

A Report of the Endemic Freshwater Western Ghats Snake Head Species of Channidae, *Channa Diplogramma* Day, 1865 from A Freshwater Lake from Chennai, Tamil Nadu

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Abstract: As a part of the internship programme some students were taken to the field trip to Seliyur lake of Chennai, Tamil Nadu and along with other aquatic fauna fish specimens were also collected. While studying these aquatic collections from the Seliyur lake of Tamil Nadu revealed a new report of snake head species of Channidae, *Channa diplogramma* Day, 1865 along with other *Tilapia* species. It is one of the endemic freshwater species of the family Channidae which is commonly known as the Malabar snake head.

Keywords: Western Ghats, Tamil Nadu, Channidae, Seliyur lake, Tamil Nadu.

1. Introduction

Fishes family Channidae can be recognized by the shape of the head which resembles that of snake. It inhabits mainly permanent shallow lentic waters (ponds & lakes). And can migrate, these fishes are air breathers and live for many hours and can migrate across land from one freshwater pool to another. Channidae forms one of the most staple food of South East Asian countries. Apart from their economic importance as food fish they are also used for wound healing as well as reducing post-operative pain and discomfort (Gram et. al., 2006). Nearly 87 nominal species and 4 subspecies that have been described, many are now considered synonyms of recognized species, and there are about 20 names that cannot be associated with any valid taxa (Allen Benziger et.al., 2011). Snakehead fish possess accessory organs for air-breathing that allow individuals to survive potentially for months out of water buried in moist soil, and to “walk” overland to colonise new freshwater habitats (Sayer, 2005; Wee, 1982). According to (Berra, 2007; Courtenay and Williams, 2004) Asian snakeheads possess an extensive natural distribution, extending from Iran in the west, across the Indian subcontinent including Sri Lanka, to Southeast

Asia including western islands of the Indonesian archipelago and to the Far East including China and Siberia. In Southeast Asia, some snakehead species are common in markets where they represent a significant component of the freshwater fish catch and attract relatively high prices (Dey et al., 2005; Wee, 1982).

2. Material & Methods

Selaiyur lake is a waterbody located in South Chennai especially in the East Tambaram area with the co-ordinates N- 12°54'58" and E- 80°7'54". It is a large freshwater lake which covers an area of 177 acres and plays a crucial role in the regions water management. Sewage and untreated waste water are being discharged into the lake which leads to pollution and growth of water hyacinth. The fish specimens were collected from the fishermen who were fishing in the Selaiyur lake. The voucher specimens of *Channa diplogramma* Day, 1865 identified with the help of standard references and were deposited in the National Zoological Collections of Southern Regional Centre, Zoological Survey of India, Chennai.

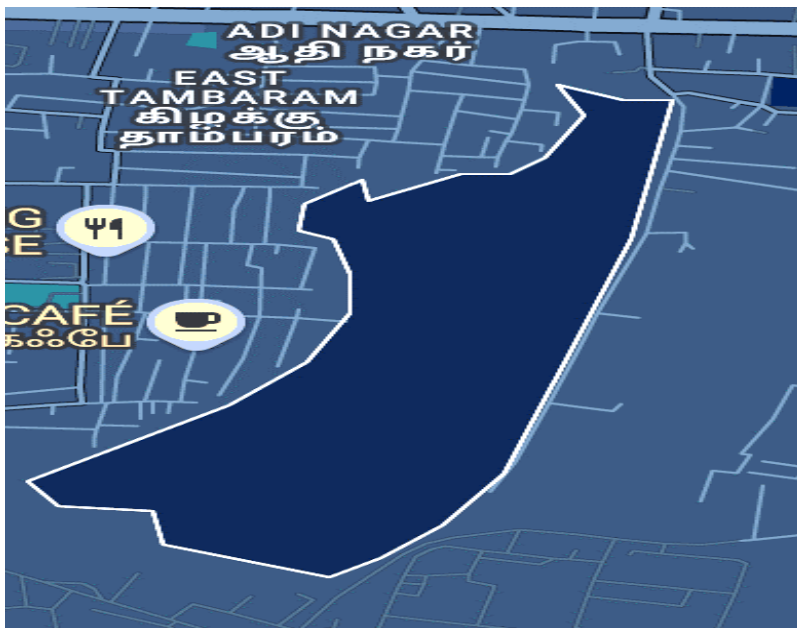


Figure 1: Google map showing the Selaiyur lake, Chennai



Figure 2: A view of Selaiyur lake, Chennai showing water hyacinth and other aquatic plants



Figure 3: A view of Selaiyur lake, Chennai.



Figure 4: Photograph of *Channa diplogramma* Day, 1865 collected from Selaiyur lake, Chennai.

The Malabar snakehead, *Channa diplogramma* is one of the most enigmatic and least known of all Channids. Sir Francis Day described *Channa diplogramma* Day, 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. Allen Benziger et. al., 2011 reported that *Channa diplogramma* Day, 1865 was shown to be a valid species 134 years after it was synonymised, making it an endemic species of peninsular India.

