

OPEN ACCESS



The Journal of Threatened Taxa is dedicated to building evidence for conservation globally by publishing peer-reviewed articles online every month at a reasonably rapid rate at www.threatenedtaxa.org. All articles published in JoTT are registered under [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/) unless otherwise mentioned. JoTT allows unrestricted use of articles in any medium, reproduction, and distribution by providing adequate credit to the authors and the source of publication.



Journal of Threatened Taxa

Building evidence for conservation globally

www.threatenedtaxa.org

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

SHORT COMMUNICATION

AN ECOLOGICAL NOTE ON THE NEW RECORD OF *CUORA AMBOINENSIS* (RICHE IN DAUDIN, 1801) (REPTILIA: TESTUDINES: GEOEMYDIDAE) IN NORTHEASTERN INDIA

Kulendra Chandra Das & Abhik Gupta

26 July 2017 | Vol. 9 | No. 7 | Pp. 10459–10462
10.11609/jott.1915.9.7.10459–10462



For Focus, Scope, Aims, Policies and Guidelines visit http://threatenedtaxa.org/About_JoTT
For Article Submission Guidelines visit http://threatenedtaxa.org/Submission_Guidelines
For Policies against Scientific Misconduct visit http://threatenedtaxa.org/JoTT_Policy_against_Scientific_Misconduct
For reprints contact <info@threatenedtaxa.org>

Partner



Publisher/Host





AN ECOLOGICAL NOTE ON THE NEW RECORD OF *CUORA AMBOINENSIS* (RICHE IN DAUDIN, 1801) (REPTILIA: TESTUDINES: GEOEMYDIDAE) IN NORTHEASTERN INDIA

Kulendra Chandra Das¹ & Abhik Gupta²

¹Department of Environmental Science, PUC, Mizoram University, Aizawl, Mizoram 796001, India

²Department of Ecology & Environmental Science, Assam University, Silchar, Assam 788011, India

¹drkulendra.das@gmail.com (corresponding author), ²abhik.eco@gmail.com

OPEN ACCESS



Abstract: The present study documents the first report on the occurrence of *Cuora amboinensis* in Cachar and Karimganj districts of the Barak Valley region of southern Assam.

Keywords: *Cuora amboinensis*, ecological note, northeastern India.

Abbreviation: SCL - Straight carapace length (cm); SCW - Straight carapace width; CCL - Curve carapace length; CCW - Curve carapace width.

Cuora amboinensis (Family Geoemydidae) is known by different names such as Malayan Box Turtle, Southeast Asian Box Turtle or Amboina Box Turtle. The species has four currently recognized subspecies: (i) *C. a. amboinensis* East Indian Box Turtle or Wallacean Box Turtle, (ii) *C. a. couro* Indonesian Box Turtle, (iii) *C. a. kamaroma* Malayan Box Turtle, and (iv) *C. a. lineata* Burmese Box Turtle (Schoppe & Das 2011). This species is also known by different vernacular names in different regions of India, viz., ‘Chapa katha’ (Bengali: Closed Turtle); ‘Diba kochchop’ (Bengali: Box Turtle); ‘Pani khatua’ (Bengali: Water Turtle); ‘Jap dura’ (Assamese: Closed Turtle); ‘Pahari kachua’ (Hindi: Hill Turtle);

‘Thanggu’ (Manipuri: Turtle); ‘Takurab, Ta-penyut, Penyut’ (Car Nicobar Island: Turtle); ‘Uptepe’ (Central Nicobarese: Turtle); ‘Hetain/Itain’ (South Nicobar Islands: Turtle). The species is semi aquatic, inhabiting rivers, lakes, marshes, mangrove swamps and rice fields in and around lowland forests. They bask on banks or on logs. They breed during early monsoon and lay 1–6 eggs that hatch 45–90 days later. This is likely a rare species in India and categorized as “Vulnerable” according to the IUCN Red List (Asian Turtle Trade Working Group 2000). No intensive survey of semi-aquatic turtle fauna of Barak Valley have been conducted apart from a couple of publications documenting on-site records of Softshell Turtles (Das & Gupta 2011) and tortoise species (Das & Gupta 2015). Hence, this study was conducted from February 2002 to June 2007 with the objective of reporting the distributional status of *Cuora amboinensis* in Barak Valley region of Assam, northeastern India.

