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Rediscovery of the Black-banded sea snake *Hydrophis nigrocinctus* (Daudin, 1803) (Reptilia: Elapidae: Hydrophiinae) after over a century, with notes on reproduction and conservation status

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ABSTRACT. The Black-banded sea snake, *Hydrophis nigrocinctus*, is a poorly known species first described in 1803 from a specimen collected from the waters of the Bay of Bengal in the Sundarbans near Kolkata, India. Since then, it has been further reported from the waters near the type locality (Kolkata, India) in 1849 and another specimen (recorded as *H. walli*) was caught in the Malay Archipelago in 1896. In February 2015, during our field survey in the Sundarbans in Bangladesh, we obtained a specimen of this species from fisheries bycatch. This marks the third known specimen and the first sighting of the species in Bangladesh recorded after over a century. We present morphological data and provide novel information on the reproductive status of this species based on the new specimen.

KEYWORDS. Asiatic sea snake, Bangladesh, Bay of Bengal, Data Deficient, Sundarbans

Introduction

The viviparous sea snakes (Elapidae: Hydrophiinae), a group representing more than 63 species, are widely distributed throughout the waters from the eastern Pacific to the western Indian Ocean (Rasmussen et al. 2011a; Elfes et al. 2013). The Indian Ocean is home to about 38 species of sea snakes (Ganesh et al. 2019; Ukuwella et al. 2022; IUCN 2023), of which 16 species have reportedly been found in the coastal waters bordering Bangladesh (IUCN-Bangladesh 2015; Sarker et al. 2017, 2023). Notably, three of the 16 sea snake species found in the waters of Bangladesh are categorized as Data Deficient by the International Union for Conservation of Nature (IUCN Red List, IUCN 2023), including the Black-banded sea snake, *Hydrophis nigrocinctus* (Daudin 1803) which is endemic to the coastal waters of the Bay of Bengal (Rasmussen and Lobo 2010). However, the Black-banded sea snake is only known from the specimens deposited in the British Natural History Museum collected during the 19th century from the Bay of Bengal (India) and the Malay Archipelago (Rasmussen et al. 2011b). *Hydrophis nigrocinctus* was also assumed to occur in the waters of Sri Lanka based on the report by Murthy (1977) from the southeast coast of India (in Madras, now Chennai), but no confirmed record has been found in Sri Lanka (de Silva 1994;

Somaweera and Somaweera 2009; Ukuwela et al. 2022). The Black-banded sea snake is in the Asiatic *Hydrophis nigrocinctus* group (Rasmussen et al. 2011b), which includes *H. hendersoni* (Smith 1926; McDowell 1972). However, recently, Rasmussen et al. (2011b) reassessed species in the Asiatic *Hydrophis nigrocinctus* group and determined there to be two distinct species: *H. nigrocinctus* (*H. walli* as a synonym) and *H. hendersoni* (Boulenger, 1903).

Hydrophis nigrocinctus was first described by Daudin (1803) based on an illustration in Russell (1801) of a specimen collected from the coastal waters of a river in the Sundarbans near Kolkata, India (Smith 1926, 1943; Rasmussen et al. 2011b). Subsequently, Gray (1849) mentioned another specimen of *H. nigrocinctus* from Bengal (Bangladesh – previously East Bengal and West Bengal of India were known as Bengal at that time). Boulenger (1896) described another specimen of *H. nigrocinctus* from the Malay Archipelago, which Kharin (1989) later redescribed as *Hydrophis* (*Disteira*) *walli*, and which has more recently been recognized as a synonym of *H. nigrocinctus* (Rasmussen et al. (2011b). Both Laidlaw (1901) and de Rooij (1917) reported *H. nigrocinctus* from Thailand (Patani), but Smith (1926) reidentified these specimens as *H. klossi*. Smith (1926, 1943) mentioned the occurrence of *H. nigrocinctus* from the Myanmar (previously Burmese) coast, which was originally a type of *Hydrophis* (*Disteira*) *hendersoni* (see details of specimens examined in Smith 1926: 45). In 1903, Boulenger described *Disteira hendersoni* based on a specimen from Yangon, Myanmar (previously Rangoon, Burma; Rasmussen et al. 2011b). However, Wall (1909) synonymized the genus *Hydrophis* with *Disteira* and subsequently placed *D. hendersoni* as a synonym of *Hydrophis nigrocinctus.*

Leviton et al. (2008) further reported *H. nigrocinctus* from Myanmar under the name *Disteira nigrocincta* and considered *D. hendersoni* a synonym of *D. nigrocinctus*. Thus, *H. nigrocinctus* and *H. hendersoni* were considered the same species until Rasmussen et al. (2011b) recognized them as separate species. The two can be easily distinguished by the number of maxillary teeth behind the fang (0–1 in *H. nigrocinctus* compared to 2–3 in *H. hendersoni*), head size (smaller in *H. nigrocinctus*), and variability in the number of scale rows around the neck, body, and ventrals (Table 1–2 in Rasmussen et al. 2011b).

