

## Range Extension of an Endemic Ornamental Fish Species *Puntius halakkudiensis* from Southern Kerala River, India.

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### Research Article

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#### ABSTRACT

The ornamental cyprinid, *Puntius chalakkudiensis* which resembles the popular aquarium fish *Puntius denisonii* (Day 1865), was described by Menon, Rema Devi & Thobias, 1999 from the upper reaches of Chalakkudy River of the Western Ghats of peninsular India and its distribution was confined only to this system in central part of Kerala except a recent record <sup>[1]</sup> from Achankoil River, in south Kerala. Major distinguishing character of *P. chalakkudiensis* from *P. denisonii* is the presence of a distinct black blotch on its dorsal fin (absent in *P. denisonii*). The recent record of *Puntius chalakkudiensis* from Pamba River at Plappally village, Pathanamthitta district of south Kerala is of Ichthyological interest.

#### INTRODUCTION

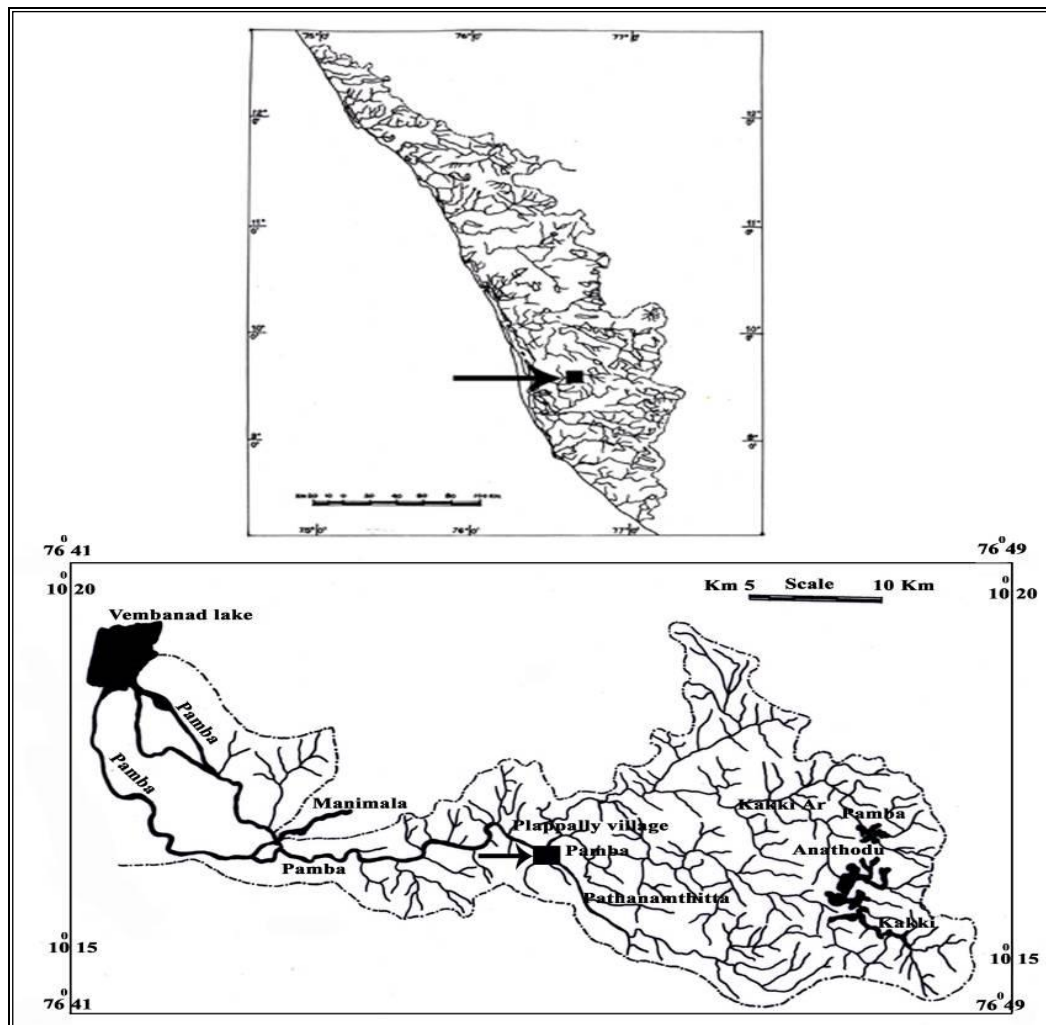
Montane streams of Western Ghats are known for fish diversity and its high degrees of endemism <sup>[2, 3]</sup> described *P. chalakkudiensis* from the upper reaches of Chalakkudy River of the Western Ghats and its distribution was so far confined to this river. *Puntius chalakkudiensis* can be distinguished from all other *Puntius* species by its inferior mouth (terminal or subterminal in all other species) and a distinct black blotch on its dorsal fin from *P. denisonii*. Ichthyofaunal reports on various rivers from Kerala state <sup>[4]</sup> and also from Pamba River <sup>[5]</sup> have not documented *Puntius chalakkudiensis* outside its distributional range. However, the occurrence of this species since its description was reported <sup>[1]</sup> from Achankoil River from southern Kerala along with *Puntius denisonii*. During a recent fish survey from Pamba River in Plappally village (Fig. 1), Pathanamthitta district of southern Kerala, we collected 3 specimens of *Puntius chalakkudiensis*, which confirms the presence of this ornamental fish from another river system. Herein, we report the distributional range extension of *Puntius chalakkudiensis*.

