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Journal of Threatened Taxa

Building evidence for conservation globally

www.threatenedtaxa.org

ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

SHORT COMMUNICATION

NEW RECORD OF BLUE PERCH *BADIS BADIS* (ANABANTIFORMES: BADIDAE) FROM GODAVARI RIVER BASIN OF TELANGANA STATE, INDIA

Kante Krishna Prasad & Chelmala Srinivasulu

26 July 2019 | Vol. 11 | No. 9 | Pages: 14212–14215

DOI: 10.11609/jott.4820.11.9.14212-14215



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ISSN 0974-7907 (Online)
ISSN 0974-7893 (Print)

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Journal of Threatened Taxa | www.threatenedtaxa.org | 26 July 2019 | 11(9): 14212–14215

NEW RECORD OF BLUE PERCH *BADIS BADIS* (ANABANTIFORMES: BADIDAE) FROM GODAVARI RIVER BASIN OF TELANGANA STATE, INDIA

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Abstract: *Badis badis* (Hamilton, 1822), a freshwater fish species, has been reported for the first time from the Godavari River basin of Telangana State, India. One specimen of *B. badis* was collected from a stream near Mubarakpur Village in Sangareddy District (Manjeera sub-basin) and another from a stream near Sirpur (T) Town in Asifabad District (Wardha sub-basin), Telangana State, India. This publication provides information about *B. badis* occurrence in India, a short description of the collected specimen, and a discussion on its habitat and threats.

Keywords: Asifabad, Chameleon Fish, freshwater fish, Manjeera River, Percomorpha, Sangareddy, Wardha River.

Badis badis (Hamilton, 1822) is a freshwater fish which exhibits remarkable colour patterns on its body with blue iridescent marks on the fins. Due to its attractive and colourful pattern, it is used as an ornamental fish species and exploited in the aquarium trade (Gupta et al. 2016). This fish belongs to the family Badidae and is commonly known as Blue Perch or Chameleon Fish. Badidae is distributed in southern Asia, from Pakistan to India, Bhutan, Bangladesh, China, Nepal, Myanmar, and Thailand (Kullander & Britz 2002; Schindler & Linke 2010; Britz & Kullander 2013; Froese & Pauly 2018). Globally, Badidae comprises of two

genera, namely *Badis* (22 species) and *Dario* (seven species) (Kullander & Britz 2002; Fricke et al. 2018; Froese & Pauly 2018). In India, members of Badidae are distributed in the river basins of the Ganges in Uttar Pradesh and West Bengal, Yamuna in Himachal Pradesh, Brahmaputra in Assam and Arunachal Pradesh (Menon 1999; Geetakumari & Kadu 2011; Valdesalici & van der Voort 2015), Meghna in Meghalaya (Britz & Kullander 2013), Tuivai in Manipur (Vishwanath & Shanta 2004), Mahanadi in Odisha (Menon 1999; Jayaram 2010), Godavari in Chhattisgarh (Karmakar & Datta 1998) and Madhya Pradesh (Yadav 2005, 2006), Tunga (Britz & Ali 2015) and Sharavati in Karnataka (Dahanukar et al. 2015), and Penna (Chembarampakkam Tank) in Tamil Nadu (Knight & Devi 2009).

A few records are available regarding the distribution of *B. badis* in peninsular India, namely in the Godavari River basin of Maharashtra (Day 1878), Chhattisgarh (Karmakar & Datta 1998), and Madhya Pradesh (Yadav 2005, 2006), the Mahanadi River basin in Odisha (Menon 1999), the Pennar River basin in Tamil Nadu (Knight & Devi 2009), and the Tungabhadra River basin in Karnataka (Dahanukar et al. 2015). Devi & Indra (2003) reported this species from the

DOI: <https://doi.org/10.11609/jott.4820.11.9.14212-14215> | **ZooBank:** urn:lsid:zoobank.org:pub:3FA2F572-DD33-431B-91AE-5D6795CA1466

Editor: Neelesh Dahanukar, Indian Institute of Science Education and Research (IISER), Pune, India.

Date of publication: 26 July 2019 (online & print)

Manuscript details: #4820 | Received 13 January 2019 | Final received 24 June 2019 | Finally accepted 01 July 2019

Citation: Prasad, K.K. & C. Srinivasulu (2019). New record of Blue Perch *Badis badis* (Anabantiformes: Badidae) from Godavari River basin of Telangana State, India. *Journal of Threatened Taxa* 11(9): 14212–14215. <https://doi.org/10.11609/jott.4820.11.9.14212-14215>

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Funding: University Grant Commission, New Delhi.