Currently, *H. nigrocinctus* (*H. walli* as a synonym) is known from specimens collected in India (Sundarbans, Kolkata) and the Malay Archipelago (Rasmussen et al. 2011b). Based on Smith (1923, 1943), several authors presumed the occurrence of *H. nigrocinctus* in the coastal waters of the Sundarbans in Bangladesh, owing to the historical collective treatment as erstwhile Bengal (Muzaffar 2009; Rasmussen et al. 2011b; Khan 2013, 2015a, 2015b). However, these authors did not provide precise information specifying any voucher specimen from Bangladesh, so the occurrence records cannot be corroborated.

Until now, since the specimens collected in the 19th century and deposited in the British Natural History Museum, there have been no further documented occurrences of *H. nigrocinctus* (Rasmussen et al. 2011b; Ganesh et al. 2019), justifying *H. nigrocinctus* listed as Data Deficient (IUCN 2023; Rasmussen and Lobo 2010; Elfes et al. 2013). We herein report on a specimen of *H. nigrocinctus* we recently collected from the Sundarbans in Bangladesh, a location close to the type locality, along with its reproductive condition. This establishes the first confirmed record of this species in Bangladesh and an additional reported specimen from the Bay of Bengal since its original discovery more than 200 years ago.

Material and Methods

Sampling. A single specimen of *H. nigrocinctus* was collected in February 2015 during our survey in Dublar Char in the Sundarbans led by the two of the authors (MARS and AHL) with the assistance of the officials of the Bangladesh Forest Department. Dublar Char (21.77891°N, 89.54377°E), one of the southernmost small islands of Bangladesh in Sundarbans, falls within the boundary of Bagerhat District of Khulna Division, Bangladesh (Figure 1B). The specimen was collected by liaising with the fishermen, who temporarily stay on Dublar Char for fishing and processing dry fish during the winter season (Nov–Feb). A total of 18 dead sea snake specimens were collected during the survey from

Table 1. Comparison of external morphometric characters of the *Hydrophis nigrocinctus* specimen reported in the current study from the Sundarbans, Bangladesh with the other available specimens deposited in the British Natural History Museum according to Rasmussen et al. (2011b). M = male, F = female. "/" denotes those counts have been made on both sides.

	Available specimens of *H. nigrocinctus*			
	MHLB-0133 (F)	Type (F)	BMNH 11.6.4.a (F)	Type *H. walli* (M)
Supralabials	7/7	7/7	7/7	7/7
Pre-/post oculars	1/1-1/2	1/1-1/2	1/2-1/2	1/2-1/2
Temporals	2/2	2/2	2/2	2/2
Scales around neck	28	27	27	27
Scales around midbody	40	41	41	42
Ventrals	320	319	318	330
Maxillary teeth	1/1	0/1	1	0/0

Type(F) = Calcutta, Sundarbans; BMNH 11.6.4.a (F) = Bengal, Type of *H. walli* (M) = Malay Archipelago

fisheries bycatch but only one was identified as *Hydrophis nigrocinctus*. The fishermen randomly fish in shallow water near the coastline and river channels of the mangrove forest or into the open deep-sea water, therefore, the exact location of the specimen collection is unknown. We preserved all specimens in absolute ethanol after collection and deposited them in the Dhaka University Zoological Museum, Bangladesh for further study.

Specimen examination. We examined the external morphological characters (as described in Smith 1926 and Rasmussen et al. 2011b) of the specimen to confirm species identification. The number of ventral scales (scales from neck to cloaca), dorsal scales around neck (considered as a minimum count), and around midbody (considered as a maximum count) were counted following the methods in Smith (1926) and Rasmussen et al. (2011b). Sex was determined by examining the sex organ by dissection. Snout to vent length (SVL) and tail length (vent to the tip of the tail) were measured from the specimen using a measuring tape to the nearest mm and then summed to obtain the total length. Maxillary tooth counts were completed using a magnifying glass with 30x magnification capacity. The preserved specimen was dissected to examine the reproductive status and stomach contents. Reproductive condition was examined by the presence of eggs, embryos, or vitellogenic follicles in the oviducts of females (de Silva et al. 2011).

Results

Specimen Description (Figure 2–5). The specimen (MHLB-0133, adult, female) generally resembles the description of *H. nigrocinctus* provided by Smith (1926) and Rasmussen et al. (2011b) with regards to morphology, scale counts, number of maxillary teeth behind fangs, and colouration (Table 1).