#### MATERIALS AND METHODS

Fish samples were collected from Pamba River in Plappally village in Pathanamthitta district in Kerala state during September 2012 using gill nets and cast nets. Fishes were identified, preserved in 10% formalin and the specimens were deposited in Manonmaniam Sundaranar University Museum of Natural History (MSUMNH), Alwarkurichi, Tamil Nadu, India and also preserved as Collections of M. Arunachalam, (CMA). MSUMNH 61, 2 ex.111.5-116.4mm SL; CMA 21, 1 ex, 94.6 mm SL. Kerala,

India, Pamba River, Plappally village, Pathanamthitta District (10° 17' 49.3" N, 76°45' 53.8" E), Collectors: M. Arunachalam, A. Chandran, M. Raja, S. Nandagopal and A. Vanadurai 30 Sep. 2012. Morphometric measurements and meristic counts generally follow [6]. A total of 3 individuals were measured and body size ranged from 94.6-116.4 mm in SL. Body measurements are expressed as percentage of Standard length (%SL) and head measurements as percentage of head length (%HL).

**Figure 1: Map of the collection site of *Puntius chalakkudiensis* from Pamba River, Plappally village, Pathanamthitta District, Kerala, India.**



## RESULTS AND DISCUSSION

Mouth small, semicircular and inferior. One pair of maxillary barbel considerably longer than eye diameter, when stretched reaching the middle of the eye. Labial fold interrupted. Dorsal and abdominal profile slightly and about equally convex. Dorsal non osseous, its margin concave with iii 8 rays. It arises before the ventral and situated slightly nearer to the snout than to caudal base. Pectoral fin with i 15 rays, pelvic fin with i 7 rays, anal fin with iii 5 rays, lateral line complete with 28 scales, pre-dorsal with 9 scales, 4½ scale rows between dorsal fin origin to lateral line, 2½ scale rows between lateral line to pelvic fin, 3½ scale rows between lateral line to anus, circumferential scales 18, circumpeduncular scales 12, transverse breast row scales 8, pre-anal scales 21 and 1 scale row between anal fin origin to anus. The caudal fin deeply forked with 10+9 caudal principle rays. The morphometric data are listed in (Table 1).

Dorsal view of head and body light greenish and below lateral line it is silverish (Fig. 2). A black streak was run from the snout, through the eye to the middle of the root of the caudal. A pale scarlet stripe starts with upper edge of the eye and ends with 10<sup>th</sup> lateral scale vertically through first dorsal fin ray. The first ray of pectoral fin with dull black and other rays are light greenish, pelvic and anal fins are in dull white. Dorsal fin with a dark black mark in the middle of the outer surface extending up to 2<sup>nd</sup> and 3<sup>rd</sup>

branched rays and its margins are reddish green. Caudal fin with an oblique dark band with yellowish tinge crossing the posterior third of each lobe and extending upto the 4<sup>th</sup> principal ray of each lobe.

