancoria jonesi*, *Noemacheilus triangularis* and *Batasio travancoria*. The species *Glyptothorax prox madraspatanus* (Day) reported by Silas from Anamalais has been subsequently described by him

as a new species *G. anamalaiensis*. Jayaram *et al.* (1976) collected and reported 32 species from Cardamom hills with four new records to the area, *viz.* *Barilius bakeri*, *Osteobrama bakeri*, *Hypselobarbus thomassi* and *Pristolepis marginatus*. The listing of *Lepidocephalus guntea* (Val.) needs confirmation and hence not included in the present list.

Biju *et al.* (1999) surveyed the Parambikulam Wildlife Sanctuary, which lies in a valley between the Anamalai and Nelliampathi hill ranges in the Palakkad district of Kerala. They reported 41 species of which nine species are new additions to the upper reaches of Anamalai ranges and include two new species described from the Chalakudy river recently, *viz.*, *Osteochilichthys longidorsalis* (Pethiyagoda & Kottelat, 1996) and *Garra surendranathanii* (Shaji *et al.*, 1996). *Macrogathus guentheri* listed by them has recently been placed under the synonymy of *M. malabaricus* (Menon, 1999). Nine new additions to the ichthyofauna are the following: *Anguilla bengalensis* Gray, *Esomus danricus* (Hamilton), *Osteochilichthys longidorsalis* Pethiyagoda and Kottelat, *Garra surendranathanii* Shaji *et al.*, *Glyptothorax lonah* (Sykes), *Clarias batrachus* (Linn.), *Etroplus suratensis* (Bloch) and *Channa marulius* (Hamilton).

The present collection yielded 58 species from IGWLS Anamalai hills of which, 29 species are new additions (Table 1) to the IGWLS and 20 to the Anamalai hills, including one new species *Heteropneustes longipectoralis* (Rema Devi & Raghunathan, 1999). Several species reported only from central Western Ghats have now been recorded from the southern ranges beyond the Palghat gap. The extension of range of *Noemacheilus monilis* has been discussed (Indra *et al.*, 1998). Other collections of significance are *Hypselobarbus dubius* first described from Bhavani River at base of Nilgiris subsequently reported from Manimuthar river has now been collected from the Anamalai hills. *Puntius bimaculatus (B. puckelli)* earlier considered as a juvenile of *P. dorsalis* has been collected from these hills. Interestingly this species is found to be the most dominant *Puntius* species in the hill ranges of the Eastern Ghats especially Javadi hills. *Puntius punctatus* earlier considered as a synonym of *Puntius tincto* has been kept as a separate species (Menon, 1999) and both these species have been collected from IGWLS. *Garra hughi* described from the Cardamom and Palani hills has been collected from the upper Aliyar and Kilkallar rivers. A detailed study on the species with reference to its squamation had been carried out (Rema Devi & Indra, 1999). *Garra maclellandi* (Jerdon) also an endemic species of the Western Ghats has been collected from the two hill streams in Navamalai and Sirkarpathy. The homolopterid *Bhavana australis*, a rare species is a new addition to the Anamalai hills, earlier known from the hill streams of Nilgiris, Silem Valley, Tenmalai, Wynaad and from Mysore. Characters distinguishing *Noemacheilus*