MATERIALS AND METHODS

The survey was conducted from February 2002 to June 2007, in the Barak Valley region of Assam that

DOI: <http://doi.org/10.11609/jott.1915.9.7.10459-10462> | ZooBank: urn:lsid:zoobank.org:pub:76BCA50B-196F-4D74-80C7-5CE25B0FA5B1

Editor: Raju Vyas, Vadodara, Gujarat, India.

Date of publication: 26 July 2017 (online & print)

Manuscript details: Ms # 1915 | Received 24 November 2016 | Final received 08 July 2017 | Finally accepted 10 July 2017

Citation: Das, K.C. & A. Gupta (2017). An ecological note on the new record of *Cuora amboinensis* (Riche in Daudin, 1801) (Reptilia: Testudines: Geoemydidae) in northeastern India. *Journal of Threatened Taxa* 9(7): 10459–10462; <http://doi.org/10.11609/jott.1915.9.7.10459-10462>

Copyright: © Das & Gupta 2017. Creative Commons Attribution 4.0 International License. JoTT allows unrestricted use of this article in any medium, reproduction and distribution by providing adequate credit to the authors and the source of publication.

Funding: G.B. Pant Institute of Himalayan Environment and Development, Almora, Uttaranchal-F.No.GBPI/IERP/01-02/NE/10/596 dated 30 March, 2002, and University Grants Commission, New Delhi –No.F.16-110/2006 (SA-II) dated 16 March, 2007 providing financial support in the form of RGNF to K.C. Das

Competing interests: The authors declare no competing interests.

Acknowledgements: The authors are thankful to the G.B. Pant Institute of Himalayan Environment and Development, Almora, and UGC, New Delhi, for providing financial support. Sincere thanks also go to the Department of Forest, Government of Assam, for their necessary support in this research. Special thanks are due to N. Biraj Singh and informers for their generous help in the field study.



comprises the three districts of Cachar, Hailakandi and Karimganj (24.20000000–25.13333333 N & 92.20000000–93.25000000 E). Turtles were recorded through direct sightings and by making inquiries to the inhabitants in different areas, especially the fishermen as well as jhum cultivators who occasionally hunt turtles. Photographs and morphometric measurements of specimens were taken and carapace and / or plastron were collected from the villages near the study sites. Identification was made using standard keys (Smith 1931; Das 1991). The different physico-chemical variables of water in the turtle habitats include depth of the waterbody, transparency, temperature taking into account microhabitat differences; dissolved oxygen; pH; conductivity; nitrate; and biological oxygen demand were analyzed using standard methods (Michael 1984; APHA 1995). The photographs of live specimens and carapace samples are deposited in the Animal Biodiversity Museum of the Department of Ecology & Environmental Science, Assam University, Silchar, India.

RESULTS AND DISCUSSION

The live specimens of *Cuora amboinensis* (Image 1) (AU-Ecol/ABM/Reptilia/Chelonia/ca-4a-b) were recorded near Jirighat in Cachar District and carapaces of the species were also recorded from Baliapunjee, a forest village adjoining Longai River and Longai Reserve Forest area in Karimganj District (Fig. 1).

Ecological notes: Site 1. On 05 February 2002, two live specimens (Image 1) (male: SCL=9.2cm, SCW=4.5cm; and female: SCL=15.8cm SCW=8.6cm) were recorded from a hill stream near Jirighat (24.80861111 N & 93.10638889 E; elevation 54m) and Jiri River in Cachar district, Assam. Jirighat is a suburban centre about 48km east of Silchar town at the foothills of Lower Jiri Reserve Forest. The area has dense forest, rubber plantation, tea plantation and agricultural fields. The Jiri River bank is covered with thick vegetation and flows from a densely forested area.

