

# Ornamental Fishes of the Western Ghats of India

T.V. Anna Mercy, A. Gopalakrishnan,  
D. Kapoor & W.S. Lakra

Ornamental Fishes of the Western Ghats of India



## National Bureau of Fish Genetic Resources

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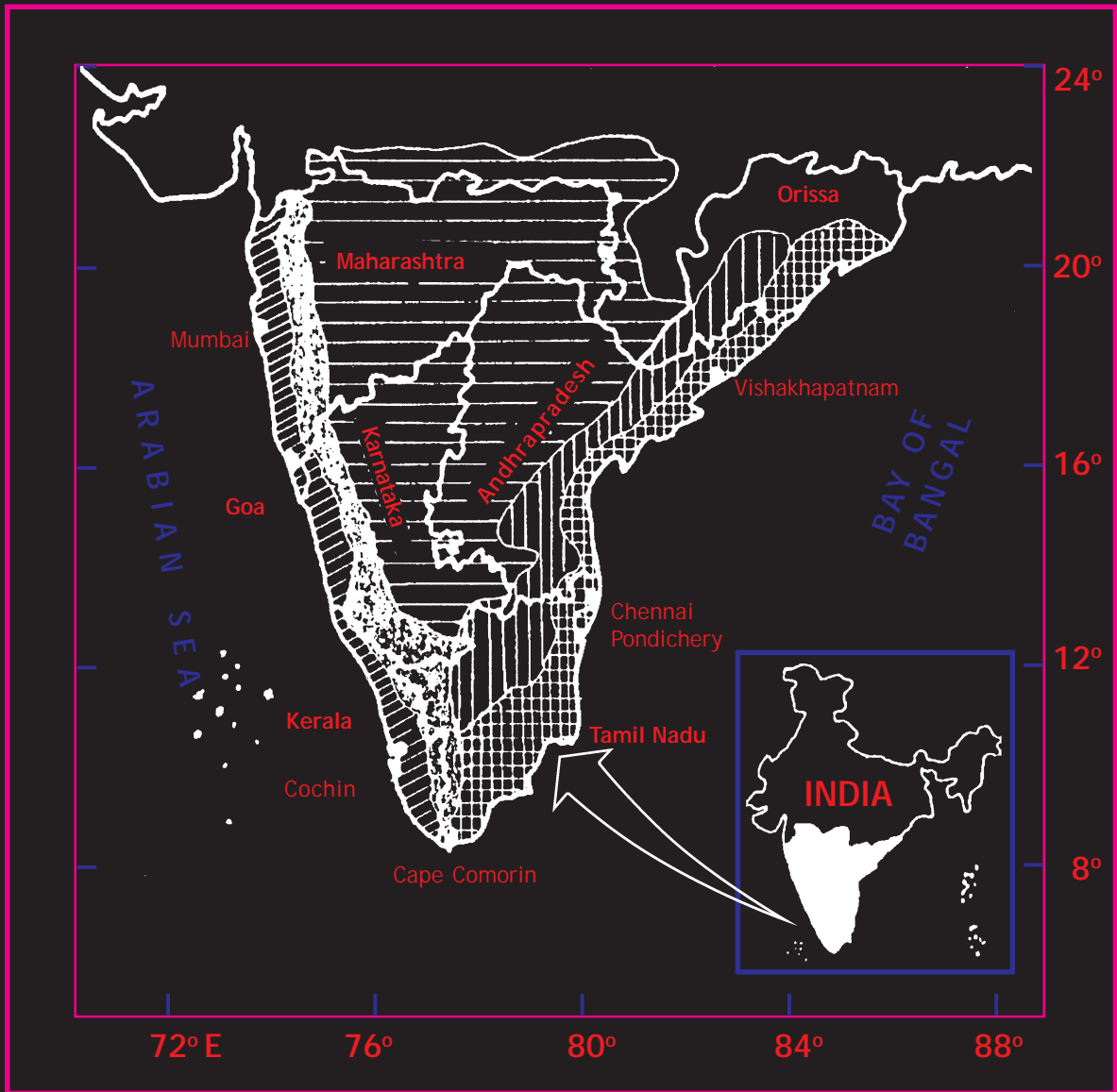


*Physical landscape of India showing the Western Ghats*





Peninsular India showing major physiographic divisions



- |  |                     |  |                     |
|--|---------------------|--|---------------------|
|  | West coastal plains |  | East coastal plains |
|  | Western ghats       |  | Deccan              |
|  |                     |  | Eastern hills       |



# RIVERS OF KERALA

(Part of the Western Ghats exhibiting high levels of fish diversity and endemism)



Arabian Sea

KARNATAKA

TAMIL NADU

Kochi (Cochin)

0 40 80  
kilometres



75 00

76 00

77 00

12 00

11 00

10 00

9 00



# Ornamental Fishes of the Western Ghats of India

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National Bureau of Fish Genetic Resources  
Lucknow-226 002, UP, India





**Dr. T.V. Anna Mercy** is a renowned specialist on ornamental fishes. She has done pioneering work on the ornamental fishes of the Western Ghats of India. She developed captive breeding technology for a number of species. Dr. Mercy is currently serving in the Faculty of Fisheries, Kerala Agricultural University, India. She secured her doctorate degree from the University of Kerala in 1982. She has to her credit several scientific and popular publications besides a book on Aquarium keeping. She presented papers on indigenous ornamental fishes in several international conferences such as World Aquaculture Society, Brazil (2003); Aquarama, Singapore (2003); CIRFA, Guangzhou, China (2004); Asian Fisheries Forum, Penang, Malaysia (2004). She has organized several training programmes with a view to popularizing ornamental fishes and aquarium keeping in India.



**Dr. A. Gopalakrishnan**, Senior Scientist possesses 18 years of research experience in the field of genetic characterization and gene banking of Indian teleosts. He initiated his career as a scientist in 1989. Currently working on molecular genetic markers and systematics in fish, he is stationed in the Cochin Unit of National Bureau of Fish Genetic Resources (NBFGR). He was successful in developing a database of endemic fish diversity of the Western Ghats. Dr. Gopalakrishnan received his Ph.D. from Cochin University of Science and Technology, Kochi, Kerala and had undergone specialized training in molecular population genetics in Queensland University of Technology (QUT), Brisbane, Australia. He has published 41 papers and was in the editorial board of 4 books.



**Dr. D. Kapoor**, Principal Scientist at National Bureau of Fish Genetic Resources (NBFGR) Lucknow is a well known fish biologist and widely known for his scientific contributions in the field of database development on Indian finfishes. He possesses 37 years of research experience in the Central Inland Fisheries Research Institute (CIFRI) and National Bureau of Fish Genetic Resources (NBFGR), Lucknow. He has published 40 scientific and popular publications besides 3 books.



**Dr. W.S. Lakra** is a leading fish geneticist and biotechnologist and currently working as Director, National Bureau of Fish Genetic Resources, Lucknow. He has published over 100 research papers and 20 books and bulletins. He has travelled widely both nationally and internationally as an invited speaker and fisheries expert and contributed immensely to the development of international linkages and programs in the areas of fish genetics, biodiversity and biotechnology.

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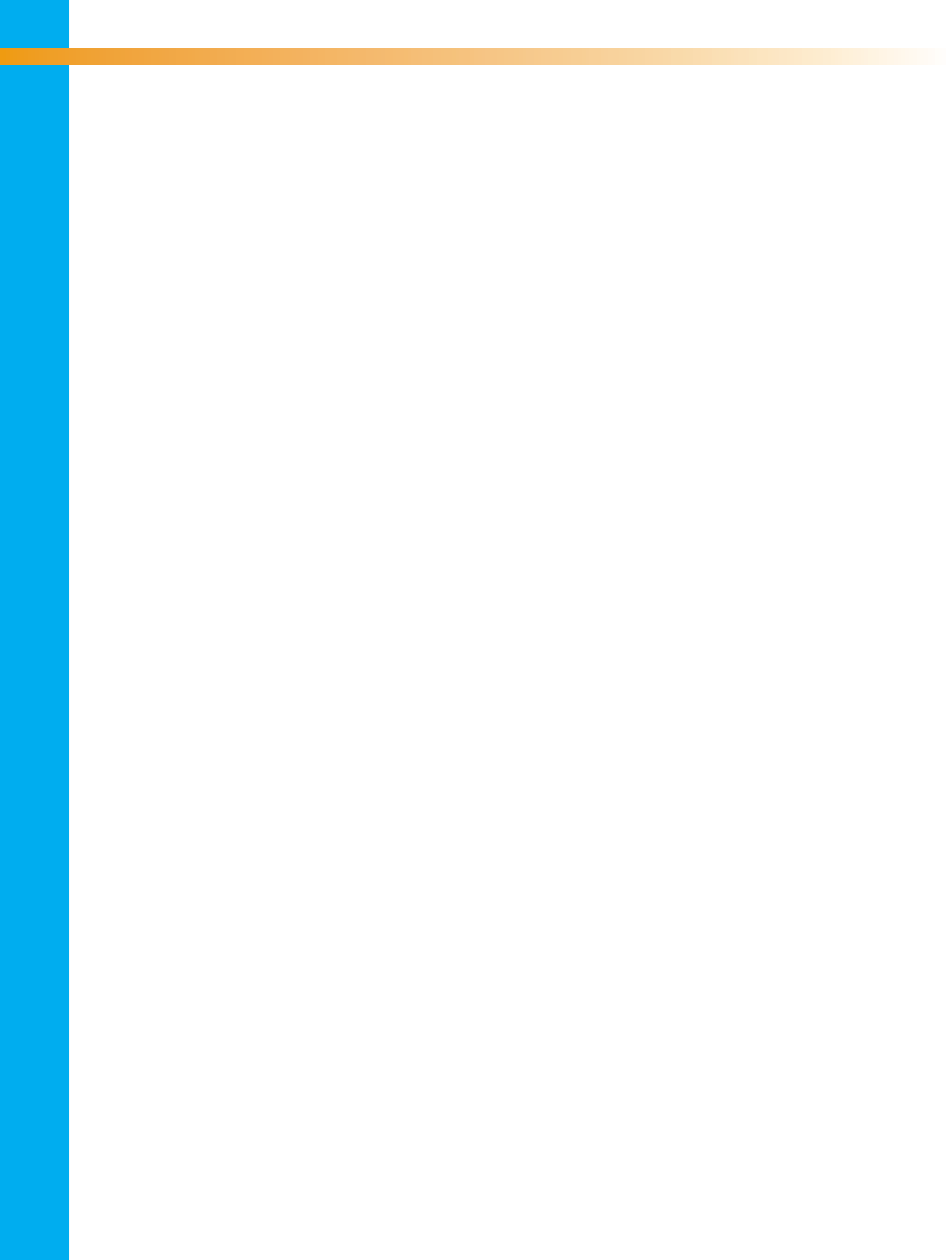
Cover Photo : *Puntius denisonii*, ornamental fish, endemic to the Western Ghats.

(Photograph courtesy : Tropical Fish Hobbyist)





*Puntius denisonii* (Day)  
Ornamental fish endemic to the Western Ghats, Kerala, India





# Foreword



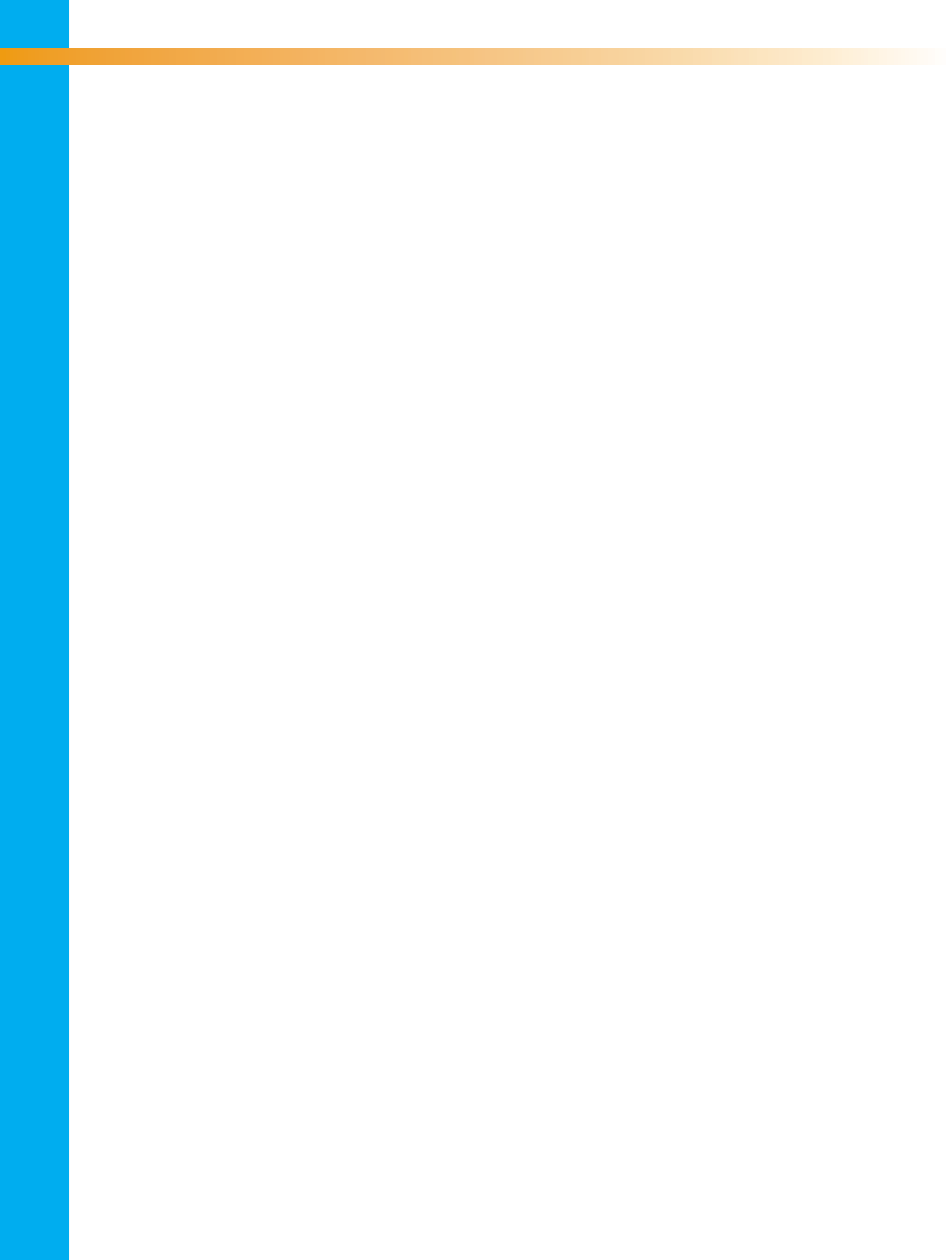
**B**iodiversity conservation necessitated knowledge on the diversity of animals and plants, their distribution, biology, abundance and status. The Western Ghats of India with a variety of vegetation types, climatic zones and remarkable endemism is considered to be one of the 34 'hotspot' areas of the world for biodiversity conservation. The region is also endowed with a variety of brilliantly coloured ornamental fishes. There is an immense scope for international trade of these living jewels from the region, but the technology of breeding and farming of several endemic ornamental species are yet to be developed at commercial level. Recently, the College of Fisheries, Kochi, Kerala in collaboration with the National Bureau of Fish Genetic Resources (NBFGR), Lucknow has made remarkable achievements in breeding and larval rearing of 15 native ornamental fishes of the Western Ghats. However, to cope up with the requirement of the steadily growing international trade, breeding and rearing techniques of more species to be developed or commercial level in order to ensure an constant supply of the species. This requires knowledge on their taxonomy, food and feeding and reproduction that are unknown for most of the native species.

The present compilation is a concerted effort to address some of the above aspects. This is the first ever attempt to document the ornamental fish resources from the Western Ghats - the very rich biodiversity region of the world. I am sure that this book will be of immense advantage to ornamental fish lovers. Drs. Anna Mercy, A. Gopalakrishnan, D. Kapoor and W.S. lakra deserve all appreciation for bringing out this excellent publication for the use of planners, resource managers, researchers and aquarium hobbyists.

A handwritten signature in black ink, appearing to read 'S. Ayyappan' with a stylized flourish at the end.

**S. Ayyappan**

**Deputy Director General (Fisheries)**





# Preface

India is blessed with a rich diversity of freshwater fishes both in the Western Ghats and North Eastern Hills. The Western Ghats of India is one of the 34 - biodiversity 'hotspot' areas of the world. The rate of endemism is well reflected in the case of lower vertebrates especially with regard to fishes. Of the 300 species of freshwater fishes in the Western Ghats, 155 are considered ornamental fishes, of which 117 are endemic to the Western Ghats (Gopalakrishnan & Ponniah, 2000). At present, only a small fraction of the endemic fish diversity is utilized in ornamental fish trade.

All the ornamental fishes marketed in India are exotic. Eventhough there are quite a lot of indigenous fishes, having high potential as ornamental fishes, they have not been properly exploited. The fish fauna of the Western Ghats include variety of barb, rasboras, killifishes, glassfishes, catfishes, catopra, hill trouts, and danios, which are ideal candidates for ornamental fish industry. They are exceptionally beautiful with a wide variety of bands, blotches, spots, and colourful fins on their body. In spite of the fact that the Western Ghats of India is a gold mine of endemic freshwater fishes suitable for the ornamental fish trade, no concerted efforts have so far been undertaken for the development of sustainable market for these resources. Lack of scientific information on these native aquatic fauna is the main reason for the poor performance of this sector.

In view of the tremendous significance of these indigenous ornamental fishes in the international ornamental fish market, a database on these valuable biodiversity is very essential. The yearning aquarium hobbyists have no reliable source of information on this rich resource, as there is no publication on this subject in India. This book is aimed at helping the ornamental fish hobbyists, breeders, farmers, traders, exporters, students and researchers to get an insight into the various indigenous ornamental fishes in our country, their aquarium requirements, food and feeding habits under captivity and their behaviour in aquarium conditions. Sincere efforts have been made to provide reliable data and latest information on the above aspects in this publication.

We look forward for suggestions and constructive criticism from our enlightened readers for further improvement of this publication. It is hoped that this book will provide basic information on the indigenous ornamental fishes of the Western Ghats of India and offer better inputs for scientific management and utilization of the resources on a long term and sustainable basis.

The authors wish to place on record their deep sense of gratitude to the College of Fisheries and Kerala Agricultural University for the necessary support. This book would not have been brought out in this form without the hard work of the Senior Research Fellow, Mr. Eapen Jacob. We are also thankful to Dr. A. G. Ponniah, former Director, NBFGR for his constant encouragement. The help rendered by Dr. C.P. Shaji, Kerala Forest Research Institute (KFRI), Peechi; Mr. V.S.Basheer, NBFGR, Cochin Unit; Ms P.R. Divya, Scientist NBFGR; Dr. Mukund Goswami, NBFGR and Dr. K.M. Mathew, College of Fisheries is also gratefully acknowledged. Illustrations adapted from different sources are gratefully acknowledged. We are deeply indebted to Mr. Biju S. Karthikappally, Star Net Com, Cochin, Kerala for the layout and graphics.

**T. V. Anna Mercy**

**A. Gopalakrishnan**

**D. Kapoor**

**W.S. Lakra**



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## Introduction

Ornamental fishes are the most popular pets of the world and aquarium keeping is the second largest hobby, next to photography. Tropical fishes have always attracted ornamental fish hobbyists. India, being a tropical country, has tremendous potential of ornamental fishes in the Western Ghats and North Eastern Hills. The mountains along the west coast of peninsular India, the Western Ghats constitute one of the unique biological regions of the world. The mountain ranges extend from the Southern tip of the Indian peninsula (8°N) to northwards, about 1600 Km, upto the mouth of river Tapti (21°N). They rise to an average altitude between 900 and 1600m above mean sea level, intercepting monsoon winds from the south-west and creating a rain shadow zone in the region to their east. This region receives an annual rainfall ranging from 1000 to over 6000mm. The varied climate and diverse topography create a wide array of habitats that support unique sets of plant and animal species. The level of biodiversity and endemism is very high and the region is considered one of the world's 34 'biodiversity hotspots'. From the Western Ghats arise numerous west-flowing drainages, which are rather small rivers. The richest expression of diversity, abundance and endemism of freshwater fish fauna is found in these rivers. Major east flowing rivers like Godavari, Krishna and Cauvery also originate from the Western Ghats.

Of the 630 and odd species considered as belonging to the freshwaters of India, nearly 300 teleosts are reported from the Western Ghats. Of these nearly 68% are endemic to the region (Gopalakrishnan and Ponniah 2000). These include cultivable native fishes such as *Labeo dussumieri*, *L. fimbriatus*, *Tor khudree*, *T. mussullah*, *Gonoproktopterus curmuca*, *Barbodes carnaticus* and several brilliantly coloured, attractive ornamental fishes such as *Puntius denisonii*, *P. jerdoni*, *P. arulius tambraparni*, *Osteobrama bakeri*, *Tetraodon travancoricus* and *Horabagrus brachysoma*. Fishes dwelling in underground springs and caves are colourless and blind. Although such extremes are rare in India, in the Western Ghats, we have two blind cat fishes - *Horaglanis krishnai* and *H. alikunhii* - in the wells of Kerala.

## History of Ichthyology of the Western Ghats of India

Eventhough there are a series of publications on the inventory of freshwater fish fauna of Peninsular India (Day 1865,1878; Pillay 1929; Kulkarni 1940; Raj 1941; Hora and Law 1941; Hora 1942; Hora & Silas 1952; Silas 1950, 1951a,b 1952, 1953a,b, 1958, 1959; Talwar and Jhingran 1991; Kowtal 1994; Chakraborty 1996;

Gopi 1996; Shaji *et al.*, 1996; Arun 1997; Jayaram 1999) a consolidated list of freshwater fishes of the Western Ghats, with emphasis on the endemic species, became available only in the year 2000, (Gopalakrishnan and Ponniah, 2000) in their publication “Endemic Fish Diversity of the Western Ghats”. This book also contained state-wise list of freshwater fishes prepared by various authors. Gopi (2000) listed out 165 species from Kerala. Rema Devi and Indra enlisted the species diversity of Tamil Nadu as 144. The same for Maharashtra was prepared by Acharaya and Iftekhar (2000) and for Karnataka by Chandrashekhariah *et al.* (2000). Some authors have highlighted potential ornamental species from selected streams and rivers from different states [Rengit Daniels and Ouseph (2000), Arunachalam *et al.* (2000), Shaji and Easa (2000)] and their export potential (Sane 2000). Dayal and Kapoor (2000) pointed out the lack of information on the biology of several native ornamental species of the Western Ghats.

The Conservation Assessment and Management Plan (CAMP) workshop was conducted from 22-26 September 1997 in Lucknow hosted by the National Bureau of Fish Genetic Resources and Indian Council of Agricultural Research, Govt. of India in collaboration with the Zoo Outreach Organisation (ZOO), Coimbatore, Tamil Nadu to assess the conservation status of Indian freshwater fishes, according to the latest IUCN criteria, under the Biodiversity Conservation Prioritisation Project (BCPP). The status of 327 species were assessed which,

**Blind catfish *Horaglanis alikunhii* (Photograph courtesy : Dr. Subash Babu)**





included 92 species from the Western Ghats. They are categorized into six that reflect various degrees of threat. They are:

**Extinct (EX):** A taxon is extinct when there is no reasonable doubt that the last individual has died. A taxon is presumed extinct when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

**Extinct in the Wild (EW):** A taxon is extinct in the wild when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range. A taxon is presumed Extinct in the wild when exhaustive surveys in known and /or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

**Critically Endangered (CR):** A taxon is critically endangered when the best available evidence indicates that it is facing an extremely high risk of extinction in the wild in the immediate future as defined by the criteria.

**Step-pool reach:** This habitat is formed by the accumulation of boulders and logs that form a series of steps alternating with pools containing finer substrata.



**Endangered (EN):** A taxon is endangered when the best available evidence indicates that it meets any of the criteria for endangered. It is not critically endangered but facing a very high risk of extinction in the wild in the near future as defined by the criteria (For criteria, refer CAMP Proceedings (Anon. 1998).

**Vulnerable (VU):** A taxon is vulnerable when the best available evidence indicates that it is not critically endangered or endangered but is facing a high risk of extinction in the wild in the medium term future as defined by the criteria.

**Lower Risk-near Threatened (LRnt):** A taxon is lower risk-near threatened when it has been evaluated against the criteria and does not qualify for Critically endangered, Endangered, or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

**Lower Risk-least Concern (LRlc):** A taxon is Lower Risk-Least Concern when it has been evaluated against the criteria and does not qualify for Critically endangered, Endangered, Vulnerable or Near Threatened. Wide spread and abundant taxa are included in this category.

**Cascade Reach (River Pampa, Kerala):** Cascade reach is characteristic of steepest alluvial channel. A few small pools may be present but majority of flowing water tumble over and around boulders and large woody debris.





**Data Deficient (DD):** A taxon is data deficient when there is inadequate information to make a direct or indirect assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore, not a category of threat.

**Not Evaluated (NE):** a taxon is not evaluated when it has not yet been assessed against the criteria.

In all the publications mentioned above, the list of ornamental fishes was prepared based only on bright coloration and appearance. But, information on the desirable qualities of ornamental fishes is essential for popularizing them in the global market and avoiding the collection of non-desirable fishes from the wild. In this book the results of the focussed, captive studies on the desirable qualities of the indigenous ornamental fish, such as nature of acclimatization, hardiness, compatibility, food and feeding habits, and their behaviour in an aquarium are provided.

**Pool-riffle reach (River Pampa, Kerala):** The reach is characterised by the alternative riffles and pools and is very prevalent type of reach in alluvial valley of low to moderate gradient. The reach is most commonly associated with low to midsize streams.



## Remarks on Zoogeography

Habitat is the principal determinant of biological potential of a stream and, as such, can be used to predict biological conditions, particularly the presence and abundance of fishes. Habitat ecology had become a major component of biological research in western countries like U.S.A., Canada and many European countries due to its immense application in natural resources conservation. But investigations of the fishes of the fluvial systems of the Western Ghats of India are mostly limited to mere descriptions of taxonomy or distributions and in a few cases their biology, if they are commercially important (Arun 1997).

Freshwater habitats can be broadly classified as either 'lotic' (flowing) or 'lentic' (still). Lotic ecosystems include perennial and intermittent streams, flowing springs or seepages, artificial ditches and flumes. Lentic system contain two types of standing waters which are commonly referred to as palustrine (marshes and swamps) or 'lacustrine' (lakes, ponds and reservoirs). All of these major habitat types are well represented in the Western Ghats and most of these are populated by fishes. Within each of the main ecosystems, there is considerable variation, depending on local factors such as terrestrial vegetation, climate and human impact.

### Pool-riffle reach (River Kanjirampuzha, Kerala)





Consequently, a stream ecosystem has to have a complex habitat structure to maintain a healthy and diverse fish community. Based on the landscape of the rivers of the Western Ghats and the valley through which the river is passing, the ecosystem is classified into Colluvial, Alluvial and Bedrock type. Based on the physical parameters such as channel pattern, channel confinement, gradient, stream bed and bank materials, the stream reaches may be further classified into the following categories. Cascade reach, Pool riffle reach, Braided reach, Regime reach, Step-pool reach, Plane bed reach and Bedrock reach.

Fishes inhabiting a particular stretch or section of pond are finely tuned to their surroundings. Their continued survival is dependent on the availability of adequate food resources and shelter as well as the congenial conditions for breeding.

### **Endemism and 'Hotspots'**

Endemism is a term commonly used by biogeographers (scientists who study the geographic distribution of plants and animals) referring to an organism that is

**Regime reach (Upstream of Bharathappuzha, Kerala) : This reach is very common in low gradient meandering channels with predominantly sandy substrata. The reach is characterised by low or negligible flow rates.**



restricted to a particular area. The area may be extremely small, such as a single lake, or extensive, for example, a particular river. Fishes that are endemic to exceptionally limited areas are especially vulnerable to various threats, particularly when close to human population centers. For this reason, they are of special interest to conservationists. Regional and local endemism is also commonly used to define conservation ‘hotspot’ areas that have a disproportionate number of endemic species.

The freshwater fish fauna of the Western Ghats exhibits high degree of endemism. Nearly 155 species of the Western Ghats are considered ornamental of which, 117 are endemic to the region. Approximately 68 percent of the total freshwater fishes are found exclusively in the Western Ghats.

### **Threatened species**

Unfortunately, the Western Ghats have a great number of currently threatened fishes (Table 1). Threats to the native freshwater fishes are numerous and

#### **River in flood (River Kabani, Kerala)**



widespread. The Western Ghats region, like other parts of the tropics, is undergoing rapid transformation. The deforestation rate is high and forests are being converted into agriculture and monoculture plantations. Hydroelectric projects, mining and extraction of forest products are also altering the landscape. The destruction of aquatic habitats, as well as reduction of ichthyofauna is alarming in several regions of this unique ecosystem. Introduction of exotic Chinese carps, Tilapia and African catfishes and non-native Indian major carps and their gradual establishment in several water bodies in the Western Ghats pose severe threat to endemic fishes of the region and hence many are now listed endangered (Shaji *et al.*, 2000). Other threats include the proliferation of barriers and sand collection from the rivers, thereby inhibiting the natural spawning and feeding migrations and thus reducing the suitable habitat. There has been very little information about the ornamental value of the freshwater fish fauna of this region. But, recent growth in the demand and export of these ornamental fishes have been characterized by shortsighted, often unsustainable collection practices of these fishes from the wild, resulting in the rapid decimation of wildlife habitat and population of endemic species. This points out to the urgent need for developing captive breeding technology for these species.

#### Bedrock reach (River Pampa)





Collection of ornamental fishes from River Pampa.



### Captive breeding

Despite all these threats, the native fish fauna remains relatively intact and no recent extinction has been recorded. The National Agricultural Technology Project entitled 'Germplasm inventory, evaluation and gene banking of freshwater fishes' was implemented to investigate the distribution and availability of ornamental fishes of the Western Ghats and to develop captive breeding technology for prioritized species. After four years of research, College of Fisheries, Kerala Agricultural University developed captive breeding technology for 13 species of fishes, which is the first of its kind in India. The fishes are *Puntius melanostigma*, *P.filamentosus*, *P.fasciatus*, *P.sarana subnasutus*, *P.conchoniuis*, *P.pookodensis* (*sp. nov.*) *Garra mullya*, *Danio malabaricus*, *Chela fasciata*, *Esomus danricus*, *Nemacheilus triangularis*, *Nemacheilus semiarmatus* and *Pristolepis marginata*. The technology has already been transferred to scientists, farmers and entrepreneurs for their commercial production.

It is most urgent to document this biodiversity to the fullest extent before human



interventions irreversibly modify the variety of biotopes present in the Western Ghats. It is the intention of the present book to provide a single source, which helps the identification of freshwater ornamental ichthyofauna of the Western Ghats and summarizes their desirable qualities as ornamental fishes.

The species included in this book principally inhabit rivers and lakes and a few, which are found at river mouths in water under tidal influence. The selection of ornamental fishes in this compilation is based on flashy colouration and/or appearance of the species, their acceptance, market value and export potential. Discussions were also held with aquarium traders and hobbyists prior to finalizing the list. Species that are naturally confined to the Western Ghats are treated as “endemic” to the region while those distributed in other parts of India in addition to the Western Ghats are treated as “widely distributed”. Popular exotic/non-native ornamental fishes such as goldfish, koi carp, angel fish, tetras, African and Latin American Cichlids etc. are not included in this book.

It is also the authors intention that this work will be of use to a wide range of readers, from the amateur or aquarium hobbyist to biology students and scientists in a variety of fields. We, therefore, tried to use minimum of technical terms and utilized concise diagnostic descriptions to distinguish each species from its closest relatives.

#### River Tambraparani, Tamil Nadu



**Table 1. Threatened (Critically Endangered and Endangered) Ornamental Fishes of the Western Ghats of India as per CAMP-ZOO-IUCN (Anon., 1998)**

Scientific Names	Status
<i>Anguilla bengalensis bengalensis</i> (Gray and Hardwicke)	EN
<i>Dayella malabarica</i> (Day)	CR
<i>Danio fraseri</i> Hora	EN
<i>Horadandia atukorali brittani</i> Deraniyagala	EN
<i>Amblypharyngodon chakaiensis</i> Babu and Nair	CR
<i>Neolissochilus wynaadensis</i> (Day)	CR
<i>Osteobrama bakeri</i> (Day)	EN
<i>Puntius arulius tambraparniei</i> Silas	CR
<i>Puntius bimaculatus</i> (Bleeker)	EN
<i>Puntius deccanensis</i> Yazdani and Rao	CR
<i>Puntius denisonii</i> (Day)	EN
<i>Puntius fasciatus</i> (Jerdon)/ <i>Puntius melanampyx</i> (Day)	EN
<i>Puntius jerdoni</i> (Day)	EN
<i>Puntius melanostigma</i> (Day)	EN
<i>Puntius narayani</i> (Hora)	CR
<i>Puntius parrah</i> (Day)	EN
<i>Puntius ophicephalus</i> (Raj)	EN
<i>Gonoproktopterus curmuca</i> (Hamilton-Buchanan)	EN
<i>Gonoproktopterus kolus</i> (Sykes)	EN
<i>Gonoproktopterus thomassi</i> (Day)	EN
<i>Lepidopygopsis typus</i> Raj	CR
<i>Garra gotyla stenorhynchus</i> (Jerdon)	EN
<i>Garra hughii</i> Silas	EN
<i>Garra surendranathanii</i> (Shaji Arun and Easa)	EN
<i>Bhavana australis</i> (Jerdon)	EN
<i>Homaloptera montana</i> Herre	CR
<i>Travancoria elongata</i> Pethiyagoda and Kottelat	CR
<i>Travancoria jonesi</i> Hora	EN
<i>Nemacheilus monilis</i> Hora	EN
<i>Schistura nilgiriensis</i> (Menon)	EN
<i>Oreonectes keralensis</i> Rita and Nalbant	EN
<i>Botia striata</i> Rao	EN
<i>Horaglanis krishnai</i> Menon	CR
<i>Horabagrus brachysoma</i> (Gunther)	EN
<i>Horabagrus nigricollaris</i> Pethiyagoda and Kottelat	CR
<i>Batasio travancoria</i> Hora and Law	EN
<i>Glyptothorax anamalaiensis</i> Silas	CR
<i>Ompok malabaricus</i> (Valenciennes)	CR
<i>Ompok bimaculatus</i> (Bloch)	EN
<i>Pangasius pangasius</i> (Hamilton-Buchanan)	CR
<i>Parambassis dayi</i> (Bleeker)	EN
<i>Channa micropeltes</i> (Cuvier)	CR
<i>Tetraodon travancoricus</i> Hora and Nair	EN

FAMILY

## *Notopteridae*

Popularly known as 'feather backs'. They are with deep and strongly compressed body. Fishes of this family are predominantly tropical freshwater fishes of extraordinary diverse body form and size. They are easily identified by the very long anal fin, which extends along the undersurface of the body to the tip of caudal fin. At the center of the back is a small slender dorsal fin, from which the fish derives the name 'feather back'. Most of the species are insectivorous or piscivorous. In India, this family has only two species. They inhabit quiet, weedy reaches of great rivers, small ones are beautiful ornamental fishes and adult fishes are relished as good food fishes.

## *Notopterus notopterus* (Pallas)



COMMON NAMES	
Grey featherback	English
Ambattan vala	Malayalam
Wallake/Cattah	Kannada
Chalat, Patre	Marathi

FIN COUNT	
Dorsal	7-9
Anal + Caudal	100 -110
Ventral	5-6

**Distinguishing characters:** Body oblong and strongly compressed. Head compressed, its length about 4.5 times in standard length; preorbital serrated. Mouth moderate, maxilla extends to midorbit. Dorsal fin inserted nearer snout-tip than to base of caudal fin. Pectoral fins moderate, extend beyond anal fin origin. Scales minute, considerably larger on opercles than on body.

**Colour and size:** Silvery-white with numerous fine grey spots on body and head which are dark along the narrow back. Attains a maximum size of 61cm. Young ones are attractive as ornamental fishes.

**Food and feeding:** Carnivorous. Attacks smaller fishes. Owing to its carnivorous nature, this fish can only be cultivated in wild waters or in fattening ponds in which large fish are present.



**Sexual dimorphism and breeding:** It breeds in stagnant or running water in the rainy season. A ripe female bears relatively fewer eggs; they are laid in small clumps on submerged vegetation. Mature female has bulged belly. Male oozes out milt when pressed on the vent region.

**Aquarium requirements:** It requires clear water, but thrives well even in non aerated aquarium tanks.

**Behaviour in captivity:** It grows very fast if live food is given. It is not advisable to keep this species with other smaller sized fishes, but are compatible with equal sized fishes. It is slow moving and occupies the column water.

This species appears to thrive well in lentic waters. It attains a maximum length of 61 cm, but the usual size is much smaller. It is common in tanks throughout the greater parts of India. In the large lakes and reservoirs of Tamil Nadu, it attains a length up to 46 cm. This fish is relished both in fresh and dried form. Though bionomics and breeding of *N. notopterus* have been investigated by several workers, no worthwhile attempt towards its culture in India has been made so far. Juvenile fishes are attractive as ornamental fishes.

#### River Kabani, Kerala



## FAMILY

# Anguillidae

Popularly known as 'eels'. They are long bodied snake-like fishes with low dorsal and anal fins, generally long, continuous, with caudal fin and supported by soft rays. Pelvic fin is absent. Anguillids live in a variety of freshwater habitats such as streams, rivers, ponds and lakes. Freshwater eels are important source of food. In India, there is only a single genus with two species. *Anguilla bicolor*, seen in the rivers of the Western Ghats is a very good aquarium fish, since it can be acclimatised to the captive conditions very easily.

