

## Original Article

# First record of redneck goby *Schismatogobius deraniyagalai* (Teleostei: Gobiidae) from Seethanathi River, Karnataka, Southern India

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**Abstract:** *Schismatogobius deraniyagalai* is recorded from the Seethanathi River of Karnataka state in the southern part of India. Previous records of these species were from the streams in Kerala of India and from freshwater habitats of Sri Lanka. Herein we report the occurrence of this species in Seethanathi River showing its distribution extended further north along the west coast of Peninsular India.

### Article history:

Received 2 March 2013  
Accepted 14 April 2013  
Available online 25 June

**Keywords:** Gobiidae, New record, Seethanathi, Redneck goby, India

## Introduction

*Schismatogobius* is a genus of small freshwater gobies with a naked and elongated body with a characteristic marmorated color pattern, living among pebbles in the freshwaters above tidal influence (Chen et al., 2001). Distribution of the genus is chiefly confined to Indo-Pacific Islands from Sri Lanka to Fiji. The 10 nominal species known till date include *Schismatogobius marmoratus* (Peters, 1868), *S. bruynisi* (de Beaufort, 1912), *S. insignus* (Herre, 1927), *S. pallidus* (Herre, 1934), *S. roxasi* (Herre, 1936), *S. deraniyagalai* (Kottelat and Pethiyagoda, 1989), *S. ampluvinculus* (Chen, Fang and Shao, 1995), *S. fuligimentus* (Chen, Seret, Pollabauer and Shao, 2001), *S. vanuatuensis* (Keith, Marquet and Watson, 2004) and *S. vitiensis* (Jenkins and Boseto, 2005). The single species of *Schismatogobius* recorded from the Indian subcontinent is *S. deraniyagalai* described from Sri Lanka (Kottelat and Pethiyagoda, 1989; Pethiyagoda, 1991). The discovery of this species from Sri Lankan water bodies is significant in terms of biogeography and distribution as it was for the first time the genus has

been documented from an Indian ocean island as all other known species have been collected only from islands of the Pacific Ocean, Southern Japan, Indonesia, Philippines and Australia. As for the Indian subcontinent *Schismatogobius deraniyagalai* was first reported from the upper reaches of Chaliyar river system inside the Nilgiri Biosphere Reserve of Kerala (Easa and Basha, 1995; Easa and Shaji, 1997). This region comprises part of the Western Ghats known for its rich species diversity and high levels of endemism, also regarded as one of the world's biodiversity hotspots (Myers et al., 2000; Sajan et al., 2014). That was the only site record for this species after which there are no reports showing its occurrence in any of the freshwater bodies in Southern India to date. This species has been now found in the Seethanathi River of Karnataka showing the extension of distribution of the species further north along the west coast of India.

## Materials and methods

The specimens were collected using cast nets and preserved in 10 % formalin. Measurements were

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Table 1. Morphometry of *Schismatogobius deraniyagalai* from Seethanathi river of South India (F.7149 SRS/ZSI)

	1	2	3	4	5	6	7	8	Mean
	♀	♀	♀	♂	♂	♀	♀	♀	
Total length	44	44.5	40	40	36	35	32	31	
Standard length	37	38.5	33	33	30	29	27	26	
(% SL)									
Body depth	18.2	15.4	16.4	17.0	15.7	15.9	15.9	15.0	16.2
Body width	16.2	14.0	14.2	14.2	13.3	13.8	13.3	11.9	13.9
Head length	25.1	26.8	25.8	29.7	28.0	26.6	27.0	25.0	26.7
Length of snout	5.1	5.2	4.9	5.8	5.7	4.8	4.8	4.6	5.1
Length of maxilla	10.0	9.6	8.5	18.8	15.7	9.0	8.2	6.9	10.8
Eye diameter	5.4	5.9	4.9	6.4	6.0	5.2	5.6	5.4	5.6
Interorbital width	3.7	2.6	3.0	4.2	3.3	3.5	3.3	3.5	3.4
Predorsal distance	34.5	34.8	34.9	36.4	33.3	32.4	33.3	35.0	34.3
Pre ventral	30.0	30.1	30.9	32.7	32.0	30.0	30.0	28.9	30.6
Pre anal	60.5	61.0	61.2	58.8	59.0	59.3	56.7	57.7	59.3
Length of pectoral	24.3	20.8	25.8	21.8	25.3	24.8	21.9	23.1	23.5
Height of dorsal I	14.0	11.7	9.7	12.1	11.3	12.1	8.9	10.4	11.3
Height of dorsal II	9.7	10.4	11.2	11.2	10.0	12.7	10.0	11.5	10.9
Height of anal	5.4	10.4	10.3	11.2	10.0	10.3	9.6	9.6	9.6
Length of pelvic	22.1	22.9	22.4	22.1	21.7	23.1	23.7	21.2	22.4
Width of head	16.2	15.3	15.2	15.8	14.3	13.8	14.1	13.5	14.7
Length of caudal peduncle	15.9	15.3	17.9	18.8	17.7	17.6	19.3	17.3	17.5
Height of caudal peduncle	7.8	7.5	7.88	8.2	8.0	8.6	7.4	7.7	7.9
Length of caudal fin	19.7	-	20.0	20.6	20.7	21.7	20.4	20.4	20.5
Distance between pelvic tip and anal	10.0	10.4	9.7	6.4	7.7	7.6	6.3	3.9	7.7
Distance between pectoral origin pelvic	5.9	5.5	6.36	5.8	6.3	6.2	5.9	6.2	6.0
Pelvic to anal base	33.2	33.0	33.0	29.1	29.7	32.4	29.3	28.9	31.1
Length of body opercular border to anus	39.2	35.8	37.9	31.0	30.0	35.9	33.7	31.9	34.4
(% HL)									
Length of snout	20.4	19.4	18.8	19.4	20.2	18.2	17.8	18.5	19.1
Length of maxilla	39.8	35.9	32.9	63.3	56	33.8	30.1	27.7	40.0
Eye diameter	21.5	22.3	18.8	21.4	21.4	19.5	20.5	21.5	20.9
Interorbital width	15.1	9.71	11.8	14.3	11.9	13	12.3	13.8	12.7
Width of head	64.5	57.3	58.8	53.1	51.2	51.9	52.1	53.8	55.3