Competing interests: The authors declare no competing interests.

Acknowledgements: We acknowledge the Head, Department of Zoology, University College of Science, Osmania University, Hyderabad for providing facilities and encouragement. We extend our sincere thanks for the study and collection permission (Rc.No.10873/2015/WL-2; Dated:16.09.2015) and support by the Principal Chief Conservator of Forests, Telangana State Forest Department and District Forest Officers, Sangareddy and Mancherial Districts for conducting the present study. KP acknowledges the research funding from UGC, New Delhi. We thank Gundena Devendar, Gandla Chetan Kumar and the staff of Forest Department of Sirpur and Sangareddy District for field assistance.



Eastern Ghats, but the exact location is not known. In this paper, we report the occurrence of *B. badis* for the first time in the Manjeera and Wardha sub-basins of the Godavari River basin in Telangana State, India.

MATERIAL AND METHODS

We followed random sampling during the surveys conducted in the streams across the Sangareddy and Asifabad districts, Telangana, to study fish diversity. Fish were collected using cast nets with the help of fishermen. Collected specimens were photographed, labelled, and preserved in 4% formalin. Meristic and morphometric measurements were taken following Jayaram (2010) and Armbruster (2012). Morphometric measurements were taken point to point to the nearest 0.1mm using Mitutoyo digital callipers. Morphometric values, except the total, standard, and head length, were expressed in percentage of the standard length of the fish. Additionally, subunits of the head were expressed as percentage of head length. Identification of the fishes was done based on Kullander & Britz (2002), Jayaram (2010), and Froese & Pauly (2018). Specimens (NHM.OU.F-26-2015 and NHM.OU.F-01-2017) were deposited in the Natural History Museum, Osmania University, Hyderabad, India.

RESULT

We collected two specimens of *B. badis* from Telangana, India (Fig. 1).

Genus *Badis* Bleeker, 1853

Badis badis (Hamilton, 1822)

Materials examined: Telangana State, India: NHM.OU.F-26-2015, 13.x.2015, stream near Sirpur-(T) Town, Wardha sub-basin, Asifabad District, 19.484°N & 79.594°E, 161m, coll. Kante Krishna Prasad, Gundena Devender & Gandla Chethan Kumar; NHM.OU.F-01-2017, 28.iv.2017, stream near Mubarakpur Village, Manjeera sub-basin, Sangareddy District, 17.639°N & 78.023°E, 508m, coll. Kante Krishna Prasad & Hyderabad Laxman.

Distinguishing characters: *Badis badis* is distinguished from its other congeners in the combination of the following characters: body moderately elongated in shape, compressed on the lateral sides; vertical bars on lateral side; abdomen rounded. Head large, laterally compressed; snout blunt. Specific dark blotch on superficial part of cleithrum; operculum with one sharp spine; a small blue spot rounded by a black ring on each shoulder; base of the scales shine silver. Scales of moderate size, ctenoid. Lateral line incomplete; lateral line runs unto the posterior of dorsal fin; lateral line row scales 28. Dorsal fin with 16–18 hard spines and 7–8 branched rays, prominent black blotches

along dorsal fin base, and middle with narrow white edge. Pectoral fins with one soft ray and 10 branched rays; pelvic fin with one hard ray and five branched rays. Anal fin with three spines and six branched rays. Caudal fin rounded. Detailed morphometric measurements, ratios, and meristic counts are presented in Table 1.

Habitat: At Sirpur, a lone specimen of *B. badis* (Image 1A) was collected in a stream consisting of submerged boulders and small pebbles with sand silt as substratum. The riparian vegetation on both sides of the stream was dominated by Pink Morning Glory *Ipomoea* sp. and Lesser Cattail *Typha* sp. The stream was polluted with organic waste dumped through sewer lines from a nearby village. The species was collected from a ditch in the streambed with Water Thyme *Hydrilla* sp. and Tape Grass *Vallisneria* sp. The place where the species was captured was in the shadow of riparian vegetation. In the stream, *Laubuka laubuca* (Hamilton, 1822), *Pethia ticto* (Hamilton, 1822), *Puntius chola* (Hamilton, 1822), and *Systomus sarana* (Hamilton, 1822) were observed.