## *Anguilla bengalensis bengalensis* (Gray & Hardwicke)



COMMON NAMES	
Indian long fin eel	English
Malangil, Vilangu	Malayalam
Harimeenu	Kannada
Serampambu, Vellangoo, Porivelangu	Tamil

FIN COUNT	
Dorsal	250-305
Anal	220-250
Pectoral	18

**Distinguishing characters:** Body elongate. Head conical, flattened dorsally. Mouth terminal, angle of mouth appreciably behind posterior margin of eye; lips prominent; teeth small, inconspicuous, multiserial, forming relatively narrow bands on jaws, but in an anterior broad (but posteriorly narrow) band on vomer; vomerine band narrows conspicuously before its mid-length. Dorsal fin inserted nearer anus than gill-opening.

**Colour and size:** Typically yellowish to olive-brown, mottled with dark brown, lighter below; juveniles not mottled. Attains a maximum size of 120cm.

**Food and feeding:** Carnivorous, but readily accepts any food in captivity.

**Sexual dimorphism and breeding:** Not known; Catadromous.

**Aquarium requirements:** This can be easily acclimatized to captive conditions. It always remains buried in the sand or gets into the filter tubes. Hiding places are essential for settling in the tank. Smell of food makes it come out of hiding places.

**Behaviour in captivity:** It is a compatible and hardy fish. Always remains hidden at the bottom of the tank. Lives in harmony with other fish. It can be easily tamed.

## *Anguilla bicolor bicolor* Mc Clelland



COMMON NAMES	
Short fin eel	English
Valingil, Malangil	Malayalam
Velangoo	Tamil

FIN COUNT	
Dorsal	220-245
Anal	200-220
Pectoral	18

**Distinguishing characters:** Body elongate. Head conical, flattened dorsally. Mouth terminal, angle of mouth a little behind posterior margin of eye; lips prominent; teeth small, inconspicuous, multiserial, forming broad continuous bands on jaws and vomer; vomerine tooth-band extending as far back as bands of upper jaw but more pointed posteriorly. Dorsal fin inserted slightly before or after anus.

**Colour and size:** Olive to dark bluish-brown above, lighter below from lower jaw to anus; in migratory phase the colour changes to bronze-silver especially below and the pectoral fins darken. Attains a maximum size of 100cm.

**Food and feeding:** Carnivorous, but readily accepts any food in captivity. The fish will take feed from our hand if kept for a long time in tanks (photo). In captivity, it accepts boiled eggs and dried clam meat.

**Sexual dimorphism and breeding:** Not known; catadromous-exhibits sea water migration.





**Aquarium requirements:** This can be easily acclimatized to captive conditions. It always remains buried in the sand or gets into the filter tubes. Captive studies have shown that it can remain in captivity for many years if suitable hiding places are provided. We have a specimen of this species that was collected in the year 2002 and is still alive in our laboratory. PVC Pipes were

provided as hiding places. As it grew bigger PVC pipes with larger diameter were provided in 'U' shape. It remains in the tubes throughout the time except for coming out for food.

**Behaviour in captivity:** It is compatible, peaceful, friendly and suitable for a community aquarium. It can be tamed to take food from our hands. It is interesting to watch the fish



coming out of the tube with the smell of food.

FAMILY

## Clupeidae

Popularly known as ‘herrings’, these silvery fishes, small to medium size, move in schools. The family is large with about 220 species, mostly inhabiting marine environment, but the Western Ghats have only one fresh water species. They are characterized by forked tail and serrated ridge on the belly scales. They lack rigid fin spines and a lateral line. They have deciduous scales. Most of them feed on planktonic animals. In aquarium tanks they accept pelleted feed once acclimatized.

## Dayella malabarica (Day)



COMMON NAMES	
River-carp baril	English
Chala paral	Malayalam

FIN COUNT	
Dorsal	iii 10-11
Anal	iii 15-16
Pectoral	i 12
Ventral	i 7

**Distinguishing characters:** Body slender; belly rather rounded, with one to four thin, unkeeled and irregular scutes (hidden by scales) without vertical arms; pelvic-scute with vertical arms; no post-pelvic scutes. Snout pointed; lower jaw a little prominent; teeth small but distinct on each jaw; Second supra maxilla long, about three-fourth of length of maxilla blade. Gill rakers 24-27. Pelvic fins inserted behind dorsal fin origin.

**Colour and size:** Light yellowish green above, abdomen silvery; A silvery stripe along the flank. Upper caudal fin lobe with a bluish posterior edge. Reaching about 6 cm.

**Food and feeding:** Omnivorous.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Needs well aerated clear water. It is difficult to acclimatise this species to captive conditions.

**Behaviour in captivity:** Not compatible. Moves very fast in tanks.

## FAMILY

# Cyprinidae

Popularly known ‘carps’, ‘barbs’, ‘minnows’, ‘roaches’, ‘rasboras’, ‘danios’, and ‘hill trouts’ are included in this family. Family Cyprinidae is the largest family of freshwater fishes in the world. Cyprinids are also widely distributed around the world. They are abundant in a wide variety of habitats and consequently have considerable importance to mankind. Cyprinids are well-known in aquarium trade. In the Western Ghats, they exhibit a wide variety of body form, colour and occupy diversified habitats.



## *Salmostoma boopis* (Day)



COMMON NAMES	
Boopis razorbelly minnow	English
Mathiparal	Malayalam
Sampaj	Kannada

FIN COUNT	
Dorsal	iii-7
Anal	iii 12-14
Pectoral	i 14
Ventral	i 8

**Distinguishing characters:** Body elongate and compressed, its ventral profile more convex than dorsal profile. Mouth oblique; lower jaw with a rudimentary symphysial process: Gill rakers 15 to 20 on first arch. Dorsal fin inserted well anterior to anal fin. Scales large; lateral line slightly curved, with 39 to 42 scales; lateral transverse scale-rows 6/3.

**Colour and size:** Silvery with a burnished lateral band. Dorsal, anal and caudal fins edged with black. It attains a maximum size of 12cm.

**Food and feeding:** It is an omnivorous fish, readily accepts anything its mouth can hold. It is an active feeder once it is acclimatized to captivity.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Prefers clear and aerated water. It cannot thrive in non-aerated water. It is not easily acclimatisable.

**Behaviour in captivity:** It is a fast moving fish. Always moving along the mid water column of the tank. It is compatible with other species but not hardy.

## *Salmostoma horai* (Silas)



COMMON NAME	
Hora razorbelly minnow	English

FIN COUNT	
Dorsal	iii-7
Anal	iii 15
Pectoral	i 12
Ventral	i 8

**Distinguishing characters:** Body elongate and compressed, its dorsal profile more or less horizontal and the ventral profile slightly arched. Eyes large and prominent, its diameter about equal to interorbital width. Mouth directed upwards; lower jaw with a well-developed symphyseal knob. Gillrakers 17 or 18 on first arch. Dorsal fin inserted in advance of origin of anal-fin. Scales small; lateral line with 76 to 85 scales; lateral transverse scale-rows 11-12/3.

**Colour and size:** Back light brownish, silvery on flanks and belly; 6 to 13 short vertical brownish bands (or markings) along flanks – in some the bands short and in the form of large spots; a narrow dark line along side of body, often indistinct in anterior half of body. It attains a maximum size of 10cm.

**Food and feeding:** It is omnivorous.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Requires well aerated water of neutral pH.

**Behaviour in captivity:** It is a fast moving fish. Always moving along the mid water column of the tank. It is a compatible fish but not hardy.

## *Barilius bakeri* Day



COMMON NAMES	
Malabar baril	English
Pavukan	Malayalam

FIN COUNT	
Dorsal	ii-iii 10
Anal	ii-iii 14
Pectoral	i 14
Ventral	i 8

**Distinguishing characters:** Body deep, its depth 2.9 to 3.2 times in standard length. Mouth moderate; jaws short, maxilla extends to below middle of orbit; barbels absent. Dorsal fin inserted in advance of anal fin, extending to above fourth anal fin ray. Scales moderate, with few radii; lateral line with 37 or 38 scales; predorsal scales 16. Tubercles large and well-developed on snout and lower jaw.

**Colour and size:** Grayish becoming white on abdomen; a row of large bluish spots along the flanks. Dorsal, anal and pectoral fins with dark gray bases, their edges white. It attains a maximum size of 15cm.

**Food and feeding:** It is an omnivorous fish, readily accepts anything its mouth can hold, not at all fussy about food. Prefers insect larvae. Feed from the surface of water column.

**Sexual dimorphism and breeding:** Males develop intensive colouration during breeding time. Colour of fin edges intensifies during maturation. Females develop bulged belly. Captive breeding has not been attempted so far.

**Aquarium requirements:** It is a very hardy fish. Always moves very fast in the tanks. Hence rectangular tanks will be comfortable for them.

**Behaviour in captivity:** It is a compatible, lovely and hardy species.

## *Barilius gatensis* (Valenciennes)



COMMON NAMES	
River Carp baril	English
Pavukan	Malayalam

FIN COUNT	
Dorsal	ii-iii 8-9
Anal	iii 12-14
Pectoral	i 14
Ventral	i 8

**Distinguishing characters:** Body deep, its depth 3.2 to 3.5 times in standard length. Mouth moderate; jaws short, maxilla extends to below middle of orbit. Barbels one minute rostral pair, often wanting. Dorsal fin inserted in advance of anal fin, extending to above the third anal fin ray. Scales moderate, with few radii; lateral line with 39 or 40 scales; predorsal scales 15. Tubercles large and well-developed on snout and lower jaw; tubercles on lower jaw extend onto its medial surface.

**Colour and size:** Silvery grey with 13 to 15 vertical bars (often as oblong spots) descending from back, becoming more or less broken up in the adult. Dorsal and anal fins with dark bases and light edges. Attains a length of 15 cm.

**Food and feeding:** It is an omnivorous fish, readily accepts anything its mouth can hold, not at all fussy about food. It accepts food whenever it is available. We have never seen it consuming food from the bottom of the tank. It has a terminal mouth and hence food is accepted from the above soon after it is introduced into the tank.



**Sexual dimorphism and breeding:** Males become more colourful and fins become darker during breeding season. Captive breeding has not been attempted so far.

**Aquarium requirements:** Less demanding fish, but prefers clear and aerated water.

**Behaviour in captivity:** It is an active and swift swimming fish. It requires large quantity of food. It is compatible, peaceful and very hardy in aquarium. It dwells towards the middle and upper part of the water column.

River Kabani, Karnataka



## *Barilius canarensis* (Jerdon)



COMMON NAMES	
Jerdon's Baril	English
Pavukan	Malayalam

FIN COUNT	
Dorsal	ii 10-11
Anal	ii 12-14
Pectoral	i 14
Ventral	i 8

**Distinguishing characters:** Body deep, its depth 2.9 to 3.1 times in standard length. Mouth moderate; jaws short, maxilla extends to below anterior-third of orbit; barbels absent. Dorsal fin inserted in advance of anal fin, about midway between the snout-tip and base of caudal fin. Scales moderate, with few radii; lateral line with 37 or 38 scales; predorsal scales 15.

**Colour and size:** Greenish above, golden on flanks, with a double row (rarely single row) of large vertical blue spots along the body. Fins gray, with broad white margins. It attains a maximum size of 15cm. A colour variant of this species occurs in the rivers of northern Kerala (Photograph below).

**Food and feeding:** It is an omnivorous fish, readily accepts anything its mouth can hold, not at all fussy about food. It accepts food whenever it is available.

**Sexual dimorphism and breeding:** Males become more colourful and fins become darker.

**Aquarium requirements:** Less demanding fish, but prefers aerated water.

**Behaviour in captivity:** It is an active, hardy and swift swimming fish. It requires large quantity of food. It is a compatible and peaceful species also. Usually dwells towards the middle and upper part of the water column.



## *Barilius evezardi* Day



COMMON NAMES	
Day's baril	English
Jhorya	Marathi

FIN COUNT	
Dorsal	ii 7
Anal	ii12 -13
Pectoral	i 12
Ventral	i 8

**Distinguishing characters:** Body shallow, its depth about 4.6 times in standard length. Mouth moderate; jaws short, lower jaw with a well-developed symphyisial process, the maxilla reaches to below front edge of orbit; barbels absent. Dorsal fin inserted in advance of anal fin, its posterior half above anal fin. Scales moderate, with a few radii; lateral line with about 40 scales; predorsal scales 14. Tubercles large and well-developed on head.

**Colour and size:** Body silvery, of a brown tint along the back; a lateral burnished silvery band on flanks. Dorsal, anal and caudal fins orange; dorsal and caudal fins edged with black. Attains a maximum size of 11cm.

**Food and feeding:** Omnivorous, readily accepts different types of food.

**Sexual dimorphism and breeding:** Males are more colourful and develop nuptial tubercles when they are mature.

**Aquarium requirements:** Needs aerated clear water.

**Behaviour in captivity:** Active swimmer. Very hardy, peaceful and compatible aquarium fish moving along the middle part of the tank.



## *Chela (Neochela) dadyburjori* (Menon)



COMMON NAMES	
Dadio	English
Chela	Malayalam

FIN COUNT	
Dorsal	ii-iii 6-7
Anal	iii 10-12
Pectoral	i 9-12
Ventral	i 5-6

**Distinguishing characters:** Body deep and greatly compressed, its depth 4 to 5.2 times in standard length; keeled nature of abdomen only very faintly indicated, from posterior-third of abdomen to vent. Mouth oblique, its cleft extending to below front edge of eye. Lateral line usually absent, but when present piercing two to four anterior scales just below pectoral fin; lateral transverse scale-rows 7 or 8.

**Colour and size:** Female colourless and translucent, adult male has yellow colour over body; a dark steel-blue lateral stripe along middle of body with three or four black spots (about six spots in juveniles); a well-defined supraanal streak present, also subpeduncular stripe; a middorsal stripe from occiput to dorsal fin. Fins hyaline with a yellowish tinge. In females, the black spots diminish considerably in size and almost inconspicuous along the dorsal stripe. It attains a maximum size of 4cm.

**Food and feeding:** It is an omnivorous fish, readily accepts anything its mouth can hold. Prefers insect larvae.



**Sexual dimorphism and breeding:** During breeding season the males develop four to six minute wart-like protruberances on the opercle which can be observed when the specimens are viewed through a magnifying glass. Sex can also be distinguished by their size and shape; males are usually slender, whereas, females have a distended abdomen.

*C.dadyburjori* usually spawns in summer when the level of water in the streams is very low. The eggs are attached to smooth rounded pebbles or on the blades of aquatic weeds. It can be successfully bred in the laboratory if isolated mature pairs are kept in aquarium tanks. As a prelude to spawning the male continuously chases the female, occasionally nipping at the vent. She soon selects a suitable surface, either a pebble or a weed blade and rests on it. The male fish immediately approaches her and bends his body like a crescent over the dorsal side of the female fish. They remain in this position for about 15 to 20 seconds and during this time the female extrudes 6-8 eggs and the pair separates. After an interval of about ten minutes, the male again drives the female to the same spot and the process is repeated and this continues until a total of 32-40 eggs are laid.

The eggs are sticky and adhere individually or in clusters to the surface of leaf blades or pebbles on which spawning takes place when all the eggs have been extruded, the parents swim away and do not pay any further attention to the eggs. Eventhough the parents do not guard the eggs, they are protected from predators by their transparent yellow colour, which harmonizes with the colour of the weed or pebble to which they are attached.

**Aquarium requirements:** Less demanding fish, but prefers clear and aerated water. It can thrive well even in non aerated water. It is easily acclimatizable.

**Behaviour in captivity:** It is a popular aquarium fish that moves in groups and remains in the water column. This is one of the smallest aquarium fishes.

## *Chela fasciata* Silas



COMMON NAMES	
Malabar hatchet chela	English
Malabar Chela	Malayalam

FIN COUNT	
Dorsal	ii 7
Anal	iii 14-15
Pectoral	i 8-9
Ventral	i 5-6

**Distinguishing characters:** Body greatly compressed, its depth 3.8 to 4.3 times in standard length. Head slightly turned upwards. Mouth small, obliquely directed upwards, its cleft not extending to below front edge of eye. Pectoral fins long, extend much beyond origin of anal fin; outer ray of pelvic fin greatly elongated, extends beyond origin of anal fin. Lateral line complete, with 33 or 34 scales; lateral transverse scale rows 6/1/1-1½; predorsal scales 18.

**Colour and size:** Upper half of body grayish, the scales with dark edges; lower half and belly lighter in colour; a dark broad lateral stripe on sides, commencing just behind eye and runs along middle of body to about base of caudal fin; a well-defined black supraanal streak present, so also a subpeduncular stripe; a mid-dorsal stripe from occiput to dorsal fin. Fins greyish white. It attains a maximum size of 5cm.

**Food and feeding:** It is an omnivorous fish, readily accepts anything its mouth

can hold, not at all fussy about food. Prefers insect larvae. It never takes food from bottom. Hence floating feed is preferable.

**Sexual dimorphism and breeding:** Males become more colourful and fins become darker during breeding season. The first author of this book developed the captive breeding technique of this fish. The eggs are adhesive and remain attached to the roots of floating plants. Plants are essential in a breeding tank.

**Aquarium requirements:** Less demanding fish, but prefers clear and aerated water.

**Behaviour in captivity:** It is a popular aquarium fish that moves fast along the mid water column. A good candidate for planted aquariums.

#### Developmental Stages of *Chela fasciata*



## *Chela laubuca* (Hamilton-Buchanan)



COMMON NAMES	
Indian glass-barb, Indian hatchetfish	English
Mathiparal	Malayalam

FIN COUNT	
Dorsal	ii 8-9
Anal	ii 17-22
Pectoral	i 8-11
Ventral	i 6

**Distinguishing characters:** Body deep and greatly compressed, its depth 2.5 to 4.1 times in standard length; abdomen keeled only between and behind pelvic fins. Mouth slightly oblique, its cleft not extending to front edge of eye. Pectoral fins large and wing-like; outer pelvic fin ray strongly produced. Lateral line complete, with 31 to 37 scales; lateral transverse scale-rows 6-7/1/2-4; predorsal scales 15 to 20.

**Colour and size:** Translucent, shining silver to greenish-gray with a violet lustre on caudal peduncle and steel-blue vertical markings on sides of body; back somewhat darker, often with a bright brassy gleam; a green to deep black longitudinal stripe from somewhat before level of dorsal fin along flank to base of caudal fin where it terminates in a deep black, golden-edged blotch; above this longitudinal stripe another fine golden band which extends to operculum where it surrounds a deep black blotch. Fins yellow, often light orange to delicate brownish. It attains a maximum size of 5.5cm.

**Food and feeding:** It is an omnivorous fish, readily accepts anything its mouth can hold, not at all fussy about food. Prefers insect larvae.



**Sexual dimorphism and breeding:** This species breeds freely in ponds, tanks and small streams, and in these habitats wherever they occur, are found in large numbers. Males develop intensive colouration during breeding. The dorsal fin has dark spots which intensifies during maturation. Females develop bulged belly. Captive breeding technique for this species has been developed by the first author of this book.

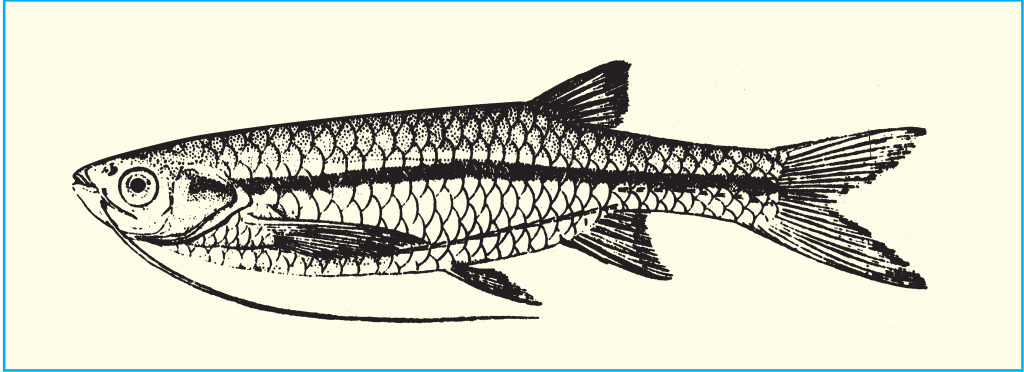
**Aquarium requirements:** Less demanding fish, but prefers clear and aerated water. It can thrive well even in non aerated water. It is easily acclimatisable.

**Behaviour in captivity:** It is a popular aquarium fish that moves in groups and remains in the water column. Its small size, iridescent blue-green body colour and hardiness are the main reasons why it has found a place in the list of desirable tropical aquarium fishes and is presently reared as aquarium fish in India. This beautiful shoaling fish prefers the upper water-layers and proves to be very hardy and undemanding in aquaria having large surface area. They look more attractive in planted aquaria.

#### River Karuvannur, Kerala



## *Esomus thermoicos* (Valenciennes)



COMMON NAMES	
Srilanka Flying barb	English
Meesa-paravai	Tamil
Meesa-parava	Malayalam

FIN COUNT	
Dorsal	ii 6
Anal	iii 5
Pectoral	i 14
Ventral	i 7

**Distinguishing characters:** Body elongate and compressed, its depth 3.8 to 4.5 times in standard length. Head length equal to body depth. Mouth small. Barbels two pairs (rostral and maxillary); maxillary barbels extend to the tip of pectoral fin or slightly beyond. Pectoral fins long, in juveniles, extend upto pelvic fins. Lateral line well-marked and more or less complete, often interrupted above base of anal fin; lateral line with 32 to 34 scales; predorsal scales 19 or 20; scales around caudal peduncle 14.

**Colour and size:** Silvery, its upper side pale olive, with greenish yellow lateral stripe above a steel blue one; a black streak along dorsal surface; a yellow or brown nuchal band. Paired fins hyaline; other fins pale yellow. It attains a maximum size of 8 cm.

**Food and feeding:** It is an omnivorous fish, readily accepts anything its mouth can hold, not at all fussy about food. Prefers insect larvae.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Less demanding fish, but prefers clear and aerated water. It can thrive well even in non-aerated water. It is easily acclimatisable.

**Behaviour in captivity:** Peaceful fish, compatible and suitable for community aquariums. They dwell towards the upper half of the water column in an aquarium tank.

## *Esomus barbatus* (Jerdon)

COMMON NAMES	
South Indian flying barb	English
Messai-paravai	Tamil

FIN COUNT	
Dorsal	ii-iii 9-12
Anal	ii-iii 14-16
Pectoral	i 8-11
Ventral	i 6

**Distinguishing characters:** Body elongate and strongly compressed, its depth 4 to 4.4 times in standard length. Head length 4.1 to 4.5 times in standard length. Mouth small. Barbels two pairs (rostral and maxillary); maxillary barbels usually extended up to middle of pectoral fin. Pectoral fins long, do not extend up to pelvic fins in adults. Lateral line complete and well defined, with 30 to 32 scales; predorsal scales 17; scales around caudal peduncle 14.

**Colour and size:** Silvery-white, darkish above and lighter below; a broad (but indistinct) silvery band with a streak of a darker colour running along middle of body, becoming fairly prominent behind pelvic fins. It attains a maximum size of 8cm.

**Food and feeding:** It is an omnivorous fish, readily accepts anything its mouth can hold, not at all fussy about food. Prefers insect larvae.

**Sexual dimorphism and breeding:** Males develop intensive colouration during breeding time. The dorsal fin has dark spots which intensifies during maturation. Females develop bulged belly.

**Aquarium requirements:** Less demanding fish, but prefers clear and aerated water. It is not easily acclimatisable.

**Behaviour in captivity:** It is a compatible fish that moves in groups and remains in the water column. It is noted for its fast moving and jumping ability, hence aquarium tank should be covered.

## *Esomus danricus* (Hamilton-Buchanan)



COMMON NAMES	
Flying barb	English
Astapakke	Telugu
Meesa-paravai	Tamil
Meesa-parava	Kerala

FIN COUNT	
Dorsal	ii-iii 9-12
Anal	ii-iii 14-16
Pectoral	i 8-11
Ventral	i 6

**Distinguishing characters:** Body elongate, slim and compressed, its depth 3.3 to 4.8 times in standard length. Head pointed, its length 3.5 to 5 times in standard length. Mouth small. Barbels two pairs; maxillary pair extremely long and usually extend to about middle of body, rostral barbels short and fleshy. Pectoral fins long and pointed. Lateral line incomplete, very short, piercing 4 to 6 scales anteriorly; scales in longitudinal series 27 to 30; predorsal scales 16 or 17; scales around caudal peduncle 14.

**Colour and size:** Olive-green to gray-green with a pearly iridescence and sprinkled with fine dots; flanks silvery-violet to delicate reddish; belly silvery-white; a broad dark lateral band from mouth to base to caudal fin (in juveniles) bordered dorsally by a fine gold stripe, the dark band broadens out on caudal peduncle to form a striking dark brown triangular blotch (often only faintly indicated). Pelvic fins reddish; other fins brownish to orange. It attains a maximum size of 8cm.

**Food and feeding:** It is an omnivorous fish, readily accepts anything that its mouth can hold; not at all fussy about food once it is acclimatized. Prefers insect larvae.



**Sexual dimorphism and breeding:** Males have exceptionally wide pectoral fins, Females develop bulged belly. It was naturally bred in captivity by the first author. It requires slightly acidic to neutral water for better performance.

**Aquarium requirements:** Less demanding fish, but prefers clear and aerated water. It is not easily acclimatisable, as it is sensitive to water quality.

**Behaviour in captivity:** It is a compatible fish that moves in groups and remains in the water column. This fish is noted for its fast moving and jumping ability, hence it is best to keep the tank covered. It is a peaceful fish suitable for community aquarium. Remains towards the upper part of the water column.

Upstream of River Bharathapuzha, Kerala



## *Danio malabaricus* (Jerdon)



COMMON NAMES	
Malabar danio	English
Ozhukkilatti	Malayalam

FIN COUNT	
Dorsal	ii 10-13
Anal	iii 12-16
Pectoral	i 14
Ventral	i 7

**Distinguishing characters:** Body elongate and strongly compressed, its depth 3 to 3.5 times in standard length. Head length 3.8 to 4.3 times in standard length; snout length 3.5 to 4, eye-diameter 3.3 to 3.8, both in head length. A weak pre-orbital spine, directed backwards, from lachrymal bone. Mouth small, directed upwards; barbels two pairs; rostral barbels rudimentary, the maxillary pair usually vestigial. Dorsal fin inserted well in advance of origin of anal fin, its posterior half extending to over anterior anal fin rays. Caudal fin forked. Scales moderate-size; lateral line complete, with 32 to 34 scales; predorsal scales 14 or 15.

**Colour and size:** Bright metallic-blue, head silvery, belly pale pink; three or four steel blue longitudinal bands along flanks, separated by narrow yellow lines. Fins yellow to deep orange-red; pectoral fins hyaline. It attains a maximum size of 10cm.

**Food and feeding:** It is an omnivorous fish, readily accepts anything that its mouth can hold, not at all fussy about food. Prefers insect larvae.

**Sexual dimorphism and breeding:** Males develop intensive colouration during breeding. Females develop bulged belly. The breeding of danio is comparatively easier. It is a prolific breeder. The aquarium must be heavily stocked with plants preferably hydrilla. The sticky eggs adhere to the leaves. A pair consisting of single male and female is ideal for breeding. They must be well conditioned on



Egg attached to leaf

live foods and introduced into the breeding tank, on the evening prior to the day on which breeding is expected to take place. If the male and female are conditioned in separate aquaria they should spawn the following morning. The optimum range of temperature is 22-24°C. Parents are to be removed after spawning as they may devour the eggs and young ones. The young ones hatch out after 24 hours. On the third day onwards they feed on infusoria. After ten

days they will start feeding on *Moina*. They need plenty of space for further growth.

**Aquarium requirements:** Less demanding fish, but prefers clear and aerated water. It can thrive well even in non-aerated water. It is easily acclimatizable.

**Behaviour in captivity:** It is a popular aquarium fish that moves in groups and remains in the water column. It is compatible and very active in aquariums.

This is an admirable fish and is considered as one of the standard members of a 'happy family'. It matures at 6-7cm. This gorgeously coloured fish is popular with aquarists. It is peaceful and well behaved in community aquaria, and its hardiness and readiness to breed further enhances its attractiveness.



Free embryo

## *Danio neilgherriensis* (Day)



COMMON NAMES	
Peninsular danio	English
Cowlei	Tamil

FIN COUNT	
Dorsal	ii-iii 9-11
Anal	ii 11-12
Pectoral	i 11-12
Ventral	i 6

**Distinguishing characters:** Body elongate and laterally compressed, its depth 4 to 4.6 times in standard length. Head length 4 to 4.3 times in standard length; snout length about equal to eye-diameter, 3.3 to 4.3 times in head length. Mouth small, obliquely directed upwards; barbels two short pairs (rostral and maxillary), the maxillary pair often rudimentary. Dorsal fin inserted anterior to anal fin, about midway between tip of snout and caudal fin base. Caudal fin forked. Scales moderate-size; lateral line complete, with 37 or 38 scales; predorsal scales 16 to 18.

**Colour and size :** Back greenish, sides and belly silvery with a purplish tinge along the belly; a lateral longitudinal dark broad, steel-blue stripe extends from behind eye to caudal fin; juveniles usually with light horizontal bands. Attains a maximum size of 10cm.

**Aquarium requirement :** Less demanding fish; but prefers clear and aerated water. It is easily acclimatizable.



## *Danio fraseri* Hora & Mukerji



### COMMON NAMES

Fraser danio	English
Gayroonjee	Marathi

### FIN COUNT

Dorsal	ii 10-11
Anal	ii-iii 15-16
Pectoral	i 15-16
Ventral	i 6

**Distinguishing characters:** Body elongate and compressed, its depth 3.8 to 5.1 times in standard length. Head length 3.5 to 4.3 times in standard length; snout length 3.8 to 4.3, eye-diameter 2.8 to 3.3, both in head length. Mouth small, obliquely directed upwards; lower lip hypertrophied forming a broad loose flap along jaw, the upper lip normal; barbels two pairs: rostral pair half eye-diameter, the maxillary barbels shorter than rostral barbels. Pectoral fins long, extending beyond base of pelvic fin. Caudal fin forked. Lateral line complete, with 38 to 40 scales; predorsal scales 16 or 17.

**Colour and size:** Silvery with a pinkish-blue; three or four longitudinal bands on both sides of body, the middle band broadest and extending to caudal fin rays; free edges of scales with black edges; a dusky spot at upper angle of gill-opening. Fins hyaline with a pinkish blush. Attains a maximum size of 10cm.

**Aquarium requirement :** Less demanding fish; but prefers clear and aerated water. It is easily acclimatizable.

## *Danio aequipinnatus* (McClelland)



COMMON NAMES	
Giant danio	English
Selvaiparavai, Vannathipodi	Tamil
Balooki	Maharashtra

FIN COUNT	
Dorsal	ii-iii 9-12
Anal	ii-iii 14-16
Pectoral	i 8-11
Ventral	i 6

**Distinguishing characters:** Body elongate and compressed, its depth 2.9 to 3.5 times in standard length. Head length 3.5 to 4.3 times in standard length; snout length 3.3 to 5, eye-diameter 3 to 4, both in head length. A preorbital spine, backwardly directed, from lachrymal bone. Mouth small, directed upwards; barbels two short pairs; rostral pair about half eye-diameter, the maxillary barbels minute. Dorsal fin inserted well in advance of origin of anal fin, extending to over anterior anal fin rays. Caudal fin forked. Scales moderate; lateral line complete, with 35 to 37 scales; predorsal scales 14 or 15.

**Colour and size:** Brilliant basic blue; a well-marked lateral band of dark blue along sides, both above and below it are thinner golden bands; the blue band which runs along the entire length from caudal fin to head, breaks up into three bands in adults separated by golden lines before reaching gill-opening, a well-defined black blotch near upper angle of gill-opening generally present. Fins bright orange. It attains a maximum size of 8cm.

**Food and feeding:** It is an omnivorous fish, readily accepts anything its mouth can hold, not at all fussy about food. Prefers insect larvae.

**Sexual dimorphism and breeding:** Males develop intensive colouration during breeding. The dorsal fin has a red tinge in mature males. Females develop bulged belly. Captive breeding is possible. It naturally breeds in captivity.

**Aquarium requirements:** Less demanding fish, but prefers clear and aerated water. It can thrive well even in non-aerated water. It is easily acclimatisable.

**Behaviour in captivity:** It is a popular aquarium fish that moves in groups and remains in the water column. It is an ideal aquarium fish. Since this fish is accustomed to live under varying water conditions in nature, and due to the presence of a considerable number of other fishes, it proves to be peaceful and hardy in aquariums.

**Bedrock Reach :** This reach exhibits little or no alluvial bed material and are generally confined by valley walls and lack flood plains.





## *Brachydanio rerio* (Hamilton-Buchanan)



COMMON NAMES	
Zebra danio, Zebrafish	English
Aratti, Sellai-palava	Tamil

FIN COUNT	
Dorsal	ii 6-7
Anal	ii-iii 12-13
Pectoral	i 11-12
Ventral	i 6

**Distinguishing characters:** Body elongate, very slim and slightly compressed, its depth 3.4 to 4.2 times in standard length. Head length 3.8 to 4.4 times in standard length; snout length 3.6 to 4.7, eye-diameter 3 to 3.5, both in head length. Mouth small, obliquely directed upwards; barbels two pairs, well-developed; rostral barbels considerably longer than eye-diameter, the maxillary pair extends beyond half of pectoral fin. Gill rakers 10 to 13 on lower arm of first arch. Caudal fin forked. Scales moderate-size; lateral line usually absent, often rudimentary or incomplete in which case it often extends up to base of pelvic fins; scales along normal course of lateral line 28 to 30; lateral transverse scale-rows 6 or 7; predorsal scales 15 or 16.

**Colour and size:** Back silvery-gray; belly yellowish white; flanks shining Prussian blue, traversed with four well-defined beautiful shining gold stripes from head to caudal fin, the two outer bands sharply delimit the blue of the sides above and below; blue-gold stripes show up fairly clearly on anal fin as well; operculum with golden blotches; iris golden red. Dorsal fin yellow-olive at base, others blue with a white tip; paired fins hyaline. It attains a maximum size of 4.5 cm. Different varieties of zebrafish including albino and with varied fin shapes; and transgenic specimens carrying fluorescent protein genes of different colours are common now-a-days.

**Food and feeding:** It is an omnivorous fish, readily accepts anything its mouth can hold, not at all fussy about food.



**Sexual dimorphism and breeding:** Females can be identified by their bulged belly during maturation. Males are slender. Breeding is rather simple. Tank breeding can be accomplished. Tank with pebbly bottom is ideal for better survival. Eggs will go into the crevices among the pebbles so that the parents will not get a chance to eat them. Parents are removed after spawning and eggs hatch out in 48 hours and young ones become free swimming after two days.

**Aquarium requirements:** Hardy and thrives well in clear aerated water.

**Behaviour in captivity:** It is a popular aquarium fish that moves in groups and remains in the upper part of the water column. This zebra danio is one of the most popular aquarium fishes being extremely active and graceful. Its blue and silver horizontal stripes, its constant activity, the ease with which it can be kept and fed, and its inoffensive nature make it a prime favourite with most tropical fish hobbyists. The zebra danio is probably, the finest small tropical aquarium fish known. It is strikingly beautifully coloured, easy to feed, and resistant to disease. It is hardy and easy to breed; desirable in community tank, and is easily maintained.

Rapid type habitat, River Kabani, Karnataka



## *Horadandia atukorali brittani* Deraniyagala



COMMON NAMES	
Green carplet	English
Podimeen	Malayalam

FIN COUNT	
Dorsal	ii 6
Anal	iii 5
Pectoral	i 9
Ventral	i 5

**Distinguishing characters:** Body fairly elongate and laterally compressed. Mouth upwardly directed. Gillrakers 12 to 14 on first arch. Scales large; 22 scales in lateral series.

**Colour and size:** Pale yellowish-green, flanks silvery with pink reflections, and belly silvery; sides with a mid lateral line. Fins hyaline. It attains a maximum size of 2cm, one of the smallest barbs in India.

**Food and feeding:** It is an omnivorous fish. Prefers insect larvae, it also accepts cooked chicken egg yolk.

**Sexual dimorphism and breeding:** It breeds only in low saline water.

**Aquarium requirements:** Not very easy to acclimatize. Usually it thrives in low saline water. Hence fishes collected from the saline water need gradual exchange with freshwater for acclimatization. About 25% of the saline water is gradually replaced everyday with fresh water. It takes about one week for the gradual acclimatization. Aeration is essential. They survive well in aquarium tanks fitted with biological filter.

**Behaviour in captivity:** It is a compatible, peaceful and active fish. Being very small, large number of them can be kept in a tank. This is one of the smallest freshwater fishes of the Western Ghats. It has great potential as an ornamental fish. They are very attractive in planted aquariums.

## Rasbora caverii (Jerdon)



COMMON NAMES	
Cauvery Rasbora	English
Kavery rasbora	Malayalam

FIN COUNT	
Dorsal	ii 7
Anal	i 5
Pectoral	i 13:
Ventral	i 6

**Distinguishing characters:** Body elongate. Mouth fairly small, obliquely directed upwards. Dorsal fin inserted considerably behind origin of pelvic fins. Dorsal-hypural distance, when carried forward, falls behind posterior border of eye. Caudal fin forked. Lateral line complete, with 36 to 37 scales (only about 32 perforated); lateral transverse scale-rows 7.

**Colour and size:** Body olivaceous; a faintly marked lateral stripe on sides, more prominent in posterior half of body. Attains a length of 7cm. This species is also reported from Sri Lanka.

**Food and feeding:** It is omnivorous.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Needs clear and well aerated water.

**Behaviour in captivity:** Peaceful, active swimmer and compatible. It is ideal for a community aquarium. Always dwells towards the middle part of the water column in an aquarium.

## *Rasbora labiosa* Mukerji



COMMON NAMES	
Slender rasbora	English
Dandai, Gayroonjee	Marathi

FIN COUNT	
Dorsal	ii 7
Anal	ii 5
Pectoral	i 11
Ventral	i 8

**Distinguishing characters:** Body elongate and compressed. Mouth small; lower lip hypertrophied, more fleshy and flabby than upper lip and projects beyond jaw, with three distinct lobe-like structures. Pectoral fins shorter than length of head. Lateral line incomplete, extends as far as posterior end of anal fin; 30 to 32 scales in longitudinal series (18 to 20 scales only perforated); lateral transverse scale-rows 4/1/1½.