Site 2. On 10 September 2003, two carapaces of the species (AU-Ecol/ABM/Reptilia/ Chelonia/ca-4c-d) were found near Baliapunjee (24.27805556 N & 92.26972222 E; elevation 67m) Baliplia, Karimganj District, Assam. Baliapunjee is a forest village and has hill streams flowing through the village from the dense forests of Longai Reserve Forest near Assam-Mizoram-Tripura border with paddy fields on both banks of the Longai River. This village is dominated by the Halam or Choroi tribe. The morphometric measurements of both turtles' carapace (Table 1) and environmental variables of two sites Jirighat and Baliapunjee in Barak Valley, Assam are represented in Table 2.

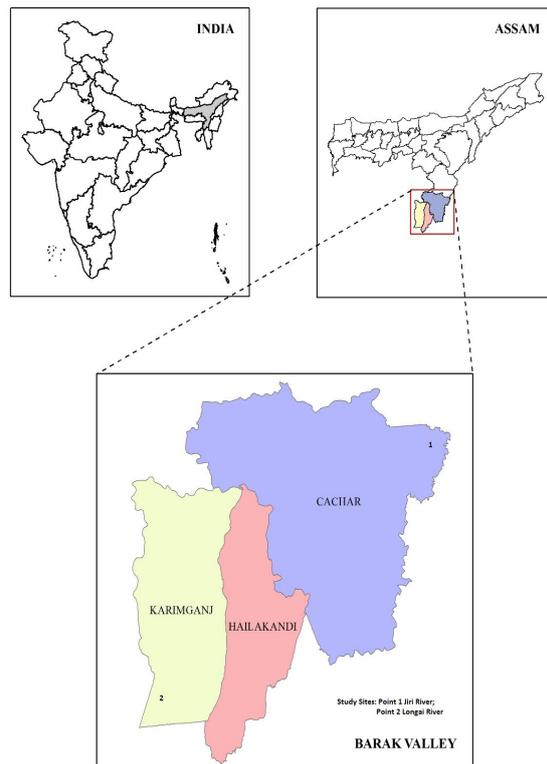


Figure 1. Study area- Barak Valley region of southern Assam.

Thus, the present study is the first record on the occurrence of *Cuora amboinensis* in Cachar and Karimganj districts of Barak Valley region of southern Assam (Das 2008). This species is known to have a widespread distribution in the floodplains of Brahmaputra River and is found in a variety of habitats. The Malayan Box Turtle is not restricted to rivers and ponds, but is also found in marshes, creeks, mangrove swamps and close to human habitations, for example in paddy fields (Ahmed et al. 2009). Anderson (1872) recorded this species from Samagooting in Naga Hills, now in Nagaland. In Arunachal Pradesh, it has been recorded from D'Ering Sanctuary (Bhupathy & Choudhury 1992). The other previous records in Assam were from Mongaldoi, Darrang District (Moll & Vijaya 1986), Kaziranga National Park, Manas National Park, Gelabil River of Jorhat (Das 1990), Orang National Park (Bhupathy et al. 1992), Dibru-Saikhowa Wildlife Sanctuary (Choudhury 1995), and Mazbat (Das 1995). Recently, Sengupta et al. (2000) recorded this species from wet grasslands near the Chandubi beel, in Mayeng Reserve Forest, Chandubi, in the Kamrup District of Assam. This species is illegally exploited in pet trade but besides habitat destruction (Sengupta et al. 2000), human consumption and hunting are the other threats. It was also reported from Salutikar near Sylhet and Cox's