The total length of the specimen is 1277 mm, of which the tail length is 132 mm. The body is much elongated with an elongated neck that is much narrower anteriorly compared to the posterior – about one-third the greatest width of the dorsal midbody. The head is small and the snout rounded. First and second supralabials (SL) are in contact with the nasal, SL2 and SL3 are in contact with preocular, SL3 and SL4 are touching eyes, and SL4 is entirely touching the eye. Four infralabials and two temporals are present on both sides. The mental scute is distinct, small, and triangular. Scales around the body are centrally keeled (Figure 4). Ventrals are distinct throughout and slightly larger than dorsal scales. Ventrals are hexagonal with two parallel longitudinal keels (Figure 4) and 46 subcaudal scales are present.

Colouration. The head of the specimen is yellow above with a black streak from the first supralabials to the eye below and a black triangular shape marking on the top of the head extending to the prefrontal. There are 54 bands in the body and nine on the tail. Bands are black and are prominently thick on the vertebra (till forebody or anterior body), eventually narrowing towards the ventral side. Some are incom-

plete ventrally, interspaced with grey above and yellow underneath. The tip of the tail is black.

Reproduction. The specimen was an adult female and was found in active reproductive condition when collected. We found 11 mature eggs in the oviduct. Among the eggs, the largest was 43.96 x 20.38 mm, and the smallest was 25.92 x 24.65 mm, with a mean of 34.2±5.6 x 21.2±2.1 mm (Figure 6).

Discussion

Distribution, Population status, and Taxonomy. Our findings provide the first precise report of the occurrence of *Hydrophis nigrocinctus* in the waters of Bangladesh, a country bordering the Bay of Bengal and situated close to the type locality of the species (Figure 1A). This study reports a specimen of *H. nigrocinctus* more than 100 years later since it was last reported in 1896 from the Malay Archipelago (recorded as *H. walli*) providing an additional specimen from the Bay of Bengal since its original discovery more than 200 years ago. Khan (2013) assumed *H. nigrocinctus* was a common species in the Sundarbans in Bangladesh without any confirmation or field surveys, yet this species has rarely been reported. Our findings of a single specimen of *H. nigrocinctus* among the 18 sea snakes collected during our surveys (the rest of them were identified as *Hydrophis schistosus*) suggests this species maybe uncommon but due to the limited information it remains challenging to draw any definitive conclusions regarding the distribution range and population status of *H. nigrocinctus*. Further extensive sampling in different localities in other coastal waters of Bangladesh (e.g., Chattogram regions and Saint Martin Island), including the Sundarbans may reveal more information about its distribution and population status in Bangladesh.

Because of a similar body colour pattern (yellowish with black bands), *H. nigrocinctus* can be superficially misidentified as *Hydrophis spiralis*. However, *H. nigrocinctus* is readily distinguished from *H. spiralis* by number of maxillary teeth behind the fang (0–1 in *H. nigrocinctus* vs. 6–7 in *H. spiralis*) and the number of temporal (two small vs. one large), marking on the head (triangular shaped vs horseshoe-shaped), scale morphology, and number of dark bands (Smith 1943; Rasmussen et al. 2011b; Ganesh et al. 2019). Therefore, specimens of *H. spiralis* de-