**Colour and size:** Body straw-coloured with a faint silvery sheen; a broad black lateral band on side; along dorsum a narrow black median line from occiput to base of caudal fin. Attains a maximum size of 9cm.

**Food and feeding:** Insectivorous, but readily accepts any food.

**Sexual dimorphism and breeding:** Not bred under captivity so far.

**Aquarium requirements:** Hardy fish, needs well aerated water.

**Behaviour in captivity:** Peaceful, active swimmer. Exhibits hiding tendency.



## *Rasbora daniconius* (Hamilton-Buchanan)



COMMON NAMES	
Blackline rasbora	English
Purroovoo, Ovaree-candee	Tamil
Neddean-jabbu	Kannada
Kananjon	Malayalam

FIN COUNT	
Dorsal	ii 7
Anal	ii 5
Pectoral	i 14
Ventral	i 8

**Distinguishing characters:** Body oblong and compressed. Mouth small; lips simple. Pectoral fins shorter than head. Lateral line nearly complete, with 31 to 34 scales; lateral transverse scale-rows  $4\frac{1}{2}/1/2\frac{1}{2}$ .

**Colour and size:** Black olive, flanks and belly silvery, a fairly distinct blue black mid-lateral stripe from eye to base of caudal fin, delicately edged above and below by a thin, metallic golden line, a narrow dark stripe above anal fin. Fins hyaline, tinged with yellow. It attains a maximum size of 10 cm.

**Food and feeding:** It is an omnivorous fish. Prefers insect larvae.

**Sexual dimorphism and breeding:** Males develop intensive colouration during breeding. The dorsal fin has dark spots which intensifies during maturation. Females develop bulged belly. It naturally breeds in captivity.

**Aquarium requirements:** Less demanding fish, but prefers clear and aerated water. It can thrive well even in non-aerated water. It is easily acclimatisable.

**Behaviour in captivity:** It is a popular aquarium fish that moves in groups and remains in the column of water. It is a compatible and active fish.

## *Amblypharyngodon chakaiensis* Babu & Nair

COMMON NAMES	
Velilake carplet	English
Cheppu kaili, Vayambu	Malayalam

FIN COUNT	
Dorsal	ii-7
Anal	iii 5
Pectoral	i 16
Ventral	i 8

**Distinguishing characters:** Body elongate, its depth 4.2 to 4.5 times in standard length. Eyes large, its diameter 3.8 to 4.1 times in head length. Scales small; lateral line incomplete ceases after 17<sup>th</sup> to 22<sup>nd</sup> scale; 54 to 57 scales in lateral series, 6 scale rows between lateral line and pelvic fin base.

**Colour and size:** Upper side dark, flanks and abdomen silvery, with a light bluish-green iridescent longitudinal band along side. Fins hyaline. Attains a maximum size of 6cm.

## *Amblypharyngodon melettinus* (Valenciennes)

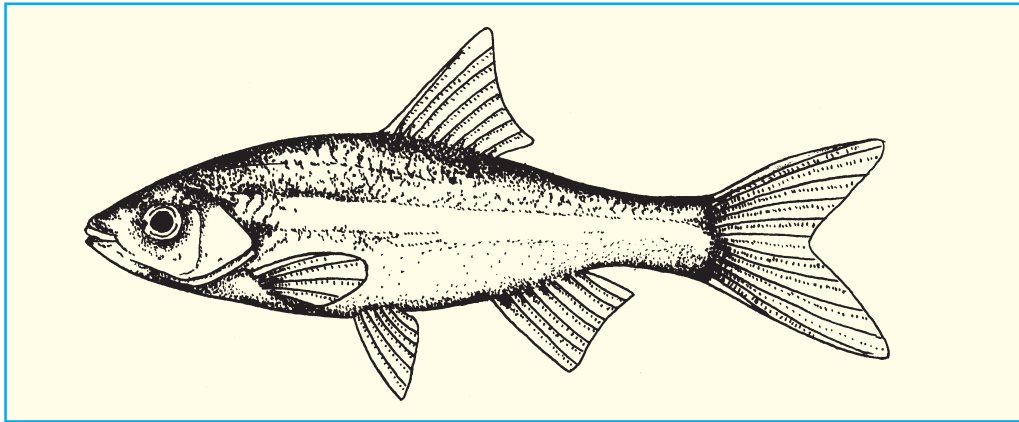
COMMON NAMES	
Attentive carplet	English
Pachaitalai	Kannada

FIN COUNT	
Dorsal	ii-iii
Anal	ii-iii 5
Pectoral	i 13-14
Ventral	i 8

**Distinguishing characters:** Body elongate, its depth 4.4 to 4.8 times in standard length. Eyes large, its diameter about 4 times in head length. Scales small; lateral line incomplete, ceases after 7 to 20 scales; 45 to 57 scales in lateral series; 4 scale-rows between lateral line and pelvic fin base.

**Colour and size:** Greenish along back, silvery on flanks and belly; a bright greenish-yellow band divides the colours of the back from a silvery line along the side. Fins hyaline. Attains a length of 8 cm.

## *Amblypharyngodon microlepis* (Bleeker)



COMMON NAMES	
Indian carplet	English
Oori	Tamil
Vayambu	Malayalam

FIN COUNT	
Dorsal	ii 7
Anal	ii 5
Pectoral	i 13
Ventral	i 8

**Distinguishing characters:** Body elongate, its depth 4 to 4.4 times in standard length. Eyes large, its depth 3.6 to 4 times in head length. Scales very small, lateral line incomplete, ceases after a few scales, 55 to 60 scales in lateral series, 5 scale-rows between lateral line and pelvic fin base.

**Colour and size:** Bronze on upper side, flanks brassy to golden with a broad dull greenish-silver longitudinal band from operculum to base of caudal fin; belly whitish. Fins hyaline to yellowish. Attains a maximum size of 10cm.

**Food and feeding:** It is an omnivorous fish, readily accepts artificial feed also.

**Sexual dimorphism and breeding:** Females can be identified by their bulged belly when they are mature. Males develop more intensive colouration and oozes out milt on a gentle press at the vent region.

**Aquarium requirements:** Less demanding fish, but prefers clear and aerated water. It can thrive well even in non-aerated water. It gets easily acclimatized.

**Behaviour in captivity:** It is a compatible fish that moves in groups and remains in the water column.

## *Amblypharyngodon mola* (Hamilton-Buchanan)



COMMON NAMES	
Mola Carplet, Pale carplet	English
Vayambu	Malayalam

FIN COUNT	
Dorsal	ii-iii 7
Anal	ii-iii 5-6
Pectoral	i 13-15
Ventral	i 8

**Distinguishing characters:** Body elongate, its depth 3.5 to 3.8 times in standard length. Eyes large, its diameter 3.5 to 4 times in head length. Scales small; lateral line incomplete, ceases after 9 to 18 scales; 65 to 91 scales in lateral series; 9 or 10 scale-rows between lateral line and pelvic fin base.

**Colour and size:** Golden yellow with a broad silvery lateral band on body. Dorsal, anal and caudal fins usually with dark markings; pectoral and pelvic fins hyaline. It attains a maximum size of 20 cm.

**Food and feeding:** It is an omnivorous fish, readily accepts artificial feed also.

**Sexual dimorphism and breeding:** Females can be identified by their bulged belly when they are mature. Males develop more intensive colouration and oozes out milt on a gentle press at the vent region.

**Aquarium requirements:** Less demanding fish, but prefers clear and aerated water. It can thrive well even in non-aerated water. It gets easily acclimatized.

**Behaviour in captivity:** It is a compatible fish that moves in groups and remains in the water column.



## *Neolissochilus wynaadensis* (Day)



COMMON NAMES	
Wayanadu Mahseer	English
Wayanadan Kuyil, Manjakadanna	Malayalam

FIN COUNT	
Dorsal	iv 9
Anal	iii 5
Pectoral	i 16
Ventral	i 8

**Distinguishing characters:** Body elongate, its depth 3.75 to 4.4 times in standard length. Head broad, its length 4.2 to 4.5 times in standard length. Mouth smoothly rounded; lower labial fold interrupted. Barbels two pairs; maxillary barbels as long as orbit, rostral ones shorter. Dorsal fin inserted slightly nearer to snout-tip than to base of caudal fin, its last unbranched ray non-osseous and weak. Scales moderate; lateral line with 26 to 28 scales; lateral transverse scale-rows 4 to 6; predorsal scales 10.

**Colour and size:** Leaden silvery along the back, with a dark band running from behind the eyes to the middle of the base of caudal fin where it often ends in a round black blotch; belly light orange. Fins greyish at edges. Attains a maximum size of 25cm.

**Food and feeding:** It is omnivorous.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Being a sensitive fish it is very difficult to acclimatize to captivity.

**Behaviour in captivity:** It is compatible and remains towards the bottom part of the aquarium tank.

## *Osteobrama bakeri* (Day)



COMMON NAMES	
Malabar osteobrama	English
Mullan paval	Malayalam

FIN COUNT	
Dorsal	iii 8
Anal	iii 11
Pectoral	i 12
Ventral	i 10

**Distinguishing characters:** Body trapezoid and considerably compressed, its depth about 3.1 times in standard length; abdominal edge sharp and trenchant between bases of pelvic and anal fins, but, rounded in front of pelvic fins. Mouth small; barbels two small but well-defined pairs. Dorsal spine weak and serrated. Scales small; lateral line with about 44 scales; scale-rows 5½ between lateral line and base of pelvic fins; predorsal scales 15.

**Colour and size:** Silvery. Dorsal profile with metallic blue colour, dorsal and caudal fins with orange coloured edges. Attains a maximum size of 12cm. One of the prettiest species from Kerala.

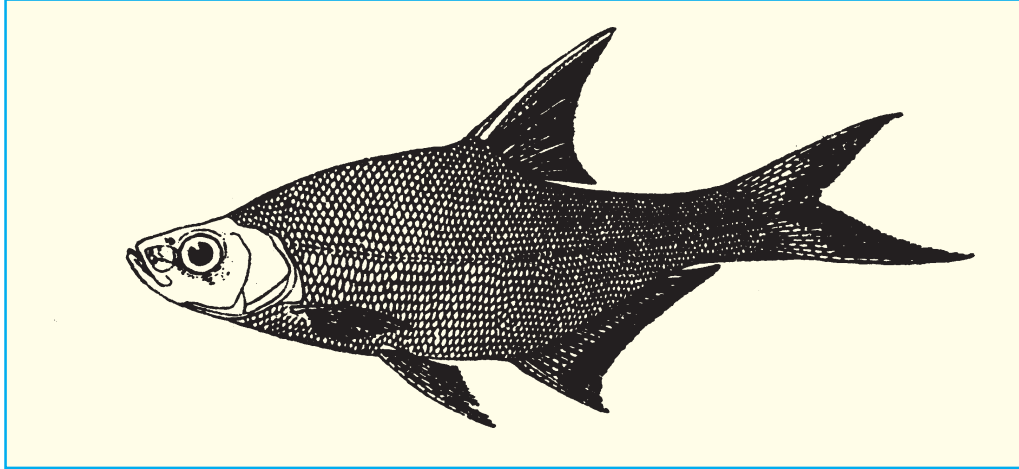
**Food and feeding:** It is omnivorous.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Difficult to acclimatize to captive conditions. Very sensitive and requires well-aerated clear water.

**Behaviour in captivity:** It is a very compatible and peaceful fish. Remains towards the middle part of the tank.

## *Osteobrama vigorsii* (Sykes)



### COMMON NAMES

Bheema osteobrama	English
Gollund, Chilti	Orissa
Khira	Telugu
Phek, Phankut	Marathi

### FIN COUNT

Dorsal	iii 8
Anal	iii 21-27
Pectoral	i 18
Ventral	i 9

**Distinguishing characters:** Body trapezoid and considerably compressed, its depth 2.8 to 3 times in standard length; abdominal edge sharp and trenchant between bases of pelvic fins and anal fin, but rounded in front of pelvic fins. Mouth small; a pair of rudimentary maxillary barbel present only. Dorsal spine very strong and denticulated. Scales very small; lateral line with 73 to 85 scales; scale-rows 11 or 11 ½ between lateral line and base of pelvic fins; predorsal scales 33 to 37.

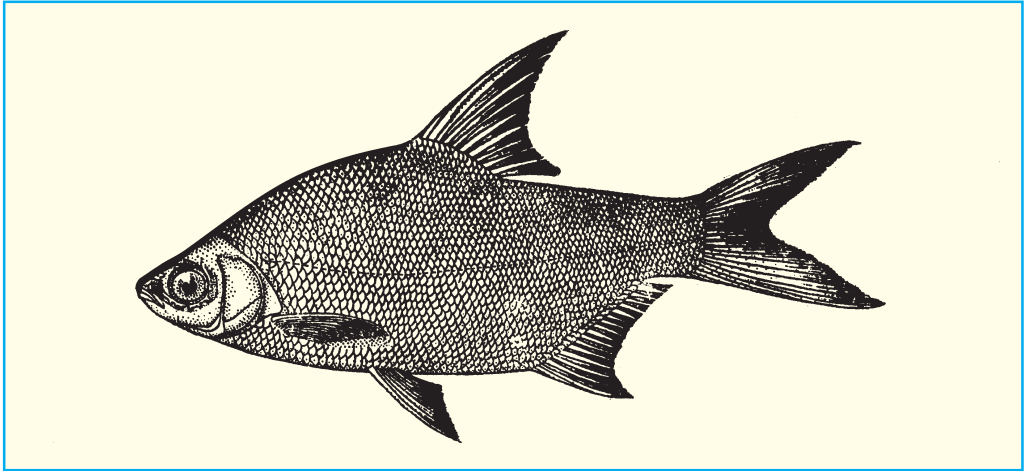
**Colour:** Greenish on back, silvery on flanks and belly; snout dusky; young with a silvery band on both sides.

**Sexual dimorphism and breeding :** Not known.

**Aquarium requirements :** Sensitive and requires well-aerated clear water.

**Behaviour in captivity :** Compatible with other species; peaceful fish; remains in the middle part of the tank.

## *Rohtee ogilbii* Sykes



COMMON NAMES	
Vatani rohtee	English
Varani	Marathi

FIN COUNT	
Dorsal	iii 8
Anal	iii 13-14
Pectoral	i 14
Ventral	i 9

**Distinguishing characters:** Body deep and strongly compressed, the dorsal profile more convex than abdomen. Mouth small, the lower jaw shorter; no barbels. Eyes large, may be visible from underside of head. Dorsal spine strong and coarsely serrated; a predorsal spine present, somewhat concealed by scales. Scales small; lateral line with about 55 species.

**Colour:** Purplish silvery along back, fading to silvery white on belly, young often with a dark spot at base of caudal fin, and four or five narrow black bands descending from back to middle of the side.

**Sexual dimorphism and breeding :** Not known.

**Aquarium requirements :** Sensitive and requires well-aerated clear water.

**Behaviour in captivity :** Compatible with other species; peaceful fish; remains in the middle part of the tank.



## *Puntius amphibius* (Valenciennes)



COMMON NAMES	
Scarlet banded barb	English
Mathiparal	Malayalam

FIN COUNT	
Dorsal	ii-iii 8
Anal	ii-iii 5
Pectoral	i 14
Ventral	i 8

**Distinguishing characters:** Body spindle-shaped, both of its profiles equally convex, its depth about 3.6 times in standard length. Head length about 3.75 times in standard length. Mouth small and subterminal; barbels one pair of maxillary, shorter than orbit. Dorsal fin inserted nearer to tip of snout than to base of caudal fins, its last unbranched ray feebly osseous and smooth. Scales medium; lateral line complete, with 23 or 24 scales; predorsal scales 7 or 8.

**Colour and size:** Upper half steel-blue, fading to white with golden tinge on flanks and abdomen; a large well-marked black spot on base of caudal fin; sexually mature fish with scarlet lateral band from eye to caudal fin. Dorsal fin orange with an oblique band; other fins yellowish.

**Food and feeding:** It is omnivorous. They accept pellet feed in aquarium tanks.

They are not fussy about food. They prefer live feed like tubifex, earthworms or *Chironomus* larvae. They are slow feeders. Specific attention should be paid to note that they get food in a community aquarium.

**Sexual dimorphism and breeding:** When sexually mature, males develop a scarlet band along the mid lateral side of the body extending from behind the opercle to the tail region. Hence they are commonly called scarlet banded barbs. Females do not have this colour, but they have a bulged belly.

**Aquarium requirements:** This species prefer to be at the bottom part of the tank. They require well-aerated water with neutral pH. Being shy initially, they need some hiding places in the tank for easy acclimatization.

**Behaviour in captivity:** These are very compatible and peaceful species. Usually they remain towards the bottom part of the tank. Initially they are very shy. In a community tank they hide among the plants or behind the stones, but in a single species aquarium, where these fishes are kept alone, they dwell in all parts of the tank. However, they don't usually come to the upper part of the water column.

#### *Puntius amphibius*



## *Puntius arulius arulius* (Jerdon)



COMMON NAMES	
Aruli barb, Longfin barb	English
Pewal-kendi	Tamil
Aruli	Kannada
Pulliparal	Malayalam

FIN COUNT	
Dorsal	iii 8
Anal	ii 5
Pectoral	i 14
Ventral	i 8

**Distinguishing characters:** Body elongate and fairly compressed, its depth 3.2 to 3.5 times in standard length. Head 3.5 to 3.7 times in standard length. Mouth moderate; barbels one pair of very thin maxillary only. Dorsal fin inserted generally nearer to tip of snout than to base of caudal fin, often equidistant; its last unbranched ray non-osseous and fairly weak. Scales moderate; lateral line complete, with 21 to 24 scales; predorsal scales 8. A prominent, fairly deep pectoral pit present.

**Colour and size:** Back olivaceous-green, blends to silvery on belly with a reddish lustre; scales over lateral line particularly with numerous tiny green shiny spots; operculum with an iridescent green dot; four or five black blotches on body, the transverse bars at level of dorsal-fin origin, at level of anal fin and on caudal peduncle extremely prominent. Caudal fin yellowish to reddish, with bright red tips. It attains a maximum size of 18cm.



**Food and feeding:** Active feeder, prefers insect larvae, readily accepts any food including pellet feed. Requires plant feed also.

**Sexual dimorphism and breeding:** During breeding males can be easily identified by the presence of long filamentous rays of dorsal fin, extending beyond the fin-membrane. It also develops intensive colouration on the edges of fins, caudal fin becomes red. Females do not have these characters but have a bulged belly.

**Aquarium requirements:** Needs larger tanks and well aerated clear water. Not very easily acclimatisable. Cannot tolerate wide variation in pH, temperature or oxygen.

**Behaviour in captivity:** It is a lovely fish. Very active and usually dwells at the upper part of the water column. Males become aggressive when they are sexually mature. Two mature males in a tank are not compatible to each other. Otherwise, good for community aquariums.

#### Male aruli barb





## *Puntius arulius tambraparniei* Silas



COMMON NAME	
Silas barb	English

FIN COUNT	
Dorsal	11-12(3/8-9)
Anal	14-15
Pectoral	7(2/5)
Ventral	9

**Distinguishing characters:** Head 3 to 4 in standard and 4 to 5.3 in total length; length of caudal 2.68 to 3.88 and 3.68 to 5; and depth of body 2.59 to 4 and 3.4 to 5.6. Snout 2.6 to 4 in length of head; width of head 1.6 to 2 and height of head at occiput 1.18 to 1.6 in its length. Diameter of eye 2.66 to 3.75 in head; 0.66 to 1.25 in snout and 1.0 to 1.4 in interorbital width. Distance between tip of snout and origin of dorsal contained 1.0 to 1.2 in distance between origin of dorsal and base of caudal fin. Length of pectoral fin 1.06 to 1.5 in length of head. A pair of well developed maxillary barbels present. Upper jaw slightly overhanging lower; post-labial groove interrupted; last simple dorsal ray non-osseous and weak. Caudal deeply emarginate. Lateral line complete with 21 to 23 scales. Predorsal scales 7 or 8.

**Colour and size:** In very small specimens, ranging from 22 to 30 mm in length there are three vertical blotches or 'bands' on the side of the body; the first being just below the commencement of the dorsal fin, and extending as low as the base of the pelvic fin; the second from below the posterior extremity of the dorsal fin and extending to the base of the anal fin and a third across the base of the caudal fin. In still larger specimens ranging from 31 to 49 mm in length, in addition to these vertical blotches or 'bands' which coalesce with those of the

opposite side dorsally, a few more blotches are present. One is situated above the upper angle of the gill opening and extends dorsally, becoming confluent with that of the opposite side in the region of the occiput. Two other blotches are present on the dorso-median line, the first between the commencement of the dorsal and the occiput; and the second extending over the posterior two-thirds of the base of the dorsal fin. Attains a length of 22cm.

**Food and feeding:** It is omnivorous, but prefers plant food. All the plants in an aquarium are eaten away by these fishes.

**Sexual Dimorphism and Breeding:** Male exhibits intensive colouration during maturation. Females develop a bulged belly when they are sexually mature. Captive breeding has not been undertaken.

**Aquarium requirements:** Requires well aerated clear water. It requires larger tanks as they are always moving from one end of the tank to the other.

**Behaviour in captivity:** Compatible and peaceful. It dwells towards the middle of the water column.

## *Puntius exclamatio* Pethiyagoda & Kottelat, 2005



*P. exclamatio*, newly described species from River Kallada, Kerala.

## *Puntius bimaculatus* (Bleeker)



COMMON NAMES	
Two-spot barb	English
Erupottu Paral	Malayalam

FIN COUNT	
Dorsal	iv 7-8
Anal	iii 5
Pectoral	i 15
Ventral	i 8

**Distinguishing characters:** Body elongate, more convex dorsally than ventrally, its depth 2.4 to 3 times in standard length. Head 2.6 to 3.1 times in standard length. Mouth small, subterminal with thick lower lip; barbels a pair of maxillary ones only, shorter than eye-diameter. Dorsal fin inserted usually equidistant between tip of snout and base of caudal fin, often closer to latter; its last unbranched ray non-osseous, weak and smooth. Scales medium; lateral line usually complete, with 24 or 25 scales; lateral transverse scale-rows  $3\frac{1}{2}/2\frac{1}{2}-3\frac{1}{2}$ ; predorsal scales 8 to 10.

**Colour and size:** Back olive-green, flanks and belly silvery; a black spot at base of third to eighth rays of dorsal fin; another black spot at end of lateral line on 23<sup>rd</sup> and 24<sup>th</sup> scales; a crimson lateral band on spawning individuals. It attains a maximum size of 6 cm.

**Food and feeding:** Active feeder, prefers insect larvae, readily accepts any food including pellet feed.

**Sexual dimorphism and breeding:** The pink band on the lateral side of the male becomes more pronounced when they are sexually mature and they are slender than females. Spawns on plant thickets and eggs are deposited in the lower fronts of plant clumps.

**Aquarium requirements:** It is a very hardy fish. It requires well-aerated water. Usually it dwells in the column of water.

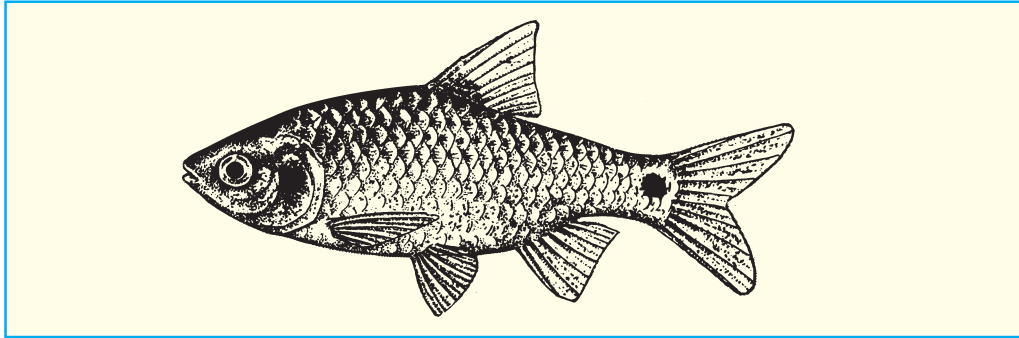
**Behaviour in captivity:** This fish is very compatible and peaceful in aquarium.

*Puntius bimaculatus*





## *Puntius chola* (Hamilton-Buchanan)



COMMON NAMES	
Swamp barb, Chola barb	English
Karoon, Putti-kendai	Tamil
Kachiparal	Malayalam
Dhodakarsa	Kannada

FIN COUNT	
Dorsal	iii 8
Anal	ii 5
Pectoral	i 14
Ventral	i 8

**Distinguishing characters:** Body fairly deep and compressed, its lower profile considerably less convex than upper, its depth 2.8 to 3.1 times in standard length. Mouth moderate; barbels one short maxillary pair. Dorsal fin inserted equidistant between snout-tip and base of caudal fin; its last unbranched ray osseous, fairly strong and smooth. Scales moderate; lateral line complete, with 26 to 28 scales; predorsal scales 10 to 12.

**Colour and size:** Uniform silky silvery with strong olive-green on back and a delicate yellowish-sheen on flanks, underside pale; a large, blurred-edged, rosy spot/blotch on operculum, and often a black blotch behind gill-cover; a deep black blotch, often framed in gold, near base of caudal-fin; eyes iridescent orange-red. Dorsal fin yellow to orange, often with brown spots in older individuals; other fins delicate yellowish. Males have orange tinged pelvic and anal fins. It attains a maximum size of 12cm.

**Food and feeding:** Active feeder, readily accepts any food.

**Sexual dimorphism and breeding:** Males can be distinguished by the orange-tinted anal and pelvic fins. All fins in the female are quite clear.

**Aquarium requirements:** Needs clear and well aerated water.

**Behaviour in captivity:** Compatible and peaceful. Very active swimmer. Dwells at the middle part of the water column.

## *Puntius conchoni* (Hamilton-Buchanan)



COMMON NAMES	
Rosy barb, Red barb	English
Pathupaisa paral	Malayalam

FIN COUNT	
Dorsal	iii 7-8
Anal	ii-iii 5
Pectoral	i 18
Ventral	i 8

**Distinguishing characters:** Body deep and compressed, its depth 2.2 to 2.5 times in standard length. Head 4.1 to 4.5 times in standard length. Mouth moderate; no barbels. Dorsal fin inserted equidistant between tip of snout and base of caudal fin; its last unbranched ray osseous, moderately strong and serrated. Scales medium; lateral line incomplete, ceases after 10<sup>th</sup> to 13<sup>th</sup> scale; 24 to 26 scales in longitudinal series.

**Colour and size:** Back shining olive-green; flanks and belly silvery tinged with reddish, shining ink-red at spawning time; a deep, slightly ocellated black, golden-yellow bordered blotch on caudal peduncle at level of trailing edges of anal fin; in breeding condition, however, the male changes to a lively iridescent blushing pink. Generally inhabits lakes and streams. It attains a maximum size of 9 cm. A wide range of rosy barb varieties with different colours and finshapes and even transgenic *P. conchoni* harbouring fluorescent protein genes are common in aquarium shops.

**Food and feeding:** Active feeder, readily accepts any food including pellet feed.

**Sexual dimorphism and breeding:** This sizable, hardy and very popular Indian minnow is most impressively coloured during the mating period, when the normally silvery male takes on a rich scarlet flush and the slightly larger female becomes more luminous. It can be easily bred in captivity. It is a prolific breeder and should be allowed to spawn only in large tanks as many hundreds of fry would need more space. Matures at 4-6 cm.

**Aquarium requirements:** Needs clear and well aerated water.

**Behaviour in captivity:** Compatible and peaceful. Very active swimmer. Dwells at the middle of the tank. The fish is docile and can generally, be kept with other small fishes.

#### River Chandragiri, Kerala



## *Puntius denisonii* (Day)



COMMON NAMES	
Denison barb, Ms. Kerala, Red-line Torpedo	English
Chenkaniyan, Chuttiparal	Malayalam

FIN COUNT	
Dorsal	ii-iii 8
Anal	iii 5
Pectoral	i 14
Ventral	i 8

**Distinguishing characters:** Body rather deep, its depth about 3.75 times in standard length. Head about 4.5 times in standard length. Mouth small; barbels one maxillary pair only, longer than orbit. Dorsal fin inserted nearer to tip of snout than to base of caudal fin; its last unbranched ray non-osseous, weak and articulated. Scales medium; lateral line complete, with about 28 scales; predorsal scales 9.

**Colour and size:** Silvery with a black band, above which runs a horizontal fluorescent scarlet stripe passing from snout to base of dorsal fin. Caudal fin with oblique yellow and black bands crossing the posterior-half of each lobe. Dorsal fin is anterior in position and with scarlet colouration. It attains a maximum size of 24 cm. Fishes from River Valapattanam, Iritty, Kerala are more colourful on their dorsal fins.

**Food and feeding:** It is basically a vegetarian, but accepts live insects, worms, mosquito larvae etc. Also accepts pellet feed. It is very shy and in a community



tank special care should be taken to note that this fish gets food. Not an active feeder. In single species aquarium, it is very active.

**Sexual dimorphism and breeding:** No dimorphic characters could be observed. Females, when they are mature, have slightly broader abdomen than that of the male. Mature male oozes out milt when pressed at the vent region. Not bred so far in captivity.

**Aquarium requirements:** Needs clear and well-aerated water.

**Behaviour in captivity:** Peaceful and compatible, very shy. It is a very sensitive fish, difficult to acclimatize in captive condition.

One of the prettiest barbs, and exhibits stunning colouration. Endemic to Kerala part of the Western Ghats. The species has won the title “Most Attractive Fish” in several aquashows both in India and abroad. Popularly named as “Ms. Kerala”. Taxonomic identity of similarly looking *P. chalakkudiensis* needs further confirmation using molecular markers and work on this aspect is being carried out at NBFGR Unit, Cochin.

*P. denisonii* from River Valapattanam, Kerala



## *Punitus fasciatus* (Jerdon)



COMMON NAMES	
Melon barb	English
Vazhakkavarayan	Malayalam

FIN COUNT	
Dorsal	iii 8
Anal	ii 5
Pectoral	i 14
Ventral	i 7

**Distinguishing characters:** Body elongate, its depth 2.5 to 2.8 times in standard length. Length of head about 3.7 times in standard length. Mouth moderate; barbels two pairs, rostral pair short and maxillary ones equal to orbit. Dorsal fin inserted equidistant between tip of snout and base of caudal fin; its last unbranched ray non-osseous, weak and articulated. Scales medium; lateral line complete, with 18 to 20 scales; predorsal scales 7.

**Colour and size:** Deep dull red with three (often four) vertical black bands, the first below dorsal fin to just below lateral line, second slightly behind base of dorsal fin and the third just before base of caudal fin. Fins pinkish, edged with black. It attains a maximum size of 8 cm.

**Food and feeding:** It feeds on both natural and artificial food. Not at all fussy about food.

**Sexual dimorphism and breeding:** Male becomes brick-red or maroon when they become mature and are ready to spawn. They also develop nuptial



tubercles at the anterior tip of the snout. This colour is intensified during the actual spawning time. It could be successfully bred in captivity. The breeding technology is developed by the first author.

**Aquarium requirements:** It is a very hardy species. But prefers clear and aerated water. It can thrive well even in non aerated water.

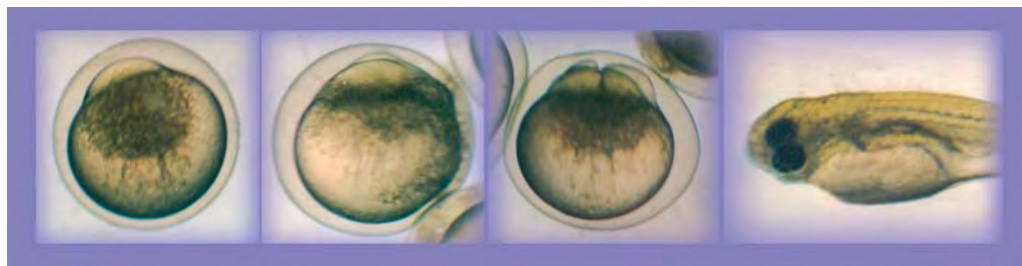


**Behaviour in captivity:**

It is a very compatible and peaceful fish good for community aquarium. Almost similar to the tiger barbs in appearance due to the presence of black bands across the body.

*Puntius melanampyx* (Day) is the synonym of this species.

**Developmental Stages**





## *Puntius filamentosus* (Valenciennes)



COMMON NAMES	
Black-spot barb, Indian tiger barb	English
Chevalle, Moacha-kendai, DMK fish	Tamil
Kodiparal, Poovali paral	Malayalam

FIN COUNT	
Dorsal	iii (iv) 8
Anal	ii-iii 5
Pectoral	i 14
Ventral	i 8

**Distinguishing characters:** Body elongate, its depth 3.3 to 3.8 times in standard length. Head about 4.3 times in standard length. Mouth moderate; barbels a very small pair of maxillary only, often hidden in grooves round the corners of mouth. Dorsal fin inserted equidistant between tip of snout and base of caudal fin, its last unbranched ray non-osseous, weak and smooth; in adult males, generally five unbranched rays elongated into filaments. Scales large; lateral line complete, with about 21 scales. Adult males studded with large tubercles on snout.

**Colour and size:** A beautiful fish showing various colour patterns at different stages of life. Adults uniformly silvery to greenish-silvery, somewhat darker (olive-coloured) above, with a full rainbow sheen by reflected light; a distinctive dark oval blotch on lateral-line. Fins delicate yellow-greenish; dorsal fin rays partly dark violet, often dark tipped. Juveniles silvery, with broad deep black vertical stripes, and orange-red to brick-red fins; caudal fin of half-grown fishes



reddish with a black blotch on each lobe, its tips whitish. It attains a maximum size of 22cm. One of the largest barbs of India.

**Food and feeding:** Feed on any food given in the tank. They are basically vegetarians, accept artificial feed also. The surface is watched constantly and they feed from the upper column of water hence floating feed is preferable. Usually do not feed from the bottom. They require plant food.

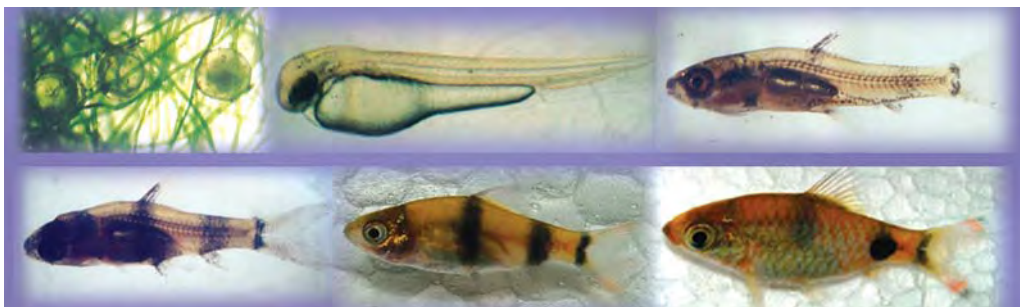
**Sexual dimorphism and breeding:** Males have first few rays of the dorsal fin elongated when mature. The snout is covered with a patch of large tubercles on either side in front of the eyes. They are also more brightly coloured during spawning period. Females have a bulged belly when fully mature. It could be successfully bred in captivity by the first author. It breeds in ponds or in very large aquaria, heavily laden with plants.



**Aquarium requirements:** It is a hardy species. But require aerated clear water. The male needs plenty of elbowroom. Then only they develop their full beauty. A top lighted tank is preferable. The fish is comfortable in a subdued, indirect light.

**Behaviour in captivity:** It is a compatible species, very active and moves along all the parts of the water column. Young ones are very beautiful with the vertical bands on their body. The tip of tail with black and red colour adds more to its beauty. Since it grows to a fairly big size, this is also considered as a food fish. This can be recommended as very good garden fish also.

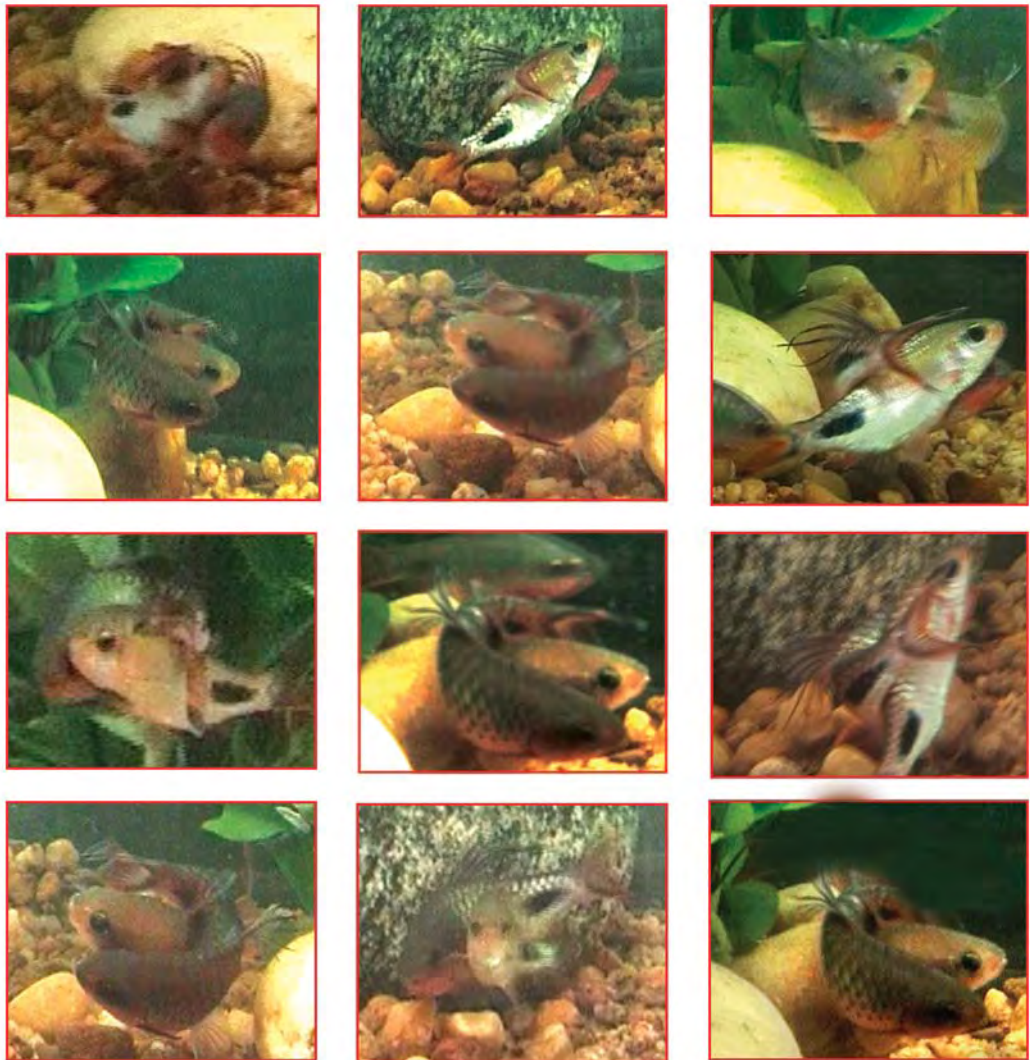
#### Developmental stages



The popular name tiger barb for this species comes from the four black vertical stripes on a silvery body, found in juveniles. As the fish grows, however, three of the stripes disappear and the last is converted into a distinctive, slightly elongated horizontal oval spot on the caudal peduncle.

