

NOTES ON YELLOW-SPOTTED MORAY EEL, *ECHIDNA XANTHOSPILOS* (ACTINOPTERYGII: ANGUILLIFORMES: MURAENIDAE), FROM GREAT NICOBAR ISLAND, INDIA

M.P. GOUTHAM-BHARATHI*, Seepana RAJENDRA, and Chelladurai RAGHUNATHAN

Zoological Survey of India, Andaman and Nicobar Regional Centre, Port Blair – 744102, Andaman and Nicobar Islands, India

Goutham-Bharathi M.P., Rajendra S., Raghunathan C. 2017. Notes on yellow-spotted moray eel, *Echidna xanthospilos* (Actinopterygii: Anguilliformes: Muraenidae), from Great Nicobar Island, India. Acta Ichthyol. Piscat. 47 (2): 209–212.

Abstract. A single specimen of *Echidna xanthospilos* (Bleeker, 1859) was captured off Great Nicobar Island. This finding represents a new addition to the muraenid fauna of India. This is one of the data-deficient species hitherto known only from five countries in the Indo-Pacific. The specimen is described and illustrated.

Keywords: fish taxonomy, fish morphology, new record, data-deficient species, Indian Ocean

The family Muraenidae (Anguilliformes), commonly known as moray eels, is one of the most abundant and diverse families of the true eels (Smith 2012). Morays occur worldwide in tropical and temperate seas, occurring from the shoreline to the edge of the continental shelf (Allen and Erdmann 2012, Smith 2012). They form a large and ecologically important component of the coral-reef habitat, where they inhabit holes and crevices, coming out to feed on a wide variety of fishes and invertebrates (Smith 2012).

The exact species composition of the family Muraenidae in the Andaman and Nicobar Islands is uncertain. According to Rajan et al. (2013), the Muraenidae is represented by 18 species assigned to 8 genera in the Andaman and Nicobar Islands. The genus *Echidna* Forster, 1788, characterized by the lack of canine teeth (Rao et al. 2000) is reported to be represented by five species in the islands (Herre 1941, Mishra and Krishnan 1996, Rao et al. 2000, Ramakrishna et al. 2010, Rajan et al. 2013, Arun Kumar et al. 2016, Rajendra and Raghunathan 2016). However, out of the five nominal species reported to be present in these islands, only three are valid viz., *Echidna nebulosa* (Ahl, 1789); *Echidna polyzona* (Richardson, 1845); and *Echidna rhodochilus* Bleeker, 1863 with the latter two being recent distributional records. While there has been an ambiguity in respect of “*Echidna nigra* (Day, 1870)” (reported by Herre 1941, Mishra and Krishnan 1996, Rao et al. 2000, Rajan et al. 2013) the other disputable species—“*Echidna zebra* (Shaw, 1797)” (reported by Herre 1941 and Rao et al. 2000) has been assigned to the genus *Gymnomuraena* Lacepède, 1803.

Marine faunal exploration in the Great Nicobar Island revealed the presence of the yellow spotted moray eel, *Echidna xanthospilos* (Bleeker, 1859), which is reported herein as a new distributional record to India from Andaman and Nicobar Islands.

During February 2016, a single specimen of *Echidna xanthospilos* was collected from the rocky intertidal zone at B. Quarry of Campbell Bay, Great Nicobar (Fig.1). The collected specimen was preserved in 10% formalin for further examination. The specimen was identified following Chen and Böhlke (1996), Böhlke et al. (1999), Allen and Erdmann (2012), and Eschmeyer et al. (2017). The methodology of measurements followed Böhlke and Randall (2000). Abbreviations of the cited collections:

RMNH = Rijksmuseum van Natuurlijke Historie

ZSI/ANRC=Zoological Survey of India/Andaman and Nicobar Regional Centre

PU/DOSMB =Pondicherry University/Department of Ocean Studies and Marine Biology

Family MURAENIDAE

Echidna Forster, 1788

Echidna xanthospilos (Bleeker, 1859)

Muraena xanthospilos Bleeker 1859: 348; Karangbollong (Karang-Bollong Bay, on north-eastern tip of Nusa Kambangan Island, 4.5 km southeast to Cilacap, Jawa Tengah Province, Java, Indonesia, eastern Indian Ocean, ca. 7°45'34"S, 109°02'32"E); lectotype: RMNH 7210, 222 mm TL.