**Table 1: Morphometric data of *Puntius chalakkudiensis* from Plapally village, Pamba River in Southern Kerala (N = 3).**

		Range (N = 3)	Mean $\pm$ SD
1	Standard length	94.6-116.4	
2	Head length	21.3-25.1	23.6 $\pm$ 2.1
<b>% of SL</b>			
3	Pectoral fin length	17.8-20.0	18.8 $\pm$ 1.2
4	Pelvic fin length	17.8-19.2	18.6 $\pm$ 0.7
5	Anal fin length	17.2-18.5	18.1 $\pm$ 0.8
6	Dorsal fin length	22.2-24.2	23.3 $\pm$ 1.1
7	Dorsal fin base length	13.8-16.1	14.9 $\pm$ 1.1
8	Anal fin base length	8.4-9.2	8.8 $\pm$ 0.4
9	Pre-pectoral length	21.1-23.3	22.5 $\pm$ 1.2
10	Pre-pelvic length	48.8-49.8	49.3 $\pm$ 0.5
11	Pre-anal length	70.3-73.2	71.3 $\pm$ 1.6
12	Pre-dorsal length	44.3-46.0	45.2 $\pm$ 0.8
13	Post-dorsal length	52.3-53.9	53.0 $\pm$ 0.8
14	Peduncle length	15.3-16.0	15.6 $\pm$ 0.4
15	Peduncle depth	11.1-11.4	11.3 $\pm$ 0.2
16	Caudal fin length	30.9-32.3	31.6 $\pm$ 0.7
17	Body depth	24.7-26.5	25.7 $\pm$ 1.0
18	Distance b/w pectoral fin to vent	45.4-49.2	46.7 $\pm$ 2.1
19	Distance b/w pelvic fin to vent	19.2-21.8	20.1 $\pm$ 1.5
<b>% of HL</b>			
20	Snout length	36.5-39.9	37.8 $\pm$ 1.8
21	Pre-nasal length	23.8-27.5	25.3 $\pm$ 2.0
22	Orbit width	26.3-29.6	28.1 $\pm$ 1.7
23	Inter-orbital width	34.8-38.1	36.9 $\pm$ 1.8
24	Inter-nasal width	20.8-24.1	22.8 $\pm$ 1.7
25	Head depth at nostril	32.8-37.2	35.3 $\pm$ 2.3
26	Head depth at pupil	50.2-54.9	52.4 $\pm$ 2.4
27	Head depth at occiput	67.6-72.9	70.7 $\pm$ 2.8
28	Maxillary barbel length	22.8-29.3	25.0 $\pm$ 3.7
29	Snout to opercle	73.4-78.2	75.2 $\pm$ 2.6
30	Pre-occipital length	79.1-87.3	82.0 $\pm$ 4.6

Figure 2: Lateral view of *Puntius chalakkudiensis* (MSUMNH 61, 116.4 mm SL).



Figure 3: Pamba River, Plappally village, Pathanamthitta District, Kerala, India.



The habitat where *P. chalakkudiensis* occurs is a clear water fourth order stream with thick vegetation on right and left bank. Substrate types are mostly big boulders and small boulders and to a lesser extent sand in a 150 m length (Fig. 3).

Interaction with the local fishermen on the abundance of *P. chalakkudiensis* and *P. denisonii* revealed that in the Pamba River generally fish diversity has been reduced due to illegal fishing, dynamite and plant derived poison fishing by the illegal aquarium traders who are visiting frequently to the wilderness as noted by the local fishermen. Moreover they also believed that *P. chalakkudiensis* and *P. denisonii* are the same species while *P. chalakkudiensis* is a male and *P. denisonii* is a female though. However, both the species are under "endangered" category <sup>[7]</sup>. Presently, *P. denisonii* is the most preferred ornamental fish from this region in the international trade <sup>[8]</sup> and fetches a retail price of US\$ 20–35. *P. chalakkudiensis* has also been collected for aquarium trade.

Recently, *P. chalakkudiensis* and *P. denisonii* has been assigned to the *Sahyadria* based on some preliminary studies <sup>[9]</sup> in that paper it was clearly mention that the placement of the genus *Puntius* is tentative. However, in a recent paper <sup>[10]</sup> *P.denisonii* and *P. chalakkudiensis* are assigned to *Sahyadria* is also need a thorough study. Hence, we placed *P. denisonii*, *P.chalakkudiensis* under the genus *Puntius* till further elaborative study on this genus are carried out.

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