The taxonomic identity of similarly looking *Puntius mahecola* (popular name Malini's barb) needs further studies using DNA markers.

#### Courtship behaviour of *P. filamentosus*



## *Puntius pookodensis* Anna Mercy & Eapen Jacob



A new species collected and reported by the first author. It was also bred under captivity. Description of the species is in press.





## *Puntius jerdoni* (Day)



COMMON NAMES	
Jerdon's carp	English
Saymeen	Kannada
Chameen, Chuttiparal	Malayalam
Potil, Parag	Marathi

FIN COUNT	
Dorsal	iii-iv 8
Anal	iii 5
Pectoral	i 13-14
Ventral	i 8

**Distinguishing characters:** Body fairly deep, its depth 2.7 to 3 times in standard length. Head 4.2 to 5 times in standard length. Mouth narrow; barbels two pairs, maxillary pair equal to orbit, rostral pair slightly shorter. Dorsal fin inserted equidistant between tip of snout and base of caudal fin; its last unbranched ray non-osseous, weak and articulated. Scales medium; lateral line complete, with 26 to 32 scales; predorsal scales 12.

**Colour and Size:** Milky white or glittering silvery body. Fins with fluorescent orange, tipped with black. It attains a maximum size of 46cm.

**Food and feeding:** This fish is basically a vegetarian, but accepts artificial feed also. Prefers live food.

**Sexual dimorphism and breeding:** The female has a smooth snout while the male has tubercles on the snout. No other dimorphic characters could be observed. Not bred so far in captivity.



**Aquarium requirements:** It is a very hardy species. But requires well-aerated water. It requires plant material as food.

**Behaviour in captivity:** Another pretty fish from the Western Ghats. Hardy and peaceful species. Very compatible with other fishes. Moves along all parts of the aquarium tank. Ideal for community aquariums. Since it grows to a big size it can be kept in large aquarium tanks and also in garden ponds.

#### Jerdon's carp in group



## *Puntius melanostigma* (Day)



COMMON NAME	
Wayanad barb	English

FIN COUNT	
Dorsal	ii 8
Anal	ii 5
Pectoral	i 14
Ventral	i 8

**Distinguishing characters:** Body elongate, its depth 2.8 to 3 times in standard length. Head about 3.75 times in standard length. Mouth small and slightly subterminal; barbels one maxillary pair only, about half as long as orbit. Dorsal fin inserted equidistant between tip of snout and base of caudal fin, its last unbranched ray feebly osseous and smooth. Scales medium; lateral line complete, with 26 to 28 scales, predorsal scales 8.

**Colour and size:** Silvery with a light band on flanks; a deep black blotch on base of caudal-fin. Dorsal and caudal fins grayish. It attains a maximum size of 10cm.

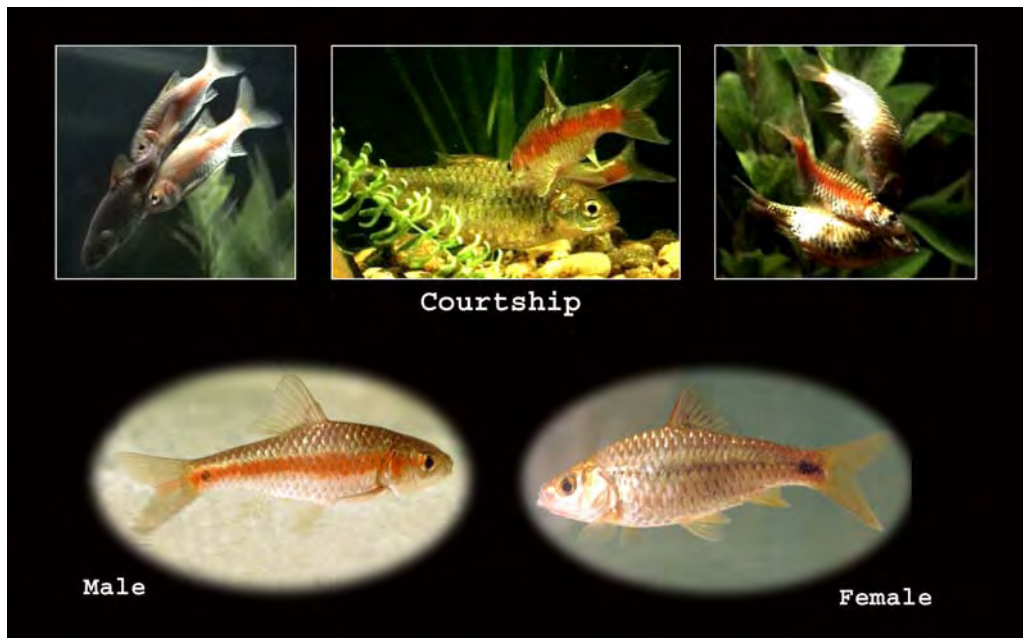
**Food and feeding:** In nature, this fish is basically a vegetarian, but it will also accept artificial feed in captivity.

**Sexual dimorphism and breeding:** Males develop a scarlet band along its lateral side extending from behind the opercle to the caudal region. The colour is more intensified during spawning period. This could be successfully bred under

captive conditions both naturally and with hormonal application. But the young ones are hard to raise. Most losses occur in the first week of life when there is insufficient infusoria for them to eat. The courtship behaviour is videographed and the developmental stages, photographed by the first author. Eggs hatch out after 18-20 hours after fertilization.

**Aquarium requirements:** It is a hardy species. But requires well-aerated water.

**Behaviour in captivity:** It is a shy fish; always wants to hide behind the plants or leaves. Care should be taken to see that this fish gets food in a community tank. It feeds from the bottom also.





## *Puntius narayani* (Hora)



COMMON NAMES	
Narayan barb	English
Narayani	Kannada

FIN COUNT	
Dorsal	iii 9
Anal	iii 6
Pectoral	i 13
Ventral	i 8

**Distinguishing characters:** A small, well-built species, the dorsal and ventral profiles strongly arched, its depth about 2.5 times in standard length. Head short and blunt, its length about 4 times in standard length. Eyes large, its diameter about 2.9 times in length of head. Mouth small; lips fleshy and continuous, studded with minute tubercles; labial groove interrupted in middle; barbels absent. Dorsal fin inserted nearer to tip of snout than to base of caudal fin; its last unbranched ray non-osseous, weak and articulated. Scales large; lateral line complete, with 22 or 23 scales; predorsal scales 8.

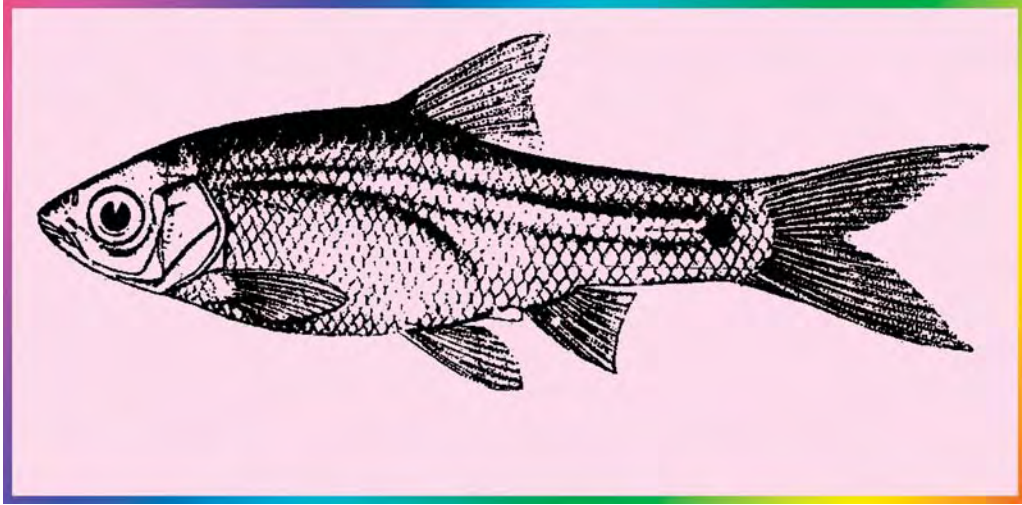
**Colour and size:** Grayish-brown with three vertical black blotches, the first below origin of dorsal fin, the second below or just behind the dorsal fin and third above posterior half of anal fin. In life the caudal fin is tipped red along its upper and lower lobes. It attains a maximum size of 4.7cm. Another lovely minor carp from the Western Ghats.

A closely related species of Narayani–*Puntius setnai* Chhapgar and Sane has been reported from Goa.





## *Puntius fraseri* (Hora & Misra)



COMMON NAMES	
Dharna barb	English
Kadwi	Marathi

FIN COUNT	
Dorsal	ii 8
Anal	iii 5
Pectoral	i 11-12
Ventral	i 8

**Distinguishing characters:** Body graceful, fairly deep and slightly compressed, its depth about 2.8 times in standard length. Head rather small and somewhat depressed, its length about 3.9 times in standard length. Mouth small; barbels one short maxillary pair only. Dorsal fin inserted equidistant between tip of snout and caudal fin base; its last unbranched ray osseous, strong and serrated, considerably elongated in adult male. Scales small; lateral line incomplete, ceases after six to nine scales; 42 to 47 scales in longitudinal series.

**Colour and size:** Yellowish-olive with a silvery streak on flanks; a faint golden spot on occiput; a small black spot at origin of dorsal fin and another at base of caudal fin. It attains a maximum size of 6 cm. Due to habitat alternation and over-exploration, the species has become rare.

## *Puntius nigrofasciatus* (Gunther)



COMMON NAMES	
Three banded crimson barb, Black ruby barb	English

FIN COUNT	
Dorsal	iii 8
Anal	ii-iii 5
Pectoral	i 12
Ventral	i 6

**Distinguishing characters:** Body deep, its depth 1.4 to 1.6 times in standard length. Head rather pointed, its length 2.8 to 3.2 times in standard length. Mouth subterminal and oblique; no barbels. Dorsal fin inserted nearer to base of caudal fin than to snout tip; its last unbranched ray osseous, moderately strong, smooth at base but serrated in middle, and with a filamentous tip. Scales medium; lateral line complete, with 20 to 22 scales; predorsal scales 8.

**Colour:** During the breeding season yellowish-green with three or four blackish, wedge-shaped transverse bars which have ill-defined borders and in females often upper as blotches; head in both sexes with fine crimson; silver edges of scales give the impression of longitudinal rows of glittering spots. In females only basal portions of vertical fins dark coloured; the males, however, display a deep black dorsal fin, a black red anal fin and reddish ventral fins. At spawning time, the whole anterior part of the body of male turns into magnificent crimson, caudal peduncle dark, back velvet-green and the rows of spots glittering greenish.

This species is endemic to Sri Lanka and well-known all over the world as an ornamental variety. The reports of its stray occurrences in Maharashtra can be due to escape from aquaria.

## *Puntius ophicephalus* (Raj)



COMMON NAMES	
Channa barb	English
Eetilakanda	Kannada

FIN COUNT	
Dorsal	iii 7
Anal	ii-iii 5
Pectoral	i 13-15
Ventral	i 8

**Distinguishing characters:** Body elongate and fairly compressed in young, its depth 3.8 to 4.1 times in standard length. Head broad and depressed (compressed in young), its length 3.2 to 4 times in standard length. Mouth moderate and sub inferior; barbels two pairs, rostral pair equal to orbit, maxillary pair much longer. Dorsal fin inserted nearer to tip of snout than to base of caudal fin; its last unbranched ray weak, smooth and articulated in its upper part. Scales small; lateral line complete, with 40 to 42 scales; predorsal scales 15 to 17.

**Colour and size:** Back rich golden-brown, flanks and abdomen silvery-brown; a broad dark band runs along lateral line which is composed of fine black spots on bases of lateral line scales. Fins golden-brown. It attains a maximum size of 17 cm.

**Aquarium requirements:** Requires well-aerated water.

A critically endangered species confined to selected tributaries of few rivers in Kerala.

## *Puntius sahyadriensis* Silas



Photographs courtesy : 'Fish Base' and Dr. E.G. Silas

COMMON NAMES	
Khavli barb	English
Khavli	Marathi

FIN COUNT	
Dorsal	iii 8-9
Anal	iii 5
Pectoral	i 12
Ventral	i 8

**Distinguishing characters:** A small well-built carp, its depth 2.6 to 3 times in standard length. Head rather blunt, its length 3 to 4 times in standard length. Eyes large, its diameter 2.75 to 3.5 times in head length. Mouth small; lips fleshy and continuous at angles; barbels absent. Dorsal fin inserted nearer to tip of snout than to base of caudal fin, its last unbranched ray non-osseous, weak and articulated. Scales large; lateral line complete, with 23 or 24 scales; lateral transverse scale-rows 5/4; predorsal scales 8. Males with numerous tubercles on snout, lower sides of head and ventral surface of body as far back as pelvic-fins.

**Colour and size:** Silvery with seven vertical dark blotches on flank; scales generally with a darker margin. During breeding season both the males and females show brighter colouration. In addition, the females are reddish-brown, being darker in the anterior and upper half of the body. Pelvic fins black. It attains a maximum size of 10cm. The species enjoys a good market as aquarium species outside India.



## *Puntius sarana subnasutus* (Valenciennes)



COMMON NAMES	
Peninsular olive-barb	English
Kuruva, Kuruchi	Malayalam

FIN COUNT	
Dorsal	iii 8
Anal	ii 5
Pectoral	i 16
Ventral	i 7

**Distinguishing characters:** Body oblong and fairly deep, its depth 2.7 to 2.9 times in standard length. Head fairly small, its length 4.4 to 4.8 times in standard length. Eyes moderate, its diameter about 3.5 times in head length. Mouth moderate; barbels two pairs, maxillary pair much longer than orbit, rostral pair slightly shorter. Dorsal fin inserted equidistant between tip of snout and base of caudal fin; its last unbranched ray osseous, fairly strong weak in young) and posteriorly serrated. Scales moderate; lateral line complete, with 28 to 31 scales; predorsal scales 10.

**Colour and size :** Silvery on back and upper half of body, fading to white with gold beneath; most scales with black bases; a dark band behind operculum and a black blotch on lateral line on about the 24<sup>th</sup> scale. Fins orange; caudal fin with a black superior and inferior edge. It attains a maximum size of 30 cm. Juveniles ornamental; a cultivable food fish owing to fast growth rate.

**Food and feeding:** It feeds on both natural and artificial food. Not at all fussy about type of food.

**Sexual dimorphism and breeding:** It can be bred in captivity. The breeding behaviour has been videographed by the authors of this book and the breeding and larval rearing technology developed.

**Aquarium requirements:** It is a hardy species. But prefers clear and aerated water. It can thrive well even in non aerated water.

**Behaviour in captivity:** It is a very compatible and peaceful fish, good for community aquariums. The juveniles are very beautiful as ornamental fish.



## *Puntius ticto* (Hamilton-Buchanan)



COMMON NAMES	
Ticto barb, Firefin barb, Two-spot barb	English
Kadumkaali	Malayalam

FIN COUNT	
Dorsal	iii-iv 8
Anal	ii-iii 5
Pectoral	i 12-14
Ventral	i 8

**Distinguishing characters:** Body elongate but older fishes are often high-backed, its depth 2.4 to 2.9 times in standard length. Head length 3.5 to 4 times in standard length. Mouth terminal and small; no barbels. Dorsal fin inserted slightly posterior to pelvic fin origin; its last unbranched ray osseous, fairly strong and serrated at its posterior edge. Scales medium; lateral line usually complete, often ceases after six to eight scales; 23 to 25 scales in longitudinal series; lateral transverse scale-rows 44-5/4; predorsal scales 9 to 11.

**Colour and size:** Back grey to grassy-green; flanks brilliant shining silver; belly whitish; a long, transverse black blotch above the pectoral fin and another similar but golden edged, on caudal peduncle over the end of anal fin. Fins delicate greenish outside the breeding season; dorsal fin in male with a thick red border, periphery and eyes golden in colour. It attains a maximum size of 10cm.

**Food and feeding:** It is an omnivorous fish. Readily accepts any food. But requires live feed for maturation.

**Sexual dimorphism and breeding:** Males can be identified during the breeding season due to the intensification in the colour patterns. Its red edged dorsal fin



during breeding season is very attractive. The male is the handsome member of the family with a beautiful dorsal fin when it is mature. Females exhibit bulged belly.

**Aquarium requirements:** A popular barb in the aquaria. Eventhough not brightly coloured, it is a fair-sized fish and easily get acclimatized, very hardy also.

**Behaviour in captivity:** It is well behaved in community tanks. Always very active and agile. Can withstand a wide range in pH and less demanding in aquarium conditions. It is priced for its iridescence and the red edging on its dorsal fin which takes a deep ruby hue during mating period.

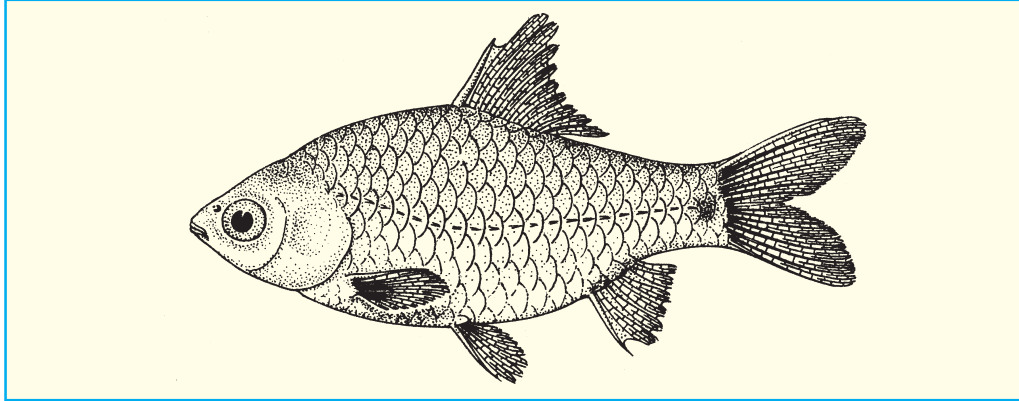
Two sub-species are known based on the differences in lateral line scale count- *P.ticto ticto* (widely distributed in India) and *P.ticto punctatus* (endemic to the Western Ghats).

*Puntius ticto* Photograph courtesy : 'Fish Base'





## *Puntius sophore* (Hamilton-Buchanan)



COMMON NAMES	
Spotfin swamp barb	English
Katch-karwa	Kannada
Undakanni	Malayalam

FIN COUNT	
Dorsal	iii-iv 8-9
Anal	iii 5
Pectoral	i 14-16
Ventral	i 8

**Distinguishing characters:** Body relatively deep, its dorsal profile more convex than ventral, its depth 2.7 to 3 times in standard length. Head short, its length 3.8 to 4.1 times in standard length. Mouth terminal; no barbels. Dorsal fin inserted equidistant between tip of snout and base of caudal fin. Scales medium, lateral line complete, with 22 to 27 scales; lateral transverse scale-rows 4-5/3; predorsal scales 8 to 10.

**Colour and size:** Silvery; back grey-green to brownish; flanks with a somewhat bluish luster, underside white; a deep black round blotch at base of caudal fin, a similar black blotch on central part of dorsal fin or also on anterior part of body adjacent to dorsal fin. Fins hyaline in mature females; anal and pelvic fins brick red in mature males. It attains a maximum size of 13 cm

**Food and feeding:** It is an omnivorous fish.

**Sexual dimorphism and breeding:** Not known, not bred in captivity so far.

**Aquarium requirements:** Less demanding fish, but prefers clear and aerated water. It can thrive well even in non-aerated water. It swims fast and gets easily acclimatized.

**Behaviour in captivity:** It is a compatible and peaceful fish, good for community aquariums. Moves in the column of water.

## *Puntius vittatus* Day



COMMON NAMES	
Kooli barb	English
Karsa	Kannada
Kaippa	Malayalam

FIN COUNT	
Dorsal	iii-iv 8-9
Anal	iii 5
Pectoral	i 14-16
Ventral	i 8

**Distinguishing characters:** Body elongate, its depth 2.5 to 2.8 times in standard length. Mouth small and terminal; no barbels. Dorsal fin inserted nearer to base of caudal fin than to tip of snout; its last unbranched ray weak and entire. Scales moderate; lateral line incomplete, ceases after three to six scales; scales in longitudinal series 20 to 22, predorsal scales 6 or 7.

**Colour and size:** Back yellowish-green, flanks greenish, belly silvery-white; each scale with a dark base and a silvery edge; a round, gold-bordered, dark blotch at base of caudal fin. Pectoral fins hyaline; other fins pale yellow to brownish yellow; base of dorsal fin golden yellow, above it an oblique black, orange-edged band; minute dots on dorsal and anal fins. It attains a maximum size of 8 cm.

**Food and feeding:** It is an omnivorous fish, readily accepts anything its mouth can hold, not at all fussy about food. Prefers insect larvae.

**Sexual dimorphism and breeding:** Males develop intensive colouration during breeding time. The dorsal fin has dark spots, which intensifies during maturation. Females develop bulged belly. Captive breeding is possible. It naturally breeds in captivity.

**Aquarium requirements:** Less demanding fish, but prefers clear and aerated water. It can thrive well even in non-aerated water. It easily gets acclimatized.

**Behaviour in captivity:** It is a popular aquarium fish that moves in groups and remains in the water column. This is one of the smallest barbs. This is a hardy little fish and can be bred easily. A peaceful species, rather active, but suitable in the community tank.



## *Gonoproktopterus curmuca* (Hamilton-Buchanan)



COMMON NAMES	
Curmuca barb	English
Kooral	Malayalam

FIN COUNT	
Dorsal	iv 9
Anal	iii 5
Pectoral	i 15
Ventral	i 8

**Distinguishing characters:** Body fairly deep, the dorsal profile convex and the ventral profile nearly horizontal, its depth about four times in standard length. Snout conical; a band subterminal; barbels two maxillary pairs, lower ones as long as orbit, upper ones half as long. Dorsal fin inserted anterior to origin of pelvic fins, its last unbranched ray osseous but weak. Scales medium; lateral line with 38 to 42 scales; predorsal scales 9.

**Colour and size:** Silvery, lightest on flanks and belly. Caudal fin with blackish tip; in young middle-third of caudal fin orange, tipped with black. It attains a maximum size of 150 cm.

**Food and feeding:** It is an omnivorous fish, readily accepts anything its mouth can hold, not at all fussy about food.

**Sexual dimorphism and breeding:** Breeding occurs in small streams with sandy and weedy bottom. The hatchlings are elongate and transparent with stellate



chromatophores in longitudinal bands. Males develop nuptial tubercles during breeding period. Breeding technique in captivity has been developed at the Regional Agricultural Research Station, Kumarakom, Kerala. Eggs are non-adhesive.

**Aquarium requirements:** It is not a very hardy fish. It needs well aerated clean water.

**Behaviour in captivity:** It moves very actively in lower half of the aquarium. Juveniles are more beautiful than adults and hence, can be used in aquaria.

*Hypselobarbus kurali* is the synonym of this species, collected from the west flowing rivers of the region.

*G. curmuca*



## Gonoproktopterus kolus (Sykes)



COMMON NAMES	
Kolus	English
Kariyan	Malayalam

FIN COUNT	
Dorsal	iv 9
Anal	iii 5
Pectoral	i 14
Ventral	i 8

**Distinguishing characters:** Body relatively deep and compressed, with a considerable rise in the profile from occiput to dorsal fin, its depth 3.5 to 4 times in standard length. Eyes large, its upper edge near the dorsal profile, its diameter 4.2 to 5.5 times in head length. Mouth slightly subterminal; barbels one pair, extend beyond mid-orbit. Dorsal fin inserted anterior to pelvic fins, its height about three-fourths of depth of body; its last unbranched ray osseous and weak. Scales relatively small; lateral line with 40 to 43 scales.

**Colour and size:** Silvery with a tinge of yellow; in very young fish the brown colour of the upper parts of head and back often very reddish. Dorsal, anal and caudal fins tipped with grey. It attains a maximum size of 30cm.

**Food and feeding:** It is an omnivorous fish, readily accepts anything its mouth can hold, not at all fussy about food.

**Sexual dimorphism and breeding:** In adult males patches of well-developed horny tubercles ('pearl organs') on sides of snout, on certain rays of anal fin and in lower half of caudal fin. In females, only a few small tubercles are often present on the sides of snout. The males of several species of *Gonoproktopterus* type are known to assume brilliant colours during the breeding season but it is remarkable that in *G. kolus* it is the female that puts on gaudy colours to attract the males. Captive breeding technique has not been developed so far.

## *Gonoproktopterus thomassi* (Day)



COMMON NAMES	
Red Canarese barb, Nilgiri Shark	English
Kempu-peruwal	Kannada

FIN COUNT	
Dorsal	ii-iv 9
Anal	iii 5
Pectoral	i 16
Ventral	i 9

**Distinguishing characters:** Body elongate, both dorsal and ventral profiles equally convex, its depth 3.5 to 4 times in standard length. Eyes moderate, its diameter 3 to 3.25 times in head. Mouth subinferior; lower labial fold interrupted; barrels two pairs, maxillary pair slightly shorter than orbit, rostral pair shorter. Dorsal fin inserted equidistant between tip of snout and base of caudal fin, its last unbranched ray osseous and weak. Scales medium; lateral line with 31 to 34 scales.

**Colour and size:** Silvery along back, each scale with a red lunule; most scales with a dark base. Dorsal and caudal fins bluish; caudal fin usually edged with black; anal and pelvic fins bluish, stained with grayish-black. It attains a maximum size of 100cm.

Juveniles of the species are very attractive and look similar to the exotic “silver shark”, but fin borders are reddish in colour. This grows to a large size and hence ideal for aquaculture.

## *Osteochilus (Osteochilichthys) nashii* (Day)



COMMON NAMES	
Nash's barb	English
Machal, Mamal	Malayalam

FIN COUNT	
Dorsal	iv 11
Anal	iii 5-6
Pectoral	i 14
Ventral	i 8

**Distinguishing characters:** Body oblong and compressed, its depth 3.2 to 3.6 times in standard length. Snout overhanging mouth, in adults covered by papillae. Mouth broad and inferior; jaws in young compressed, each with a cartilaginous covering, with growth the mouth widens and cartilaginous covering becomes more horny; lips simple and continuous at angles of mouth, lower lip between lateral portions of labial groove considerably behind tip of lower jaw to which it is firmly attached and is plicated; barbels absent. Dorsal fin without any osseous ray. Scales moderate-size; lateral line with 40 to 43 scales.

**Colour and size:** Reddish-brown along back, abdomen silvery; a black lateral band from eye to caudal fin. Dorsal fin with a dark band on middle, the band edged above with scarlet; a dark band on anal fin. Young silvery grey on back, fading to silvery on sides; lateral band terminates in a dusky blotch at base of caudal fin. Attains a maximum size of 18cm.





**Food and feeding:** It is omnivorous in habit but prefers live food. Readily accepts any food in captive conditions.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Needs well aerated clear water. It is hardy and easily gets acclimatized. Active swimmer in aquarium.

**Behaviour in captivity:** Compatible and peaceful fish. Usually dwells towards the bottom part of the water column.

[Cascade, River Chalakkudy, Kerala](#)



## *Labeo nigrescens* Day



(Photograph courtesy: 'Fish Base')

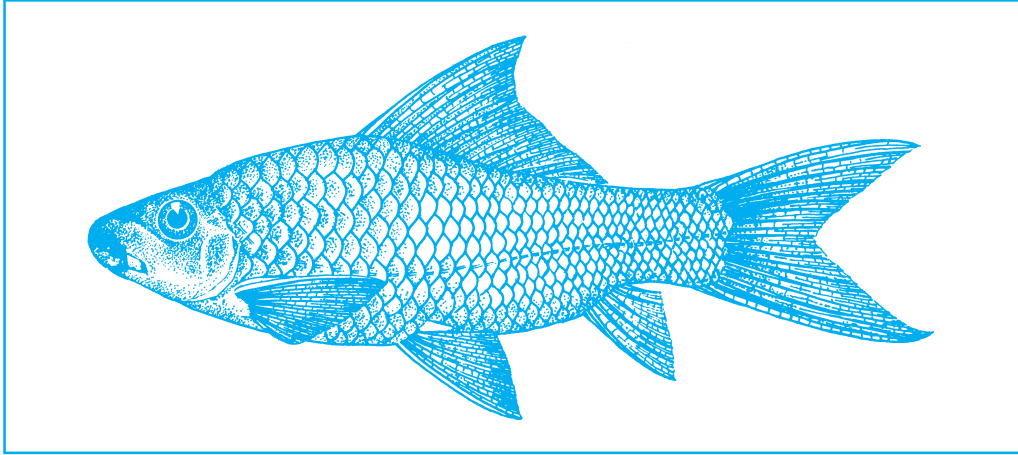
COMMON NAMES	
Karnataka labeo	English
Mulvel, Kurrimeenu	Kannada

FIN COUNT	
Dorsal	ii-iii 14-15
Anal	ii 5
Pectoral	i 18
Ventral	i 8

**Distinguishing characters:** Body elongate, its dorsal and ventral profiles equally convex. Snout fairly swollen and rounded, slightly projecting over mouth, with a small lateral lobe. Eyes moderate, not visible from underside of head, the diameter 4 to 5 times in head. Mouth subinferior; lower lip deeply fringed, a distinct labial fold both above and below. Barbels two pairs, maxillary ones as long as orbit, the rostral ones rather short. Dorsal fin inserted nearer to snout-tip than to caudal fin base. Pectoral fins long, extend to above the pelvic fins. Caudal fin deeply forked. Scales moderate; lateral line with 36 scales; lateral transverse scale-rows 4½ between lateral line and pelvic fin base.

**Colour and size:** Deep brown with each scale with a black spot at its base. Fins black. Attains a maximum size of 65 cm. Smaller ones are attractive as ornamentals.

## *Labeo potail* (Sykes)



### COMMON NAMES

Deccan labeo	English
Dotondi	Marathi
Neelarohu	Malayalam

### FIN COUNT

Dorsal	ii 11-12
Anal	ii 5
Pectoral	i 16
Ventral	i 8

**Distinguishing characters:** Body elongate, its dorsal profile slightly more convex than the ventral. Head length about 5 times in standard length. Snout overhanging mouth, with a poorly developed lateral lobe, often with fine pores. Eyes moderate, not visible from underside of head, the diameter 4 to 6 times in head. Mouth small and inferior; lower labial fold entire, a deep groove across the chin. Barbels one pair (maxillary) only. Dorsal fin inserted slightly nearer to snout-tip than to base of caudal fin. Pectoral fins nearly as long as head. Caudal fin forked, upper lobe longer. Scales moderate; lateral line with 39 or 40 scales; lateral transverse scale-rows 5½ between lateral line and pelvic fin base.

**Colour and size:** Bluish scale with a red lunule, Fins grayest. Attains a maximum size of 30cm; smaller ones are attractive as ornamental.

## *Labeo calbasu* (Hamilton-Buchanan)



COMMON NAMES	
Kalbasu, Black rohu	English
Kakka meen, Kalanchi	Malayalam
Macchilu, Kurrimenu	Kannada
Kakkameen, Karuppusel	Tamil

FIN COUNT	
Dorsal	iii-iv 13-16
Anal	ii-iii 5
Pectoral	i 16-18
Ventral	i 8

**Distinguishing characters:** Body stout and rather deep. Head fairly large and conical, its length less than body depth. Snout depressed and fairly pointed, devoid of lateral lobe, studded with pores. Eyes moderate, not visible from underside of head, the diameter about 3.3 times in head. Mouth inferior; lips thick and conspicuously fringed, both lips with a distinct inner fold. Barbels two pairs (rostral and maxillary). Dorsal fin with a fairly long base, inserted midway between snout-line with 40 to 44 scales; lateral transverse scale-rows 5 to 6 between lateral line and pelvic fin base; predorsal scales 15 to 18.

**Colour and size:** Blackish-green, lighter below; flanks buff pink or with scarlet spots with dark edges which may form stripes. Fins black; upper lobe of caudal fin usually tipped with white. Attains a maximum size of 90cm. Smaller ones are attractive as ornamentals. Transplanted from North Indian rivers.

**Food and feeding:** Omnivorous. Readily accepts any food in captivity.

**Sexual dimorphism and breeding:** Can be bred in large cement tanks with hormone administration during monsoon.

**Aquarium requirements:** This can be easily acclimatized to captive conditions.

**Behaviour in captivity:** It is very compatible and peaceful. Remains towards the bottom of the tank.



## *Lepidopygopsis typus* Raj



COMMON NAMES	
Peninsular Hill trout	English
Brahmana-kenda	Malayalam

FIN COUNT	
Dorsal	iv 7
Anal	iii 5
Pectoral	i 13-15
Ventral	i 8

**Distinguishing characters:** Body elongate and compressed. Head moderately large and somewhat compressed; snout conical. Eyes fairly large. Mouth inferior, fairly broad and transverse, but curved at angles; jaws feebly protractile; upper lip thin, continuous with lower lip which is developed only laterally at corners of mouth. Pharyngeal teeth in three rows, 4-5.3.2/2.3.4-5. Gill rakers 10 to 12, short. Dorsal fin short; last undivided ray osseous, stout and strongly denticulated along the two sides of its posterior margin. Scales thin, cycloid, imbricate and firmly adherent; no scales on head, only a few on anterior part of the body consisting of a patch on scapular region, a few scattered scales on base of dorsal spine, and a continuous row of enlarged scales along lateral line; elongated tile-like scales forming a sheath to vent and base of anal fin. Lateral line complete and decurved, with 54 to 60 scales.

**Colour and size:** Back olive-brown, flanks and ventral surface of body silvery; iris silvery. Dorsal, caudal and distal half of anal fin olive-green; anterior half of anal fin dusky; terminal half of dorsal fin with a broad indistinct dusky band; caudal lobes dusky; paired fins hyaline. It attains a maximum size of 25 cm. Only Schizothoracid species reported from Peninsular India; critically endangered.

## *Garra gotyla stenorhynchus* (Jerdon)



COMMON NAMES	
Nilgiris garra	English
Kallotty, Kallunthi	Malayalam

FIN COUNT	
Dorsal	iii 7-8
Anal	ii 5
Pectoral	i 14
Ventral	i 8

**Distinguishing characters:** Body elongate and subcylindrical, its depth 5 to 5.3 times in standard length. Head much depressed, its length 3.8 to 4.5 times in standard length; interorbital convex, its width 1.9 to 2.5 times in head length. Snout with a well-developed median proboscis and a transverse lobe at tip; free extremity of proboscis, transverse lobe and lateral sides of head in front of nostrils covered with several large horny tubercles. Mouth arched; mental disc well-developed. Barbels two pairs, anterior ones as long as or shorter than eye-diameter, posterior barbels much shorter. Dorsal fin inserted nearer snout-tip than to caudal fin base. Pectoral fin equal to or considerably shorter than head length. Scales moderate size; lateral line with 32 to 35 scales; lateral transverse scale-rows  $3\frac{1}{2}$ - $4\frac{1}{2}$ / $3\frac{1}{2}$ ; predorsal scales 8 to 10; breast and belly scaled.

**Colour and size:** Bluish-gray above, paler on flanks and belly; a mid-lateral band in juveniles; a black spot at upper angle of gill-opening, and a row of dark spots at base of branched dorsal fin-rays. Maximum size 15 cm.

**Food and feeding:** It is an omnivorous fish, readily accepts anything its mouth

can hold, not at all fussy about food. Feed from the bottom. The transverse lobe at the anterior end of the snout may be misunderstood as the mouth opening. Mouth is ventral. Prefers insect larvae.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Less demanding fish, but prefers clear and aerated water. It can thrive well even in non-aerated water. It easily gets acclimatized.

**Behaviour in captivity:** Mostly remain towards the bottom of the tank. It is compatible and well suited for community aquariums.

#### River Muvattupuzha, Kerala



## *Garra hughii* Silas



COMMON NAME	
Cardamon garra	English

FIN COUNT	
Dorsal	ii 7
Anal	ii 5
Pectoral	i 11-13
Ventral	i 7-8

**Distinguishing characters:** Body elongate and slender, its depth 4.7 to 6.7 times in standard length. Head broad, its length 3.7 to 4.7 times in standard length; snout broadly rounded and smooth. Mouth broad; mental disc well-developed. Barbels two pairs, shorter than the eye-diameter; maxillary pair short and stumpy. Dorsal fin inserted almost midway between tip of snout and caudal fin base. Pectoral fins as long as head, or slightly longer. Scales fairly large; lateral line with 36 to 38 scales; lateral transverse scale-rows 5-5½/3-3½; back (mid-dorsal streak), breast and belly naked; post-pelvic region scaled. Distance of vent from anal fin 1.7 to 2.7 times in inter-distance between origin of pelvic fins and fin.