Specimen examined: a single specimen measuring 35 cm TL, ZSI/ANRC 13953, 12 February 2016, Andaman and

* Correspondence: Mr. M.P. Goutham-Bharathi, Andaman and Nicobar Regional Centre, Zoological Survey of India, Haddo 744102, Port Blair, Andaman and Nicobar Islands, India, e-mail: (GB) gouthamrussia@gmail.com, (SR) rajenzsi1992@gmail.com, (CR) raghuks@rediffmail.com.

Nicobar Islands, Great Nicobar, Campbell Bay, B. Quarry (07°0'27.75"N; 93°56'44.66"E), collected by Seepana Rajendra (Fig. 2).

Description: All proportional measurements were expressed as percentage of the TL and HL (Table 1). Body elongate, muscular, rigid and compressed; dorsal and anal fins confluent with caudal fin; pectoral and pelvic fins absent; tail shorter than pre-anal length; anterior nostril in short tube, near tip of snout, posterior nostril with slightly raised margin, above centre of eye, supraorbital pore adjacent to posterior nostril, gill opening in form of oblique slit, at mid-side; teeth molariform, first 4 dentary teeth larger, body depth at head 1.9 cm and at anus 2.4 cm. Head pores typical, three super-orbital pores, four infra-orbital pores, and six mandibular pores; two small branchial pores; eye wider than gill opening. Body colour dark brown with white or yellow ocelli, much larger than eye, and largest and of irregular form on abdomen; Colouration of live and preserved specimens not differing.

Habitat: Shallow rocky inter-tidal zones and coral-reef habitats.

Distribution: Indo–Pacific: Taiwan, Sri Lanka, Indonesia, Papua New Guinea, and Samoa (Froese and Pauly 2016).

Remarks: Hitherto not known from India; The presently reported finding constitutes a new distributional record of this fish to India from Great Nicobar Island, Andaman and Nicobar Islands.

Morays are notoriously difficult to deal with taxonomically because of their extreme variability and lack of unambiguous specific characters. The taxonomy of Indo–Pacific moray eels remains largely incomplete and is currently under study; some species are known only from a single inadequately described specimen, and many species are probably still undescribed (Böhlke et al. 1999). *Echidna xanthospilos* is one of the poorly known species of the family Muraenidae (Allen and Erdmann 2012,

Smith 2012) and has been known only from five countries in the Indo–Pacific (Froese and Pauly 2016). Following the recent records of congeneric species, *E. polyzona* (see Rajendra and Raghunathan 2016; Registration numbers: ZSI/ANRC 15270 and 15275) and *E. rhodochilus* (see Arun Kumar et al. 2016; Registration number: PU/DOSMB/2010/2/1), *E. xanthospilos* is the fourth species to be reported from these Islands. Thorough exploration of this poorly known ichthyofauna is a pre-requisite to understand their diversity in Andaman and Nicobar Islands and to conserve them efficiently.

Table 1

Morphometric characters of *Echidna xanthospilos* from Great Nicobar Island

Character	Value
Total length (TL)	35.00 cm
Head length	16.00% in TL
Snout length	2.28% in TL
Tail length	45.71% in TL
Trunk	38.57% in TL
Depth at gill opening	12.85% in TL
Body depth at anus	6.85% in TL
Pre-dorsal length	11.71% in TL
Pre-anal length	48.57% in TL
Head length (HL)	5.60 cm
Inter-orbital space	10.71% in HL
Length of upper jaw	42.85% in HL
Length of lower jaw	42.85% in HL
Snout length	14.28% in HL
Eye	1.78% in HL
Pre-orbital	14.28% in HL
Post orbital	83.92% in HL
Inter-orbital space	10.71% in HL