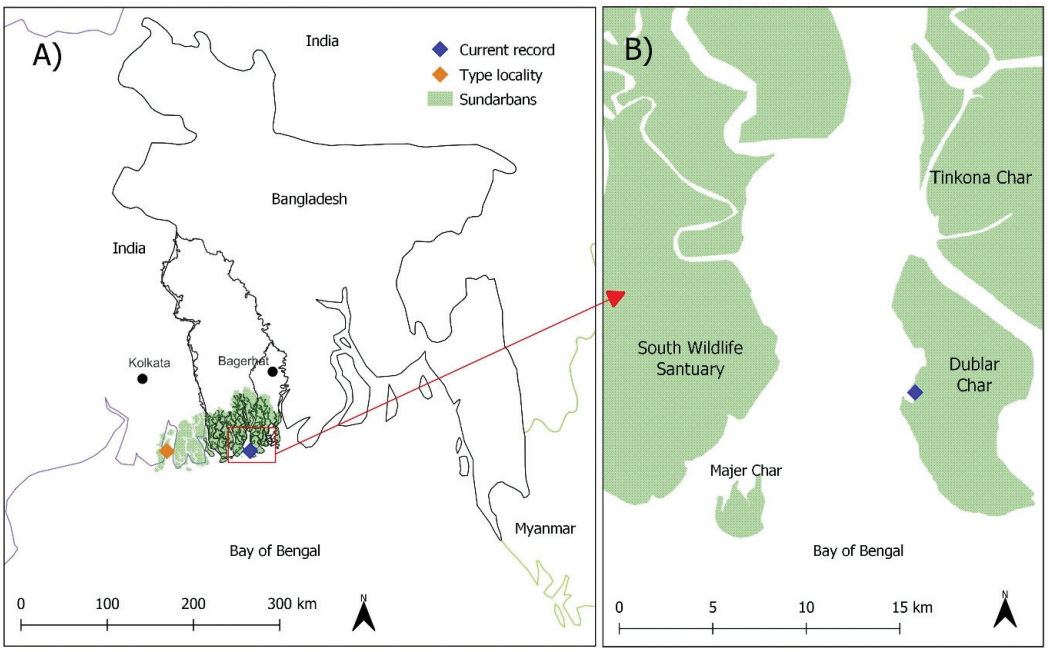

Figure 1. A. Historical occurrence records of *Hydrophis nigrocinctus.* We were unable to determine the specific location in the Malay Archipelago where Mr Bleeker collected the specimen (see Rasmussen et al 2011b), thus, it has been omitted from the map. **B.** Location of the fishing port where bycatch specimen of *H. nigrocinctus* MHLB-0133 was obtained from the fishermen in Dublar Char in Sundarbans, Bangladesh.

posited in various museums in Bangladesh and elsewhere (VertNet 2023; including the recently established Padma Bridge Museum in Bangladesh) can be re-examined to ensure they have been properly identified.

Natural history. Until now, there has been no information available on the reproductive biology of *H. nigrocinctus* (Smith 1926, 1946; Rasmussen et al. 2011b), thus this finding of active

Figure 2. A. dorsal and **B.** ventral view of the preserved *Hydrophis nigrocinctus* specimen (MHLB-0133) collected in the Sundarbans, Bangladesh.

reproductive status is the first to be reported for this species.

Conservation status. Globally *H. nigrocinctus* has been categorized as Data Deficient (DD) by the IUCN (Rasmussen and Lobo 2010) and in the absence of formal confirmation of the species in the waters of Bangladesh, *H. nigrocinctus* has been assessed locally as a species of Least Concern (IUCN-Bangladesh 2015). However, with our recent finding of just a single specimen from a location in the Sundarbans, we suggest that a conservation status of DD would