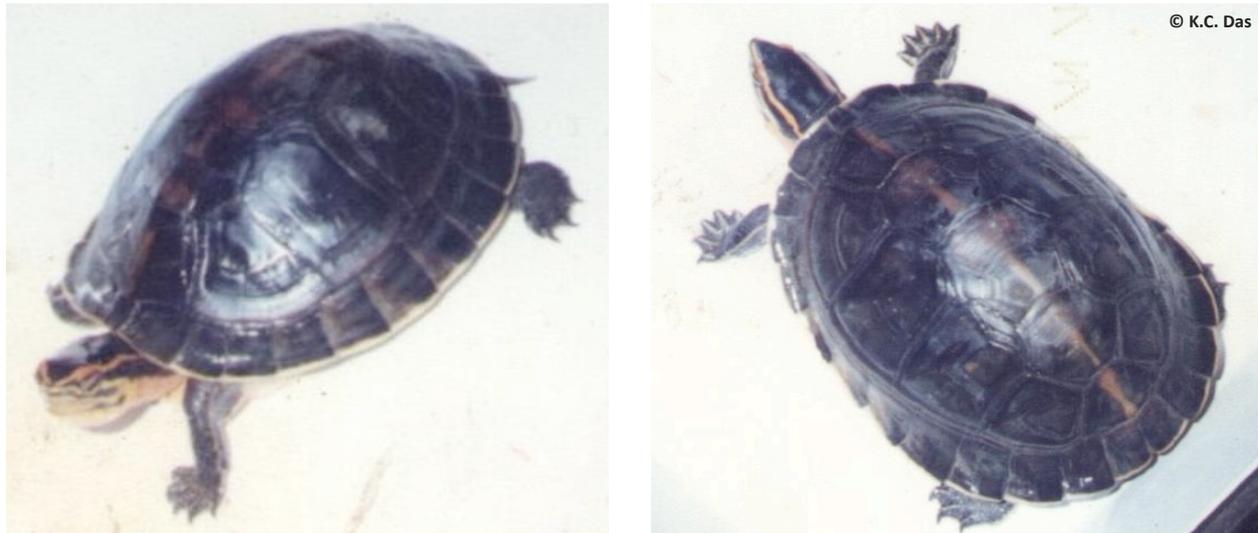


Image 1. Two live specimens of *Cuora amboinensis*: a - male; b - female found near Jirighat, Cachar, Assam.

Table 1. Morphometric measurements (cm) of carapaces recorded from Baliapunjee site in Barak Valley, Assam.

Species (numbers)	X±S.D. (range in parenthesis)			
	SCL	SCW	CCL	CCW
<i>Cuora amboinensis</i> (2)	20.00±0.71 (19.5–20.5)	13.75±0.35(13.5–14)	23.50±0.71 (23–24)	23.00±0.00 (23–23)

SCL - Straight carapace length (cm); SCW - Straight carapace width; CCL - Curve carapace length; CCW - Curve carapace width

Table 2. Environmental variables of turtle recording two sites of Barak Valley, Assam

	Name of site	DW	TR	AT	ST	WT	Con	pH	DO	BOD ₅	NO ₃
1	Jiri River	3.5	7.2	34	34	33	160	6.0	4.8	2.0	1.4
2	Longai River	2.5	3.2	32	33	32	154.2	7.0	6.0	2.0	4.5

DW - Depth of water (m); TR - Transparency (cm); AT - Air temperature (°C); ST - Soil temperature (°C); WT - Water temperature (°C); Con - Conductivity (µS/cm); DO - Dissolved oxygen (mg l⁻¹); BOD₅ = Biological oxygen demand for 5 days at 20°C (mg l⁻¹); NO₃ - Nitrate (mg l⁻¹).

Bazar, Chittagong, in Bangladesh (Frazier & Das 1994). Thus widespread distribution of this species in Assam, Nagaland and Arunachal Pradesh, the Nicobar Islands; also Bangladesh, Myanmar, Thailand, Indo-China, Indo-Malaya and the Philippines has been reported (Das 2002). The present records are from an area between these localities and fill the gap in the distribution of this species in the northeastern regions of India and Bangladesh. It is highly likely that this species rarely occur in the Barak Valley; however, the carapace records should be treated as possible sites where these turtles may be found and not as perfect site records as has also been pointed out by Frazier & Das (1994). The villagers in this region hang turtle and tortoise carapace in their cowsheds and homes as they ascribe some magico-religious properties to them (Gupta 2002; Das & Gupta

2004). The turtle and tortoise species are utilized as food, traditional medicine and pet by a number of non-tribal (Hindu-Bengali) and tribal communities (Mizo, Choro, Hmar, Halam, Reang, Dimasa, Chakma, Pnar) of northeastern India. Tortoise shell and meat are used by different tribes for different purposes on the basis of their traditional practices, cultures and beliefs (Das et al. 2012).

