

Malabar Snakehead *Channa diplogramma* (Day, 1865)

Taxonomy

Kingdom: Animalia

Phylum: Chordata

Class: Actinopterygii

Order: Perciformes

Family: Channidae

Taxon Name: *Channa diplogramma* (Day, 1865)

Synonyms: *Ophiocephalus diplogramma*,
Channa diplogramma

Taxonomic Notes

Sir Francis Day described *Channa diplogramma* as *Ophiocephalus diplogramma* in 1865 based on one juvenile specimen collected near the mouth of the Cochin river in the port city of Cochin (southwestern India) and called it Malabar Snakehead (Day 1865). The color pattern of this juvenile matched with that of juveniles of another species of snakehead, *O. micropeltes*, originally described by Cuvier and Valenciennes from Java, Indonesia. This possibly led Day to synonymise *C. diplogramma* with *C. micropeltes* in 1878. *C. diplogramma* was shown to be a valid species 134 years after it was synonymized, making it an endemic species of peninsular India (Benziger et al. 2011).

Assessment Information

Red List Criteria & Category: CR
A2abcde+A3bcde

Justification: There is a clear indication of a population decline of more than 90% in Pamba river (Benziger et al. 2011) and the meristic study also shows the decline in the size of the

fish from ~100 cm to less than 21–32 cm from 1991 to 2011 (Gopalakrishnan & Ponniah 2000; Renjithkumar et al. 2011). It qualified all the sub-criterion a, b, c, d, and e for criteria A (except a in A3). Since there was no information about the generation length of *C. diplogramma*, I considered a similar snakehead species *Channa argus* (8.5 years) for generation length.

Geographic Range

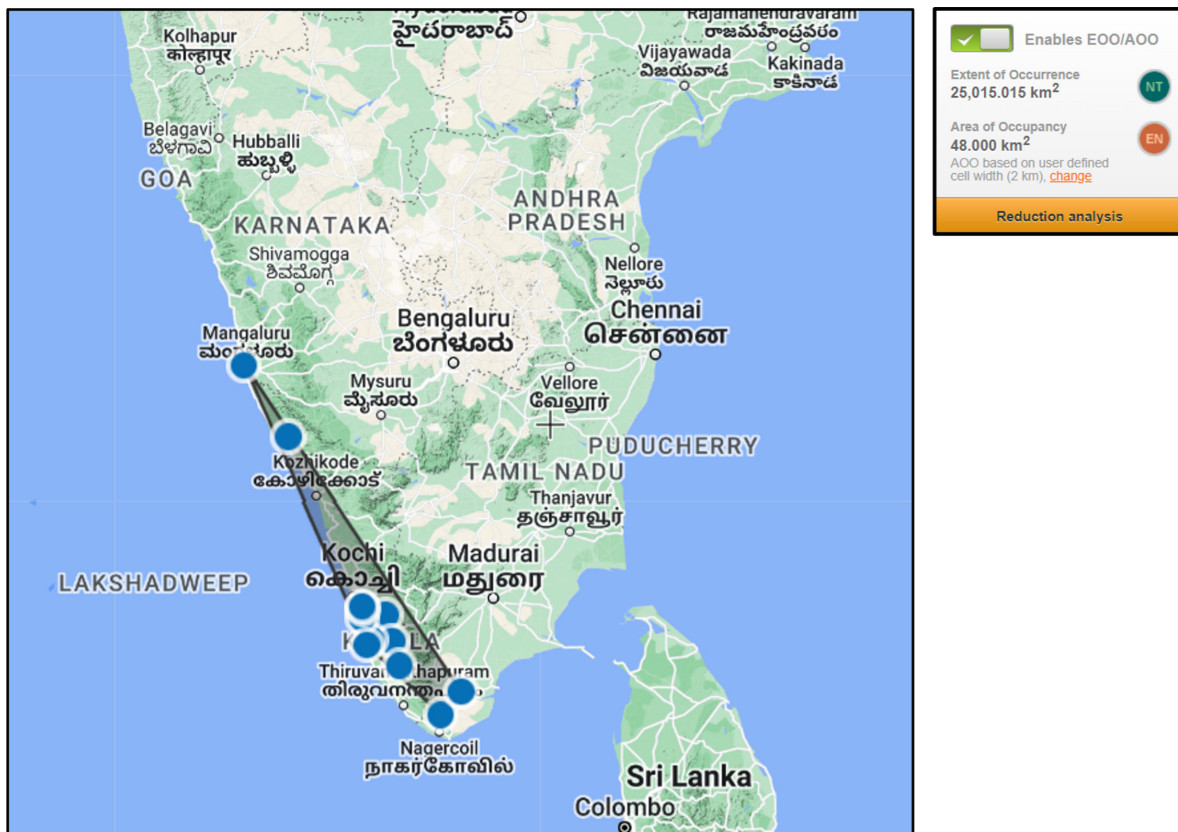
Range Description: *C. diplogramma* is a Western Ghat endemic species. Distribution is restricted to Kerala, Karnataka, and Tamil Nadu. It is known from the rivers (including its principal reservoirs) Meenachil, Manimala, Pampa, Achenkovil, and Kallada in Kerala, as well as the Chittar and Tamarabarani rivers (and its reservoirs) in Tamil Nadu, Netravati river in Karnataka (Benziger et al. 2011). It is also seen in northern Kerala, in Valapattanam river (Sajeevan et al. 2014).

