




Range extension and re-recording of *Redigobius bikolanus* (Herre, 1927) from Great Nicobar, India

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Manuscript history

Received 16 March 2021 | Accepted 30 April 2022 | Published online 27 June 2022

Citation

Sreeraj CR, Sen A (2022) Range extension and re-recording of *Redigobius bikolanus* (Herre, 1927) from Great Nicobar, India. *Journal of Fisheries* 10(2): 102402. DOI: 10.17017/j.fish.424

Abstract

Redigobius is a genus of goby fish belonging to order Gobiiformes. *Redigobius* is currently represented by 15 species worldwide of which *Redigobius bikolanus* is a widespread species. This species was recorded previously from Middle Andaman Island in 2002. There was not a single evidence of the species after that time, from Indian region. Recently, during a faunal survey in Great Nicobar Island resulted in collection of a *R. bikolanus* for the first time and providing evidence for range extension of the same from Nicobar group of Islands. The species was collected from one of the estuarine creeks of Great Nicobar island. Details of the morphological data, live colouration and wild habitat are provided for the new record.

Keywords: Andaman Nicobar Islands; estuarine ecosystem; goby fish; mangrove; *Redigobius*

1 | INTRODUCTION

Gobies are belonging to Gobiiformes and are one of the diverse fish groups of the world, but very limited studies has been carried out on this group in the past and several species of this group are being discovered from various localities in the last two decades (Thacker and Roje 2011). *Redigobius* is a genus under Gobiiformes, represented by 15 species world wide of which, so far four species had been reported from Indian Islands namely *Redigobius oyensi* (de Beaufort, 1913), *R. tambujon* (Bleeker, 1854), *R. balteatus* (Herre 1935) and *R. bikolanus* (Herre, 1927) (Praveenraj *et al.* 2017; Froese 2022). Still there is no record of this genus from Indian mainland (Chandra *et al.* 2020). *Redigobius bikolanus* is a true goby fish and it is reported from middle Andaman Island in 2005 (collection of 2002) (Devi *et al.* 2005). That was the only record of the species from Indian region. This work reports the presence of *R. bikolanus* (Herre, 1927) from Nicobar

group of islands for the first time and provides evidence of its range extension from Andaman group of Islands to Nicobar group of Islands.

2 | METHODOLOGY

During a faunal exploration survey in the Great Nicobar of Andaman and Nicobar Islands, India (06°59'31.54"N; 93°54'55.36"E) (Figure 1) on 5 February 2021, one specimen (TL 20.2 mm, SL 16.6 mm) of *Redigobius* was collected from a tiny tide pool near a small creek in the mangrove forest by a small aquarium net and hand picking method. Live specimen was transferred to laboratory in wide mouth collection container. The species was placed in small sized (15×5×10 cm) aquarium in live condition and photographed using Nikon 5200, 40 mm macro lens. The specimen was identified based on key morphological characters described by Larson (2010). The specimen was preserved in 70% ethanol and deposited in the National

Zoological Collections of Zoological Survey of India, Sunderban Regional Centre, Canning (Accession Number: NZC/ZSI/SbRC/KN 3387).

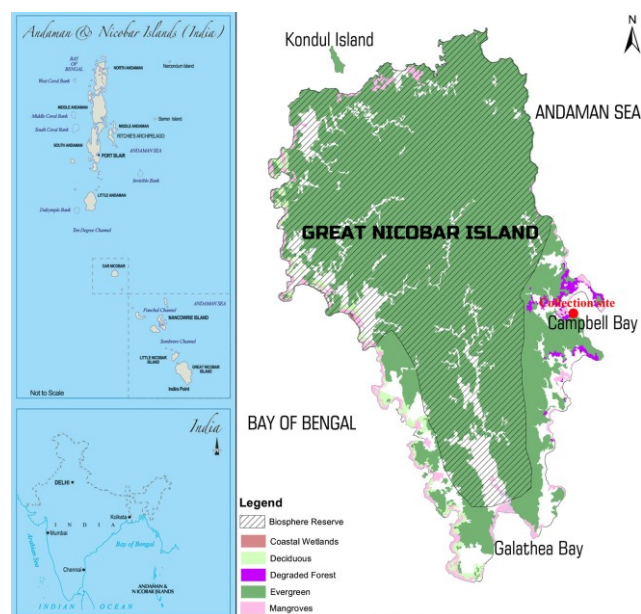


FIGURE 1 Map showing the position of Nicobar group of Islands and the collection locality of *Redigobius bikolanus* from Great Nicobar Island.

3 | RESULTS AND DISCUSSION

3.1 Material examined

One example, Campbell Bay, Great Nicobar Island, India (06°59'31.54"N; 93°54'55.36"E), 05.02.2021, collector: Sreeraj C.R, Accession Number: NZC/ZSI/SbRC/KN 3387 (Deposited in the National Zoological Collections of ZSI-Sunderban Regional Centre).