Thus, the present study signifies that still the Barak Valley region of Assam has an affluent pool of aquatic turtle (Das & Gupta 2011) and tortoise species (Das & Gupta 2015). Both aquatic as well forest-dwelling species are well represented but semi aquatic species are least represented in this region and are encountered in a diversity of fragmented habitats. The study also points out the urgent need for ex-situ conservation of

this species because of severe threats like fragmentation of habitats, shifting cultivation, illegal hunting or trade etc. and therefore to include rare species, viz., *Cuora amboinensis* in the Schedule I of the Indian Wildlife (Protection) Act, 1972. This species is not yet listed under Indian Wildlife Protection Act 1972, but included under 'Appendix II' the Convention on International Trade in Endangered Species of Wild Fauna and Flora since 2000 (CITES 2017). This argument is justified by the inclusion of this species by the IUCN since 2000 (IUCN 2017) in the threatened "Vulnerable" category. The addition of this species in the Schedule I of the Indian Wildlife (Protection) Act is expected to progress the conservation status of this species of chelonians.

REFERENCES

- Ahmed, M.F., A. Das & S.K. Dutta (2009). *Amphibians and Reptiles of Northeast India - A Photographic Guide*. Aaranyak, Guwahati, India, xiv+168pp.
- Anderson, J. (1872). On *Manouria* and *Scapia*, two genera of land tortoises. *Proceedings of Zoological Society of London* 26: 132–144.
- APHA (1995). *Standard Methods for the Examination of Water and Waste Water*. American Public Health Association, Washington, D.C.
- Asian Turtle Trade Working Group (2000). *Cuora amboinensis*. In: IUCN Version 2014.3. The IUCN Red List of Threatened Species. Downloaded on 27 March 2015.
- Bhupathy, S. & B.C. Choudhury (1992). Turtle fauna of Arunachal Pradesh. Preliminary Report. Wildlife Institute of India, Post Bag-48, Chandrabani, Dehra Dun, India, 15pp.
- Bhupathy, S., B.C. Choudhury & E.O. Moll (1992). Conservation and management of freshwater turtles and land tortoises of India. Report of the Turtle and Tortoise Conservation Project of Wildlife Institute of India and U.S. Fish and Wildlife services, Mimeo, 25pp.
- Choudhury, A. (1995). Turtles recorded in Dibru-Saikhowa Wildlife Sanctuary, Assam. *Journal of Ecological Society* 8: 33–39.
- CITES (2017). Checklists of CITES Species. Appendices I, II and III. <http://www.cites.org/> Downloaded on 12 June 2017
- Das, I. (1990). Distributional records for Chelonians from north-eastern India. *Journal of the Bombay Natural History Society* 87(1): 91–97.
- Das, I. (1991). *Colour Guide to the Turtles and Tortoises of the Indian Subcontinent*. R and A Publishing Limited, Portishead, U.K., vi+133pp.
- Das, I. (1995). *Turtles and Tortoises of India*. Oxford University Press, Bombay, India, 174pp.
- Das, I. (2002). *A Photographic Guide to Snakes and other Reptiles of India*. New Holland Publishers (UK) Ltd. Garfield House, Edgware Road, London W2 2EA, UK, 144pp.
- Das, K.C. (2008). Diversity and Ecology of chelonians and their conservation in Barak Valley, Assam, North East India. PhD Thesis. Department of Ecology and Environmental Science, Assam University, Silchar, 213pp.
- Das, K.C. & A. Gupta (2004). Turtle market survey in Silchar, Assam, northeast India. *Turtle and Tortoise Newsletter* 8: 17–18.