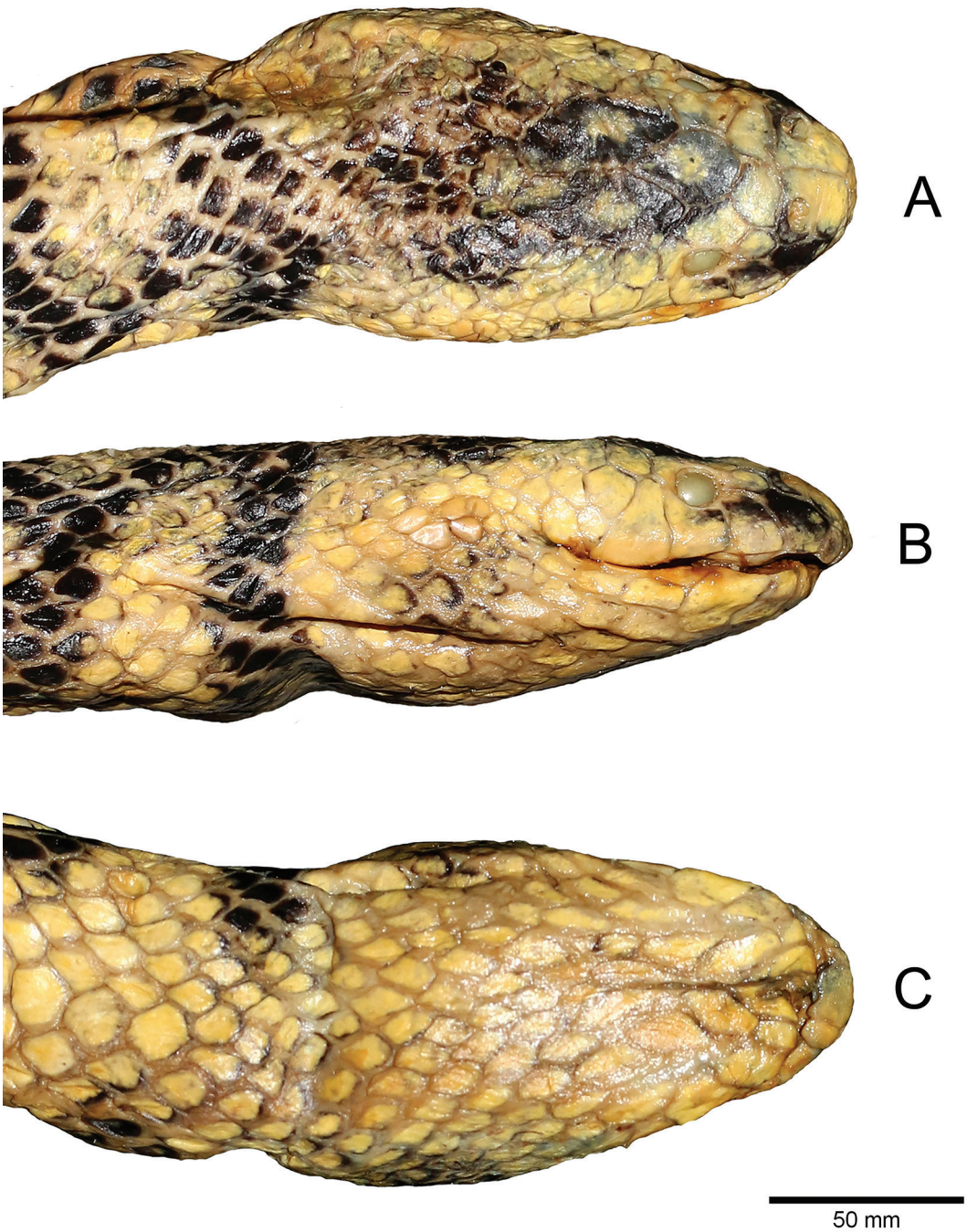

Figure 3. A. dorsal, **B.** lateral and **C.** ventral view of the head from the preserved *Hydrophis nigrocinctus* specimen (MHLB-0133) collected in Sundarbans, Bangladesh.

be appropriate until further information on its population status, local distribution, and threats are ascertained to avoid any future misleading conservation efforts. Among the 16 species of sea snakes occurring in the waters of Bangladesh, seven are poorly known and categorized as either DD (n = 3) or Not Evaluated (n = 4) (IUCN-Bangladesh 2015). The reporting of a rare species is an essential component of effective conservation action (Hoffman et al. 2008; Marshall et al. 2014; Udyawer et al. 2018, 2020; Rasmussen et al. 2021), therefore, our finding

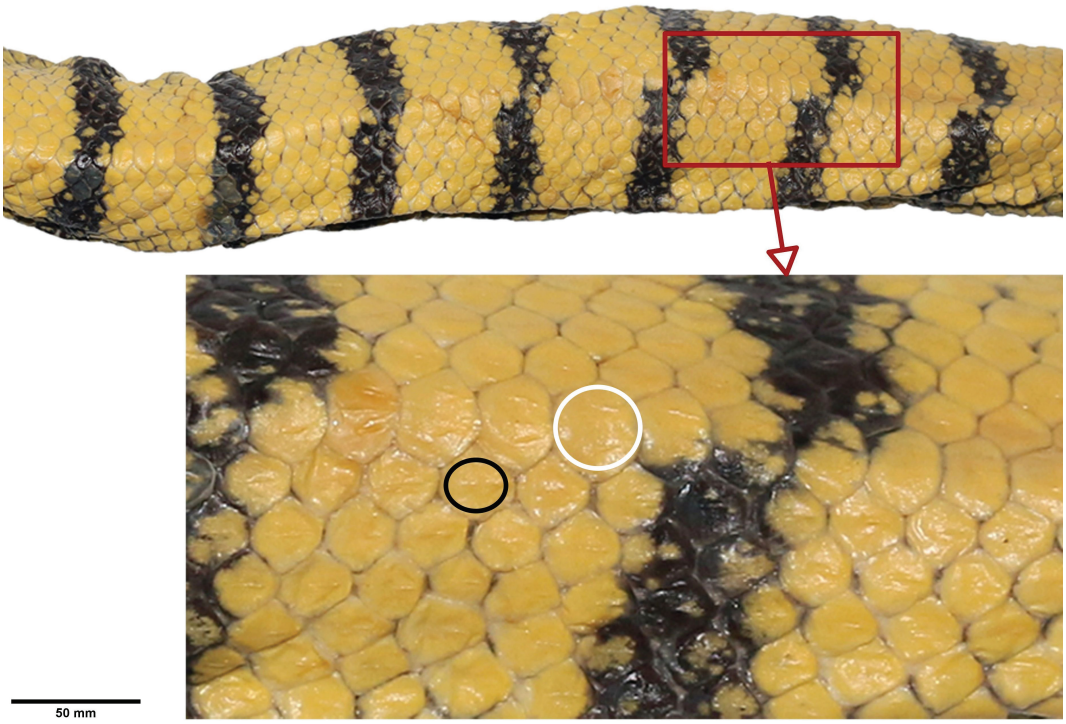

Figure 4. Section of the body scales from the preserved specimen of *Hydrophis nigrocinctus* specimen (MHLB-0133) showing the longitudinal keels — one keel in dorsal (circled black) and two in ventral (circled white) scales.