At Mubarakpur, another lone specimen of *B. badis* (Image 1B) was collected in a stream with sand silt as substratum and dominated by emergent vegetation of Water Thyme *Hydrilla* sp., Water Lily *Nymphaea* sp., Lotus *Nelumbo* sp., Water Cabbage *Pistia*, Dense Flower Knotweed *Polygonum* sp., and Tape Grass *Vallisneria* sp. The riparian vegetation included Babool *Acacia* sp., Pink Morning Glory *Ipomoea* sp., Algaroba *Prosopis* sp., and Lesser Cattail *Typha* sp. on both the banks. This species shared its habitat with *Esomus danrica* (Hamilton, 1822), *Pethia ticto* (Hamilton, 1822), *Pseudambassis lala* (Hamilton, 1822), *Puntius chola* (Hamilton, 1822), and *P. sophore* (Hamilton, 1822).

Habitat loss due to sand mining and pollution due to organic wastes from sewers were the major threats to *B. badis* at Sirpur, Wardha sub-basin; no threat was observed at Mubarakpur of Manjeera sub-basin.

DISCUSSION

Badis badis originally described as *Labrus badis* from the lowlands of the Ganges and Brahmaputra drainages in northeastern India by Hamilton (1822). Later, it was reported by Day (1878) from Bombay and Madras presidencies (which also includes the states of Andhra Pradesh, Karnataka, Kerala, Orissa, and Tamil Nadu) without proper location information. Although *B. badis* was recorded in peninsular India (Karmakar & Datta 1998; Menon 1999; Devi & Indra 2003; Yadav 2005, 2006; Knight & Devi 2009; Dahanukar et al. 2015), the exact localities were not provided by most workers. The Telugu vernacular name 'Kundala' or 'Kasundara' for this fish was first provided by Day (1878) in his works from Bombay and Madras presidencies. Until now,

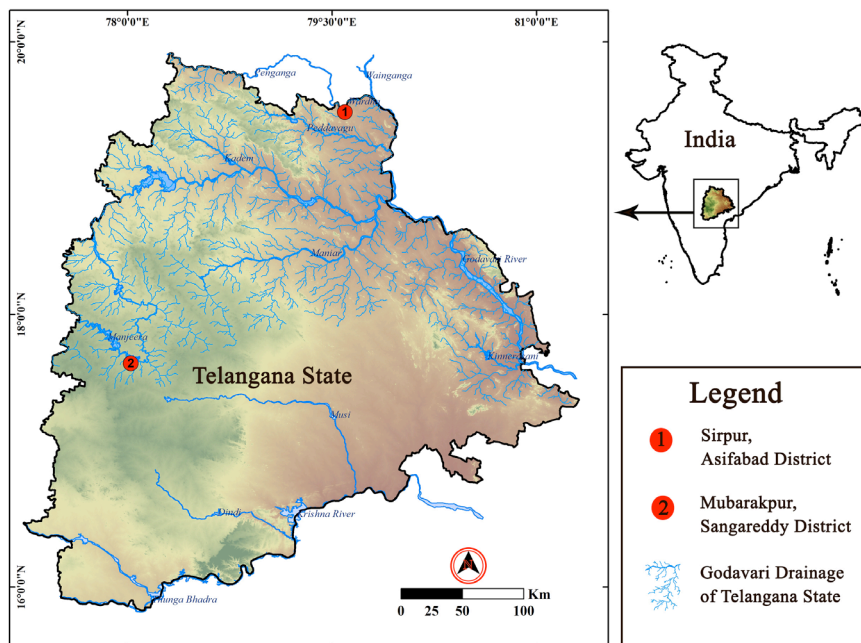


Figure 1. Distribution of *Badis badis* in Godavari basin of Telangana State, India.