- Das, K.C. & A. Gupta (2011). Site records of softshell turtles (Chelonia: Trionychidae) from Barak Valley, Assam, northeastern India. *Journal of Threatened Taxa* 3(4): 1722–1726; <http://doi.org/10.11609/JoTT.o2487.1722-6>
- Das, K.C. & A. Gupta (2015). New distribution records of tortoises (Chelonia: Testudinidae) from Barak Valley, Assam, northeastern India with notes on ecology and vernacular traditional taxonomy. *Journal of Threatened Taxa* 7(3): 7017–7023; <http://doi.org/10.11609/JoTT.o3623.7017-23>
- Das, K.C., S. Kundu, S. K. Ghosh & A. Gupta (2012). Traditional knowledge on zootherapeutic uses of turtle is an issue for international conservation, pp. 81–89. In: Singh, K.B. & K. Lalchandama (eds.). Proceedings of the National Seminar on Recent Advances in Natural Products Research.
- Frazier, J.G. & I. Das (1994). Some notable records of Testudines from the Indian and Burmese subregions. *Hamadryad* 19: 47–66.
- Gupta, A. (2002). The beleaguered chelonians of northeast India. *Turtle and Tortoise Newsletter* 6: 16–17.
- IUCN (2017). The IUCN Red List of Threatened Species. Version 2017.1. <www.iucnredlist.org>. Downloaded on 12 June 2017.
- Michael, P. (1984). *Field and Laboratory Methods in Ecology*. Tata McGraw-Hill, Delhi, 404pp.
- Moll, E.O. & J. Vijaya (1986). Distributional records for some Indian turtles. *Journal of the Bombay Natural History Society* 83(1): 57–62.
- Schoppe, S & I. Das (2011). *Cuora amboinensis* (Riche in Daudin 1801) - Southeast Asian Box Turtle, pp. 053.1–053.13 In: Rodin, A.G.J., P.C.H. Pritchard, P.P. van Dijk, R.A. Saumure, K.A. Buhlmann, J.B. Iverson & R.A. Mittermeier (eds.). Conservation Biology of Freshwater Turtles and Tortoises: A Compilation Project of the IUCN/SSC Tortoises and Freshwater Turtle Specialist Group. Chelonian Research Monographs No. 5. v1.2011, <http://www.iucn-tftsg.org/cbftt/>
- Sengupta, S., N.K. Choudhury, M. Baruah, S. Saikia & B. Hussain (2000). Turtle fauna of Kamrup District, Assam, India. *Tropical Zoology* 1(1): 138.
- Smith, M.A. (1931). *The Fauna of British India, Ceylon and Burma: Amphibia and Reptilia. Vol. I - Loricata, Testudines*. Taylor and Francis Ltd., London, 185pp.





OPEN ACCESS



The Journal of Threatened Taxa is dedicated to building evidence for conservation globally by publishing peer-reviewed articles online every month at a reasonably rapid rate at www.threatenedtaxa.org. All articles published in JoTT are registered under [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/) unless otherwise mentioned. JoTT allows unrestricted use of articles in any medium, reproduction, and distribution by providing adequate credit to the authors and the source of publication.

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

July 2017 | Vol. 9 | No. 7 | Pages: 10369–10492

Date of Publication: 26 July 2017 (Online & Print)

DOI: 10.11609/jott.2017.9.7.10369-10492

www.threatenedtaxa.org

Communications

The status of Arabian Gazelles *Gazella arabica* (Mammalia: Cetartiodactyla: Bovidae) in Al Wusta Wildlife Reserve and Ras Ash Shajar Nature Reserve, Oman

-- Mansoor H. Al Jahdhami, Sultan Al Bulushi, Haitham Al Rawahi, Waheed Al Fazari, Ahmed Al Amri, AbdulRahman Al Owaisi, Salim Al Rubaiey, Zahran Al Abdulasalam, Metab Al Ghafri, Shaeilendra Yadav, Sami Al Rahbi & Steven Ross, Pp. 10369–10373