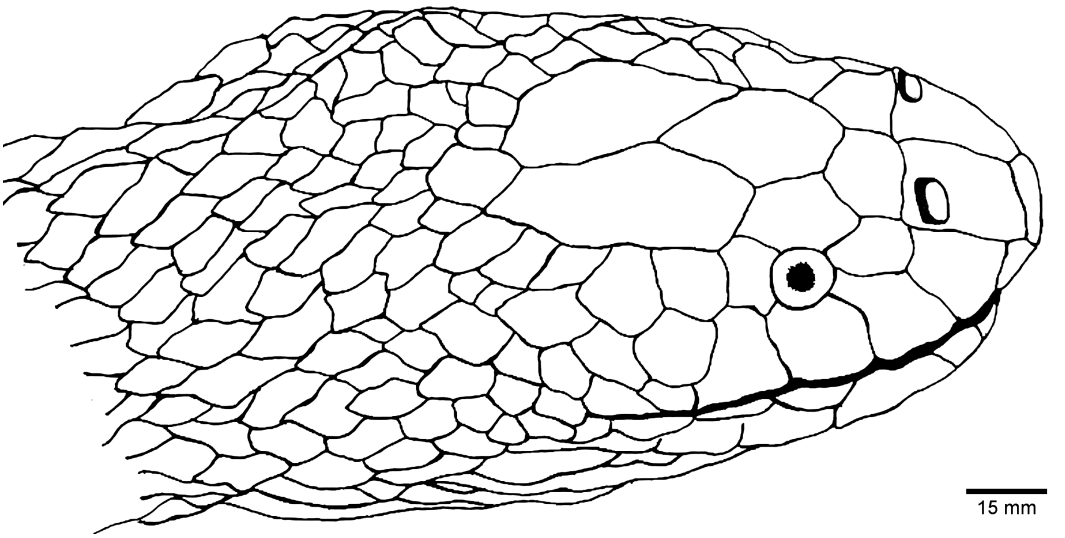

Figure 5. Typical head scalation in the *Hydrophis nigrocinctus* specimen (MHLB-0133) collected in the Sundarbans, Bangladesh (Illustrated by Anika Tabassum).

of this specimen may facilitate future research, species identification, and conservation management of sea snake species in Bangladesh. Our finding also indicates that marine snakes found in the Indian part of the Bay of Bengal may be co-distributed in the waters of Bangladesh since both are bordering countries within the Sundarbans region of the Bay of Bengal. The Sundarbans is known as a UNESCO World Heritage site, and the occurrence of this understudied and rare species highlights the importance of this area as a unique marine biodiversity area.

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References

BOULENGER, G.A. (1896) *Catalogue of the Snakes in the British Museum (Natural History). Volume 3*. London, British Museum, Taylor & Francis, xiv+722p

DAUDIN, F.M. (1803) Histoire Naturelle, Générale et Particulière des Reptiles. vol. 7. Paris: Dufart, 436 pp.

DE ROOIJ, N. (1917) The Reptiles of Indo-Australian Archipelago II Ophidia. Leiden, Brill.

DE SILVA, A. (1994) An account of sea snakes (Serpentes: Hydrophiidae) of Sri Lanka. In: Gopalkrishnakone P (ed) Sea snake toxicology. National University of Singapore press Singapore. https://hdl.handle.net/2440/70746

DE SILVA, A., UKUWELA, K.D.B., SIVARUBAN, A. & SANDERS, K.L. (2011) Preliminary observations on the reproductive biology of six species of Sri Lankan sea snakes (Elapidae: Hydrophiinae). *Salamandra* 47, 193–198.

ELFES, C.T., LIVINGSTONE, S.R., LANE, A., LUKOSCHEK, V., SANDERS, K.L., COURTNEY, A.J., GATUS, J.L., GUINEA, M., LOBO, A.S., MILTON, D., RASMUSSEN, A.R., READ, M., WHITE, M., SANCIANGCO, J., ALCALA, A., HEATWOLE, H., KARNS, D.R., SEMINOFF, J.A., VORIS, H.K., CARPENTER, K.E. & MURPHY, J.C. (2013) Fascinating and forgotten: the conservation status of marine elapid snakes. *Herpetological Conservation and Biology* 8, 37–52. https://www.herpconbio.org/contents_vol8_issue1.html

GANESH, S.R., NANDHINI, T., SAMUEL, V.D., SREERAJ, C.R., ABHILASH, K.R., PURVAJA, R. & RAMESH,

Figure 6. Reproductive tract of the female *Hydrophis nigrocinctus* specimen (MHLB-0133) showing the presence of 11 mature eggs.