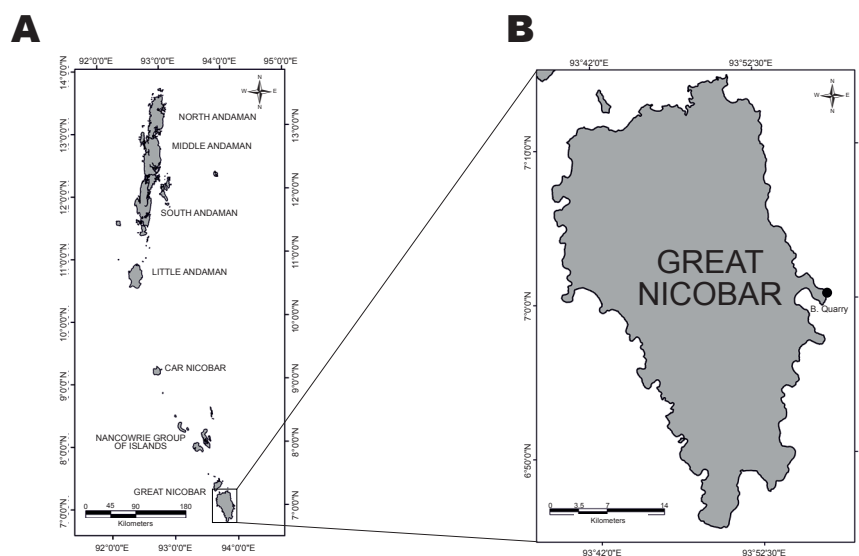


Fig. 1. Study area; Map of Andaman and Nicobar Islands (A); Great Nicobar Island (B)

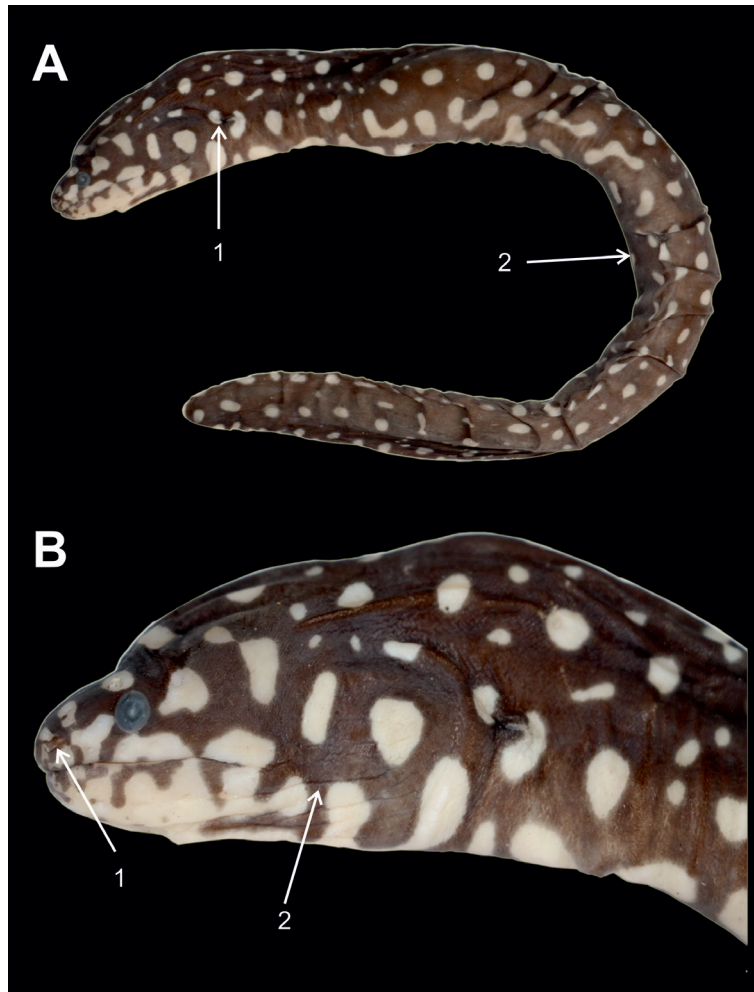


Fig. 2. *Echidna xanthospilos* (Bleeker, 1859) (TL 35 cm) from Great Nicobar Islands. **A** = Preserved specimen: 1 = gill opening, 2 = anal opening; **B** = head, lateral: 1 = tubular nostrils, 2 = branchial lines

ACKNOWLEDGEMENTS

The authors are grateful to Dr. Kailash Chandra, Director, Zoological Survey of India, Ministry of Environment, Forest and Climate Change, Government of India for the facilities and encouragement.

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Received: 15 February 2017

Accepted: 3 May 2017

Published electronically: 30 June 2017