On the occurrence of the Black Spine-cheek Gudgeon *Eleotris melanosoma* Bleeker in Sri Lankan waters, with comments on the Green-backed Guavina *Bunaka gyrinoides* (Bleeker) (Teleostei: Eleotridae)

-- Sudesh Batuwita, Sampath Udugampala & Udeni Edirisinghe, 10374–10379

Captive breeding for conservation of Dussumier's Catfish (Actinopterygii: Siluriformes: Clariidae: *Clarias dussumieri*) a Near Threatened endemic catfish of peninsular India

-- K.G. Padmakumar, L. Bindu, P.S. Sreerekha, Nitta Joseph, Anuradha Krishnan, P.S. Manu & V.S. Basheer, Pp. 10380–10385

Influence of seasonal and edaphic factors on the diversity of scolopendromorph centipedes (Chilopoda: Scolopendromorpha) and general observations on their ecology from Kerala, India

-- Dhanya Balan & P.M. Sureshan, 10386–10395

Butterflies of eastern Assam, India

-- Arun P. Singh, 10396–10420

Short Communications

Three noteworthy additions to the flora of the western Himalaya, India

-- Ishwari Datt Rai, Amit Kumar, Gajendra Singh, Bhupendra Singh Adhikari & Gopal Singh Rawat, 10421–10425

New distribution records of three *Sarcophyton* species (Alcyonacea: Alcyoniidae) in Indian waters from Andaman Islands

-- Seepana Rajendra, C. Raghunathan & Tamal Mondal, 10426–10432

Additions to the Indian dragonfly fauna, and new records of two enigmatic damselflies (Insecta: Odonata) from northeastern India

-- Shantanu Joshi, Joyce Veino, Dahru Veino, Lightson Veino, Rakoveine Veino & Krushnamegh Kunte, Pp. 10433–10444

Dragonflies and Damselflies (Odonata: Insecta) of Keoladeo National Park, Rajasthan, India

-- Dheerendra Singh, Brijendra Singh & Jan T. Hermans, Pp. 10445–10452

Records of the Indian Sand Snake *Psammophis condanarus* (Merrem, 1820) (Reptilia: Lamprophiidae) in southern India

-- S.R. Ganesh, Vivek Sharma & M. Bubesh Guptha, Pp. 10453–10458

An ecological note on the new record of *Cuora amboinensis* (Riche in Daudin, 1801) (Reptilia: Testudines: Geoemydidae) in northeastern India

-- Kulendra Chandra Das & Abhik Gupta, Pp. 10459–10462

A new distribution record of the European Free-tailed Bat *Tadarida teniotis* (Chiroptera: Molossidae) from the western Himalaya, India

-- Rohit Chakravarty, Pp. 10463–10467

Measuring Indian Blackbuck *Antilope cervicapra* (Mammalia: Cetartiodactyla: Bovidae) abundance at Basur Amruth Mahal Kaval Conservation Reserve, Chikkamagaluru, southern India

-- H.S. Sathya Chandra Sagar & P.U. Antoney, Pp. 10468–10472

Notes

A new species of *Sarcinella* (Ascomycetes) from Eturnagaram Wildlife Sanctuary, Warangal District, Telangana, India

-- Khaja Moinuddin Mohammad, Bagyanarayana Gaddam & Rana Kausar, Pp. 10473–10475

Re-collection of the Black Catchfly *Silene nigrescens* (Caryophyllales: Caryophyllaceae) after 130 years from Indian western Himalaya

-- Satish Chandra, D.S. Rawat & P.K. Pusalkar, Pp. 10476–10479

Eight new records of the family Erebiidae (Lepidoptera: Noctuoidea) from India

-- Jagbir Singh Kirti, Navneet Singh & Harkanwal Singh, Pp. 10480–10486

New records of hover wasps (Hymenoptera: Vespidae: Stenogastrinae) from Bhutan

-- Tshering Nidup, Wim Klein & Phurpa Dorji, Pp. 10487–10489

Addition of four species to the butterfly checklist of Kaleshwar National Park, Haryana, India

-- Sachin P. Ranade, Pp. 10490–10492