R. (2019) Marine snakes of Indian coasts: historical resume, systematic checklist, toxinology, status, and identification key. *Journal of Threatened Taxa* 11(1), 13132–13150. https://doi.org/10.11609/jott.3981.11.1.13132-13150

GRAY, J.E. (1849) Catalogue of the Specimens of Snakes in the Collection of the British Museum. London, Edward Newman, i–xv+1–125 pp. https://www.biodiversitylibrary.org/bibliography/5503

HOFFMANN, M., BROOKS, T.M., DA FONSECA, G.A.B., GASCON, C., HAWKINS, A.F.A., JAMES, R.E., LANGHAMMER, P., MITTERMEIER, R.A., PILGRIM, J.D., RODRIGUES, A.S.L. & SILVA, J.M.C. (2008) Conservation planning and the IUCN red list. Endangered Species Research 6, 113–125. https://doi.org/10.3354/esr00087

IUCN [INTERNATIONAL UNION FOR THE CONSERVATION OF NATURE] BANGLADESH (2015) Red List of Bangladesh. Volume 4. Reptiles and Amphibians. Dhaka, Bangladesh, IUCN Bangladesh Country Office. 320 pp. https://portals.iucn.org/library/node/46326

IUCN [INTERNATIONAL UNION FOR THE CONSERVATION OF NATURE] (2023) IUCN Red List of Threatened Species (ver. 2022.2). Available at: https://www.iucnredlist.org. Accessed 8 August 2023

KHAN R. (2013) Wildlife of Sundarban. In: Sundarban: Rediscovering Sundarban, The Mangrove Beauty of Bangladesh. Reza K (ed.). Nymphea Publication, Dhaka – 1000, Bangladesh, pp.36-73.

KHAN M.A.R. (2015A) Wildlife of Bangladesh: Checklist-cum-guide. M.J. Alam, Chayabithi, Dhaka, Bangladesh. 568 pp.

KHAN S.I. (2015B) [*Hydrophis nigrocinctus*]. In: IUCN Bangladesh. Red List of Bangladesh Volume 4: Reptiles and Amphibians. IUCN, International Union for Conservation of Nature, Bangladesh Country Office, Dhaka, Bangladesh, pp.155. https://portals.iucn.org/library/node/46326

KHARIN, V.E. (1989) A new sea snake species of the genus *Disteira* (Serpentes, Hydrophiidae) from the waters of the Malay Archipelago. Vestnik Zoologii 1989, 29–32.

LAIDLAW, F.F. (1901) List of a collection of snakes, crocodiles, and chelonians from the Malay Peninsula, made by members of the "Skeat Expedition" 1899-1900. *Proceedings of the Zoological Society of London* 1901, 575–584. https://www.biodiversitylibrary.org/item/99488#page/14/mode/1up

LEVITON, A.E., ZUG, G.R., VINDUM, J.V. & WOGAN, G.O.U. (2008) Handbook to the Dangerously Venomous Snakes of Myanmar. San Francisco, California, USA, California Academy of Sciences. https://www.researchgate.net/publication/263382509_Handbook_to_the_Dangerously_Venomous_Snakes_of_Myanmar

MARSHALL, C.E., GLEGG, G.A. & HOWELL, K.L. (2014) Species distribution modelling to support marine conservation planning: the next steps. *Marine Policy* 45, 330–332. https://doi.org/10.1016/j.marpol.2013.09.003

McDOWELL, S.B. (1972) The genera of sea-snakes of the *Hydrophis* group (Serpentes: Elapidae). *The Transactions of the Zoological Society of London* 32, 189–247. https://doi.org/10.1111/j.1096-3642.1972.tb00028.x

MURTHY, T.S.N. (1977) On sea snakes occurring in Madras waters. *Journal of the Marine Biological Association of India* 19, 68–72. http://mbai.org.in/php/journaldload.php?id=1021&bkid=58

MUZAFFAR, S.B. (2009) *Disteira nigrocncta* Daudin, 1803. In: Kabir SMH, Ahmad M, Ahmed ATA, Rahman AKA, Ahmed ZU, Begum ZNT, Hassan MA, Khondker M (eds), *Encyclopedia of Flora and Fauna of Bangladesh, Vol. 25. Amphibians and Reptiles*. Asiatic Society of Bangladesh, Dhaka, Bangladesh. 204 pp.