**Colour and size:** Upper half of body and sides grayish, ventral side and belly yellowish-white; a dark conspicuous lateral band from gill-opening to base of caudal fin which usually ends in a dusky blotch; a second band present along scaleless area of dorsum. Fins dirty-white or dusky; upper surface of outer rays of paired fins dark grayish. It attains a maximum size of 7.5cm.



## Garra mullya (Sykes)



COMMON NAMES	
Mullya garra	English
Pondipakka	Kannada
Mally	Maratti
Kallu-koravai	Tamil
Kallu-nakki	Malayalam

FIN COUNT	
Dorsal	iii 7-8
Anal	I-ii 5
Pectoral	i 12-15
Ventral	i 7-8

**Distinguishing characters:** Body slightly flattened, its depth 3.8 to 4.3 times in standard length. Head somewhat flattened on under-surface; mouth rounded and smooth, with the tip marked off by a deep transverse groove; interorbital region somewhat convex, its width 1.8 to 2.3 times in head length. Mouth small; suctorial disc small but well-marked, its width 1.5 to 2.2 times in head width. Barbels two pairs; rostral pair as long as or slightly shorter than eye-diameter, maxillary pair shorter than rostral ones. Dorsal fin inserted nearer tip of snout than to caudal fin base. Pectoral fins shorter than head length. Caudal fin slightly emarginate. Scales moderate-size; lateral line with 32 to 34 scales; lateral transverse scale-rows  $4\frac{1}{2}/3\frac{1}{2}$ ; predorsal scales 9 to 11; breast and belly often naked. Distance of vent from anal fin 3.6 to 3.8 times in inter-distance between pelvic fin origin and anal fin base.

**Colour and size:** Upper surface of head and body, and flanks darkish; a broad lateral band on sides, bordered above and below by incomplete dark narrow lateral stripes especially in posterior half of the body; belly dull white; a distinct black spot just behind the angle of operculum; a dusky blotch at caudal fin base. It attains a maximum size of 17cm.

**Food and feeding:** It is an omnivorous fish. Since they are mainly vegetarians they avidly devour artificial feed. It is an algae eater. Its fantastically large ventral suction lips are well adapted to scrounging around for algae. Because of its algae eating habit it is a good glass cleaner. It browses algae from the glass surface.

**Sexual dimorphism and breeding:** No clear cut sexual dimorphism could be observed, but females can be identified by the bulged belly when mature. Male oozes out milt on gentle press on the belly. Captive breeding could be accomplished by the first author by hormonal application.



**Aquarium requirements:** Needs well-aerated water. It can be easily acclimatized to captivity.

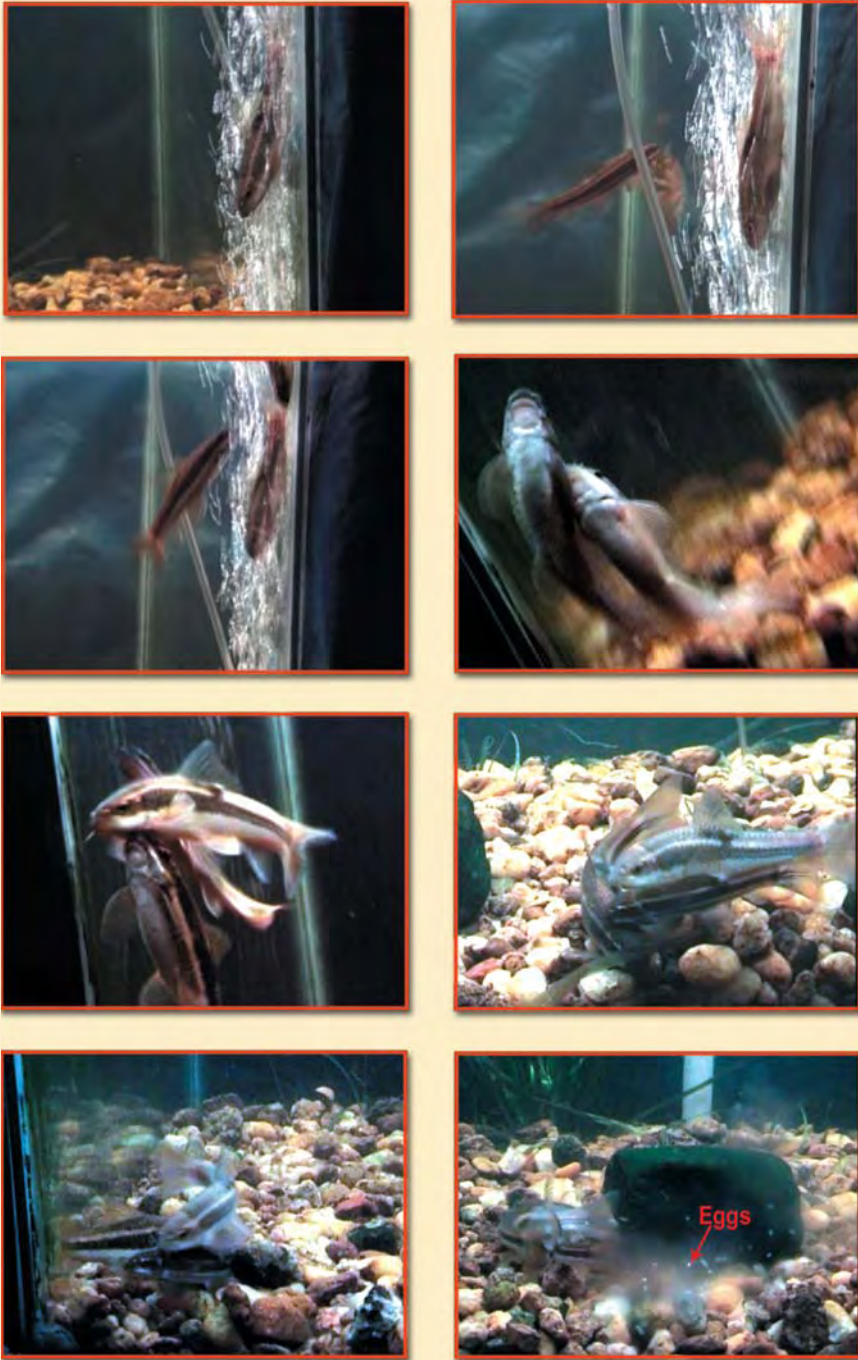
**Behaviour in captivity:** It is a bottom feeder. But it is quite interesting to watch it browsing algae from the glass surface, drift wood kept in tanks and leaves without damaging them.

## *Garra surendranathanii* Shaji, Arun & Easa



*Garra surendranathanii*, a new species of *Garra* recorded from River Chalakkudy, Kerala.

### Courtship behaviour and spawning of *G. mullya*



FAMILY

## Balitoridae

Popularly known as 'loaches'. The fishes of this family are beautiful ornamental fishes, mostly dwelling towards the bottom of aquarium tanks. Freshwater loaches of the Western Ghats of India belong to the families of Balitoridae and Cobitidae of the order Cypriniformes. The streams and rivers originating from the Western Ghats of India harbor about 37 species of loaches, which are endemic to the region. They are usually slender and have worm-like bodies. They are provided with a ventral mouth and barbels. The varied colour pattern due to blotches, bars and saddle-shaped bands make them more attractive and hence suitable for aquariums. They are hardy and well adaptive in tropical aquariums. There is no difficulty in feeding these loaches as they consume almost anything offered.



## *Bhavana australis* (Jerdon)



COMMON NAMES	
Western Ghat loach	English
Kalveli	Malayalam

FIN COUNT	
Dorsal	ii 7-9
Anal	iii 5-6
Pectoral	vi-viii 9-11
Ventral	ii 7-8

**Distinguishing characters:** Head and anterior part of body greatly depressed, the ventral surface flat and horizontal. Head broad and rounded, almost trenchant, covered with short, hard, spine-like growths. Mouth small, inferior; lips thick and fleshy. Barbels three short, stumpy pairs; two pairs rostral and one pair maxillary. Gill-openings small, spout-like apertures, restricted above base of pectoral fins. Dorsal fin short. Paired fins broad, wing-like and horizontal. Caudal fin forked. Scales small; lateral line with 70 to 75 scales.

**Colour and size:** Usually dark on dorsal surface, with black spots, irregularly distributed on body but form regular rows on fins. It attains a maximum size of 9cm.

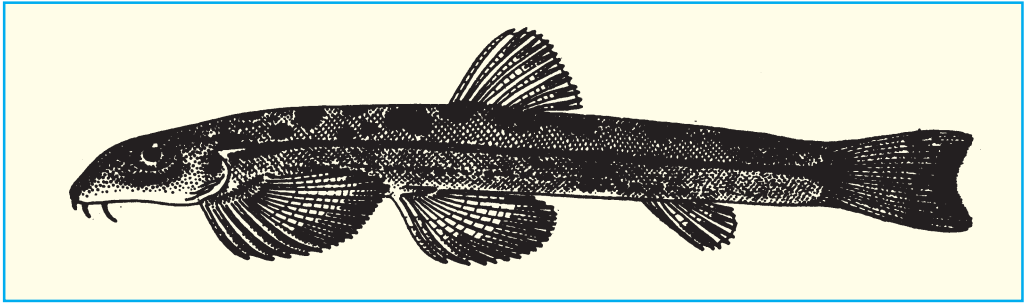
**Food and feeding:** It is an algae eater. Always sticks to glass walls of aquarium and feed from the glass surface or from the surface of stones and leaves. It does not accept artificial feed in captivity.

**Aquarium requirements:** Difficult to maintain in aquarium conditions. Studies made by the authors show that they do not thrive well in aquarium for more than one month.

**Behaviour in captivity:** It is compatible and peaceful, always sticks on the glass surface.



## *Homaloptera montana* Herre



COMMON NAME	
Anamalai loach	English

FIN COUNT	
Dorsal	ii-7
Anal	ii 5
Pectoral	iv 8
Ventral	ii 6-7

**Distinguishing characters:** Body slender, its depth 6.4 to 8.2 times in standard length. Head about as broad as long, its length 3.8 to 5 times in standard length; snout descends steeply with rather flat tip. Eyes moderately large, about 4.5 times in head. Mouth small and inferior, with fleshy lips, upper lip well-developed and overhanging the lower. Barbels three pairs, small and inconspicuous. Dorsal fin inserted well behind origin of pelvic fins, its origin almost equidistant between tip of snout and base of caudal fin. Pectoral fins extend to pelvic fin base. Caudal fin emarginate. Scales small; head and entire ventral surface of body scaleless; lateral line scales about 72.

**Colour and size:** Brown, the underside yellow; ten dark short bars across the back; a poorly defined dark longitudinal stripe below lateral line from eye to base of caudal fin; top of head very dark brown. A blackish brown spot on pelvic-fin base; caudal fin with a blackish blotch at its base, and another near its tip; other fins hyaline. It attains a maximum size of 8cm.

**Food and feeding:** Feeds on algae. Do not accept artificial feed.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Requires algae attached to surfaces and hence it is very difficult to feed them properly.

**Behaviour in captivity:** Compatible and peaceful but difficult to maintain for longer periods in aquarium tanks.

## *Travancoria elongata* Pethiyagoda & Kottelat



COMMON NAME	
Travancore loach	English

FIN COUNT	
Dorsal	ii 7-8
Anal	i 4-5
Pectoral	vi 9-10
Ventral	ii 6-7

**Distinguishing characters:** Head and body strongly depressed. Head and abdomen ventrally flat. Head 1.7-1.9 times wider than deep. Mouth inferior, small, arched; jaws covered by a horny sheath; upper lip uninterrupted, fleshy, smooth, continuous around corners of mouth and extending slightly along lower jaw; lower lip not continuous with upper lip, restricted to a medial pad barely covering lower jaw and followed posteriorly by two prominent, fleshy papillae; barbels three pairs; two short, fleshy and strongly papillated rostral barbels barely reaching upper jaw, and a similar maxillary pair at the angle of the mouth.

**Colour and size:** Body colour greenish-brown, with dark brown spots, as large as or larger than eye, arranged in three rows: the largest spots arranged in a row along the back, three between occiput and dorsal origin (two sometimes coalesced into a single elongate blotch on dorsal base), seven between dorsal and caudal fin; a row of smaller spots, less distinct, centered more or less on the lateral line along each side; a row of 18-19 eye-sized spots along the lower margin of the flank, between pectoral and caudal, the anteriormost ones sometimes coalescing; fins similarly dotted on each ray, giving the appearance of transverse bars, the pectoral with five series, the pelvic with four series, the

dorsal and anal each with two, the lower caudal lobe with six and the upper caudal lobe with three or four. This colour pattern is more evident in the smaller specimens, the blotches being more coalesced in the large specimens to give an uneven, mottled appearance. Ventral side creamy white. Ground colour of head is darker brown than body, mottled with several small, blackish spots. Attains a length of 10 cm.

**Food and feeding:** Algae eater. Do not accept artificial feed.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Requires well aerated water. It is easy to maintain them in an aquarium having algae grown glass surface. In such tanks they survive for longer periods. They also survive well in outdoor cement tanks with rich algae growth on their sides. They remain hidden behind stones or drift woods except for feeding.

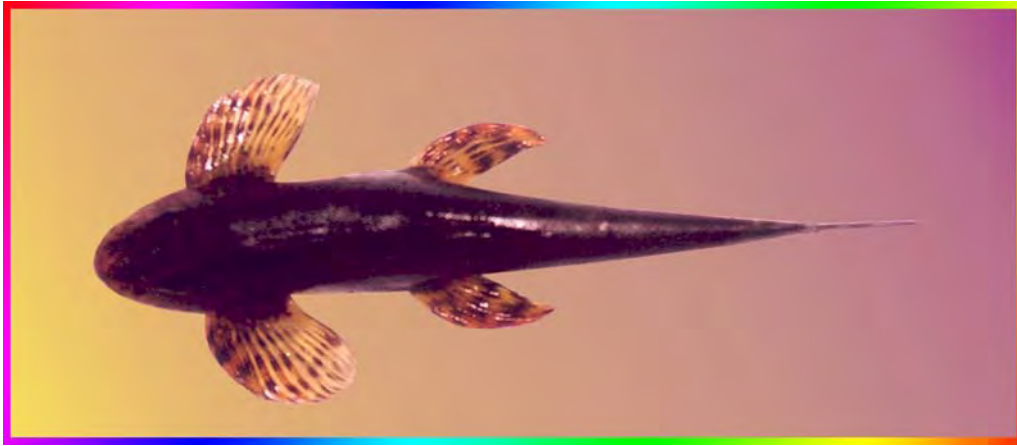
**Behaviour in aquarium:** It is compatible and peaceful but not active. It is very sluggish. Most of the time they remain vertically attached to the glass surface with their sucker-like mouth. It is quite interesting to watch them moving through the surface of glass walls, browsing on algae.

#### River Kabani, Kerala





## Travancoria jonesi Hora



COMMON NAME	
Travancore loach	English

FIN COUNT	
Dorsal	ii 7-8
Anal	i 4-5
Pectoral	vi 9-10
Ventral	ii 6-7

**Distinguishing characters:** Head and greater part of body depressed, the tail somewhat compressed. Head broadly pointed anteriorly, covered with series of short, hard, spine-like growths. Mouth small and inferior; lips well-developed and free from jaws. Seven rostral barbels and two maxillary barbels. Paired fins broad, wing-like and horizontal. Caudal fin forked. Scales small; lateral line with 75 to 77 scales, dorsal and lateral scales in anterior region slightly keeled in middle.

**Colour and size:** Dark above and pale below in flattened part; along the dorsal surface a series of 8 to 10 broad, saddle-shaped spots while head and sides of body are mottled with black spots of different sizes and pattern, some of which form a black band along the lateral line. Fins with series of spots, especially along the middle. It attains a maximum size of 8 cm.

**Food and feeding:** It is like the other species of the genera, an algae eater.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Requires well aerated water. Difficult to maintain for long time due to the difficulty in feeding.

**Behaviour in aquarium:** It is compatible and peaceful but not active. It is very sluggish. Most of them remain vertically, attached to the glass surface with their sucker like mouth.

## *Acanthocobitis moreh* (Sykes)



COMMON NAMES	
Moreh loach	English
Koima, Koitha	Malayalam

FIN COUNT	
Dorsal	iii 9-10
Anal	iii 5
Pectoral	i 11
Ventral	i 7

**Distinguishing characters:** Body spindle-shaped, its depth 4 to 4.1 times in standard length. Eyes large, not visible from underside of head. Nostrils close to each other. Mouth semicircular; lips fleshy, upper lip with a few rows of papillae, lower lip interrupted in middle with two, rounded, raised clusters of small papillae situated on each side of cleft of lower jaw. Barbels well developed; nasal pair short. Dorsal fin inserted nearer to snout-tip than base of caudal fin. Caudal fin slightly emarginate. Lateral line incomplete, ending opposite to posterior end of dorsal fin.

**Colour and size:** Body marked with several broad black bands and spots. Fins are also marked with dark streaks on their rays. Attains a length of 4.4 cm.

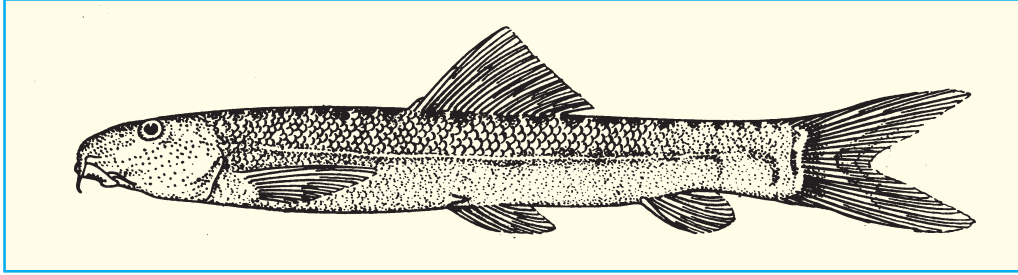
**Food and feeding:** It is omnivorous, but prefers insect larvae. Accepts artificial feed in captivity.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Needs well aerated clear water. Requires hiding places for comfortable settlement in the tank.

**Behaviour in aquarium:** Remains towards the bottom part of the tank. Compatible and peaceful.

## *Nemacheilus anguilla* Annandale



COMMON NAME	
Eel loach	English
Koitha, Koima	Malayalam

FIN COUNT	
Dorsal	iii 8
Anal	ii 4
Pectoral	i 13
Ventral	i 7

**Distinguishing characters:** Body rather elongate and of uniform depth, its depth 6 to 9.9 times in standard length. Eyes large, somewhat visible from underside of head. Nostrils close to each other; anterior nostrils slightly tubular. Mouth semicircular, lips moderately fleshy and deeply furrowed, upper lip provided with a pair of barbel-like processes and interrupted with a median incision, lower lip interrupted in middle. Barbels relatively long and thread-like. Dorsal fin inserted almost equidistant between snout-tip and base of caudal fin. Pelvic fins extend to anal-opening. Caudal fin deeply forked, with pointed lobes. Scales small and imbricate, indistinct in anterior part of body, absent on ventral surface; lateral line almost complete, well marked up to tip of pelvic fin. Vent situated at some distance in front of anal fin.

**Colour and size:** Dull green with 19 or 20 saddle-shaped vertical bands, as wide as interspaces, restricted to back; a row of large blackish spots or blotches running as a band along mid-lateral line, often coalescing, extending to caudal fin. Dorsal fin with an anterior scarlet border; caudal fin edged both above and below with red. It attains a length of 5cm.

**Food and feeding:** Omnivorous. Accepts artificial feed under captivity.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Requires well aerated clear water. Hiding places are essential for comfortable settlement in aquariums.

**Behaviour in captivity:** Remains towards the bottom part of the tank. It is a compatible and peaceful species.

## *Nemacheilus monilis* Hora



COMMON NAMES	
Moniliform loach	English
Koima	Malayalam

FIN COUNT	
Dorsal	iii 7
Anal	ii 5
Pectoral	i 10
Ventral	i 6-7

**Distinguishing characters:** Body rather elongate and of uniform depth, its depth about eight times in standard length. Eyes small, not visible from underside of head. Nostrils close to each other; anterior nostrils somewhat tubular. Mouth semicircular; lips moderately fleshy and poorly furrowed, upper lip raised into a short proboscis in middle, lower lip interrupted in middle. Barbels relatively long and thread-like. Dorsal fin inserted slightly nearer base of caudal fin than to snout-tip. Pelvic fins separated from anal-opening by a considerable distance. Caudal fin deeply forked, with pointed lobes. Scales small and imbricate, indistinct in anterior part of body, absent on ventral surface; lateral line complete. Vent situated some distance in front of anal fin.

**Colour and size:** Dirty white and somewhat infuscated along back; a distinct moniliform black band along lateral line from tip of snout to base of caudal fin, interrupted by eye in its course; the last component of black spots in the series more prominent; the band continued as a black streak in middle of caudal fin; barbels streaked with black. Fins whitish. It attains a maximum size of 8cm.



**Food and feeding:** Omnivorous. Food is no problem for them. They relish mosquito larvae, boiled egg yolk and artificial feed. Usually they feed from the bottom, but if they are too hungry they swim up to the upper parts of water column when food is provided. If they are too hungry they do not wait for the food to reach the bottom. Recommended food is sinking pellets, earthworms, live food like mosquito larva, moina and of course boiled chicken egg yolk.

**Sexual dimorphism and breeding:** Females develop bulged belly when they are mature. Breeding techniques developed for *Nemacheilus triangularis* can be applied for this species also.

**Aquarium requirements:** They are more active than other loaches. Usually roam around the tank in search of food.

**Behaviour in captivity:** They always dwell at the bottom of the tank. They are compatible and peaceful, and it is quite interesting to note that they come out of the hiding places when food is given. They are playful and friendly fish, prefer to hide and will be comfortable only when hiding places are provided in the tank.

#### *Nemacheilus monilis*



## *Schistura denisoni denisoni* (Hora)



COMMON NAMES	
Denisonii loach	English
Pambu loach	Malayalam

FIN COUNT	
Dorsal	iii 8
Anal	ii 5
Pectoral	i 10
Ventral	i 6

**Distinguishing characters:** Body of uniform depth, its depth 5.3 to 7.3 times in standard length. Eyes small, not visible from underside of head. Nostrils close to each other, anterior tubular. Mouth semicircular; lips fleshy, lower weakly furrowed and interrupted. Barbels well-developed, thread-like, as long as eye-diameter. Dorsal fin inserted equidistant between snout-tip and base of caudal fin, often slightly nearer caudal fin base. Pelvic fins touching anal-opening or close to it. Caudal fin deeply emarginate. Scales small, imbricate posteriorly, close-set in the middle, scattered anteriorly, absent on the under surface; lateral line incomplete, ending at origin to middle of dorsal fin.

**Colour and size:** Body marked with 12 or 13 broad vertical bands with an equal number of narrow pale interspaces; a black band at base of caudal fin; and a blackish spot at origin of dorsal fin base. Dorsal fin with two rows of spots; caudal fin with four rows of well-marked spots; other fins unspotted. Attains a maximum size of 10cm.

**Food and feeding:** Omnivorous in feeding habit. It prefers live food, but readily accepts artificial feed also.

**Sexual dimorphism and breeding:** Male has a small hook-like structure on its head. Female develops bulged belly when becomes mature. Male and female can be easily identified by their body shape, when they are mature.

**Aquarium requirements:** Needs well aerated water. They are comfortable in the tank only when some hiding places are provided.

**Behaviour in captivity:** Peaceful and compatible. Always dwells at the bottom of the tank, hiding among pebbles, drift wood or under big stones.

Two sub-species, *S.denisoni mukambbikaensis* (Menon) and *S.denisoni pambaensis* (Menon) have also been reported from River Kollur in Karnataka and River Pampa in Kerala respectively.





## *Schistura nilgiriensis* (Menon)



COMMON NAMES	
Nilgiri loach	English
Nilgiri koima	Malayalam

FIN COUNT	
Dorsal	iii 8
Anal	ii 6
Pectoral	i 10
Ventral	i 6

**Distinguishing characters:** Body of uniform depth, its depth 5.5 to 8.7 times in standard length. Eyes small, not visible from underside of head. Nostrils close to each other, anterior tubular. Mouth semicircular; lips moderately fleshy, lower furrowed and interrupted in middle. Barbels well-developed, thread-like. Dorsal fin inserted equidistant between snout-tip and base of caudal fin. Pelvic fins separated from anal-opening by a considerable distance. Caudal fin slightly emarginate. Scales minute, isolated in posterior-third of body, absent anteriorly in front of dorsal fin and on ventral side; lateral line incomplete, terminating opposite to middle of pectoral fin.

**Colour and size:** Body marked with 11 or 12 light brown bands, broader than pale interspaces; generally the bands are split up to 17 bands by the appearance of pale streaks in their middle along the dorsal surface; upper surface of head dusky, and its under surface dull white; a dark band at base of caudal fin, while in younger specimens there is a prominent spot in the middle of the band. Dorsal fin with a light margin bounded below by a jet black band and having a dark base. It attains a maximum size of 6 cm.

**Food and feeding:** It is omnivorous. They enjoy mosquito larvae, boiled egg yolk and artificial feed. They feed from the bottom, hence care should be taken to note that the feed reaches the bottom in a community tank.



**Sexual dimorphism and breeding:** As in the case of other loaches, females develop bulged belly when they are mature. Posterior part of the body of male becomes pink in colour when they are mature. Not bred in captivity so far.

**Aquarium requirements:** They become comfortable only when provided with convenient hiding places.

**Behaviour in captivity:** They always dwell at the bottom of the tank. They are compatible and peaceful and it is quite interesting to note that they come out of the hiding places when food is given.

### Silent Valley National Park – An aerial view



## *Schistura semiarmatus* (Day)



COMMON NAMES	
Armatus loach	English
Koitha	Malayalam

FIN COUNT	
Dorsal	ii-iii 8
Anal	ii 5
Pectoral	i 10
Ventral	i 6

**Distinguishing characters:** Body fairly elongate, its depth 5.8 to 7.9 times in standard length. Eyes small, not visible from underside of head. Nostrils close to each other, anterior tubular. Mouth semicircular; lips thick, fleshy and furrowed, lower lip interrupted in middle. Barbels well developed and thread-like, as long as eye-diameter. Dorsal fin inserted slightly nearer to tip of snout than caudal fin base. Caudal fin slightly forked. Scales small, imbricate all over sides and upper surface of body; lateral line complete.

**Colour and size:** Body and sides of head with conspicuous, irregularly scattered black dots; young devoid of dots but marked with 12 or 13 bands (as wide as interspaces), more distinct posteriorly, and rows of black dots on dorsal and caudal fins; the bands in the anterior region coalesce with growth, and those of posterior region become much wider than interspaces; a black band below eye and another in front of it running below nostrils. Dorsal fin with three rows of dots; anal fin with a row of dots; ventral fins and caudal fin also with several rows of dots. It attains a maximum size of 8 cm.

**Food and feeding:** Food is no problem for them. They enjoy mosquito larvae, boiled egg yolk and artificial feed. They feed from the bottom, hence care should be taken to note that the feed reaches bottom in a community tank.

**Sexual dimorphism and breeding:** Females develop bulged belly when they are mature. Male develops pink colour when mature and it is intensified during courtship behaviour. Captive breeding is possible. The first author has successfully bred it in captivity, but survival rate was less. Further trials are in progress.

**Aquarium requirements:** They become comfortable only when provided with convenient hiding places.

**Behaviour in captivity:** They always dwell at the bottom of the tank. Never come to the top layers of water column. They are compatible and peaceful, and it is quite interesting to note that they come out of the hiding places when food is given. They try to swim up to the top layers of the water column at the smell of food when they are too hungry.

#### Courtship behaviour



## *Longischistura striata* (Day)



COMMON NAMES	
Loach	English
Varayan Koima, Varayan Koitha	Malayalam

FIN COUNT	
Dorsal	ii 9-10
Anal	ii 5
Pectoral	i 10
Ventral	i 6

**Distinguishing characters:** Body slender with both dorsal and ventral profiles almost straight and horizontal, its depth 5 to 8.1 times in standard length. Eyes small, not visible from underside of head. Nostrils close to each other, anterior tubular. Mouth semicircular; lips moderately fleshy, poorly furrowed, lower lip interrupted in middle; area immediately behind lower lip thickened and fairly grooved forming a sort of mental adhesive apparatus. Barbels long and narrow. Dorsal fin inserted slightly nearer snout-tip than to base of caudal fin. Caudal fin deeply forked. Scales small, prominent all over body except on under surface; lateral line complete.

**Colour and size:** Body marked with 16 to 20 vertical bands encircling body, wider than interspaces; a black band at base of caudal fin. Dorsal fin with a black edge and a light posterior margin and a dark base, one or two rows of bands across fin; anal fin with dull black spots; two rows of spots on caudal fin. It attains a maximum size of 4cm.

**Food and feeding:** Omnivorous.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Requires well-aerated clear water.

**Behaviour in captivity:** Very active and fast swimming. Dwells towards the bottom of the tank and as in the case of other loaches, it also prefers to hide among pebbles.



## *Mesonemacheilus guentheri* (Day)



COMMON NAMES	
Guenther's loach	English
Koima	Malayalam

FIN COUNT	
Dorsal	ii 8
Anal	ii 5
Pectoral	i 10
Ventral	i 6-7

**Distinguishing characters:** Body somewhat subcylindrical with head and anterior part of body fairly flattened. Eyes small, not visible from underside of head. Nostrils close to each other; anterior nostrils slightly tubular. Mouth semicircular; lips fleshy and deeply furrowed, lower lip interrupted in middle. Barbels well-developed. Dorsal fin inserted equidistant between tip of snout and caudal fin base. Caudal fin forked. Scales small, imbricate in posterior-third of body, isolated anteriorly in front of dorsal fin, absent on ventral side of body; lateral line almost complete, ending above anal fin.

**Colour and size:** Dark brown with three rows of whitish spots of different sizes and form; a deep short vertical bar at base of caudal fin; a spot on dorsal fin origin. Dorsal and caudal fins with three or four rows of spots. Attains a length of 6 cm.

**Food and feeding:** It is omnivorous.

**Sexual dimorphism and breeding:** Males and females can be identified when they are sexually mature. Females develop bulged belly. Males develop red colour on their caudal fin on attaining maturity.

**Aquarium requirements:** Needs clear and well-aerated water. As in the case of other loaches they also remain towards the bottom of tanks. They are comfortable only when hiding places are provided.

## *Mesonemacheilus herrei* Nalbant & Banarescu



*M. herrei*—a rare species of loach recorded from Anamalai Hills, Valparai, Tamil Nadu.

Endemic to the Western Ghats

## *Mesonemacheilus petrubanarescui* (Menon)

COMMON NAMES	
Banarescu loach	English
Banarescu koima	Malayalam

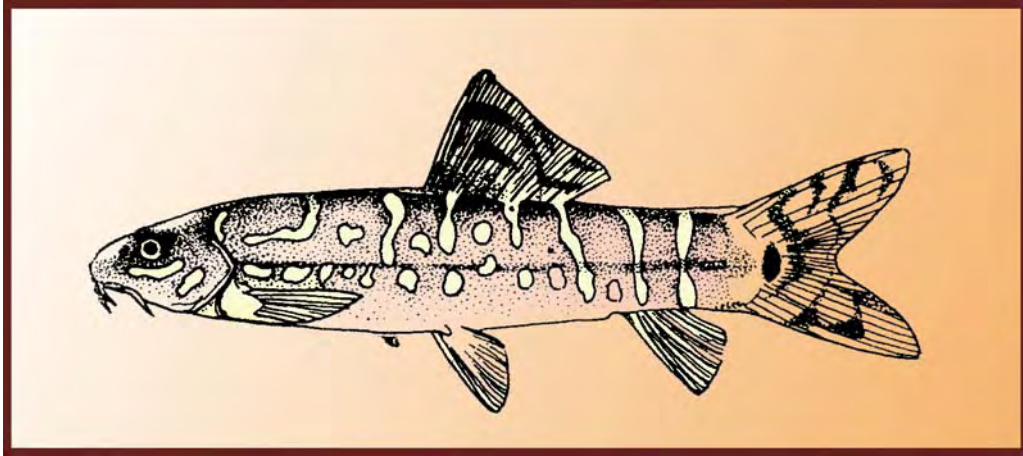
FIN COUNT	
Dorsal	iii 8
Anal	ii 5
Pectoral	i 10
Ventral	i 7

**Distinguishing characters:** Body of uniform depth, its depth 5.8 to 6.6 times in standard length. Eyes small, not visible from underside of head. Nostrils close to each other, anterior tubular. Mouth semicircular, lips moderately fleshy, lower lip deeply furrowed and interrupted in middle. Barbels well developed. Dorsal fin inserted almost equidistant between tip of snout and caudal fin base. Caudal fin deeply forked.

**Colour and size:** Body marked with seven or eight broad saddle-shaped black bands on back, posterior four extending as narrow bands a short distance below lateral line; flanks marked by a varying number of bands, fairly broad behind dorsal fin, anteriorly broken up into several narrow bands; an intensively black rectangular black patch at middle of caudal fin base. Dorsal fin with a row of dark spots; and caudal fin with two dark-shaped bands. It attains a maximum size of 3.5cm.



## *Mesonemacheilus pulchellus* (Day)



COMMON NAMES	
Nilgiri loach	English
Koima	Malayalam

FIN COUNT	
Dorsal	iii 8
Anal	ii 6
Pectoral	i 10
Ventral	i 6

**Distinguishing characters:** Body somewhat subcylindrical, its depth 4.2 to 4.6 times in standard length. Eyes small, not visible from underside of head. Nostrils close to each other; anterior nostrils slightly tubular. Mouth semicircular; lips moderately fleshy and deeply furrowed, both lips interrupted in middle. Barbels well-developed, stumpy at base, thread-like at ends. Dorsal fin inserted equidistant between snout-tip and base of caudal fin. Caudal fin deeply forked. Scales small, imbricate all over body, distinct posteriorly, absent on ventral side; lateral line complete.

**Colour and size:** Body marked with two rows of oval yellow spots having deep black margins, restricted to upper two-thirds of body; behind dorsal fin these spots become vertical bands, two thirds as wide as ground colour, extending to belly; a crescent-shaped spot behind and below eye; one oblique band along opercle. Dorsal fin with two wide black bands along its centre; a band across anal fin; and caudal fin with three or four oblique black bands. It attains a maximum size of 8cm.

## *Mesonemacheilus triangularis* (Day)



COMMON NAMES	
Triangularis loach	English
Koima	Malayalam

FIN COUNT	
Dorsal	ii 8
Anal	ii 5
Pectoral	i 10
Ventral	i 7

**Distinguishing characters:** Body subcylindrical, its depth 5 to 8.5 times in standard length. Eyes small, not visible from underside of head. Nostrils separated by a prominent flap. Mouth semicircular; lips fleshy and furrowed, lower interrupted in middle. Barbels well developed. Dorsal fin inserted about equidistant between snout-tip and base of caudal fin. Caudal fin forked. Scales distinct, imbricate all over body; lateral line most complete, reaching up to caudal peduncle. Vent a short distance from anal fin.

**Colour and size:** Varies considerably with age; ground colour grayish with yellowish bands edged with black on body, usually seven, the anterior five directed obliquely backwards, and last two vertical; several yellowish patches of different patterns above lateral line; a dusky blotch on base of caudal fin. Dorsal and caudal fins with two bands each; and anal and pelvic fins with one each. It attains a maximum size of 8 cm.

**Food and feeding:** They eat anything like worms, flakes or moina. They also enjoy mosquito larvae, boiled egg yolk and artificial feed. They feed from the bottom, hence care should be taken to note that the feed reaches the bottom in a community tank.

**Sexual dimorphism and breeding:** Females develop bulged belly when they are mature. The first author could successfully develop captive breeding technique for this species. Young ones become mature when they are one year old.



**Aquarium requirements:** They become comfortable only when provided with convenient hiding places. To make them comfortable we provided them with pieces of PVC pipes in the tank bottom, so that they would do better in the tanks.

**Behaviour in captivity:** They always dwell at the bottom of the tank. Never come to the top layers of water column. They are compatible and peaceful, and it is quite interesting to note that they come out of the hiding places when food is given. They seem to be doing better in groups, though they do not spend all the time together. This species easily get scared by any movement.

Male



Female



## *Mesonemacheilus remadevii* Shaji



COMMON NAME	
Remadevi's loach	English

FIN COUNT	
Dorsal	ii 8
Anal	ii 5
Pectoral	i 12
Ventral	i 6

**Distinguishing characters:** Body is elongate and depth of the body at dorsal origin is (16.30-19.16) 17.68% in SL. Dorsal fin is inserted midway between the caudal base and snout tip or slightly nearer to the caudal base. Predorsal distance is (50.83-52.17) 51.56% in SL. Caudal peduncle is narrow and the least height of the caudal peduncle is (12.06-15.83) 13.48% in SL. Caudal fin is forked and the lobes are rounded. Barbels are long and thread like. The lips are deeply furrowed.

**Colour and size:** The background is yellowish-white. Three of the specimens are with three to eight round spots along the flanks and upper half of the body. These spots are absent in some. Dorsal side is with solid dark bars of various shapes from straight to angular, which may extend down to the middle of the body in some specimens. Both the median and paired fins are plain. Microscopic examination shows minute black pigments scattered on the fin elements and in the membranes between them, which are prominent in the dorsal fin. An elongated black patch is present at the caudal fin base. Attains a length of 7.4 cm.