made with dial calipers with an accuracy of 0.01 mm. Methods for taking counts and measurements follow Hubbs and Lagler (1947). The specimens are deposited at the Zoological Survey of India/Southern Regional Station (ZSI/SRS), Chennai, India. Abbreviations of fins: D1 and D2, 1st and 2nd Dorsal fins; A, Anal fin; P, Pelvic fin; V, ventral fin; C, Caudal fin.

## Results

Eight specimens (2 males and 6 females) of *S. deraniyagalai* range 26.0–38.5 mm of Standard Length (Table 1, Fig. 1) were collected from the upstream of Seethanathi River at Thuthinjet (13° 24'

N, 71° 01' E), Karnataka State, India during 2002–2004. The specimens were deposited in the ichthyological section of the Zoological Survey of India, Southern Regional Station, Chennai, India and the accession register number is F.7149 SRS/ZSI. *Schismatogobius deraniyagalai* is distinguished from all its congeners by its very slender body (6.5–7.9 times SL) 7.9–8.3 times as per original description by Kottelat and Pethiyagoda (1989). However the specimens collected from Indian waters differ in being stouter than the Sri Lankan forms. Preopercular canal and associated pores absent in the cephalic sensory pore system. Fin ray counts D1: VI; D2: I,9; A:I,9; P:14-15;V:I,9-10, C:12-13.

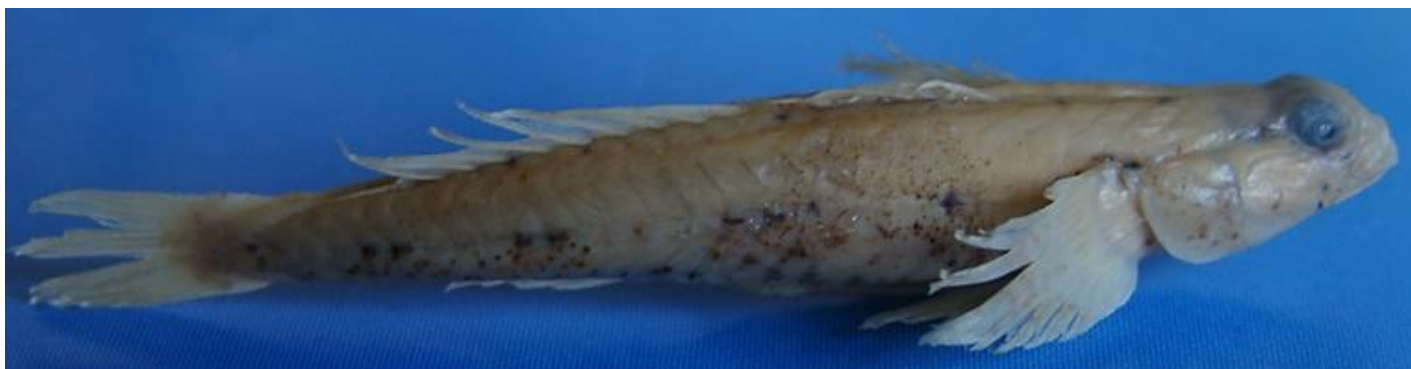


Figure 1. *Schismatogobius deraniyagalai* collected from Seethanathi River, Karnataka

## Discussion

Variations are observed between the type specimens as noted from the original description and the samples collected during this study. Body shape of specimens in the present collection are slender but stouter than the Sri Lankan forms, body depth in percentage SL in the former is 16.2 (15.0-18.2) vs. 12.4 (12.0-12.7) in the latter; width of body 13.9 (11.9-16.2) vs. 10.4 (10.0-10.8). Slight variations in snout length are also observed in that the percentage snout length in SL is 5.1 (4.6-5.8) vs. 6.3 (5.4-7.3). Further difference observed was in predorsal distance 34.3 (32.4-36.4) vs. 38.7 (38.3-39.3) and depth of caudal peduncle 7.9 (7.4-8.6) vs. 7.2 (7.0-7.3). In addition the teeth in jaws are reported to be in three rows whereas in the specimens from India the rows are more in number and irregularly arranged. All other morphometric and meristic characters overlap between the species. However the colour pattern is similar in both original types and the present samples. The differences observed are only in the girth of the species and also there is much overlap in many of the characters these specimens hence are reported as *S. deraniyagalai*. This species was not recorded during the survey undertaken in the tributaries of Chaliyar River of the New Amarambalam Reserve Forest (NARF), which forms the core area of the Nilgiri Biosphere Reserve from where the fish was recorded earlier (Baby et al., 2010). Anthropogenic interventions pose pressure and threat to the survival of this species and hence their distribution is restricted only to isolated streams/rivers in dense forests.

## Acknowledgements

First author is thankful for the financial support from National Bureau of Fish Genetic Resources of Indian Council of Agricultural Research (ICAR), Government of India through the National Agricultural Technology Project.

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