Systematic position

Kingdom: ANIMALIA Linnaeus, 1758

Phylum: CHORDATA Haeckel, 1874

Class: ACTINOPTERYGII Klein, 1885

Order: ANABANTIFORMES Li, Dettai, Cruaud, Couloux, Desoutter-Meniger & Lecointre, 2009

Family: CHANNIDAE Fowler, 1934

Genus: *Channa* Scopoli, 1777

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

Material examined: 3 exs, 20-08-2025, Selaiyur lake, Tambaram, Chennai district, Tamil Nadu. coll. J. Thilak (purchased).

Synonyms

1865. *Ophiocephalus diplogramma* Day, *Proceedings of the Zoological Society of London* 1865 (pt 1) (art. 1): 2-40.

1999. *Channa diplogramma* (Day) Catalog databases as made available to Fish Base in November 1999.

1998. *Channa diplogramma* (Day) Kottelat *Ichthyol. Explor. Freshwat.* 9(1):1-128.

Meristic characters of *Channa diplogramma* (Day, 1865)

Cheek scales 16–20.

Lateral line scales small, 103–105. Scale rows above lateral line

10.5, below lateral line 15. Circumpeduncular scales 15–16.

Dorsal fin rays 43–44. Anal fin rays 26–28. Pectoral fin rays 17.

Pelvic fin with 6 rays. Principal caudal fin rays 15–17.

Cheek scales 16–20. Lateral line scales small, 103–105.

Dorsal fin rays 43–44. Anal fin rays 26–28. Pectoral fin rays 17. Pelvic fin with 6 rays. Caudal fin rays 15–17. Outer margins of pectoral and caudal fin rounded.

3. Discussion

The Malabar snakehead differs from all other species in the genus by its high number of lateral line scales (103–105 vs. 36–91). It further differs from all other *Channa* species, except *Channa bankanensis*, *Channa lucius*, *Channa micropeltes*, and *Channa pleurophthalma*, by the presence of gular scales, a patch of scales between the anterior tips of the lower jaws, visible in ventral view. *C. diplogramma* differs from *C. bankanensis*, *C. lucius*, and *C. pleurophthalma* by having a very different color pattern, and from its sister species *C. micropeltes* by a combination of characteristics, viz. number of caudal fin rays, lateral line scales, scales below lateral line; total vertebrae, pre-anal length, and body depth. Head is large, long, dorsally flattened and rounded anteriorly, covered by scales anteriorly up to level of posterior nostrils. Inter-orbital region narrow and slightly convex. Mouth large, maxilla extending posteriorly beyond posterior margin of eye. Pre-dorsal scales 21–23. Gular portion covered with 30–31 gular scales. Cephalic sensory pores open via numerous satellite openings in the skin.

The gular scales, a morphological trait that has been hypothesized to be plesiomorphic at the level of the family Channidae has been reported only in four species of channids endemic to South East Asia, *C. bankanensis*, *C. lucius*, *C. micropeltes*, and *C. pleurophthalma*, apart from the Parachanna of Africa (Musikasinthorn et. al., 2001). The gular scales in *C. diplogramma* makes it the only species of channid from the Indian subcontinent with gular scales, a character shared with its sister species *C. micropeltes*, *C. diplogramma* as an endemic species of peninsular India, subsequently justifying its high conservation value due to its restricted distribution. In Central Kerala *Channa diplogramma* is a connoisseurs' delight and locals pay premium prices for sub adult and adult specimens. Local fishers operating in the rivers and reservoirs where this species is known to occur have confirmed its rarity and that populations have declined considerably (90%) over the last two decades (Allen Benziger et.al., 2011).

IUCN Red list status

Vulnerable (VU) (B1ab(iii)+2ab(iii)); Date assessed: 15 June 2010(Ref. 130435: Version 2025-2 (Global))

<http://www.fishbase.org>.

Distribution

The Malabar snake head is an endemic freshwater fish species of the peninsular India. It is earlier reported from the rivers such as Meenachil, Achancoil, Manimala, Pampa and Kallada in Kerala and the Chittar and Tambraparani Rivers in Southern Tamil Nadu. This is the first report of this species from the Northern Tamil Nadu.

4. Conclusion

It is suggested that a comprehensive taxonomic and genetic profiling of the Snakeheads in Tamil Nadu is necessary to identify its population structure, and also to evaluate the likelihood of additional species. This is of utmost importance as the Snakeheads are widely exploited as food and ornamental fishes, and their conservation and management are a priority because their populations are declining. In addition to the indiscriminate exploitation by local fishers, *Channa diplogramma* is also severely threatened by the loss of critical aquatic habitats due to sand mining and reclamation of waterbodies for the construction boom, as well the increasing pollution in existing habitats due to domestic and industrial sewage.

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