Endemic to the Western Ghats

## *Mesonemacheilus menoni* (Minimol & Zacharias)

A new species of attractive loach reported from River Periyar, Kerala; commonly known as 'Periyar blotched loach' or 'Manal poolan'



## *Nemacheilichthys ruppelli* (Sykes)



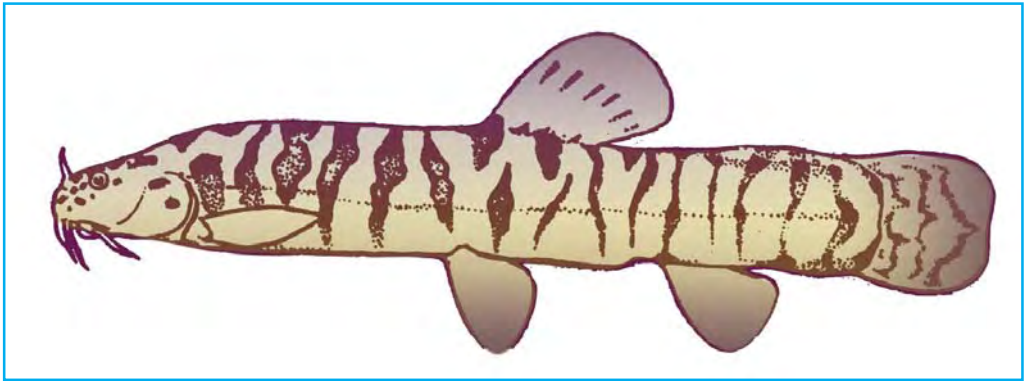
COMMON NAME	
Ruppel's loach	English

FIN COUNT	
Dorsal	iii 10 (11)
Anal	ii 5
Pectoral	i 12
Ventral	i 7

**Distinguishing characters:** Body fairly elongate, its depth 5 to 6.5 times in standard length. Eyes prominent, not visible from underside of head. Nostrils close to each other, anterior slightly tubular. Snout long and pointed, longer than posterior portion of head. Mouth semicircular; lips moderately fleshy, deeply furrowed, lower interrupted in middle and papillated. Barbels well-developed, nasal barbels short. Dorsal fin inserted equidistant between snout-tip and base of caudal fin. Caudal fin deeply forked. Scales imbricate, absent on ventral side of body; lateral line complete. Vent situated far forwards, considerably anterior to anal fin.

**Colour :** Greenish-yellow above, white below; 18 or 19 brownish vertical bands on body, reaching below lateral line but not to ventral side; short brown bands along lateral line forming a lateral stripe. Dorsal fin with three rows of spots; caudal fin with four or five posteriorly directed V-shaped bands.

## *Oreonectes evezardi* (Day)



COMMON NAMES	
Evezardi loach	English
Koima	Malayalam

FIN COUNT	
Dorsal	iii 7
Anal	ii 5
Pectoral	i 10-11
Ventral	i 6-7

**Distinguishing characters:** Body subcylindrical, loach-like and of almost uniform depth, its depth 5.7 to 8.7 times in standard length. Eyes rather minute, not visible from underside of head. Nostrils closer to eye than to tip of snout; anterior nostrils barbel-like. Mouth semicircular; lips fleshy and moderately furrowed, both lips interrupted in middle. Barbels well-developed, nasal pair extends to beyond middle of eye but usually not to posterior edge. Dorsal fin inserted nearer to base of caudal fin than snout-tip. Caudal fin rounded. Scales small, well-developed and imbricate, covering the entire body including breast; lateral line short, ending above middle of pectoral fin.

**Colour and size:** Greenish or yellowish with 9 to 18 (usually 14 or 15) brown vertical stripes from back to ventral side, the stripes often interrupted or incomplete, some fairly curved and oblique, others V- or Y-shaped; big round spots on head; a vertical dark stripe at base of caudal fin; a small black spot at base of dorsal-fin origin. Dorsal fin with two or three rows of spots; caudal fin with three or four rows of dark spots; other fins unspotted. Attains a length of 3.8 cm.



## Oreonectes keralensis Rita & Nalbant



COMMON NAMES	
Kerala loach	English
Koitha, koima	Malayalam

FIN COUNT	
Dorsal	iii 7
Anal	ii 5
Pectoral	i 10
Ventral	i 6-7

**Distinguishing characters:** Body subcylindrical, of uniform depth, its depth 5.7 to 7.5 times in standard length. Eyes small, not visible from underside of head. Nostrils close to each other, situated nearer to eye than to snout-tip; anterior nostrils barbell-like. Mouth semicircular; lips fleshy, lower lip incompletely interrupted in middle by a narrow groove, upper lip not interrupted. Barbels well-developed; nasal pair extend to eyes. Dorsal fin inserted nearer to base of caudal fin than to snout-tip. Caudal fin rounded. Scales small, well-developed and imbricate, covering the entire body; lateral line short.

**Colour and size:** Body marked with very narrow, ill-defined vertical bands from dorsal to ventral surface, often split up below lateral line into several streaks or spots; the bands often coalesce to form uniform dark colour with wavy margins at ventral side; a black mark at origin of dorsal fin; a narrow stripe or two distant spots on base of caudal fin. Caudal fin with a few irregular spots; other fins plain. It attains a maximum size of 4cm.

**Food and feeding:** Omnivorous. Feeding habit is similar to other loaches.

**Sexual dimorphism and breeding:** Females develop bulged belly when they are mature. Males develop red colour on the posterior part of their body including tail when they are mature.

**Aquarium requirements:** They should have plenty of hiding places or they will squeeze into impossibly tiny nooks and crannies.

**Behaviour in captivity:** They always dwell at the bottom of the tank. They are deemed peaceful tank mates.

FAMILY

## Cobitidae

Popularly known as 'loaches'. They are rather small, with head and body compressed, not flattened below, worm-like to fusiform shape. They have a spine below the eye which can be erected. Three pairs of barbels usually present. Mouth subterminal to inferior, lips thick fleshy and papillated. No spines on fins, only soft-rayed fins and generally with few rays. Scales cycloid and small, often not easily discernible. Air bladder enclosed in an osseous capsule, its posterior part small or vestigial. Almost all species of loaches are colorful and attractive as ornamental fishes. They are mainly bottoming living fishes in which the mode of existence is reflected in their appearance. Blotches, bars and bands, interrupt their dark basic body colour that makes them more attractive. Two subfamilies *viz.*, Cobitinae and Botinae, both are present in India.

## *Lepidocephalus thermalis* (Valenciennes)



COMMON NAMES	
Malabar loach	English
Malabar Koima	Malayalam

FIN COUNT	
Dorsal	ii-iii 5
Anal	ii-iii 5
Pectoral	i 6-7
Ventral	i 6

**Distinguishing characters:** Body elongate, low, slightly compressed anteriorly and strong posteriorly, its depth 7.5 to 9.7 times in total length. Mouth inferior; barbels three pairs; mental lobe well-developed, with small barbel like prolongations. Dorsal fin inserted somewhat anterior to pelvic fins, usually nearer caudal fin base than to snout-tip. Caudal fin almost squarely truncate. Scales very small; a small patch of scales on head behind suborbital spine; on ventral side of head scales extent anterior to pectoral fin bases but not reaching isthmus; 30 to 37 rows of scales between back of body and anal fin; scales oval.

**Colour and size:** Grey to delicate grey-green, with somewhat dark 8 to 10 irregular blotches along flanks; back usually marbled with pale and dark; a small black spot on upper half of base of caudal fin dorsal and anal fins with rows of spots. An attractive ornamental fish. It attains a maximum size of 8cm.

**Food and feeding:** Wide variety of food is accepted, especially sinking dried food and bottom live foods.

**Sexual dimorphism and breeding:** Not bred under captivity so far.

**Aquarium requirements:** Water chemistry is not critical and wide range of pH and water hardness will be tolerated without distress. Temperature should be 24-26 degrees celsius.

**Behaviour in captivity:** Peaceful, good for community tanks with similar sized tankmates. They enjoy digging and burrowing into the sand. Hence a rocky substrate tends to wear down the delicate barbels. So a sandy substrate is preferable. They should have plenty of hiding places, they tend to stuck in small openings, so should be very careful.

*Lepidocephalus thermalis*





## *Lepidocephalichthys guntea* (Hamilton-Buchanan)



COMMON NAMES	
Guntea loach	English
Koima	Malayalam

FIN COUNT	
Dorsal	ii-iii 6-7
Anal	ii-iii 5
Pectoral	i 6-7
Ventral	i 6-7

**Distinguishing characters:** Body elongate, low, slightly compressed anteriorly and strongly posteriorly, its depth 5.8 to 6.8 times in total length. Mouth inferior; barbels three pairs; mental lobe well-developed and produced into one or two projections. Dorsal fin inserted slightly behind level of origin of pelvic fins, nearer to caudal fin base than to snout-tip. Caudal fin convex or cut square, with rounded corners. Scales very small, imbricate; scales on head in patches below and behind eyes, and upper part of operculum; on ventral side of head scales extend anteriorly beyond isthmus; 25 to 30 rows of scales between back of body and base of anal fin; sub-dorsal scales oval, with eccentric focal area.

**Colour and size:** Highly variable, differing with age and sex. In young specimens delicate yellowish with a dull gleaming pale streak which extends from snout to a small, round, deep black blotch of base of caudal fin; above and below these stripes are 10 to 12 irregular or evenly regularly arranged dark blotches – these spots grow in size and tend to fuse with one another, forming a continuous dark lateral band with age; above the lateral dark spots and band, another thinner dark band parallel to it and separated from it as well as the colouration of back, by a band of ground yellowish colour, infuscated with dark spots in females but clear in males. Dorsal and caudal fins with rows of dark spots; a dark spot on upper part of base of caudal fin. Attains a maximum size of 15cm.

**Food and feeding:** Bottom feeder, eats algae, detritus, worms, and pellet feed.

**Sexual dimorphism and breeding:** Not yet bred under captivity.

**Aquarium requirements:** Needs well aerated water. Prefers to hide among pebbles and burrow into the sand, hence it is ideal to provide hiding places.

**Behaviour in captivity:** Compatible, peaceful fish. Always dwells at the bottom of the tank.

River Valapattanam, Kerala



## Botia striata Rao



COMMON NAMES	
Tiger loach	English
Waghamasa	Marathi

FIN COUNT	
Dorsal	ii 9-10
Anal	ii 5-6
Pectoral	ii 11-12
Ventral	i 7

**Distinguishing characters:** Body elongate and greatly compressed. Head moderate, its length about 2.5 times in standard length; snout length about equal to remaining part of head. Eyes placed almost in posterior half of head. Mouth small; barbels four pairs. Dorsal fin inserted nearer to caudal fin base than to snout-tip. Pectoral fins longer than snout length. Caudal peduncle almost squarish, slightly deeper than long. Scales small and non-deciduous.

**Colour and size:** Body pale pink or deep yellow, diversified by broad dark and narrow yellow bands which from behind nape form oblique hoops or stripes directed backwards, these bands completely surround body; broad dark bands often with light streaks of variable number forming complete or incomplete hoops, on upper surface of head the dark and yellow streaks form a trident mark. Fins white and barred; caudal fin with two complete and 2 or 3 interrupted stripes. Attains a maximum size of 10cm.

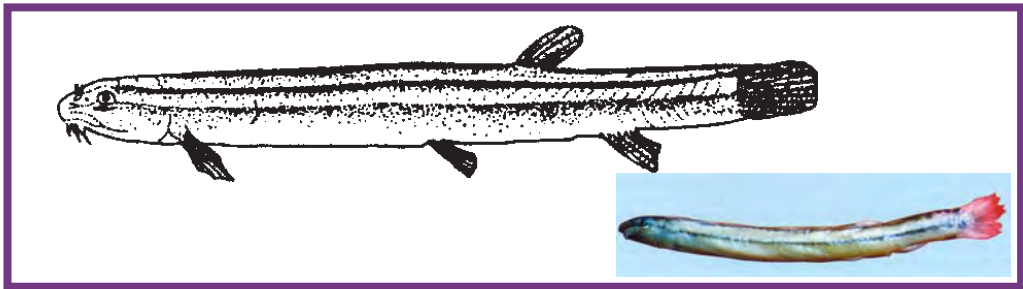
**Food and feeding:** Bottom feeder, eats algae, detritus, worms, and pellet feed.

**Sexual dimorphism and breeding:** Not yet bred under captivity.

**Aquarium requirements:** Needs well-aerated water. It is an active swimmer but dwells towards the bottom of tank.

**Behaviour in captivity:** Compatible, peaceful and friendly.

## *Pangio goaensis* (Tilak)



COMMON NAMES	
Indian coolie-loach	English
Coolie loach	Malayalam

FIN COUNT	
Dorsal	ii 6
Anal	ii 5
Pectoral	i 6
Ventral	i 4

**Distinguishing characters:** Body very elongate and fairly compressed. Head more or less compressed, its length about 6.2 times in standard length. Eyes very small. Mouth inferior, lips smooth, lower lip with a pair of leaf-like lobes attached on either side of symphysis, and each lobe tipped with small barbel-like projections. Barbels three pairs. Dorsal fin small. Caudal fin truncate; least depth of caudal peduncle about two times in its length. Scales very minute, embedded in skin.

**Colour and size:** Yellowish-brown, dorsal side of head with reticulations of dark dots which run into three narrow bands behind the head on the middorsal profile up to the base of caudal fin, the median streak ends at origin of dorsal fin; dark lateral band from snout to base of caudal fin which terminates in a blotch. Dorsal and caudal fins dusky. Attains a maximum size of 4 cm.

Endemic to the Western Ghats

## *Pangio bashai* Easa & Shaji



Another species, *Pangio bashai* Easa and Shaji has been reported from Kerala recently.



## FAMILY

# Bagridae

Popularly known as 'bagrid catfishes'. This family is characterized by a scaleless body, a depressed head and rounded to compressed elongate body, short dorsal fin with a strong, often serrated spine, a strong, serrated spine in the pectoral fin, a short to long adipose fin, anal fin short to long, caudal fin forked or deeply emarginate, a free margin to the gill membranes over the isthmus, the anterior and posterior nostrils are well separated, anterior nostrils tubular, mouth ventral and transverse or arched, teeth on the prevomer, premaxillaries and mandible, and eyes often covered by skin. Maximum size is about 2m. These catfishes are generally nocturnal. Certain species are important food fishes and others are kept as pets in aquaria. The vast majority of this family is predators so they should not be kept with small fishes. Physical characteristics are variable, but most bagrids have four pair of well-developed barbels and adipose fins of variable size. Among all the bagrids, two species of the genus *Horabagrus* are very attractive and are in great demand for aquarium keeping. Sullivan *et al.* (2006) created a new Family 'Horabagridae' to include these two bagrid catfishes, while Jayaram (2006) included these species in a new Sub-family Horabagrinae under family Schilbidae. As the correct phylogenetic position of this interesting genus is yet to be decided, we have retained *Horabagrus* in its old Family Bagridae in this compilation.

## *Horabagrus brachysoma* (Gunther)



COMMON NAMES	
Yellow Cat Fish	English
Manjakkoori	Malayalam

FIN COUNT	
Dorsal	i 6-7
Anal	iii 23-28
Pectoral	i 8-9
Ventral	i 6

**Distinguishing characters:** Body elongate, its depth 4 to 5 times in standard length. Occipital process exposed, extending to predorsal plate. Eyes ventro-lateral in position, visible from underside of head. Mouth subterminal; teeth in villiform bands on jaws. Barbels four pairs; maxillary barbels extend posteriorly to pectoral fin base, other shorter. Rayed dorsal fin with a strong, feebly serrated spine; adipose fin short and low. Caudal fin deeply forked.

**Colour and size:** Greenish-yellow above, the flanks golden, belly white, with a large round black mark on shoulder surrounded by a light yellow ring. Dorsal and anal fins yellowish-orange, grayish at their margins. Maximum size 55cm.

**Food and feeding:** It is omnivorous, feeds on both live and artificial feed.

**Sexual dimorphism and breeding:** Females have a bulged belly and males have milt oozing vent. Captive breeding and larval rearing techniques have been developed and the species domesticated for the first time in 2000 by NBFGRCochin Unit (second author) in collaboration with Dr. K.G. Padmakumar of the Regional Agricultural Research Station, Kumarakom, Kerala. Unlike other catfishes, to collect milt, yellow catfish males can be stripped after hormonal administration. Young ones are of much demand as ornamental fishes.

**Aquarium requirements:** It can thrive in non-aerated water. Being omnivorous, it is not safe to keep them along with small fishes.

**Behaviour in captivity:** It is nocturnal in habit. During day time they prefer to remain hidden under stones and drift wood. They are comfortable only when hiding places are provided.

## *Horabagrus nigricollaris* Pethiyagoda & Kottelat



### COMMON NAMES

Chalakudy cat fish	English
Manja Koori	Malayalam

### FIN COUNT

Dorsal	i 5
Anal	iii 23-26
Pectoral	i 8
Ventral	i 5

**Distinguishing characters:** Body elongate, its depth 4 to 5 times in standard length. Occipital process exposed, extending to predorsal plate. Eyes ventro-lateral in position, visible from underside of head. Mouth subterminal; teeth in villiform bands on jaws. Barbels four pairs; maxillary barbels extend posteriorly to pectoral fin base, other shorter. Rayed dorsal fin with a strong, feebly serrated spine; adipose fin short and low. Caudal fin deeply forked.

**Colour and size:** Greenish-yellow above, the flanks golden, belly white, with a large saddle shaped black mark on neck (posterior dorsal side of the head). Dorsal and anal fins yellowish-orange, grayish at their margins; caudal fin yellow, with a semi-lunar thick black ring at caudal fin base occasionally present. It attains a maximum size of 20 cm.

**Food and feeding:** It is omnivorous, feeds on both live and artificial feed.

**Sexual dimorphism and breeding:** Females have a bulged belly and males have milt-oozing vent. Young ones are in great demand as ornamental fishes.

**Aquarium requirements:** It can thrive in non aerated water. Being omnivorous, it is not safe to keep them along with small fishes.

**Behaviour in captivity:** Similar to *H. brachysoma*. It is nocturnal in habit. During day time they prefer to remain hidden under stones and drift wood. They are comfortable only when hiding places are provided.

## *Mystus vittatus* (Bloch)



COMMON NAMES	
Striped dwarf catfish	English
Chillan, Kallen-Koori, Ettachulli	Malayalm

FIN COUNT	
Dorsal	i 7
Anal	ii-iii 7-9
Pectoral	i 9
Ventral	i 5

**Distinguishing characters:** Body elongate and somewhat compressed, its depth 3.8 to 4.2 times in standard length. Head depressed; occipital process about 3 times as long as broad at its base, median longitudinal groove on head short, not extending to base of occipital process. Eye-diameter 4.5 to 6 times in head, 1.5 to 2 times in interorbital width. Mouth terminal; teeth villiform in bands on jaws; vomerine tooth-band narrow. Barbels four pairs; maxillary pair extends posteriorly beyond pelvic fins, often to end of anal fin. Dorsal spine weak, finely serrated on its inner edge; adipose fin small, inserted much behind rayed dorsal fin but in advance of anal fin. Caudal fin forked.

**Colour and size:** Variable according to age; generally delicate gray-silvery to shining golden, with several lovely pale blue or dark brown to deep black longitudinal bands (total about five) on flank; a narrow dusky shoulder spot often present. Maximum size obtained is 21cm.

**Food and feeding:** Omnivorous, accepts any food given while in captivity. It has nocturnal feeding habit.

**Sexual dimorphism and breeding:** So far not bred in captivity.

**Aquarium requirements:** Survives well even in non-aerated water.

**Behaviour in captivity:** Comfortable if hiding places are provided.



## *Mystus oculatus* (Valenciennes)



COMMON NAMES	
Malabar mystus	English
Chillankoori	Malayalam

FIN COUNT	
Dorsal	i 7
Anal	iii-iv 8-9
Pectoral	i 6
Ventral	i 5

**Distinguishing characters:** Body elongate and compressed, its depth 4 to 4.1 times in standard length. Head depressed; occipital process extends to basal bone of dorsal fin; median longitudinal groove on head extends to base of occipital process. Eye-diameter 3.7 to 4 times in head, about 1.5 times in interorbital width. Mouth terminal; teeth villiform in bands on jaws; vomerine tooth-band continuous and crescentic. Barbels four pairs; maxillary barbels extend posteriorly to middle of anal fin. Dorsal spine moderately strong; adipose fin base short; interdorsal distance about 1.2 times in adipose base. Caudal fin forked; least depth of caudal peduncle 1.4 times in its length. Branchiostegal rays 10.

**Colour and size:** Silvery-gray above, lighter below; a dark spot at origin of base of dorsal fin. Dorsal fin with a dark band along its middle. It attains a maximum size of 15cm.

**Food and feeding:** Omnivorous, not advisable to keep with smaller fishes.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Nocturnal and requires hiding places for comfortable stay.

**Behaviour in captivity:** Avoids light and tend to remain hidden below stones or among crevices. Not advisable for community aquarium.

## *Batasio travancoria* Hora & Law



COMMON NAMES	
Malabar batasio	English
Malabar Koori	Malayalam

FIN COUNT	
Dorsal	i 7
Anal	iii-iv 9-11
Pectoral	i 7-9
Ventral	i 5

**Distinguishing characters:** Body elongate and compressed. Head globular, conical and rounded anteriorly; occipital process long, separated by a considerable distance from basal bone of dorsal fin; median longitudinal groove on head long and narrow, extending to base of occipital process. Mouth small and inferior; barbels four pairs. Five large oval pores behind lower lip, and two rows (of six pores each) of pores between angle of mouth and gill-cover; several pores between nostrils, below eyes and along free border of gill-covers. Dorsal spine weak; adipose fin a prominent ridge. Caudal fin deeply forked.

**Colour and size:** Uniform gray with a narrow dark streak along the lateral line. Fins dusky. It attains a maximum size of 10cm.

**Food and feeding:** Carnivorous. Not advisable to keep with small-sized fishes.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Needs well-aerated water and hiding places.

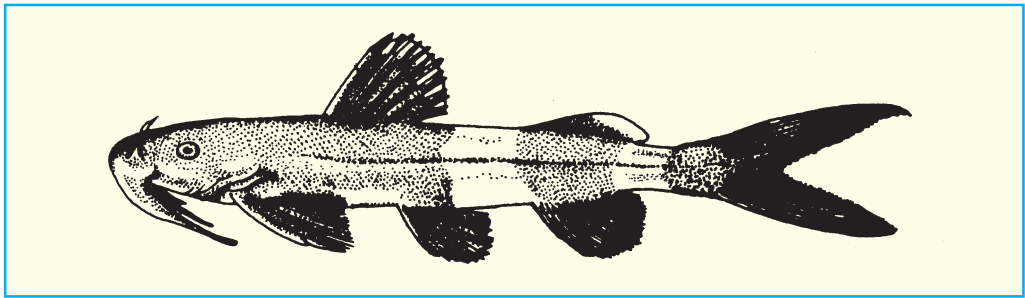
**Behaviour in captivity:** Usually dwells toward the bottom of tanks. Prefers to hide below the stones. Not advisable for community aquarium.

## FAMILY

# Sisoridae

Popularly known as 'sisorid catfishes' or 'sucker catfishes'. They are easily distinguished from other catfishes by their strongly depressed head and body, and greatly enlarged paired fins that have been modified to form an adhesive apparatus. Mouth strongly inferior, with broad, thin and papillate lips. Lower lip lacking median notch, posterior margin with lobulate projections. Gill openings extremely narrow, extending from middle of pectoral-fin base to level just medial to base of last pectoral fin ray. They have an adipose fin and four pairs of barbels. They are mostly small and are found in fast flowing streams. Skin smooth. Some members of the family have ribbed structures on their stomachs that act as an adhesive pad, helping them stick to the rocks and keep their position in the current.

## *Glyptothorax anamalaiensis* Silas



COMMON NAMES	
Kalkkari	English
Neykkoori	Malayalam

FIN COUNT	
Dorsal	i 7
Anal	iii 7
Pectoral	i 8
Ventral	i 5

**Distinguishing characters:** Body elongate. Head moderately depressed; occipital process apposed to basal bone of dorsal fin. Mouth inferior; lips papillated. Barbels four pairs; maxillary barbels extend to beyond base of pectoral fins. Adhesive thoracic apparatus feebly developed, as long as broad, devoid of a central pit. Dorsal fin inserted nearer to origin of adipose fin than to snout-tip; dorsal spine strong and smooth. Paired fins non-plaited; pectoral fins shorter than head. Caudal fin deeply forked; least depth of caudal peduncle 2.5 to 3 times in its length. Skin on head and body coarsely tuberculated.

**Colour and size:** Grayish with three broad white transverse bands; one below dorsal fin, a second beneath adipose fin and a third narrow white band at base of caudal fin. Fins tipped with white; a broad transverse white band at bifurcation of caudal fin. Attains a maximum size of 10cm.

**Food and feeding:** Herbivorous. Usually feed on algae attached to substrates.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Needs well aerated water.

**Behaviour in captivity:** It is a shy fish and always prefers to be hidden below the stones or behind leaves. Browses on algae. Survival of this species for longer periods in captivity is often difficult.



## *Glyptothorax lonah* (Sykes)



COMMON NAMES	
Lonah catfish	English
Neykkoori	Malayalam

FIN COUNT	
Dorsal	i 6
Anal	iii 8-10
Pectoral	i 9
Ventral	i 5

**Distinguishing characters:** Body elongate. Head depressed, as long as broad; occipital process about 4 times as long as broad, apposed to basal bone of dorsal fin. Mouth inferior; barbels four pairs, maxillary barbels extend posteriorly to anterior-third of pectoral fins. Adhesive thoracic apparatus well-developed, longer than broad, without a central pit. Dorsal fin inserted nearer to adipose fin than to snout-tip; dorsal spine rather weak and smooth. Anal fin inserted opposite to origin of adipose fin. Paired fins plaited below; pectoral spine generally much shorter than head; pelvic fins inserted considerably behind vertical from last dorsal fin ray. Caudal fin forked; least depth of caudal peduncle about 1.5 times in its length. Skin minutely granulated on head and body.

**Colour and size:** Yellowish-brown above, lighter below; a light streak along lateral line. Fins yellow; dorsal, anal and caudal, fins with black bands. Attains a maximum size of 15cm.

**Food and feeding:** It is very fussy about food. It always gets attached to the glass surface and browses from the surface. Rarely takes artificial food.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Needs well-aerated clear water. Thrives well in glass tanks with biological filter.

**Behaviour in captivity:** Compatible with other fishes and peaceful in community tanks. It does not live for longer periods under captivity.

Ventral side of *G.lonah*



## *Glyptothorax housei* Herre



COMMON NAMES	
Kalkkari	English
Neykkoori	Malayalam

FIN COUNT	
Dorsal	i 15
Anal	ii 10
Pectoral	i 9
Ventral	i 5

**Distinguishing characters:** Body elongate. Head depressed; occipital process not reaching basal bone of dorsal fin. Mouth inferior; lips papillated. Barbels four pairs; maxillary barbels extend posteriorly slightly beyond base of pectoral fin, nasal barbels extend beyond eye. Adhesive thoracic apparatus well-developed, longer than broad, devoid of a central pit. Dorsal fin inserted much nearer to snout-tip than to base of adipose fin; dorsal spine weak and smooth. Paired fins plaited ventrally; pectoral fins shorter than head. Caudal fin deeply forked; least depth of caudal peduncle about 2.5 times in its length. Skin smooth on head and body.

**Colour and size:** Reddish, pinkish or flesh coloured with yellow or dusky mottlings above, and flesh colour below. Attains a maximum size of 10cm.

## *Glyptothorax trewavasae* Hora

COMMON NAMES	
Hora's kalkari	English
Neykkoori	Malayalam

FIN COUNT	
Dorsal	i 6
Anal	ii 9
Pectoral	i 9
Ventral	i 5

**Distinguishing characters:** Body elongate. Head depressed; occipital process not reaching basal bone of dorsal fin. Mouth inferior; lips slightly papillated. Barbels four pairs; maxillary barbels barely reach base of pectoral fins. Adhesive thoracic apparatus well-developed, as long as broad, devoid of a central pit. Dorsal fin inserted equidistant between snout-tip and adipose fin; dorsal spine fairly strong and entire. Paired fins non-plaited; pectoral spine not as long as head, generally shorter. Caudal fin forked. Skin on head and body minutely tuberculated. Attains a maximum size of 14cm.

River Nileswar, Kerala





## *Glyptothorax madraspatanum* (Day)



COMMON NAMES	
Kalkkari	English
Neykkoori	Malayalam

FIN COUNT	
Dorsal	i 6
Anal	ii-iii 8
Pectoral	i 9-10
Ventral	i 5

**Distinguishing characters:** Body elongate. Head depressed and broadly pointed in front; occipital process apposed to basal bone of dorsal fin. Mouth inferior; lips papillated. Barbels four pairs; maxillary barbels extend posteriorly to base of pectoral fins. Adhesive thoracic apparatus well-developed, longer than broad, devoid of a central pit. Dorsal fin inserted nearer to adipose fin than to snout-tip; dorsal spine strong and serrated near apex on both edges. Paired fins non-plaited; pectoral spine almost as long as head or slightly longer. Caudal fin deeply forked; least depth of caudal peduncle about twice in its length. Skin smooth on head and body.

**Colour and size:** Yellowish with dark bands. Fins yellowish, with black bands. Attains a maximum size of 12cm.

**Food and feeding:** Eats algae, does not accept pellets.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** This fish does not thrive well in aquarium for longer periods. Needs well-aerated water.

**Behaviour in captivity:** It is a compatible, peaceful fish, always sticks to glass surface/stones or plants. Very sensitive to water quality.

## Nangra itchkeea (Sykes)



COMMON NAMES	
Deccan nangra, clown catfish	English
Itehka, Bibua, Pedhnah	Marathi

FIN COUNT	
Dorsal	i 6
Anal	iii-iv 9-10
Pectoral	i 8
Ventral	i 5

**Distinguishing characters:** Body subcylindrical, slightly compressed anteriorly but behind pelvic fins the compression is more marked. Head short, globular and rounded anteriorly; median longitudinal groove on head extends to base of occipital process, but anteriorly these are lodged in a large and a small fontanelle. After the second fontanella the groove is very shallow and hardly perceptible posteriorly. Mouth small and inferior; teeth villiform on jaws. Barbels four pairs; nasal barbels small and considerably shorter than eye-diameter, maxillary barbels with stiff basal parts and longer than head, two pairs of mandibular barbels almost equal but somewhat shorter than head, the inner pair placed slightly in advance of outer pair. Dorsal spine strong and smooth; adipose fin small but well-marked. Pectoral spine strong, serrated on its inner edge. Caudal fin deeply forked. The species is now renamed as *Gagata itchkeea* (Sykes).

**Colour and Size:** Yellowish-brown, becoming silvery on sides and belly; several dark blotches along back descending half way down the flanks. A dusky blotch on each lobe of caudal fin; dorsal fin with a dusky blotch. Attains a maximum size of 8cm.

**Food and feeding:** Omnivorous.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Needs clear, aerated water.

**Behaviour in captivity:** Attacks small-sized tank mates.

FAMILY

## Siluridae

Popularly known as ‘glass catfish’ or ‘old world catfish’. They are characterized by their long anguilliform bodies, and their lack of obvious scales. They have a one very small dorsal fin, and an elongated anal fin, which stretches for half of the fish’s body. They have a row of small “sand-paper” like teeth on both the top and bottom jaws, each row consists of hundreds of teeth, these teeth are soft, and are used to grip the prey, they slope inwards toward the back of the mouth.

## *Ompok malabaricus* (Valenciennes)



Photograph courtesy: 'Fish Base'

COMMON NAMES	
Goan catfish	English
Manjavaala, Thonnan vaala	Malayalam

FIN COUNT	
Dorsal	iii-7
Anal	iii 12-14
Pectoral	i 14
Ventral	i 8

**Distinguishing characters:** Body elongate and compressed. Mouth somewhat oblique, its gape wide; teeth in broad villiform bands (of 5 or 6 irregular rows) on jaws, medially interrupted; teeth on vomer in two large, crescent-shaped patches, separated from each other by a distance equal to half length of one patch. Barbels two pairs; maxillary barbels rather heavy and long, extend to slightly beyond pelvic fin origin; mandibular barbels slender and short, extending posteriorly no farther than hind border of eye. Pectoral spine strong serrated on its inner edge. Caudal fin forked, with rounded tips.

**Colour and size:** Deep greyish-brown shot with purple, becoming paler below; a black spot behind gill-opening. Fins dusky. It attains a length of 51 cm.

**Food and feeding:** Carnivorous

**Aquarium requirements:** Small-sized fishes are attractive as ornamental fish, but a good food fish.



## *Ompok bimaculatus* (Bloch)



COMMON NAMES	
Indian butter-catfish	English
Manjavaala, Thonnanvaala	Malayalam
Silaaivalai, Chaitavelai	Tamil Nadu
Godla, Kembari	Karnataka
Dukaduma, Theenuva	Telugu

FIN COUNT	
Dorsal	4
Anal	ii-iii
Pectoral	i 12-14
Ventral	i 7-8

**Distinguishing characters:** Body elongate and strongly compressed. Eyes moderate, its lower border below level of cleft of mouth. Mouth large and oblique; teeth in villiform bands on jaws; vomerine teeth in two oval patches. Barbels two pairs; maxillary barbels long and extend to or slightly beyond anal fin origin, the mandibular pair very short. Anal fin long, inserted well behind dorsal fin. Pectoral spine moderately strong, feebly serrated on its inner edge. Caudal fin deeply forked, with pointed lobes.

**Colour and size:** Silvery with purple, dorsally dark grey-green to brownish with a tinge of golden yellow; a large dusky spot on shoulder on lateral line; a small black spot on caudal peduncle just above lateral line; often a dark transverse bar across base of caudal fin. Fins pale golden. Young fishes transparent as glass. Attains a length of 45 cm.

**Food and feeding:** Carnivorous.

**Aquarium requirements:** Very hardy and able to survive in tanks even without biological filter.

**Behaviour in captivity:** Being carnivore not advisable to keep them with equal-sized or smaller sized fishes. Slow moving and attractive when small in size.

FAMILY

## Schilbeidae

Popularly known as 'schilbid catfishes'. They have elongated and compressed body with tapering head. Anal fin very long, not confluent with caudal fin. Dorsal fin with short base and 1 spine, when present. Usually with adipose fin. Anal fin base very long, separate from caudal fin; with 24-90 rays. Barbels usually 4 pairs. Pelvic fin occasionally absent in species of some genera. In India, these catfishes constitute a striking and well-marked group. Only one species common in the Western Ghats.

## *Pseudeutropius mitchelli* Gunther



COMMON NAMES	
Malabar patashi	English
Vellivala	Malayalam

FIN COUNT	
Dorsal	i 7
Anal	iii 32-34
Pectoral	i 9
Ventral	i 5

**Distinguishing characters:** Body elongate and laterally compressed. Head 4.7 to 5.1 times in standard length. Eyes large, its diameter 3 to 3.5 times in head. Mouth terminal, the upper jaw slightly longer than lower; teeth villiform in bands on jaws; vomero-palatine teeth in two distinct, small oval patches. Barbels four well-developed pairs, the maxillary pair extends to about middle of pelvic fins. Dorsal fin inserted anterior to pelvic fins. Anal fin placed about half head-length behind dorsal fin. Pectoral spine extends backwards beyond base of dorsal spine. Branchiostegal rays 8 or 9.

**Colour and size:** Bluish-silvery along back, becoming silvery-white on flanks and belly. Dorsal and caudal fins grayish; other fins hyaline. Attains a maximum size of 15cm.

**Food and feeding:** Omnivorous.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Needs well-aerated water.

**Behaviour in captivity:** Peaceful and moves along the upper half of the aquarium. This species, once considered as extinct in the wild, was collected in 2001 from the upstreams of River Periyar, Kerala by Mr. Lijo John, B.Sc. Student of Bharatha Matha College, Cochin, Kerala.

FAMILY

# Pangasiidae

Popularly known as ‘freshwater sharks’ because of their elongated body shape that resembles the body of a shark. The tail is deeply forked. This fish has large eyes and a small mouth. The body is silver to blue with a silver iridescence. The back is darker than the main body colour. A slender, horizontal, white stripe extends from the base of the tail to the gill cover. The fins are light gray to transparent. This species can be kept in aquarium when they are juveniles. They grow to a big size. The shark catfish have very bad eyesight and are nervous fish. Try not to tap on the glass, turn on light when it is dark, or startle this fish in any way. Older shark catfish lose their teeth and thus will not harm even small tank-mates. An albino variety has been developed and is now widely distributed. They are omnivorous. Eventhough a food fish, its flesh is not graded among that of good varieties of fishes.



## *Pangasius pangasius* (Hamilton-Buchanan)



Photograph courtesy: 'Fish Base'

COMMON NAMES	
Pungas	English
Coola-kellette, Manga-keluthi, Aie	Tamil
Choluva-jella, Banka-jella	Telugu

FIN COUNT	
Dorsal	i 6-7
Anal	iv-v 26-29
Pectoral	i 12-13
Ventral	i 5

**Distinguishing characters:** Body elongate and compressed. Head slightly granulated above; occipital process reaches to basal bone of dorsal fin; snout fairly prominent. Eyes large, about 3.5 times in length of head, visible from ventral surface of head. Mouth fairly wide. Teeth villiform on jaws and palate; vomero-palatine teeth in a crescentic band, composed of four patches which may be variously joined together. Barbels two pairs, fairly well developed. Dorsal spine moderately strong, strongly serrated on its inner edge but finely serrated on its outer edge. Caudal fin deeply forked.

**Colour and size:** Dusky yellowish-green on back, glossed with silvery-purple on flanks; sides of head golden tinge. Fins light reddish-yellow. Attains a length of 1.5 m.

**Food and feeding:** Omnivorous.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Juveniles are ornamental. It is a food fish but its flesh is not graded among that of good varieties of fishes. It feeds on foul and decaying animals and vegetable matter. Because of its dirty feeding habits this fish is not much liked. Since it attains a good size, it affords a good sport to anglers.

FAMILY

# Mugilidae

Popularly known as ‘mulletts’. They have uniform external anatomy. Body moderately elongate, cylindrical or slightly compressed. Head broad and depressed. Eyes often partly covered with adipose eyelid. Mulletts have two separate dorsal fins, the first spiny and the second soft-rayed. Their ventral fins are on the abdomen behind the point of insertion of the pectorals; their tails are forked and they have large scales. Furthermore, they are vegetable and mud eaters. Their stomachs are thick walled and gizzard-like, the intestines long, corresponding to their food. There are many species of mulletts. Most of them are marine, inhabiting coastal waters, estuaries. Some are fresh water. They are adaptable to great changes in salinity. Travel in schools and feed on fine algae, diatoms, and detritus of bottom sediments. Important food fishes.

