

Journal of Threatened Taxa

Building evidence for conservation globally



Open Access

10.11609/jott.2021.13.11.19431-19674

www.threatenedtaxa.org

26 September 2021 (Online & Print)

Vol. 13 | No. 11 | Pages: 19431-19674

ISSN 0974-7907 (Online)

ISSN 0974-7893 (Print)



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

Publisher
Wildlife Information Liaison Development Society
www.wild.zooreach.org

Host
Zoo Outreach Organization
www.zooreach.org

No. 12, Thiruvannamalai Nagar, Saravanampatti - Kalapatti Road, Saravanampatti,
Coimbatore, Tamil Nadu 641035, India
Ph: +91 9385339863 | www.threatenedtaxa.org
Email: sanjay@threatenedtaxa.org

EDITORS

Founder & Chief Editor

Dr. Sanjay Molur

Wildlife Information Liaison Development (WILD) Society & Zoo Outreach Organization (ZOO),
12 Thiruvannamalai Nagar, Saravanampatti, Coimbatore, Tamil Nadu 641035, India

Deputy Chief Editor

Dr. Neelesh Dahanukar

Noida, Uttar Pradesh, India

Managing Editor

Mr. B. Ravichandran, WILD/ZOO, Coimbatore, India

Associate Editors

Dr. Mandar Paingankar, Government Science College Gadchiroli, Maharashtra 442605, India

Dr. Ulrike Streicher, Wildlife Veterinarian, Eugene, Oregon, USA

Ms. Priyanka Iyer, ZOO/WILD, Coimbatore, Tamil Nadu 641035, India

Dr. B.A. Daniel, ZOO/WILD, Coimbatore, Tamil Nadu 641035, India

Editorial Board

Dr. Russel Mittermeier

Executive Vice Chair, Conservation International, Arlington, Virginia 22202, USA

Prof. Mewa Singh Ph.D., FASC, FNA, FNASC, FNAPsy

Ramanna Fellow and Life-Long Distinguished Professor, Biopsychology Laboratory, and
Institute of Excellence, University of Mysore, Mysuru, Karnataka 570006, India; Honorary
Professor, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore; and Adjunct
Professor, National Institute of Advanced Studies, Bangalore

Stephen D. Nash

Scientific Illustrator, Conservation International, Dept. of Anatomical Sciences, Health Sciences
Center, T-8, Room 045, Stony Brook University, Stony Brook, NY 11794-8081, USA

Dr. Fred Pluthero

Toronto, Canada

Dr. Priya Davidar

Sigur Nature Trust, Chadapatti, Mavinahalla PO, Nilgiris, Tamil Nadu 643223, India

Dr. Martin Fisher

Senior Associate Professor, Battcock Centre for Experimental Astrophysics, Cavendish
Laboratory, JJ Thomson Avenue, Cambridge CB3 0HE, UK

Dr. John Fellowes

Honorary Assistant Professor, The Kadoorie Institute, 8/F, T.T. Tsui Building, The University of
Hong Kong, Pokfulam Road, Hong Kong

Prof. Dr. Mirco Solé

Universidade Estadual de Santa Cruz, Departamento de Ciências Biológicas, Vice-coordenador
do Programa de Pós-Graduação em Zoologia, Rodovia Ilhéus/Itabuna, Km 16 (45662-000)
Salobrinho, Ilhéus - Bahia - Brasil

Dr. Rajeev Raghavan

Professor of Taxonomy, Kerala University of Fisheries & Ocean Studies, Kochi, Kerala, India

English Editors

Mrs. Mira Bhojwani, Pune, India

Dr. Fred Pluthero, Toronto, Canada

Mr. P. Ilangoan, Chennai, India

Web Maintenance

Mrs. Latha G. Ravikumar, ZOO/WILD, Coimbatore, India

Typesetting

Mr. Arul Jagadish, ZOO, Coimbatore, India

Mrs. Radhika, ZOO, Coimbatore, India

Mrs. Geetha, ZOO, Coimbatore India

Fundraising/Communications

Mrs. Payal B. Molur, Coimbatore, India

Subject Editors 2018–2020

Fungi

Dr. B. Shivaraju, Bengaluru, Karnataka, India

Dr. R.K. Verma, Tropical Forest Research Institute, Jabalpur, India

Dr. Vatsavaya S. Raju, Kakatiya University, Warangal, Andhra Pradesh, India

Dr. M. Krishnappa, Jnana Sahyadri, Kuvempu University, Shimoga, Karnataka, India

Dr. K.R. Sridhar, Mangalore University, Mangalagangothri, Mangalore, Karnataka, India

Dr. Gunjan Biswas, Vidyasagar University, Midnapore, West Bengal, India

Plants

Dr. G.P. Sinha, Botanical Survey of India, Allahabad, India

Dr. N.P. Balakrishnan, Ret. Joint Director, BSI, Coimbatore, India

Dr. Shonil Bhagwat, Open University and University of Oxford, UK

Prof. D.J. Bhat, Retd. Professor, Goa University, Goa, India

Dr. Ferdinando Boero, Università del Salento, Lecce, Italy

Dr. Dale R. Calder, Royal Ontario Museum, Toronto, Ontario, Canada

Dr. Cleofas Cervancia, Univ. of Philippines Los Baños College Laguna, Philippines