Table 1. Systematic list of species recorded from Anamalai

	Cardamom hills	Nelliampathi hills	Anamalai hills	IGWLS	Parambikulam WLS		Cardamom hills	Nelliampathi hills	Anamalai hills	IGWLS	Parambikulam WLS
<b>Order: Osteoglossiformes</b>						<b>Tribe: Labeonini</b>					
<b>Suborder: Notopteroidei</b>						<i>Catla catla</i> (Hamilton)*				+	+
<b>Family: Notopteridae</b>						<i>Cirrhinus mrigala</i> (Hamilton)*				+	+
<i>Notopterus notopterus</i> (Pallas)*				+		<i>Labeo rohita</i> (Hamilton)*				+	+
<b>Order: Anguilliformes</b>						<b>Subfamily: Garrinae</b>					
<b>Family: Anguillidae</b>						<i>Garra hughii</i> (Silas)*#				+	
<i>Anguilla bengalensis</i> (Gray)					+	<i>Garra maclellandi</i> (Jerdon)*#				+	
<b>Subfamily: Danioninae</b>						<i>Garra mullya</i> (Sykes)	+	+	+	+	+
<b>Tribe: Oxygasterini</b>						<i>Garra surendranathanii</i> Shaji, Easa & Arun #					+
<i>Barilius bakeri</i> Day#	+		+		+	<b>Family: Balitoridae</b>					
<i>Barilius bama</i> (Hamilton)				+		<b>Subfamily: Balitorinae</b>					
<i>Barilius bendelesis</i> (Hamilton)*				+	+	<i>Bhavana australis</i> (Jerdon)*#				+	+
<i>Barilius gatensis</i> (Val.)#				+	+	<i>Homaloptera montana</i> Herre #			+		
<i>Salmostoma acinaces</i> (Val.)				+	+	<i>Travancoria jonesi</i> Hora #			+		+
<i>Salmostoma boopis</i> (Day)#	+			+		<b>Subfamily: Noemacheilinae</b>					
<i>Salmostoma clupeioides</i> (Bloch)		+		+		<i>Mesonemacheilus herrei</i> Nalbant & Banareescu #				+	
<b>Tribe: Danionini</b>						<i>Mesonemacheilus guentheri</i> Day #					+
<i>Amblypharyngodon microlepis</i> (Bleeker)*					+	<i>Mesonemacheilus triangularis</i> (Day) #	+	+	+	+	+
<i>Chela laubuca</i> (Hamilton)	+					<i>Nemacheilus monilis</i> Hora* #				+	
<i>Esomus danricus</i> (Hamilton)					+	<i>Schistura denisoni denisoni</i> (Day)*				+	
<i>Esomus thermoicos</i> (Val.)*					+	<b>Family: Cobitidae</b>					
<i>Danio aequipinnatus</i> (Mc Clelland)	+	+	+			<b>Subfamily: Cobitinae</b>					
<i>Danio malabaricus</i> (Jerdon)*					+	<i>Lepidocephalus thermalis</i> (Val.)	+		+	+	+
<i>Rasbora caverii</i> (Jerdon)*					+	<b>Order: Siluriformes</b>					
<i>Rasbora daniconius</i> (Hamilton)	+	+	+	+	+	<b>Family: Bagridae</b>					
<b>Subfamily: Cyprininae</b>						<i>Batasio travancoria</i> Hora & Law #	+		+		
<b>Tribe: Cyprinini</b>						<i>Mystus armatus</i> (Day)	+				+
<b>Subtribe: Cyprini</b>						<i>Mystus cavasius</i> (Hamilton)	+			+	
<i>Cyprinus carpio communis</i> (Linn.)*					+	<i>Mystus gulio</i> (Hamilton)	+				
<b>Subtribe: Tores</b>						<i>Mystus malabaricus</i> (Jerdon)*#				+	+
<i>Tor khudree</i> (Sykes)				+	+	<i>Mystus montanus</i> (Jerdon)	+			+	
<b>Tribe: Systomini</b>						<i>Mystus vittatus</i> (Bloch)	+				
<b>Subtribe: Osteobramae</b>						<b>Family: Siluridae</b>					
<i>Osteobrama bakeri</i> Day#	+					<i>Ompok bimaculatus</i> (Bloch)*				+	
<b>Subtribe: Systemi</b>						<i>Ompok malabaricus</i> (Val.)*#				+	
<i>Barbodes carnaticus</i> (Jerdon)				+	+	<b>Family: Sisoridae</b>					
<i>Barbodes sarana subnasutus</i> (Val.)	+			+	+	<i>Glyptothorax anamalaiensis</i> Silas #			+	+	
<i>Hypseleobarbus curmuca</i> (Hamilton)#	+			+	+	<i>Glyptothorax housei</i> Herre #			+		
<i>Hypseleobarbus denisoni</i> (Day)#				+	+	<i>Glyptothorax lonah</i> (Sykes)					+
<i>Hypseleobarbus dobsoni</i> (Day)#				+	+	<b>Family: Clariidae</b>					
<i>Hypseleobarbus dubius</i> (Day)*#				+	+	<i>Clarias batrachus</i> (Linn.)					+
<i>Hypseleobarbus thomassi</i> (Day)#	+					<b>Family: Heteropneustidae</b>					
<i>Puntius amphibius</i> (Val.)	+	+	+	+	+	<i>Heteropneustes fossilis</i> (Bloch)	+			+	
<i>Puntius bimaculatus</i> (Bleeker)*				+	+	<i>Heteropneustes longipectoralis</i> Remadevi & Raghunathan*#				+	
<i>Puntius chola</i> (Hamilton)	+			+	+	<b>Order: Mugiliformes</b>					
<i>Puntius dorsalis</i> (Jerdon)	+			+	+	<b>Family: Mugilidae</b>					
<i>Puntius filamentosus</i> (Val.)	+	+		+	+	<i>Rhinomugil corsula</i> (Hamilton)*				+	
<i>Puntius melanampyx</i> Day		+	+	+	+	<b>Order: Beloniformes</b>					
<i>Puntius melanostigma</i> (Day)*				+	+	<b>Family: Belonidae</b>					
<i>Puntius punctatus</i> (Day)*				+	+	<i>Xenentodon cancila</i> (Hamilton)	+			+	
<i>Puntius sophore</i> (Hamilton)*				+	+	<b>Order: Cyprinodontiformes</b>					
<i>Puntius ticto</i> (Hamilton)				+	+	<b>Family: Aplocheilidae</b>					
<b>Tribe: Semiplotini</b>						<i>Aplocheilus lineatus</i> (Val.)			+	+	+
<i>Osteochilichthys thomassi</i> (Day)#				+							
<i>Osteochilichthys longidorsalis</i> Pethiyagoda & Kottelat					+						