The collected specimen was identified as *Redigobius bikolanus* (Herre, 1927) and the details are given below:

Class: Actinopterygii
 Order: Gobiiformes
 Family: Gobiidae
 Subfamily: Gobionellinae
Redigobius bikolanus (Herre, 1927)

Common name: Speckled goby
 IUCN status: Least Concern (LC) Date assessed: 26 August 2018 (Version 2021 – 3)
 1927. *Vaimosa bikolana* Herre [A. W. C. T.], Monographs, Bureau of Science Manila Monogr. 23:151 (Creek at barrio Puru, Legaspi, Albay Province, Philippines)
 1927. *Redigobius bikolanus* (Herre 1927), Masuda H, Amaoka K, Araga C, Uyeno T, Yoshino T. The fishes of the Japanese Archipelago. Tokyo University Press, Tokyo. 269 pp.

3.2 Description

First dorsal spine 6; second dorsal spine 1; second dorsal

ray 7; anal fin spine 1; anal fin rays 6; pectoral fin rays 17; pelvic fin rays 5; principal caudal fin rays 13, forked caudal fin rays 7; lateral series scales 27; lateral transverse scales 7; pre-caudal scales 7; total length 20.2 mm; standard length 16.6 mm; head length 5.1 mm; eye diameter 2 mm; inter orbital length 0.7 mm; snout length 1.5 mm; pectoral fin length 4.2 mm; pelvic fin length 4.4 mm; anal fin length 0.4 mm; pre-dorsal length 6.1 mm; pre-anal length 9.8 mm; pre-pectoral length 5 mm, pre-pelvic length 4.3 mm; body depth 4.0 mm; upper jaw length 1.2 mm; caudal peduncle length 3.7 mm; caudal peduncle depth 1.9 mm, caudal fin length 4.8 mm.

3.3 Body shape and colour

Rounded at anterior and compressed at posterior with an elongate profile and slightly convex on dorsal side from nape to second dorsal base. Large eyes with small inter-orbital space. Mouth large and sub equal, lip joining just below the lower margin of eye. Teeth in both jaw forming several lines. Head is scaled from behind the eye. Body scales ctenoid but opercula with large cycloid scales. Gill opening extended up to the base of pectoral. Three scales present between first and second dorsal fin. Body scales of upper half is black pigmented and with a dusky posterior margin. Dorsally body is greenish brown in colour and ventrally silver coloured. Six black blotches present alternately at the side of the body. Dark rounded spot just after the middle of caudal base. First dorsal fin membrane is having bluish black pigmentation starting from first spine middle extending toward the margin of second and third and then again up to the dorsal base following a triangular pattern. Second dorsal fin is having three longitudinal bars made of black pigments. Black pigmentation is present on ventral and anal fin membranes. Three bands made of wide spread black pigments appear on the chick. Upper edge of operculum is greenish. Eyes are having greenish yellow margin. Upper lip is greenish and lower lip is greenish. A patch of pigmentation extends from each eye to lower lip, from the side (Figure 2).



FIGURE 2 Live specimen of *Redigobius bikolanus* (Herre, 1927) in aquarium.

3.4 Remarks

This specimen was collected during low tide from a small mud pool located at a side of small interconnecting channels, where water salinity is very low (2.7 ppt). From upper view this specimen is quite similar with the genus *Stigmatogobius* by having the bluish black pigmentation from the margin of first dorsal to body but can be differentiated with the above mentioned characters. *Redigobius chrysosoma* (Bleeker, 1875) almost resembles with *R. bikolanus*, but later can be easily differentiated by the presence of an extra branched second dorsal ray with more number of lateral line scales.

Nicobar group of islands consist of twenty-two islands and Great Nicobar is one among them, which is almost 633 km away from middle Andaman. Finding *R. bikolanus* (Herre, 1927) after two decades, provide a very strong evidence of the species being distributed in separate island population because these Goby fishes prefer almost fresh water habitat, and travelling from middle Andaman Island to Great Nicobar Island via sea is not suitable for them. Nicobar group of Islands are not well explored for documentation of fish faunal diversity as previous works are more focused on studying the diversity of Andaman group of Islands (Praveenraj *et al.* 2017). This current finding provides the proof that Nicobar group of Islands may harbour many more crypto-benthic fishes, which need to be explored and a focused study should be undertaken for better understanding of ichthyofaunal diversity of the Nicobar group of Islands as well as to implement better conservation efforts.

ACKNOWLEDGEMENTS

Authors would like to thank the Director, ZSI as well as the Officer-In-Charge, Sunderban Regional Centre of ZSI for the support and encouragement for undertaking the work.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHORS' CONTRIBUTION

CRS collected the specimen, identified and preserved the specimen; AS done the morphometric measurements and prepared the manuscript.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in National Zoological Collection at Zoological Survey of India, Sunderban Regional Centre, Canning – 743329, WB, India, reference number NZC/ZSI/SbRC/KN 3387. All the materials used in study are available in National Zoological Collection of Zoological Survey of India and are available on request.

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