## *Rhinomugil corsula* (Hamilton-Buchanan)



Photograph courtesy: 'Fish Base'

COMMON NAMES	
Corsula mullet	English
Mazhugumeen	Tamil

FIN COUNT	
Dorsal 1	iv
Dorsal 2	i 8
Anal	iii 9
Pectoral	i 16
Ventral	i 5

**Distinguishing characters:** Body rather stout. Head moderate, concave between eyes, the latter projecting above this level. Mouth ventral, protrusible. First dorsal fin inserted nearer to caudal fin base than to tip of snout. Caudal fin slightly emarginate. Scales in lateral series 48 to 52.

**Colour:** Dull-brown dorsally, silvery below. Fins hyaline with a golden tinge.

**Aquarium requirements:** Always moves in the upper column of the tank, exhibits jumping behaviour hence tanks need to be covered.

**Behaviour in captivity:** Moves very fast and compatible with other species of fishes. The species was transplanted from north Indian waters to Peninsular India.

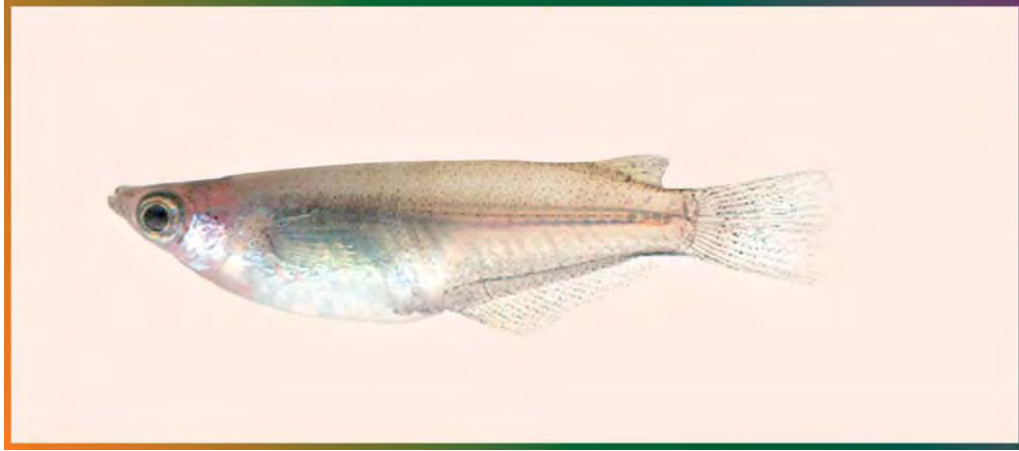
FAMILY

## Oryziidae

Popularly known as ‘egg-laying toothcarps’, which differ from the others by not having a protrusible upper jaw, and absence of vomerine teeth. This is more of a brackish water fish although it does visit freshwater. In coastal canals, it can be seen congregating in huge numbers at the water surface. The males differ from the females by having a pointed dorsal fin. The female has the unique characteristic of carrying her eggs outside her body in a cluster, attached to the genital pore by filaments. These fish have become important experimental animals for Japanese zoologists in recent years. These resemble the cyprinids superficially, but have fine teeth at the edges of their jaws. Their heads are usually rather flattened, and their protrusible mouth wide, opening obliquely. They are euryhaline, oviparous, omnivorous, gregarious and surface-dwelling. Indigenous, common in brackish water canals, prawn ponds, coastal rural streams and mangrove creeks.



## *Oryzias dancena* (Hamilton)



COMMON NAMES	
Estuarine ricefish	English
Manathukannan	Malayalam

FIN COUNT	
Dorsal	6-7
Anal	20-24
Pectoral	15
Ventral	6

**Distinguishing characters:** A relatively large and very deep-bodied species. Greatest depth about 3 times in standard length. Mouth broad, transverse margin of upper jaw opening straight or but slightly convex (often with a medial notch or indentation) and usually with a narrow dark marginal band of fine melanophores not present in other species. Juveniles and adults of both sexes usually with a broad, well defined dark dorso-median stripe extending from occiput to dorsal fin origin. The head is half oval, flat above, broader than the body and small. The upper jaw is the longest. The lips are fleshy. The eyes are high and far forward. The lateral line runs straight above the middle of the side. The scales are large in proportion, but so thin, as scarcely to be visible without a glass, except on the belly. The dorsal fin is far back. The pectoral fins are of moderate size, are placed high on the side, the tail fin is rounded and has sixteen rays.

**Colour:** Green above and silver below.

Another species, *Oryzias carnaticus* (Jerdon) distributed in Peninsular India is also an attractive ornamental species.

*Oryzias carnaticus*

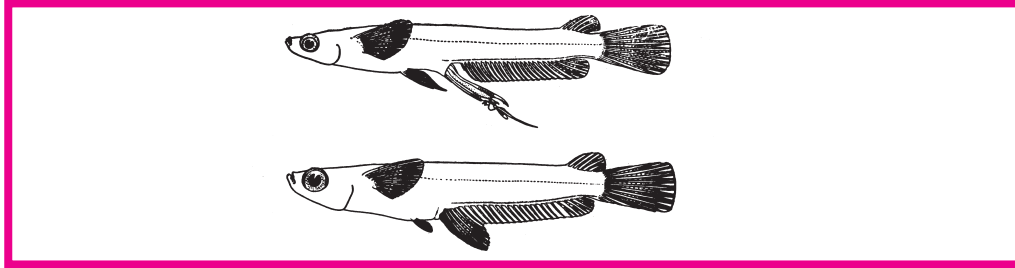


FAMILY

## Horaichthyidae

Comprises only a single species *Horaichthys setnai*. It is a small translucent oviparous fish inhabiting brackishwater and estuaries in Kerala and Mumbai, India. Osteological study (Kulkarni 1948) showed that its head skeleton is closely allied to that of *Oryzias* but greatly different from that of *Aplocheilus*. *Horaichthys*, however, is different from known species of *Oryzias* in having a larger number of the anal fin-rays (about 28 to 32). A special feature of *Horaichthys* is that the testis produces special sperm capsules of spermatophores (2-300 in number) instead of ordinary semifluid milt with suspended sperms. A spermatophore is a tiny hyaline body (0.6 mm long and 0.1 mm thick), the broad part of which contains mass of sperms. At the tapering end, there is a pointed cap with stiff hooks and barb-like structures which point backwards. It is with the aid of these hooks and barbs that the spermatophore gets attached near the genital opening of the female. Before liberation of sperms, a small bulging appears at the neck of the tapering spermatophore and begins to enlarge. When the protuberance becomes sufficiently large, an opening is formed at its tip by rupture of membrane and sperms are liberated. They swim into the genital pore of the female. This is the smallest known fish in India and exhibits distinct sexual dimorphism.

## *Horaichthys setnai* Kulkarni



COMMON NAMES	
Thready top-minnow	English
Anu	Marathi

FIN COUNT	
Dorsal	6-7
Anal	28-32
Ventral	5

**Distinguishing characters:** Body elongate, slender and compressed. Head slightly depressed; snout broad and truncate. Eyes large and prominent. Mouth directed upwards; teeth sharp and conical on both jaws, no teeth on palate. Dorsal fin inserted far posterior on body, near caudal fin. Anal fin long, in adults modified into two parts: in male, the first six rays separated off into an independent gonopodium which remains folded on right side parallel to the two anal fins; in female, anal finrays simple but the second to sixth rays more elongated. Pectoral fins large and well-developed, with thick muscular bases; pelvic fins paired in male, right fin absent in female. Caudal fin large and rounded. Scales thin and moderately large; 32 to 34 in longitudinal series.

**Colour and size:** Transparent; head with a prominent dark occipital spot behind eyes and a number of minute black spots scattered all over as well as on upper margin of jaws. Attains a maximum size of 2cm.

**Sexual dimorphism and breeding:** In the male, six anterior rays of the anal fin are separated from the rest of the fin and modified into an elaborate male organ (gonopodium). Of six rays the third, fourth and fifth ones are profoundly modified forming the 3- 4-5 complex. In the female right pelvic fin is usually absent. The genital opening of the female is situated on the left ventral side and is surrounded by genital pads. The male appears to be always afraid of the female which on occasions chases him away. At the time of mating, the male swims below and behind her at a distance of about 2 to 3 cm. He then darts towards her on the left with almost lightning speed. As he approaches his mate he lashes out the gonopodium sideways almost at right angles to his body and strikes its terminal end against her genital opening. The spermatophores are transferred to the female in this momentary contact, and become attached by their distal hooks.

FAMILY

## Belonidae

Popularly called 'needle fishes'. The most noticeable feature of these fishes is that both their jaws are prolonged to form a long slim beak well armed with teeth. Their body is very slender, and anal, dorsal and ventral fins are set far back. They have no finlets between dorsal and caudal fins and also between anal and caudal fins; the absence of these being the easiest field mark to separate needlefishes from the closely related group - billfishes. They are swift swimming and predatory fishes.



## *Xenentodon cancila* (Hamilton- Buchanan)



COMMON NAMES	
Freshwater garfish	English
Kokkumeen, Vellaimural	Tamil
Konti	Kannada
Tikali	Marathi
Kolaan	Malayalam

FIN COUNT	
Dorsal	15-18
Anal	16-18
Pectoral	11
Ventral	6

**Distinguishing characters:** Body very elongate and slightly compressed. Eyes rather small. Cheeks long; operculum 1.7 to 2 times in cheek. Dorsal fin inserted usually anterior to vertical through origin of anal fin. Caudal fin truncate.

**Colour and size:** Greenish above, flanks green-silvery, fading to whitish below; a silvery lateral band (with a dark margin) extend on flank of body; a series of four or five blotches (absent in young) on sides of body between pectoral and anal fins. Dorsal and anal fins dark-edged. Attains a maximum size of 40cm.

**Food and feeding:** It is carnivorous, does not accept artificial feed.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** This fish does not thrive in aquariums for long period. Needs well aerated water, fast moving and hence need large sized tanks.

**Behaviour in captivity:** It is not compatible and hence not suitable for community aquarium. It is a surface dwelling fish. Very attractive. Good for monospecies aquarium.

FAMILY

## Hemiramphidae

Popularly known as 'half beaks'. They are elongated silver fishes with elongated lower jaws that extend into a long beak. They have a very short upper jaw that is covered with scales and triangular in shape with a ridge across the nose giving rise to their names as "Halfbeaks". The Halfbeaks have anal fins (with 14 to 17 rays) and dorsal fins at the rear of the body that are opposite to each other. The pelvic fins are under the abdomen, the pectoral fins are high on the sides, the caudal fin is concave or slightly forked with the lower lobe being longer than the upper lobe. The halfbeaks are close allies of the billfishes. They are largely herbivorous, feeding mainly on green algae. The family is defined by one derived character, third pair of upper pharyngeal bones anklylosed into a plate. The halfbeaks are a surface school species that feed on seaweed, fish larvae, zooplankton, crustaceans, and other small invertebrates. Large predatory fishes prey on halfbeaks. In some parts of the world, they are utilized as food fish.

## *Hyporhamphus xanthopterus* (Valenciennes)



COMMON NAMES	
Vembanad halfbeak	English
Kolaan	Malayalam

FIN COUNT	
Dorsal	14-16
Anal	14-17
Pectoral	i 10
Ventral	i 5

**Distinguishing characters:** Body elongate and somewhat compressed; a greatly prolonged, beak-like lower jaw, shorter than head length; upper jaw short, triangular and scaly, its width 0.8 to 1.0 times in its length. Total gillrakers on first arch 41 to 53.

**Colour:** Greenish above, silvery lateral stripe on flank widening posteriorly, belly white; fleshy tip of beak reddish. Fins yellowish.

**Food and feeding:** Carnivorous.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Needs large sized tanks. Not easily acclimatized. Require estuarine water for survival.

**Behaviour in captivity:** It is difficult to acclimatize them to fresh water.

## *Hyporhamphus limbatus* Valenciennes



COMMON NAMES	
Congaturi halfbeak	English
Kolaan	Malayalam

FIN COUNT	
Dorsal	12-16
Anal	13-16
Pectoral	i 10-11
Ventral	i 5

**Distinguishing characters:** Body elongate and somewhat compressed; a greatly prolonged, beak-like lower jaw, equal to or longer than head length; upper jaw short, triangular and scaly, its width 9.6 to 10.8 times its length. Total gillrakers on first arch 23 to 37 (6-11 + 19-23). Caudal fin emarginate, not strongly forked.

**Colour and size:** Greenish above, with a silvery lateral stripe widening posteriorly, white ventrally; fleshy tip of beak reddish. Fins hyaline. Attains a maximum size of 35cm.

**Food and feeding:** It is carnivorous and does not accept artificial feed.

**Sexual dimorphism and breeding:** Not bred under captivity so far.

**Aquarium requirements:** This fish does not thrive in fresh water aquariums for long period. Needs well aerated estuarine water, always dwells at the surface of water column.

**Behaviour in captivity:** It is hardy, active swimmer, but not ideal for community aquarium.



FAMILY

# Aplocheilidae

Popularly known as 'killifishes'. These resemble the cyprinids superficially, but have fine teeth at the edges of their jaws. The Aplocheilidae or Rivuline Family consists of two sub-families, Aplocheilinae (Old World Rivulines) and Rivulinae (New World Rivulines). Their heads are usually rather flattened, and their protrusible mouth wide, opening obliquely. Small space between pelvic fin bases. Metapterygoid present. Basibranchials 3. First two dorsal radials each with a ray. One exotic species, *Rivulus marmoratus*, is a true hermaphrodite (self-fertilizing).

## *Aplocheilus blocki* (Arnold)



COMMON NAMES	
Dwarf panchax, Green panchax	English
Pachaimmunda-kenni	Tamil
Manathukanni	Malayalm

FIN COUNT	
Dorsal	ii 6
Anal	iii 12
Pectoral	14
Ventral	6

**Distinguishing characters:** Body elongate and compressed posteriorly. Eyes large, its diameter about 3.5 times in head length and about half interorbital width. Mouth terminal; teeth villiform, in bands on jaws. In male, 4<sup>th</sup> or 5<sup>th</sup> dorsal fin ray and 11<sup>th</sup> and 12<sup>th</sup> anal fin rays prolonged, both fins reach caudal fin; in female, dorsal and anal fins rounded, do not reach caudal fin. Pelvic fins without any prolonged ray. Caudal fin rounded.

**Colour and size:** Yellowish-green with a metallic sheen with alternating rows of brassy-yellow and smaller red spots, belly shining blue-green; a pearly-white spot on occiput and a black spot at base of dorsal fin. Vertical fins lemon-yellow, with magnificent red to brown dots in male. Maximum size 6cm.

## *Aplocheilus parvus* (Raj)



Though considered as a species endemic to Sri Lanka, confirmed reports of its occurrence in Peninsular India are available. Like other killi fishes, this species is also peaceful and moves along the surface of aquarium.

## Aplocheilus lineatus (Valenciennes)



COMMON NAMES	
Malabar killie	English
Manathukanni, Poonjan	Malayalam

FIN COUNT	
Dorsal	ii 6
Anal	iii 15-16
Pectoral	14
Ventral	6

**Distinguishing characters:** Body elongate and compressed posteriorly. Eyes large, its diameter about 3.25 to 3.5 times in head length, about equal to interorbital width. Mouth terminal; teeth villiform, in several rows on jaws. Anal fin variable, often much lower in front and increasing in length to last ray. Pelvic fins with its second ray elongate. Caudal fin rounded. Scales fairly large, 32 to 34 in longitudinal series.

**Colour and size:** Males olive-brown, flanks paler, belly yellowish; rows of metallic golden-green and red spots on body which are often united into longitudinal bands. Dorsal fin with a dark blotch at base. Maximum size 8cm.

**Food and feeding:** Surface feeder, accepts artificial feed from surface and column.

**Sexual dimorphism and breeding:** Males are larger and more brightly coloured than females. Breeding of the species is best accomplished in a small tank. Females darker than males, with 7 to 11 black transverse bars; juveniles with the female-type colouration.

**Aquarium conditions:** Survives well in clean aerated tanks. Exhibits jumping nature, hence to be kept in covered tanks.

**Behaviour in captivity:** Peaceful, and moves along the surface of water column, but exhibits cannibalism. Swallows the juveniles of the same species.

*Aplocheilus panchax* (Hamilton-Buchanan), another ornamental killi fish shows wide distribution in other parts of India in addition to the Western Ghats.

*Aplocheilus panchax*



FAMILY

## Syngnathidae

Popularly known as ‘pipe fishes’. They have elongated body, encased in bony rings with one dorsal fin. They have long snout with tiny terminal mouth. Most occur in marine or brackish water, but some pipefishes live in freshwater. The mating system of a typical syngnathid species is unusual: the male first performs a complex dancelike ritual, then the female deposits her eggs in a brood pouch on the male’s abdomen, where he carries them until they hatch. This family includes the seahorses (subfamily Hippocampinae) as well as the pipefishes .



## *Microphis cunocalus* (Hamilton–Buchanan)



COMMON NAMES	
Crocodile-tooth pipefish	English
Pipe Fish	Malayalam

FIN COUNT	
Dorsal	47-56
Rings	(16-18)+(24-27)
Pectoral	16-19
Subdorsal rings	(3.5-2.0)+(5.75-7.5)

**Distinguishing characters:** Longitudinal opercular ridge distinct and complete but not elevated strongly, without supplemental opercular ridges. Lateral snout ridge distinct and arched somewhat dorsal; principal body ridges distinct. Head length 7.3 to 8.8 times in standard length. Snout relatively deep, its depth 4.7 to 7 times in snout length. Some adults with anal fin located in a distinct groove-like depression and separated from anus by a transverse septum.

**Colour and size:** Greenish above, dirty white below; several dusky lines on back which intersect each other, forming a network; along either side a longitudinal spotted stripe; eyes silvery; opercle furnished like silver. Caudal fin reddish. Attains a maximum size of 17.5cm.

**Food and feeding:** It is zooplankton feeder. Does not accept pellet feed. A culture of mosquito larvae or *Moina* is almost essential to keep the fishes alive.

**Sexual dimorphism and breeding:** Males have a brood pouch.

**Aquarium requirements:** It prefers to hide among the leaves. It is relatively sensitive to water quality and requires freedom from harassment by other fishes, so a single species tank is best. But with small sized fishes like *Horadandia* sp, or even with loaches or tetras it thrives well. However, only a serious aquarist can keep this for long term captivity.

**Behaviour in captivity:** Compatible and peaceful, sluggish, hence cannot compete with other fishes for food. Care should be taken to see that this fish gets food in a community tank. Another species, *Microphis brachyurus* (Bleeker) is endemic to Kerala and Sri Lankan waters.

FAMILY

## Synbranchidae

**P**opularly known as ‘eels’. This is a widely distributed group that superficially resemble eels to which they are not related. There is a single opening on the underside of the head which is the gill opening. These are extremely hardy fish that are able to live in floating meadows, swamps and habitats with poor oxygen. They are able to move across land if trapped in pools as the water level falls in flooded forests. They have a reputation as fierce predators and large specimens will bite.

## *Ophisternon bengalense* McClelland



COMMON NAME	
Pygmy eel, Bengal mudeel	English

**Distinguishing characters:** Body eel-like and robust, not whip-like. Eyes minute, visible through skin. Mouth large, upper jaw slightly longer than lower; lips fleshy; teeth on jaws small and pointed, not continuous at symphysis in upper jaw; palatine teeth in a band. Vent in posterior part of body. Lateral line conspicuous.

**Colour and size:** Dorsum of head and body (except for ventral surface) light brown; lips, ventral surface of head, operculum and branchiostegal membrane yellowish; evenly scattered melanophores over entire body. It attains a length of 100 cm.

FAMILY

## Mastacembelidae

Popularly known as ‘spiny eels’. These are eel-like fishes with compressed tail, sometimes confluent with the long dorsal and anal fins. They possess a row of short spines along the back but, lack pelvic fins. Their snout is modified into a long, fleshy proboscis with tube-like nostrils at the sides (used to probe in the substrate for worms and other animals). They do possess tiny scales despite their naked appearance. Despite their shape and name, they are not related to the true eels (Anguillidae).



## *Macrognathus guentheri* (Day)



COMMON NAMES	
Malabar spiny eel	English
Aral	Malayalam

FIN COUNT	
Dorsal	xxvii-xxx 58-74
Anal	iii 59-75
Pectoral	17-21
Caudal	11-13

**Distinguishing characters:** Body eel-like and slightly compressed. Rostrum rounded in cross-section, devoid of toothplates. Preopercle with 2 or 3 spines; preorbital spine present. Mouth narrow. Dorsal fin inserted behind tip of pectoral fins; dorsal and anal fins entirely confluent with caudal fin, rarely with a slight notch apparent in adults. Vertebrae 89. Ripe females with a very elongate genital papilla.

**Colour and size:** Olive or greenish-brown, dull yellow below; a few black bands radiate from eye and cross below jaws; a light band runs along upper edge of lateral line; short oblique bars or markings on body and vertical fins. Attains a maximum size of 20 cm.

**Food and feeding:** Carnivorous.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Requires well-aerated tanks. They have a tendency to jump out during night. So the tanks should be well covered.

**Behaviour in captivity:** It is not advisable to keep it with other fishes.

## Macrognathus aral (Bloch & Schneider)



COMMON NAMES	
One-stripe spinyeel	English
Bommiday	Telugu
Mona-arel, Aral, Cui	Tamil
Aarel	Malayalam

FIN COUNT	
Dorsal	xvi-xxiii 44-45
Anal	iii 44-52
Pectoral	19-24
Caudal	15

**Distinguishing characters:** Body elongate. Rostrum relatively large, with concave ventral surface lined with 14 to 28 paired toothplates. No spines on preorbital or preoperculum bones. Mouth very small, its gape 8.7 to 11% of length of head, not extending to below posterior nostrils. Teeth small and pointed on both jaws. Dorsal fin inserted far behind tip of pectoral fin, last dorsal spine small. Caudal fin distinctly separated from dorsal and anal fins.

**Colour and size:** Brownish or greenish, marbled superiorly, becoming yellowish along abdomen; body with two broad pale longitudinal bands extending its entire length, one dorsal to and one ventral to lateral line. Dorsal fin pale or orange, 3 to 11 ocelli at its base often present; dorsal and caudal fins with numerous fine streaks. It attains a length of 38 cm.

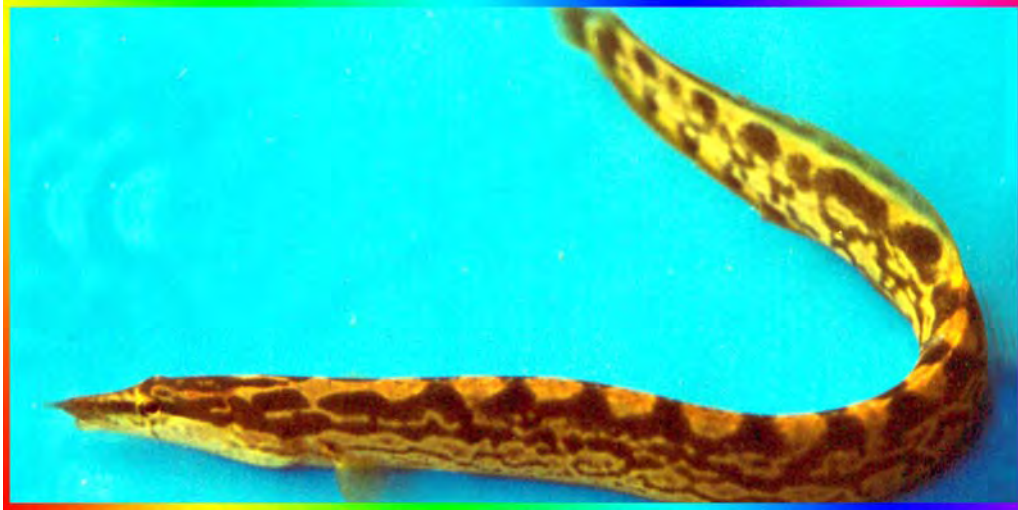
**Food and feeding:** Carnivorous

**Sexual dimorphism and breeding:** Not known

**Aquarium requirements:** Requires well-aerated tanks. They have a tendency to jump out during night. So the tanks should be well covered.

**Behaviour in captivity:** It is not advisable to keep it with other fishes.

## *Mastacembelus armatus* (Lacepede)



COMMON NAMES	
Tire-track spiny eel	English
Kalarah, Aaraah	Tamil
Mookkanarakan, Aarl	Malayalam

FIN COUNT	
Dorsal	xxxii-xl 64-92
Anal	iii 64-90
Pectoral	21-27
Caudal	14-17

**Distinguishing characters:** Body relatively slender. Preopercle with 2 or 3 spines usually conspicuous, but often one or more may be embedded in skin; preorbital spine strong and usually piercing skin. Mouth small, extending to below posterior nostril or at least to its anterior margin; sharp teeth in bands on both jaws. Spinous dorsal fin inserted above middle or posterior-third of pectoral fins, last dorsal spine small and hidden beneath skin. Dorsal and anal fins broadly joined to caudal fin.

**Colour and size:** Rich brown and usually with zig-zag lines, sometimes connecting to form a network but almost never extending onto abdomen; often a black band through eye continued in an undulating course along upper half of side; often a row of black spots along base of soft dorsal fin, and short black bands over lack under dorsal spines. Pectoral fins usually spotted; dorsal and anal fins usually banded or spotted. Attains a maximum size of 61cm.

**Food and feeding:** It is carnivorous, and cannot be kept with other fishes.

**Sexual dimorphism and breeding:** Not bred under captivity.

**Aquarium requirements:** Require muddy bottom as it has burrowing habits.

**Behaviour in captivity:** Most of the time remains hidden behind the stones or buried in sand. Not compatible with other fishes. It will jump out from an uncovered tank.

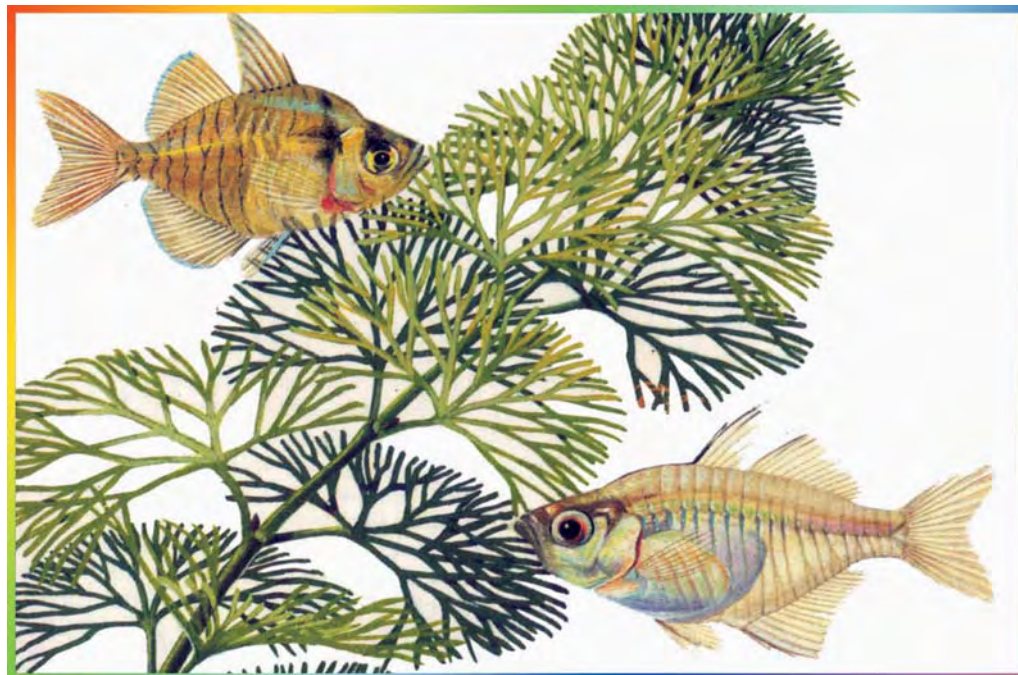
## FAMILY

# Ambassidae

Popularly called ‘glass fishes’. These species have transparent body with skeleton and some internal organs clearly visible. The body is deep and strongly compressed from side to side. The dorsal fin has two parts. The first one spiny and the second with soft rays. There are a number of fishes with transparent bodies, but the name ‘glass fishes’ is reserved for these small aquarium fishes. Most of these fishes are found in brackish and sea water along the coast, but several regularly visit freshwaters. Some are able to live exclusively in this medium. They are euryhaline; oviparous; carnivorous; gregarious and pelagic. The transparency of this fish has lent itself to the unscrupulous (and cruel) practice of injecting coloured dyes into the tissue to artificially “enhance” its colours by some dealers. Most of these fishes do not live long and the colour is not permanent.



## *Parambassis dayi* (Bleeker)



### COMMON NAMES

Day's glassy perchlet	English
Nandan	Malayalam

### FIN COUNT

Dorsal	vii+i 9-10
Anal	iii 9-10
Pectoral	i 11-13
Caudal	i 5

**Distinguishing characters:** Body elongate, rather slender and compressed. Head fairly elongate, with a moderately pointed snout. Mouth large; teeth on jaws villiform, differentiated in size on both jaws, outer row slightly enlarged. Scales large; lateral line with about 30 scales; predorsal scales 15; cheek with 6 transverse scale-rows.

**Colour:** Silvery, glossed with purple; with a broad lateral burnished band. Fins hyaline; membrane between 2<sup>nd</sup> and 3<sup>rd</sup> dorsal spines dusky; soft dorsal fin, caudal and anal fins with dusky edges.

## *Parambassis thomassi* (Day)



COMMON NAMES	
Western Ghat glassy perchlet	English
Arinjil, Nandan	Malayalam
Mullujabba	Kannada

FIN COUNT	
Dorsal	vii+i 10
Anal	iii 9
Pectoral	i 14-15
Ventral	i 5

**Distinguishing characters:** Body rather stout, deep and compressed. Head fairly large; snout rather elongate, with a pronounced elevated tip. Mouth large; teeth on jaws villiform, differentiated in size, outer row slightly enlarged particularly anteriorly. Scales large; lateral line with 35 to 43 scales; predorsal scales 15 to 19; cheek with 4 transverse scale-rows.

**Colour and size:** Greenish shot with silver colouration. Fins hyaline; second dorsal spine slightly dusky on its anterior side. Young fishes entirely pale yellow, transparent, with a pronounced silvery sheen on flanks. Maximum size obtained is 12cm.

**Food and feeding:** Omnivorous, but prefers live feed, do not accept pelleted feed.

**Sexual dimorphism and breeding:** Not known, not so far bred in captivity.

**Aquarium requirements:** If it can be acclimatized to captivity, it will survive for long periods. But not easy to acclimatize. Survives well in clean, aerated tanks. Good for single species aquarium.

## *Parambassis ranga* (Hamilton-Buchanan)



COMMON NAMES	
Indian glassy fish	English
Nandan	Malayalam

FIN COUNT	
Dorsal	vii + i 11-14
Anal	iii 13-15
Pectoral	i 11-12
Ventral	i 5

**Distinguishing characters:** Body stout, deep and compressed. Preopercular hind edge smooth, atmost with one or two serrations at angle. Mouth oblique. Gillrakers 15 or 16 on lower arm of first arch. Scales small; lateral line with 47 to 63 scales; cheek with 7 transverse scale-rows.

**Colour and size:** Transparent with a greenish-yellow tinge and a silvery gloss on dorsum; a silvery broad lateral stripe on side of body; a definite dusky spot on shoulder. Dorsal and caudal fins with blackish edges. Attains a length of 7 cm.

**Food and feeding:** Carnivorous.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Needs aerated water. Not hardy and hence slight changes in the water quality will affect their survival.

**Behaviour in captivity:** Compatible with equal sized fishes. Not advisable for community aquariums. Dwells in the middle part of the water column.

FAMILY

# Lutjanidae

Popularly known as ‘snappers’. Most of them are marine and a few are estuarine. They have moderately elongate body with terminal mouth. Upper jaw is protractile and provided with canine teeth. Vomer and palatine are provided with small conical teeth. Dorsal fin continuous or with a shallow notch, anal fin with three spines. Pelvic fin inserted just behind pectoral fin base. Scales ctenoid.



## *Lutjanus argentimaculatus* (Forsk.)



Young *L. argentimaculatus*; juvenile fish (inset)

COMMON NAMES	
River Snapper	English
Chembally	Malayalam

FIN COUNT	
Dorsal	x 13-14
Anal	iii 8-9
Pectoral	i 15-16
Ventral	i 5

**Distinguishing characters:** Body elongate, with head profile straight or slightly convex. Preopercule unnotched or with a shallow notch. Longitudinal rows of scales above lateral line parallel to dorsal profile anteriorly, but appearing to rise obliquely under soft part of dorsal fin or under posterior part of spinous dorsal fin; scale-rows below lateral line horizontal.

**Colour and size:** Red-brown, somewhat paler on belly; often a silvery patch in center of each scale. Attains very large size; young ones are brilliantly coloured and attractive as ornamental fishes. The colour pattern of juvenile fish is totally different from that of the young and adults. Juvenile river snapper has alternating light and dark bars on the sides and a pair of thin blue line across the cheeks.

**Food and feeding:** Carnivorous and are not to be kept with fishes of same size.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Requires gradual acclimatization from estuarine water to freshwater.

**Behaviour in captivity:** Good for monospecies aquarium.

## *Lutjanus kasmira* (Forsk.)

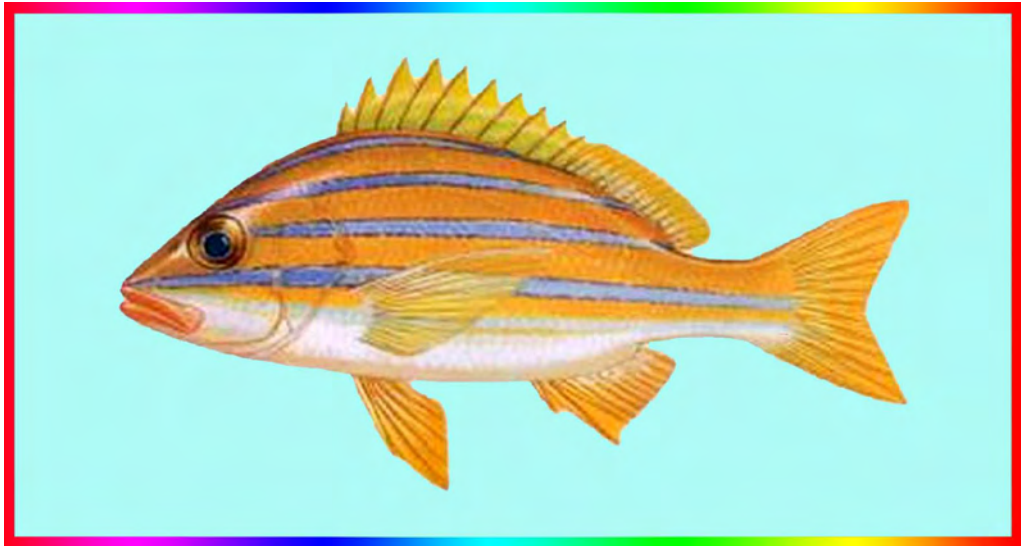


Illustration courtesy: Smith & Heemstra

COMMON NAMES	
Blue and yellow snapper	English
Chembally	Malayalam

FIN COUNT	
Dorsal	x 13-16
Anal	iii 8
Pectoral	i 16
Ventral	i 5

**Distinguishing characters:** A fairly deep-bodied species with head profile straight or slightly convex. Preopercular notch deep. Longitudinal scale-rows above lateral line parallel to it and those below lateral line horizontal.

**Colour and size:** A brilliantly coloured snapper, generally canary yellow, darker above. 4 or 5 narrow blue lines, often bordered with brown, cross cheek and body longitudinally, some bifurcating on body. Fins yellow, dorsal with a blue median band, others brownish basally. Attains 40 cm; juveniles are attractive as ornamental fishes.

**Food and feeding:** Carnivorous and are to be kept with fishes of same size.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Survives in aerated fresh water by gradual acclimatization from marine water.

**Behaviour in captivity:** Not compatible with other species; hardy in freshwater.

FAMILY

## Nandidae

Popularly known as ‘leaf fishes’ because of their leaf like appearance. When they are resting most of them look deceptively like drifting leaves. They have an oblong and laterally compressed body. Head usually large with protrusible mouth. Dorsal fin large, the spinous and soft fin part continuous, anal fin with three to four spines and six to nine soft rays. Pelvic fin thoracic. Caudal fin rounded, scales ctenoid. This family consists of a fascinating group of relatively small fishes which are well known to the tropical fish hobbyists. Leaf fishes are usually found in freshwater and occasionally in brackishwater. They are able to hunt their prey with little detection.

## *Nandus nandus* (Hamilton-Buchanan)



COMMON NAMES	
Catopra	English
Kariyila matsyam, Muthuvala, Urakkomthoongi	Malayalam

FIN COUNT	
Dorsal	xii-xiv
Anal	11-13
Pectoral	15
Ventral	i 5

**Distinguishing characters:** Body oblong and fairly deep, compressed. Head large and compressed. Mouth very large, protrusible; teeth villiform on jaws. Eyes large, the diameter 5 to 6 times in head length. Dorsal spines rather strong; anal spines moderately strong, second spine longest. Caudal fin slightly rounded. Scales ctenoid; lateral line interrupted at about 36th scale.

**Colour and size:** Greenish-brown with brassy reflections; vertically marbled with three broad patchy blotches; a dusky blotch on caudal fin base; some narrow dark bands radiate from eye. Fins greenish; yellowish narrow bands of spots across soft portions of dorsal, anal and caudal fins. Attains a maximum size of 20 cm.

**Food and feeding:** Carnivorous. Attacks smaller fishes.

**Sexual dimorphism and breeding:** Not known, so far not bred in captivity.

**Aquarium requirements:** Survives in clean water with aquatic vegetation.

**Behaviour in captivity:** Hides in between leaves of aquatic vegetation, feeding the fish is a problem as it does not accept artificial feed. Being piscivorous, smaller fishes cannot be kept along with this.