	Cardamom hills	Nelliampathi hills	Anamalai hills	IGWLS	Parambikulam WLS
<i>Aplocheilichthys panchax</i> (Hamilton)	+				
<b>Family: Poeciliidae</b>					
<i>Gambusia affinis</i> (Baird and Girard)*				+	
<b>Order: Synbranchiformes</b>					
<b>Family: Mastacembelidae</b>					
<i>Macroglyptothorax malabaricus</i> (Jerdon)*#				+	+
<i>Mastacembelus armatus</i> (Lacepede)			+	+	+
<b>Order: Perciformes</b>					
<b>Suborder: Percoidei</b>					
<b>Family: Chandidae</b>					
<i>Chanda nama</i> Hamilton*				+	
<i>Parambassis thomassi</i> (Day)#	+				
<b>Family: Nandidae</b>					
<b>Subfamily: Pristolepidinae</b>					
<i>Pristolepis marginatus</i> Jerdon #	+			+	+
<b>Suborder: Labroidei</b>					
<b>Family: Cichlidae</b>					
<i>Epiplatys maculatus</i> (Bloch)*				+	+
<i>Epiplatys suratensis</i> (Bloch)					+
<i>Oreochromis mossambica</i> (Peters)	+			+	+
<b>Suborder: Gobioidae</b>					
<b>Family: Gobiidae</b>					
<i>Glossogobius giurus</i> (Hamilton)	+			+	+
<b>Suborder: Anabantoidei</b>					
<b>Family: Belontiidae</b>					
<i>Pseudosphromenus cupanus</i> (Val.)	+				
<b>Suborder: Channoidei</b>					
<b>Family: Channidae</b>					
<i>Channa orientalis</i> Hamilton	+	+	+	+	+
<i>Channa marulius</i> (Hamilton)					+
<i>Channa striatus</i> (Bloch)	+				

\* - New Additions to IGWLS, Anamalai Hills; # - Endemic to Western Ghats; Cardamom hills (Jayaram, 1976); Nelliampathi hills (Silas, 1951); Anamalai hills (Silas, 1951); IGWLS, Anamalai hills (Recent Collections); Parambikulam WLS (Biju et al., 1999)

*herrei*, endemic to Anamalai hills from its closely related species *Noemacheilus guentheri* has been recently discussed (Rema Devi & Indra, 2002).