RASMUSSEN, A. & LOBO, A. (2010) *Hydrophis nigrocinctus*. The IUCN Red List of Threatened Species 2010: e.T176722A7290670. https://dx.doi.org/10.2305/IUCN.UK.2010-4.RLTS.T176722A7290670.en. (November 28, 2022)

RASMUSSEN, A.R., HAY-SCHMIDT, A., BONEKA, F., ALLENTOFT, M., SANDERS, K.L. & ELMBERG, J. (2021) Viviparous sea snakes can be used as bioindicators for diverse marine environments. *Philippine Journal of Systematic Biology* 14(2),1–16. DOI: 10.26757/pjsb2020b14013

RASMUSSEN, A.R., MURPHY, J.C., OMPI, M., GIBBONS, J.W. & UETZ, P. (2011A) Marine Reptiles. *PLoS ONE* 6(11), e27373. https://doi.org/10.1371/

journal.pone.0027373

RASMUSSEN, A.R., INEICHI, ELMBERG, J. & MCCARTHY, C. (2011B) Status of the Asiatic sea snakes of the *Hydrophis nigrocinctus* group (*H. nigrocinctus*, *H. hendersoni*, and *H. walli*; Elapidae, Hydrophiinae). *Amphibia-Reptilia* 32, 459–464. https://doi.org/10.1163/156853811X598497

RUSSELL, P. (1801) *A Continuation of an Account of Indian Serpentes, Containing Descriptions and Figures, From Specimens and Drawings, Transmitted from Various Parts of India*. London, Shakespeare Press. https://www.biodiversitylibrary.org/bibliography/114003

SARKER, M.A.R., SANDERS, K.L. & JAMAN, M.F. (2023) First report of the Collared Sea Snake, *Hydrophis stricticollis* Günther, 1864, and the Estuarine Sea Snake, *H. obscurus* Daudin, 1803, in the coastal waters of Bangladesh, with some remarks on their natural history. *Herpetology Notes* 16, 253–259. https://www.biotaxa.org/hn/article/view/75193

SARKER, M.A.R., SANDERS, K.L., UKUWELA, K.D.B. & JAMAM, M.F. (2017) Sea snakes of Bangladesh: a preliminary survey of Cox's Bazar District with notes on diet, reproduction, and conservation status. *Herpetological Conservation and Biology* 12(2), 384–393. https://www.herpconbio.org/Volume_12/Issue_2/RazzaqueSarker_etal_2017.pdf

SMITH, M.A. (1926) *Monograph of the Sea-Snakes (Hydrophiidae)*. London, United Kingdom, Trustees of the British Museum. 130 pp. https://digitalgems.nus.edu.sg/shared/colls/blsea/files/MonSmi.pdf

SMITH, M.A. (1943) *The Fauna of British India, Ceylon and Burma, Including the Whole of the Indo-Chinese Sub-Region. Reptilia and Amphibia. Volume 3 (Serpentes)*. London, United Kingdom, Taylor and Francis. 583 pp.

SOMAWEERA, R. & SOMAWEERA, N. (2009) An overview of Sri Lankan sea snakes with an annotated checklist and a field key. *Taprobanica* 1(1), 43–54. http://doi.org/10.4038/taprobanica.v1i1.2778

UDYAWER, V., BARNES, P., BONNET, X., BRISCHOUX, F., CROWE-RIDDELL, J.M., D'ANASTASI, B., FRY, B.G., GILLETT, A., GOIRAN, C., GUINEA, M.L., HEATWOLE, H., HEUPEL, M.R., HOURSTON, M., KANGAS, M., KENDRICK, A., KOEFOED, I., LILLYWHITE, H.B., LOBO, A.S., LUKOSCHEK, V., MCAULEY, R., NITSCHKE, C., RASMUSSEN, A.R., SANDERS, K.L., SHEEHY, C., SHINE, R., SOMAWEERA, R., SWEET, S.S. & VORIS, H.K. (2018) Future directions in the research and management of marine snakes. *Frontiers in Marine Science* 5. https://doi.org/10.3389/fmars.2018.00399

UDYAWER, V., SOMAWEERA, R., NITSCHKE, C., D'ANASTASI, B., SANDERS, K.L., WEBBER, B.L., HOURSTON, M. & HEUPEL, M.R. (2020) Prioritising search effort to locate previously unknown populations of endangered marine reptiles. *Global Ecology and Conservation* 22, e01013. https://doi.org/10.1016/j.gecco.2020.e01013

UKUWELA, K.D.B., DE SILVA, A., SIVARUBAN, A. & SANDERS, K.L. (2022) Diversity, distribution, and natural history of the marine snakes of Sri Lanka. *Marine Biodiversity* 52(2), 1–15. https://doi.org/10.1007/s12526-022-01259-3

VERTNET (2023) *Hydrophis nigrocinctus* in VertNet: Distributed Databases with Backbone: http://portal.vertnet.org/search?q=Hydrophis+spiralis (Access on 30 September 2023)

WALL, F. (1909) A monograph of the sea snakes. *Memoirs of the Asiatic Society of Bengal* 2(8), 169–251.

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