Country of Occurrence: Native: India (Kerala, Tamil Nadu, and Karnataka)

Population: A population study was done in the Pampa river and Kallada river using landing in tonnes (Renjithkumar et al. 2011, 2020). Local fishers operating in the rivers and reservoirs where this species is known to occur have confirmed its rarity and populations have declined considerably (~90%) over the last two decades (Benziger et al. 2011). Meristic studies have found that over the past two decades, the size of the species has decreased significantly,



Adult *Channa diplogramma*. © Psiby/wikimedia.



Map showing the distribution of *Channa diplogramma*. (Created using Geocat).

thus showing a population reduction (Renjithkumar et al. 2011; Gopalakrishnan & Ponniah 2000). Also, the local fisherman Mr. Vineesh said that there has been an increased decline in fish population for the past two decades.

Current population trend

Declining at a rate of ~90%.

Habitat and Ecology

C. diplogramma is a freshwater benthopelagic

fish. They are hunter-fish and carnivores; thus, they occupy the highest level in the trophic level. They perform parental care and they are gregarious, 100+ juvenile fishes can be seen with parent fish. Also, they build their nest in the litter found in water (Anwar & Rajeev published in Malsyalokam). They are extremely brilliant fishes, and nowadays they omit feeding on hook angles even if they are fed in front of the mouth (according to local fisherman Mr. Vineesh).

Systems

Freshwater (Present in both western and eastern flowing rivers of Kerala, Tamil Nadu) and also in estuaries.

Use and Trade

The species is extensively used as food (Kurup 2004) and also in the ornamental fish trade across the globe (Ramachandran et al. 2015)

Threats

1. Habitat destruction or alteration of habitat is a major threat, apart from that, the use of destructive types of fishing methods are reasons for the rapid decline of native species population (Rajeev et al. 2008)
2. This species is extensively used as food and traded globally as ornamental fish (Benzigar et al. 2011) (Ramachandran et al. 2015).
3. *Channa micropeltes*, a kind of snakehead is reported only from the Pampa river which showed a decline of its population of the tune of 99% of its original population size due to EUS disease, dynamiting, and other destructive types of fishing activities, habitat alteration, poisoning and pollution (Kurup 2000).
4. Increased Food consumption, fishing, Aquarium trade, Presence of invasive (Arapaima and Piranha not sure), according to local fisherman (Vineesh 19 November 2023).
5. Leaching of pesticides from agricultural cultivation, and extensive use of Vietnam Murrel *Channa striata* for cultivation neglects native *C. diplogramma* (Dr. Simi KAU 19 November 2023).

6. Both invasive fishes and macrophytes act as a threat to the population of native species. *Oreochromis mossambicus*, *O. niloticus*, *Poecilia reticulata*, *Gambusia affinis*, *Pterygoplichthys pardalis*, *Cyprinus carpio*, and *Clarias gariepinus* are some of the major invasive species found across rivers in Kerala which has overgrown the native species (Raj et al. 2021).

7. Construction of dams in rivers acts as a major threat in reduction of native fish species (Ranjithkumar et al. 2011).

8. Habitat destruction and sand mining in the river basin of Valapattanam river have posed serious problems to the freshwater fish population by affecting their breeding and spawning grounds (Sajeevan et al. 2014).

Conservation Actions

1. Conservation measures are taken, repopulating by river ranching and, prioritization of endemic species to culture are some of the conservation measures taken. The species still face high exploitation in various disastrous fishing practices (Gopalakrishnan & Ponniah 2000).
2. Since the population is declining at a rate of ~90% proper conservation measures need to be taken.

References

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