## *Prisolepis marginata* Jerdon



COMMON NAMES	
Malabar Catopra	English
Chutichi	Malayalam

FIN COUNT	
Dorsal	xiv-xvi 11-14
Anal	iii (rarely iv) 8
Pectoral	14-15
Ventral	i 5

**Distinguishing characters:** Body oblong and compressed. Mouth moderate; teeth villiform on jaws, outer row of teeth somewhat enlarged and in some specimens two or four only enlarged in lower jaw; teeth villiform on vomer. Dorsal spines rather stout; second anal spine strongest but as long as third spine. Lateral line interrupted (divided) opposite fourth dorsal fin ray on 21<sup>st</sup> scale, with 25 to 27 scales.

**Colour and size:** Greyish-green with purplish reflections; often vertically banded. Fins with lighter edges; caudal fin with whitish out edge. Attains a maximum size of 17cm.

**Food and feeding:** Omnivorous, but accepts pelleted feed also.

**Sexual dimorphism and breeding:** Exhibits no sexual dimorphism except during the time of breeding. Male has an enlarged anal papilla and female with a pot

belly. But sexes can be identified by the behaviour in captivity. Mature male exhibits territorial behaviour. Captive breeding and larval rearing techniques have been developed by the first author of this book (Anna Mercy *et al.*, 2003).

This fish has some interesting spawning behaviour that a hobbyist should note. They are guarders and lithophil spawners. The mature male fish starts nest building by selecting a portion in the tank and displaying territorial behaviors. The male exhibits greater aggressiveness and territoriality and is busily engaged in preparing a nest in the pebbly bottom. The nest of common catopra is nothing but a small depression like-structure made of pebbles. For the preparation of pebble nest the male carries big-sized pebbles to the proposed site of the nest and at the same time takes away smaller ones and sand particles. Their thick lips are the only organs used as tools. Each stone is carefully fanned for cleaning after placing it in the pit. The completed nest is in the form of a pit with little thick risen border. The nest is very clearly distinguishable from other parts of the tank. They prefer to have their honeymoon in the pebbly bottom.

When the pit is ready, the female is invited to the nest. The courtship rituals include the sidewise lying inside the pit, along with shivering of the fins and body. They circle inside the pit and shake their fins and body vigorously. They incline slightly to one side and keeping the anal region close to one another, the female with a more enlarged genital papillae releases a few eggs, the milt from the male simultaneously fertilizes the eggs. The eggs fall into the voids of the stones. After a short while, the same act is repeated several times. The female tries to devour the eggs whenever it gets a chance but the male defends her.

When the spawning activities are completed, the male starts guarding the eggs by fanning with its fins and defending any intruders. The male also continues to rearrange the pebbles until the pit is changed into a heap. After four days the free-swimming larvae comes out through the gaps in the pebbles.

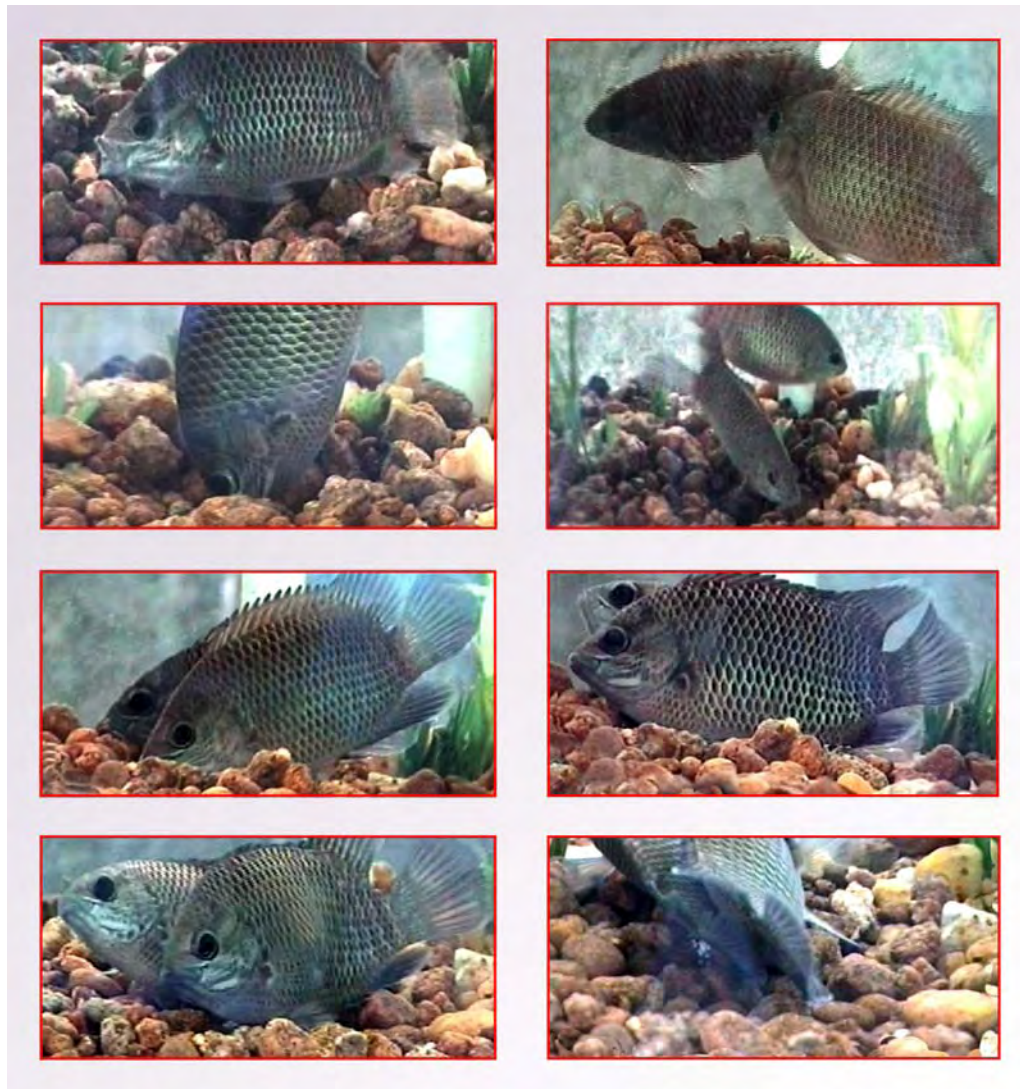
The fish spawns year round. The success of this research indicates the possibility of commercial production of this rare species for ornamental trade.

**Aquarium requirements:** Requires gravel bottom, survives well in aerated clean water.

**Behaviour in captivity:** Though not brightly coloured this grayish-green coloured species makes an excellent candidate for your aquarium. Its behaviour is pretty

enough to catch your eyes and challenging enough to keep your interest. It is a slow moving fish, standing most of the time in still position, moving its pectorals. It readily accepts any food under captive conditions and is compatible with other inmates in the aquarium except during its breeding time.

#### Breeding and courtship behaviour





## *Pristolepis fasciata* (Bleeker)



COMMON NAMES	
Catopra	English
Chutichi, Pannakarimeen, Attuchempally	Malayalam

FIN COUNT	
Dorsal	xii-xvi 14-16
Anal	iii 8-9
Pectoral	ii 13
Ventral	i 5

**Distinguishing characters:** Body thick-set, very deep and compressed. Mouth moderate; teeth villiform on jaws and palatines. Eyes moderate sized. Dorsal spines strong. Lateral line interrupted opposite posterior end of dorsal fin, continued on third row of scales below it, with 26-28 scales.

**Colour and size:** Greenish or brownish yellow with a deep black spot on shoulder and another over upper part of pectoral fin base. Fins with reddish edge.

**Food and feeding:** Omnivorous. But prefers live food.

**Sexual dimorphism and breeding:** Males and females can be identified by examining the genital papilla.

**Aquarium requirements:** Survives in clean aerated water.

**Behaviour in captivity:** Peaceful and compatible fish, well suited for community aquariums. It is a delicious food fish. Very common in brackishwater of the coastal regions of Kerala.

To analyse the taxonomic relationship of this species from Kerala with the same from Mekong River, Myanmar and Southeast Asia, further investigations are required.



FAMILY

# Teraponidae

Popularly known as ‘tigerperches’. Most of them inhabit marine and a few in brackish water. Some species also enter in freshwater. In Kerala there is only one species of *Terapon* that is most popular and suitable as ornamental fish, *Terapon jarbua*. It has somewhat oblong to oval body with slightly compressed shape. Its operculum has two spines. Mouth moderate, protractile with gape usually oblique. Teeth present on jaws, vomer and palatines. Dorsal fin is single and anal fin short with three spines.

## *Therapon jarbua* (Forsk.)



COMMON NAMES	
Jarbua terapon	English
Savamtheeni	Malayalam

FIN COUNT	
Dorsal	xi-xii 9-11
Anal	iii 7-10
Pectoral	13-14
Ventral	i 5

**Distinguishing characters:** Body oblong and slightly compressed, its dorsal profile more pronounced than ventral. Mouth slightly oblique; teeth conical and strong; teeth on palate in young, lacking in adults. Gillrakers 12 to 15 on lower arm of first arch. Pored scales in lateral line 75 to 100.

**Colour and size:** Silvery greyish-blue above, silvery white below, with 3 or 4 longitudinal downwardly curved black stripes which resemble the contours of mountains on a map. Fins hyaline, dorsal fin with an intensive large black spot; caudal fin with dark tips and three horizontal or oblique stripes. Maximum size 25 cm.

**Food and feeding:** Omnivorous. But prefers animal food.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Gradual acclimatization from brackishwater to fresh water is required. Survives in hard water.

**Behaviour in captivity:** Peaceful and compatible fish, well suited for community aquariums.

## FAMILY

# Cichlidae

Popularly known ‘pearl spot’ and ‘orange chromide’ are included in this family. The Cichlidae family stands out as an extraordinary example of vertebrate evolution. Cichlids form an important group of relatively large and colourful aquarium fishes. The behavioral and physical changes resulting from intense speciation in cichlids is equally impressive. Cichlids demonstrate some of the most unique and intensive parenting in fishes and utilize several different mating systems, from monogamy to polygynandry most cichlids are distinguished from all other freshwater fish by the existence of two unique features: a single opening of the nostrils and an interrupted lateral line. Body shape quite variable, mostly moderately deep and compressed Dorsal fin usually with 7-25 spines and 5-30 soft rays. Spines in anal fin 3-15 (generally 3); soft rays 4-15 (a few with 30). Colorful cichlids are reared as aquarium fish. There are only three species of cichlids indigenous to the Western Ghats of India. They are *Etroplus maculatus*, *Etroplus suratensis* and *Etroplus canerensis*. The former is popular as ornamental fish and the latter is an excellent food fish.

## *Etroplus suratensis* (Bloch)



COMMON NAMES	
Banded pearlspot, Striped chromide	English
Sethakendai	Tamil
Karimeen	Malayalam

FIN COUNT	
Dorsal	xviii-xix 14-15
Anal	xii-xiii 11-12
Pectoral	i 16
Ventral	i 5

**Distinguishing characters:** Body very deep, short, oval and strongly compressed. Eyes large, its diameter 3 to 4 times in length of head. Mouth small; teeth villiform, in a single row anteriorly but in one or two rows posteriorly on both jaws. Caudal fin slightly emarginate. Scales weakly ctenoid; lateral line interrupted at 16<sup>th</sup> or 18<sup>th</sup> scale; 35 to 40 scales in longitudinal series.

**Colour and size:** Light green with six to eight not very prominent vertical bands (first across occiput, last across base of caudal fin, other six intermediate); most of scales above lateral line with a central white pearly spot; some irregular black spots on abdomen. Dorsal, caudal, pelvic and anal fins bluish or dirty green; pectoral fins yellowish, with a black blotch at its base. Attains a maximum size of 50 cm. Juveniles more attractive as aquarium fish.

**Food and feeding:** Omnivorous. But prefers vegetable food.

**Sexual dimorphism and breeding:** Males and females can be identified by



examining the genital papilla. Captive breeding is successful. Exhibits parental care.

**Aquarium requirements:** Survives in clean aerated water with aquatic plants in the tank.

**Behaviour in captivity:** Peaceful and compatible fish, well suited for community aquariums.

It is an excellent food fish, especially big sized ones. Very common in brackishwater and coastal regions of Kerala and Sri Lanka. They thrive well where luxuriant growth of aquatic vegetation is available and attain 10-12 cm and 150 g in one year in ponds. Sexual maturity is attained in the second year; females guard the fertilized eggs. Since they are deep-bodied and are armed with spines, they do not easily fall prey to murrels (*Channa* spp.) and as such can be cultivated safely with them. Brackishwater ponds and wells unfit for culture of freshwater fishes like catla or gourami are ideally suited for the culture of the pearlspot. Usually found in Vembanad Lake, Kerala. This species was transplanted to other Indian states such as Tamil Nadu, Orissa and West Bengal for promoting aquaculture.

#### Habitat of Pearlspot



## *Etroplus maculatus* (Bloch)



COMMON NAMES	
Spotted etroplus, Orange chromide	English
Thikree	Marathi
Pallathi	Malayalam

FIN COUNT	
Dorsal	xvii-xx 8-10
Anal	xii-xv 8-9
Pectoral	i 15-16
Ventral	i 5

**Distinguishing characters:** Body disc-shaped, very deep and strongly compressed. Eyes large, the diameter about 3 times in head length. Mouth small; teeth villiform, in 2 or 3 rows on jaws. Caudal fin lunate. Scales weakly ctenoid; lateral line interrupted, with about 35 scales in longitudinal series.

**Colour and Size:** Golden yellowish, back greenish, with numerous horizontal lines of deep golden spots; three large, round black blotches on flanks, middle. Attains a maximum size of 8 cm. A brilliantly coloured (orange) variety of this species is also reported from Kerala.

**Food and feeding:** Omnivorous, readily accepts pelleted feed. It also consumes aquatic vegetation.

**Sexual dimorphism and breeding:** Males are brilliantly coloured and more attractive. Breeding in tank is successful. Exhibits nest building and parental care.

**Aquarium requirements:** Survives in clear water. It can survive in non-aerated aquarium also. Tolerates lower salinity also.

## *Etroplus canarensis* Day



### COMMON NAMES

Canara pearlspot	English
Varavu Karimeen	Malayalam

### FIN COUNT

Dorsal	xxi-xxii 8
Anal	xiv-xvi 6-7
Pectoral	16
Ventral	i 5

**Distinguishing characters:** Body deep and compressed. Eyes large, its diameter 3 to 3.5 times in head length. Mouth small; teeth villiform, in 2 or 3 rows on jaws. Caudal fin emarginate. Scales weakly ctenoid; lateral line interrupted after 15 to 25 scales; 30 or 31 scales in longitudinal series.

**Colour and size:** Yellowish brown with about eight vertical blackish bands; each side darkest at its base and some with a light central yellow spot. Dorsal and caudal fins dirty greenish; pectoral fins yellow, with a black base; pelvic and anal fins dusky. Attains a length of 11.5 cm.

**Behaviour in captivity:** Hardy fish, peaceful and compatible with other species. This critically endangered cichlid is confined to a single drainage in Karnataka State.

## FAMILY

# Scatophagidae

**P**opularly known as ‘scats’. They have laterally compressed disc-like and deep body similar to the appearance of marine butterfly fishes. They have well-developed dorsal and anal fin spines. Their head is small and mouth is non-protractile. Scales very small and ctenoid. Only one species is known, which is mainly confined to lower reaches of freshwater streams. Scat feeds on detritus and small invertebrates that are scavenged from the bottom. In aquarium tanks, they accept pelleted feed. There are two genera, only one in Indian region.



## Scatophagus argus (Linnaeus)



Juvenile scat (inset)

COMMON NAMES	
Scat	English
Nachakka	Malayalam

FIN COUNT	
Dorsaal	xi 16-18
Anal	vi 14-15
Pectoral	16-17
Ventral	i 5

**Distinguishing characters:** Body quadrangular, strongly compressed. Head profile rising steeply to nape; snout and interorbital space rounded. Mouth small, with brush-like teeth. Dorsal fin deeply notched; dorsal fin membrane incised between spines. Scales very small.

**Colour and size:** Variable colour patterns. Young fishes of about 2 cm are usually quite dark in colour; finest colouration and markings are attained in fishes of about 5-6 cm total length; uniform greenish-silvery, bluish-silver or coffee-brown with a delicate golden-sheen, especially on back; numerous dark spots mainly confined to upper portion of sides. Attains a maximum size of 30cm.

**Food and feeding:** Omnivorous, but accepts pelleted feed also.

**Sexual dimorphism and breeding:** Not known, not so far bred in captivity.

**Aquarium requirements:** It is euryhaline and can withstand salinity up to 25ppt. It can be gradually acclimatized to fresh water conditions. It should be kept in large tanks with plenty of water.

**Behaviour in captivity:** Hardy and compatible, ideal species for aquarium.

**Remarks:** An attractive fish with different colouration when they are young. Some fishes have red spots arranged in various patterns on the back; such form are known as *Scatophagus rubrifrons*, a name which is quite incorrectly given since these are merely varieties of *S. argus* and should at the most be called 'Red Argus'.

Lake Ashtamudi, Kerala



FAMILY

## Gobiidae

Popularly known as the ‘lilliputians’ of the fish world. Gobies are colourful fishes with flattened head, large eyes and short snouts. The eyes are high upon the head. There are two dorsal fins and the margin of the pelvic fins are joined to form a sucker. Pelvic fin when well developed, united usually forming an adhesive or sucking disc. This family is probably the most species rich of all living fish families, but not well represented in the aquarium industry. Usually carnivorous and remains towards the bottom of tank. Not good for community aquarium.

## *Sicyopterus griseus* (Day)



COMMON NAMES	
Tank goby	English
Poolan	Malayalam

FIN COUNT	
Dorsal	vi+i 8-9
Anal	i 7-9
Pectoral	16-21

**Distinguishing characters:** Body anteriorly cylindrical, posteriorly compressed. Head depressed, flat above, its length about 4.25 times in standard length. Mouth nearly horizontal; lower margin of upper lip with short papillae. Dorsal spines filiform. Scales of head and nape cycloid, smaller than those of middle of body; about 80 scales in longitudinal series; predorsal scales 25.

**Colour and size:** Brownish, with eight or nine rings of a darker tint encircling the body and wider than interspaces. Fins dark, darker at edges. Attains a maximum size of 10 cm.

**Food and feeding:** Carnivorous, does not accept artificial feed.

**Sexual dimorphism and breeding:** Not bred in captivity.

**Aquarium requirements:** Survives in clean, aerated water with aquatic plants in the tank.

**Behaviour in captivity:** It always remains hidden behind big stones or buried in the mud. Feeding the fish is a problem as it doesn't readily accept artificial feed. This species is confined to backwaters and lower stretches of rivers in Kerala, Tamil Nadu and Sri Lanka.





## *Awaous gutum* (Hamilton-Buchanan)



COMMON NAMES	
Gobi	English
Poolan	Malayalam

FIN COUNT	
Dorsal	vi + i 10
Anal	i 10
Pectoral	i 15-17

**Distinguishing characters:** Body elongate. Eyes fairly small, its diameter 4.5 to 5 times in head. Scales on operculum, breast and belly cycloid, on occiput ctenoid; 51 to 58 scales in longitudinal series; predorsal scales 17 to 24.

**Colour and size:** Olive-green, belly yellowish; head with irregular blackish spots and two longitudinal blackish streaks from eye to maxilla; body with blackish spots; a blackish spot on base of caudal fin and also on base of pectoral fin. Fins yellowish; fish dorsal fin with 3 or 4, and second dorsal fin with 5 or 6 longitudinal dark streaks. Attains a maximum size of 15cm.

**Food and feeding:** It is carnivorous, but accepts artificial feed also.

**Sexual dimorphism and breeding:** Not known.

**Aquarium requirements:** Thrives well in aquariums for long period. Needs well aerated water, always hides below the stones or pebbles.

**Behaviour in captivity:** Compatible, peaceful and hardy, but has a tendency to feed on smaller fishes in the tanks.

## *Glossogobius giuris giuris* (Hamilton-Buchanan)



COMMON NAMES	
Tank goby	English
Poolan	Malayalam

FIN COUNT	
Dorsal	vi+i 8-9
Anal	i 7-9
Pectoral	16-21

**Distinguishing characters:** Body elongate and somewhat compressed. Eyes small; iris without process in pupil. Branchiostegal membranes attached to sides of isthmus.

**Colour and size:** Yellowish-brown with five dark blotches on flank; sides of head with irregular violet spots. Dorsal, pectoral and caudal fins mottled with dark spots, spots darkest along spine of second dorsal fin. Attains a maximum size of 30 cm.

**Food and feeding:** It is carnivorous. Feed on small fishes. In captivity accepts pellet feed.

**Sexual dimorphism and breeding:** Mature female has a bulged belly, male has deep colouration when become mature.

**Aquarium requirements:** This fish thrives well in aquarium for long period. Needs well-aerated water, always hides below the stones or pebbles.

**Behaviour in captivity:** Always dwells towards the bottom of the tank. Remains buried in the tank. Not compatible with small sized fishes. Being carnivorous, it should be kept with large-sized fishes.

## FAMILY

# Belontiidae

Popularly known ‘anabantoids’, ‘fighter fish’, ‘gouramis’, and ‘paradise fishes’ are included in this family. Most of them are famous aquarium fishes. They are primarily freshwater fish, oviparous, carnivorous, solitary or loosely gregarious but the males are often highly territorial. All of them exhibit parental care. An outstanding feature of the family is that males take care of the eggs and larvae by constructing bubble nest at the surface of water. Males have enlarged fins and more colourful than females. One of the most celebrated local fishes, *Anabas* is capable of wandering cross-country from one water body to another. It crawls about with its spiky gill covers propped by its pectoral fins. The fishes of this family are known for their beauty.

## *Pseudosphromenus (Macropodus) cupanus dayi* (Engmann)



COMMON NAMES	
Spiketailed paradisefish	English
Pauni	Tamil
Karinkana	Malayalam
Tabuti	Kannada

FIN COUNT	
Dorsal	xiii-xv 5-7
Anal	xvi-xx 9-13
Pectoral	i 10
Ventral	i 5

**Distinguishing characters:** Body oblong and compressed. Mouth small; teeth small, conical and fixed on jaws. One soft ray of pelvic fin is produced into a single moderately long filament. Caudal fin pointed with median rays elongated. Scales large; lateral line rudimentary; 29 to 32 scales in longitudinal series.

**Colour and size:** Dark olive to green, darker on back; often with a brown stripe from eye to corner of opercle and brown spots on head; a dusky blotch on caudal peduncle. Elongated pelvic fin rays scarlet; fins otherwise pale green; soft dorsal and caudal fins with rows of black spots; edges of fins peculiar white that might be called phosphorescent. Attains a maximum size of 6 cm.



**Food and feeding:** Omnivorous, accepts artificial feed.

**Sexual dimorphism and breeding:** Males are brilliantly coloured with fluorescent margin in tail, captive breeding is successful. Males prepare bubble nest as in the case of Siamese fighter and take care of the eggs and young ones.

**Aquarium requirements:** Thrives well in captive conditions. Hardy and peaceful fish, needs clear water. They can survive in less oxygenated water also, being air breathing. It hides among aquatic vegetation, moves in the upper halves of the water column.

**Behaviour in captivity:** It is a jumper than most bubble nest builders; its aquarium should be kept covered. It is also a fairly good larvicidal fish.

Widely distributed in India

## *Pseudosphromenus cupanus* (Valenciennes)



This fish is widely distributed in Indian subcontinent unlike its subspecies *P. cupanus dayi*, but is less attractive. Other requirements and behaviour in captivity are almost similar to that of *P. cupanus dayi*.

## FAMILY

# Channidae

Popularly known as 'snakehead'. These include large, piscivorous fish of Asia and Africa. Fishes of this family can be recognized by the shape of the head which resembles that of a snake. Snakeheads possess an accessory organ for breathing atmospheric air in oxygen-depleted bodies of water. They live for many hours out of water and can migrate across land from one pond to another. They can survive for longer period with the minimum quantity of water. These species are important food fishes in their native lands. This predatory fish consist of a long dorsal fin, small head, large mouth and teeth, and can survive on land for a short period of time. They feed on other fish, earthworms, insects, occasionally, small mammals such as rats. Adult snakeheads can reach a length of one metre and a weight of more than six kilograms.

## *Channa micropeltes* (Cuvier)



Photograph courtesy : Maurice Kottelat

COMMON NAMES	
Malabar snakehead	English
Pullivaka, Pulivaka	Malayalam

FIN COUNT	
Dorsal	43-46
Anal	27-30
Pectoral	15
Ventral	6

**Distinguishing characters:** Body elongate and fairly rounded in cross-section. Eyes fairly small, the diameter 8.5 (7 in young) times in head length. Mouth large; lower jaw with several canines behind a single row of villiform teeth which deepens to about five rows at symphysis; teeth on vomer and palatines. Pelvic fin about 50% of pectoral fin length. Scales on summit of head small; 16 to 17 scale-rows between preopercular angle and hind border of orbit; predorsal scales 22; scales 95 to 110 in longitudinal series.

**Colour and size:** Varies considerably in young and adults; adults grayish brown, with head, back and flanks with small brown spots; dorsal fin gray with three or four narrow dark bands and a white outer edge; anal fin gray with a white margin; caudal fin gray, spotted with black and with a narrow white outer edge. In young specimens back grayish, flanks brilliant orange-scarlet; a black band through eye to upper half of caudal fin, and a second band from angle of mouth

to lower half; in some young specimens vertical bars also present. Juveniles are excellent ornamental fish. Attains a maximum size of 120 cm.

**Food and feeding:** Carnivorous, prefers live food.



Juvenile *C. micropeltes*

**Sexual dimorphism and breeding:** Not known; attempts to breed this fish and rear the larvae in captivity has been successfully at the Regional Agricultural Research Station, Kumarakom, Kerala.

**Aquarium requirements:** Thrives well in captive conditions.

**Behaviour in captivity:** Bottom dwelling, often hides between stones, exhibits predatory behaviour, hence large sized specimens cannot be kept in tanks with smaller species.

This species undergoes one of the most profound colour transformations of any Asian freshwater fish. Studying the genetic relationship of the isolated population of this species in Kerala and Malay Peninsula will be of help in genetic improvement programme.

River Noolpuzha, Kerala





## *Channa marulius* (Hamilton-Buchanan)



COMMON NAMES	
Giant snakehead	English
Puveral	Tamil
Hoovina-muri, Madinji	Kannada
Cherumeen, Bral	Malayalam

FIN COUNT	
Dorsal	45-55
Anal	28-36
Pectoral	16-18
Ventral	6

**Distinguishing characters:** Body elongate and fairly rounded in cross-section. Eyes moderate, its diameter 7 to 8 times in head length (eyes larger in young). Mouth large; lower jaw with 7 to 18 canines behind a single row of villiform teeth which deepens to 5 or 6 rows at symphysis; teeth on vomer, absent on palatines. Pectoral fins about half head length; pelvic fin about 75% of pectoral fin length. Caudal fin rounded. Scales on summit of head of moderate-size, rosette of head-scales lies between orbits, frontal head-scale occupying central portion of rosette; two scales between rosette and basal head scale; 10 scale-rows between preopercular angle and hind border of orbit; predorsal scales 16; scales 60 to 70 in lateral series.

**Colour and size:** Above lateral line grayish-green, with five or six dark oval blotches on flank which terminate below lateral line; below lateral line between blotches pale yellow with reddish tinge; distinct white spots scattered on body. Dorsal and anal fins with white spots, more distinct towards posterior end of fins; paired fins pale with a reddish tinge; caudal fin dark with white spots arranged in form of discontinuous vertical bands; a distinct pale-edged ocellus (fades with growth) at the base of the caudal fin towards upper side. Juveniles with an

orange band running from eye to middle of caudal fin. It attains a maximum size of 180 cm.

**Food and feeding :** Carnivorous.

**Sexual dimorphism and breeding:** Shows parental care.

**Aquarium requirements:** Only juveniles are suitable for aquarium. Not suitable for community aquariums.

**Behaviour in captivity:** Being carnivorous, not good for community aquariums. It usually dwells at the bottom of the tank. Ideal for garden ponds.

**Remarks:** Juveniles are attractive as ornamental species. A favourite sporting fish, it can be caught with ladle or spoon but is apt to retire to the bottom after surface fight. The fish is cultured in irrigation wells in some parts of South India. Hatchlings are collected from cup-like nets; they are stocked in shallow irrigation wells and fed on kitchen refuse, frogs and dead animals and grows to a length of 30cm in one year. The fish is relished as food.

Habitat of *Channa* sp.



## Channa striatus (Bloch)



COMMON NAMES	
Striped or Banded snakehead	English
Pooli-kuchi, Koochinamarl	Kannada
Kannan, Varal	Malayalam
Sohr, Dekhu	Marathi

FIN COUNT	
Dorsal	37-46
Anal	23-29
Pectoral	15-17
Ventral	6

**Distinguishing characters:** Body elongate and fairly rounded in cross-section. Eyes moderate, its diameter 6 to 7 times in head length. Mouth large; lower jaw with 4 to 7 canines behind a single row of villiform teeth which deepens to six rows at symphysis; villiform teeth on vomer and palatines. Pectoral fin about 2 times in head length. Caudal fin rounded. Scales on summit of head large, rosette of head-scales lies between orbits and hence frontal head-scales forms the central plate or rosette.

**Colour and size:** Adults grey to black-green on upper side; from middle of side upwards very pale, yellow to silvery; belly usually pure white. In young fishes the upperside paler, with dark blotches on flanks which may form angular bands; a dark band runs obliquely upwards from snout to edge of gill-cover. Caudal fin dark, with two distinct pale vertical bands on its base; pectoral and pelvic fins pale; dorsal fin in young with black blotch at hind end. It attains a maximum size of 75cm.

**Food and feeding :** Carnivorous.

**Sexual dimorphism and breeding:** Exhibits parental care.

**Aquarium requirements:** Only juveniles are suitable for aquarium. Needs good aeration.

**Behaviour in captivity:** Being carnivorous, not good for community aquarium. It usually dwells at the bottom of the tank. Ideal for garden ponds.

## FAMILY

# Cynoglossidae

Popularly known as 'tonguefishes'. They come under the order Pleuronectiformes (flatfishes) which are readily distinguished from other fishes by their compressed body and head with both eyes on the same side. Eyes are small, close together and sinistral. The caudal is pointed, confluent with dorsal and anal fins. Mouth small. Tonguefishes are flatfishes which usually live on the muddy bottom at shallow or moderate depths. Juvenile tonguefishes swim upright, but undergo metamorphosis early in their development, in which the right eye migrates to the left side of the head and the fish begins to swim on its side at the bottom. Tonguefishes are found mostly in tropical and subtropical seas; a few species are found in freshwater. Most cynoglossids are less than 30 cm long. There are about 110 species in this family.



## *Cynoglossus macrostomus* Norman



Photograph courtesy: 'Fish Base'

COMMON NAMES	
Malabar-sole	English
Manthal	Malayalam

FIN COUNT	
Dorsal	100-106
Anal	78-84
Ventral	4
Caudal	10

**Distinguishing characters:** Body tongue-shaped. Snout obtusely pointed angle of mouth reaching well beyond lower eye. Eyes nearly continuous. Two lateral lines on ocular side, separated by 14 to 16 rows of scales; no lateral line on blind side. Scales ctenoid on both sides of body.

**Colour and size:** Ocular side light brown with dark brown mottling forming diffuse, irregular crossbands; blind side whitish. Dorsal and anal fins grey-black. Attains a maximum size of 61cm.

**Food and feeding:** Bottom feeder.

**Sexual dimorphism and breeding:** Not bred under captivity.

**Aquarium requirements:** Survives in well aerated water.

**Behaviour in captivity:** Peaceful, always seen on the ventral side of the body.

FAMILY

## Soleidae

**P**opularly known as 'soles'. They also come under the order Pleuronectiformes with compressed body and both eyes on the right side. Eyes small and close together. Mouth small and asymmetrical, teeth villiform, and gill membranes are united. Soles are mainly benthic, neritic fishes occasionally entering estuarine region.

## *Euryglossa orientalis* (Bloch & Schneider)



Photograph courtesy: 'Fish Base'

COMMON NAMES	
Oriental-sole	English
Manthal	Malayalam

FIN COUNT	
Dorsal	62-72
Anal	47-57
Pectoral	7
Ventral	5
Caudal	18-20

**Distinguishing characters:** Body oblong, both its contours equally arched. Mouth small, its cleft extending to below middle of eye; lower lip feebly fringed. Pectoral fins well developed, left fin somewhat smaller. Scales ctenoid on both sides of body; head scales on blind side modified into cutaneous sensory processes.

**Colour and size:** Eyed side brownish with cloudy indistinct patches; tinged yellow on blind side. Vertical fins darker; outer half of pectoral fins black. It attains a maximum size of 18 cm.

FAMILY

## Tetraodontidae

Popularly known as ‘puffer fishes’, ‘balloon fishes’, ‘globe fishes’ and ‘blow fishes’. All express their special feature of being able to blow themselves upto twice their normal size or more. The body is rounded, with large prominent eyes that give an air of terror. The dorsal and anal fins are backwardly placed without spines. The skin is tough with small erectable spines, replacing scales. The colour of belly is yellowish white. Most of them are marine, but two freshwater species and one migratory species are reported in the rivers of the Western Ghats.



## *Tetraodon travancoricus* Hora & Nair



### COMMON NAMES

Malabar Puffer Fish	English
Thavalappothal	Malayalam

### FIN COUNT

Dorsal	7-8
Anal	8
Pectoral	16-17

**Distinguishing characters:** Body oblong and compressed laterally; dorsal profile arched, highest at midst of back; interorbital space flat. Mouth terminal, directed forward. Nostril hollow tube, nearly as high as wide, only its distalmost part formed into two very small lobes which are bent inwards giving a key-hole appearance to opening of nasal organ. Body spinules inconspicuous.

**Colour and size:** Ground colour of upper parts grayish, of lower parts much lighter; usually two black, oval patches on upper lateral surface of body in front of dorsal fin; posterior to the patches, a dark, broad band running to caudal fin and partly continuing to central rays; usually a dark spot in middle of course of band; other dark spots at base of caudal fin and at base of posterior most two dorsal fin rays; a dark patch above pectoral fin and a spot behind it; dorsal surface with a narrow, light interocular band, two irregular dark patches behind eyes and followed by a V-shaped marking; an irregular band in front of dorsal fin and triangular patches in front of or behind dorsal fin. Fins hyaline. Attains a maximum length of 3cm and it is the smallest species in the family.

**Food and feeding:** Feed only on live food. They hardly take artificial feed. It is helpful in removing molluscs like *Planorbis* in aquarium tanks. They love to eat snails. This can be a curse or a blessing. If you have an unwanted snail outbreak from new plants, a few puffer fishes will help crush the infestation. On the other side it is not advisable to keep decorative snails like apple snails or *Planorbis* in a tank with puffer fish.

**Breeding requirement :** Not known.

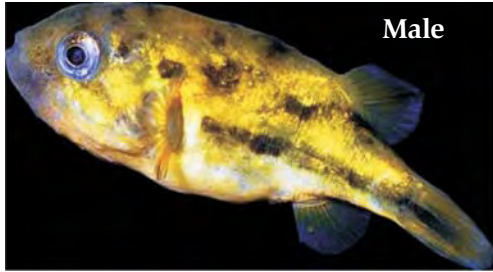
**Aquarium requirements:** Very easy to acclimatize to captive conditions. They require clean well-aerated water.

**Behaviour in captivity:** Compatible and peaceful. But they are notorious for nipping the fins of other fishes. The fins thus injured will be infected and may become lethal to the fish. They always remain towards the upper half of the water column. They are slow-moving and excellent candidates for monospecies aquariums.

Lake Vembanad, Kerala.



## Carinotetraodon imitator Britz & Kottelat



COMMON NAMES	
Puffer Fish	English
Thavalappothal	Malayalam

FIN COUNT	
Dorsal	9 - 10
Anal	8 - 9
Pectoral	17 - 18

**Distinguishing Characters:** Similar to *Tetraodon travancoricus*, but *Carinotetraodon imitator* can be easily distinguished from *T. travancoricus* by the following characters, body spination - few slender pointed spines in *C. imitator* versus dense coverage of spines in *T. travancoricus*; males with pale spots in versus distinct blotches in *T. travancoricus*; females with numerous tiny black spots interspersed among larger blotches versus larger blotches, rarely with few tiny spots in *T. travancoricus*; and courting males with erectile middorsal and midventral keels of skin in *C. imitator* versus no keels in *T. travancoricus*.

**Colour and Size:** Similar to *Tetraodon travancoricus*, but the dark spot are faded in males and the numerous tiny black spots of females. Attains a length of 3 cm.

**Food and Feeding:** Similar to *T. travancoricus*.

**Breeding Requirements:** Britz and Kottelat (1999) had reported courtship behaviour, breeding and larval development of *C. imitator* in captivity. Breeds in slightly brackishwater. Eggs hatch seven days after spawning at 22 – 24°C. Larvae are 3.5 mm long and attached to substrates with the ventral side of their yolk sac.

**Behaviour in captivity:** As in *T. travancoricus*. Notorious for nipping the fins of other fishes. Good for single species aquariums.

## *Chelonodon patoca* (Hamilton-Buchanan)



Juvenile *C. patoca* (inset)

COMMON NAMES	
Puffer Fish	English
Thavalappottal	Malayalam

FIN COUNT	
Dorsal	9-10
Anal	8-10
Pectoral	15-16

**Distinguishing characters:** Body fairly elongate; head very broad, upper profile of snout to caudal fin evenly arched; interorbital space flat and broad. Nostril a round depression, surrounded by a low rim produced into a posterior and anterior flap. Upper lateral line bent downward below dorsal fin, lower lateral line running along lower half of tail on a feeble ridge. Body with a spiny patch on back, throat and belly; sides naked.

**Colour and size:** Blackish above with numerous small round yellow spots, flanks and lower parts silvery. Maximum size 7 cm. Colour pattern of juveniles different from adults.

Basically an estuarine species, but found to ascend the rivers for long distances.



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