Of ichthyological significance is the presence of 29 species endemic to Western Ghats occurring in these ranges (Table 1). Of these endemics found in Anamalais, the following species are restricted only to these hill ranges, viz., *Garra hughi*, *G. surendranathanii*, *Noemacheilus herrei*, *Glyptothorax anamalaiensis* and *Glyptothorax housei*. *Garra hughi* earlier described from Travancore has also been reported from Palani hills, which is the eastern extension of the Anamalai hill ranges.

## REFERENCES

- Biju, C.R., K. Raju Thomas and C.R. Ajith Kumar (1999). Fishes of Parambikulam Wild Life Sanctuary, Palakkad district, Kerala. *Journal of the Bombay Natural History Society* 96(1): 82-87.
- Day, F. (1865). *The fishes of Malabar*. London, Quaritch, 293pp.
- Day, F. (1875-78). *The Fishes of India, being a natural history of the fishes known to inhabit the seas and freshwaters of India, Burma and Ceylon*. Text and Atlas in 4 parts, London, 778pp+195pls.
- Indra, T.J., K. Rema Devi and M.B. Raghunathan (1998). A new record of a rare loach, *Noemacheilus monilis* from Anamalai hills, Western Ghats, Tamil Nadu. *Journal of the Bombay Natural History Society* 95(3): 521-522.
- Herre, A.W.C.T. (1942). *Glyptothorax housei*, a new sisorid catfish from south India. *Stanford Ichthyological Bulletin* 2(4): 117-118.
- Herre, A.W.C.T. (1945). Notes on fishes in the Zoological Museum of Stanford University. New fishes from China and India. A new genus and a new Indian record. *Journal of Washington Academy of Science* 35: 399-404.
- Jayaram, K.C. (1999). *The Freshwater Fishes of the Indian Region*. Narendra Publishing House, New Delhi, xxvii+551+xviiipls.
- Jayaram, K.C., T.J. Indra and M. Sunder Singh (1976). On a collection of fish from the Cardamom hills, South India. *Madras Journal of Fisheries* 7: 1-7.
- Menon, A.G.K. (1999). Checklist- Freshwater Fishes of India. *Records of Zoological Survey of India, Occasional Paper No. 175: I-XXVIII*, 1-366pp.
- Pethiyagoda, R. and M. Kottelat (1994). Three new species of fishes of the genera *Gsteochilichthys* (Cyprinidae), *Travancoria* (Balitoridae) and *Harobagrus* (Bagridae) from Chalakudy river, Kerala, India. *Journal of South Asian Natural History* 1: 97-116.
- Rema Devi, K. and T.J. Indra (1999). Some observations on *Garra hughi* Silas from Anamalai hills, Western Ghats, Tamil Nadu, India. *Records of the Zoological Survey of India* 97(4): 53-59.
- Rema Devi, K. and T.J. Indra (2002). A note on *Mesonoemacheilus herrei* Nalbant and Banarescu (Cypriniformes: Balitoridae: Noemacheilinae). *Journal of the Bombay Natural History Society* 99(2): 333-337.
- Rema Devi, K. and M.B. Raghunathan (1999). *Heteropneustes longiptoralis* (Siluriformes: Heteropneustidae) a new species from the Anamalai Hills, in the western Ghats. *Records of the Zoological Survey of India* 97(3): 109-115.
- Shaji, C.P., P.S. Easa and L.K. Arun (1996). *Garra surendranathanii* - A new cyprinid fish from the southern Western Ghats, India. *Journal of the Bombay Natural History Society* 93: 572-575.
- Silas, E.G. (1951). On a collection of fish from the Anamalai and Nelliampathi hills ranges (Western Ghats) with notes on its zoogeographical significance. *Journal of the Bombay Natural History Society* 49(4): 670-681.

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