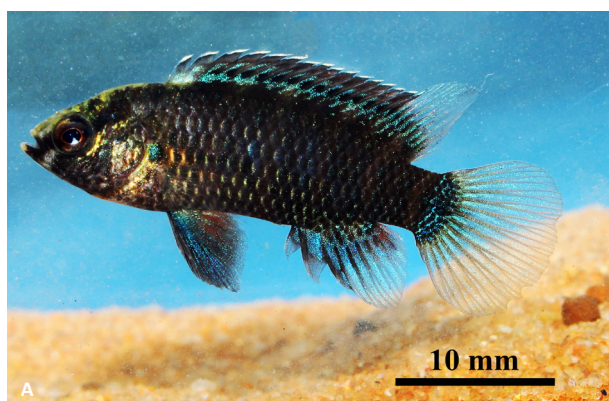


Image 1. *Badis badis* (Hamilton, 1822)—color variation: A - from Wardha River basin (collected in a stream polluted with organic waste) | B - from Manjeera River basin (collected in a stream with clear water). © Kante Krishna Prasad.

the exact locality record of *B. badis* in erstwhile Andhra Pradesh is lacking. This fish was not reported by earlier workers, though Barman (1993) opined that this may occur in the Telangana region of Andhra Pradesh. This may have been due to its solitary nature and behaviour of hiding in aquatic vegetation. Knight & Devi (2009) also expressed the same opinion about this fish in Tamil Nadu. We too noticed this behaviour in both areas.

We noticed the colour variation of this species in both clear water and polluted water (Image 1). The fish captured in the stream polluted with organic waste at Wardha River sub-basin (Image 1A) showed dirty red and black coloured vertical bands amalgamated on the lateral side of the body. Its overall appearance was black with blue iridescence on the fins. On the other hand, the fish captured in the stream

with clear water at Manjeera River sub-basin (Image 1B) showed a bright red-coloured body with six black vertical bands alternatively on the lateral sides. Earlier, Day (1878) too reported a similar colour variation in the species in clear and dirty waters. The specimens from Telangana differed from the earlier report from southern India, particularly from Tamil Nadu, with respect to the circumpeduncular scale count (16 vs. 19–20; Knight & Devi 2009).

The occurrence of *B. badis* in the Manjeera and Wardha sub-basins of the Godavari River reveals that this species could be more widespread than currently known. There is a need for the study of the distribution and population trend of this species (Chaudhry 2010) to enrich scientific knowledge and to understand its threat status.

Table 1. Morphometric characters and meristic counts of *Badis badis* from Wardha and Manjeera sub-basins, Telangana State, India.

Morphometric characters	Specimen voucher NHM.OU.F-26-2015	Specimen voucher NHM.OU.F-01-2017
Total length (mm)	34.3	36.3
Standard length (SL, mm)	27.9	28.9
Head length (HL, mm)	7.6	8.0
% of SL		
Body depth	31.2	35.3
Head length	27.5	27.7
Head depth	22.4	24.6
Head width	13.7	14.6
Eye diameter	11.2	9.8
Snout length	4.5	5.0
Inter orbital width	8.0	7.9
Dorsal fin base length or dorsal fin width	57.4	56.6
Pre-dorsal distance	29.9	31.5
Dorsal fin length at branched rays	17.0	18.3
Dorsal fin spine length	11.7	18.9
Dorsal fin origin to hypural distance	70.2	70.8
Pectoral fin length	23.7	23.6
Pelvic fin length	24.8	26.2
Caudal peduncle length	18.6	16.3
Caudal peduncle depth	14.9	16.5
Pre pelvic distance	33.4	34.2
Pre anal distance	66.2	68.8
Anal fin base length	17.8	19.7
Anal fin length	30.1	34.5
% of HL		
Head depth	81.6	89.0
Head width	50.1	52.9
Eye diameter	40.7	35.4
Snout length	16.5	18.1
Inter orbital width	29.1	28.7
Meristic counts		
Lateral line row scales	28	28
Between lateral line and dorsal fin scales	3	3
Between lateral line and ventral fin scales	8	7
Between lateral line and anal fin scales	7	7
Transverse scale rows	11	10
Predorsal scales	8	7
Prepelvic scales	7	6
Preanal scales	21	20
Dorsal fin rays	XVI+8	XVII+7
Pectoral fin rays	i+10	i+10
Pelvic fin rays	I+5	I+5
Anal fin rays	III+6	III+6
Caudal fin rays (principal)	14	14
Caudal fin rays (procurrent)	6	6
Circumpeduncular scales	16	16

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ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

July 2019 | Vol. 11 | No. 9 | Pages: 14087–14246

Date of Publication: 26 July 2019 (Online & Print)

DOI: 10.11609/jott.2019.11.9.14087-14246

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