Dr. F.B. Vincent Florens, University of Mauritius, Mauritius

Dr. Merlin Franco, Curtin University, Malaysia

Dr. V. Irudayaraj, St. Xavier's College, Palayamkottai, Tamil Nadu, India

Dr. B.S. Kholia, Botanical Survey of India, Gangtok, Sikkim, India

Dr. Pankaj Kumar, Kadoorie Farm and Botanic Garden Corporation, Hong Kong S.A.R., China

Dr. V. Sampath Kumar, Botanical Survey of India, Howrah, West Bengal, India

Dr. A.J. Solomon Raju, Andhra University, Visakhapatnam, India

Dr. Vijayasankar Raman, University of Mississippi, USA

Dr. B. Ravi Prasad Rao, Sri Krishnadevaraya University, Anantpur, India

Dr. K. Ravikumar, FRLHT, Bengaluru, Karnataka, India

Dr. Aparna Watve, Pune, Maharashtra, India

Dr. Qiang Liu, Xishuangbanna Tropical Botanical Garden, Yunnan, China

Dr. Noor Azhar Mohamed Shazili, Universiti Malaysia Terengganu, Kuala Terengganu, Malaysia

Dr. M.K. Vasudeva Rao, Shiv Ranjani Housing Society, Pune, Maharashtra, India

Prof. A.J. Solomon Raju, Andhra University, Visakhapatnam, India

Dr. Mandar Datar, Agharkar Research Institute, Pune, Maharashtra, India

Dr. M.K. Janarthanam, Goa University, Goa, India

Dr. K. Karthigeyan, Botanical Survey of India, India

Dr. Errol Vela, University of Montpellier, Montpellier, France

Dr. P. Lakshminarasimhan, Botanical Survey of India, Howrah, India

Dr. Larry R. Noblick, Montgomery Botanical Center, Miami, USA

Dr. K. Haridasan, Pallavur, Palakkad District, Kerala, India

Dr. Analinda Manila-Fajard, University of the Philippines Los Banos, Laguna, Philippines

Dr. P.A. Sinu, Central University of Kerala, Kasaragod, Kerala, India

Dr. Afroz Alam, Banasthali Vidyapith (accredited A grade by NAAC), Rajasthan, India

Dr. K.P. Rajesh, Zamorin's Guruvayurappan College, GA College PO, Kozhikode, Kerala, India

Dr. David E. Boufford, Harvard University Herbaria, Cambridge, MA 02138-2020, USA

Dr. Ritesh Kumar Choudhary, Agharkar Research Institute, Pune, Maharashtra, India

Dr. Navendu Page, Wildlife Institute of India, Chandrabani, Dehradun, Uttarakhand, India

Invertebrates

Dr. R.K. Avasthi, Rohtak University, Haryana, India

Dr. D.B. Bastawade, Maharashtra, India

Dr. Partha Pratim Bhattacharjee, Tripura University, Suryamaninagar, India

Dr. Kailash Chandra, Zoological Survey of India, Jabalpur, Madhya Pradesh, India

Dr. Ansie Dippenaar-Schoeman, University of Pretoria, Queenswood, South Africa

Dr. Rory Dow, National Museum of Natural History Naturalis, The Netherlands

Dr. Brian Fisher, California Academy of Sciences, USA

Dr. Richard Gallon, Ilandudno, North Wales, LL30 1UP

Dr. Hemant V. Ghate, Modern College, Pune, India

Dr. M. Monwar Hossain, Jahangirnagar University, Dhaka, Bangladesh

Mr. Jatishwor Singh Irungbam, Biology Centre CAS, Branišovská, Czech Republic.

Dr. Ian J. Kitching, Natural History Museum, Cromwell Road, UK

Dr. George Mathew, Kerala Forest Research Institute, Peechi, India

Dr. John Noyes, Natural History Museum, London, UK

For Focus, Scope, Aims, and Policies, visit https://threatenedtaxa.org/index.php/JoTT/aims_scope
For Article Submission Guidelines, visit <https://threatenedtaxa.org/index.php/JoTT/about/submissions>
For Policies against Scientific Misconduct, visit https://threatenedtaxa.org/index.php/JoTT/policies_various

continued on the back inside cover

Caption: Malabar Slender Loris *Loris lydekkerianus malabaricus* © Dileep Anthikkad.



First record of the Eastern Cat Snake *Boiga gocool* (Gray, 1835) (Squamata: Colubridae) from Tripura, India

Sumit Nath¹ , Biswajit Singh² , Chiranjib Debnath³ & Joydeb Majumder⁴

^{1,3} Herpetofauna Conservation and Research Division, Wild Tripura Foundation, Dhaleswar, Road No. 13, Agartala, Tripura, India.

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

⁴ Department of Zoology, Ecology & Biosystematics Laboratory, Tripura University, Tripura 799022, India.

¹ nathsumit389@gmail.com (corresponding author), ² biswajitsingh87@gmail.com, ³ chiranjibbiologist@gmail.com, ⁴ jmtugemo@gmail.com

Northeastern India has a rich herpetofaunal diversity, with 102 species of snakes, represented by six families comprising 42 genera (Ahmed et al. 2009; Aengals et al. 2018) with some new snake genera and species recently discovered in, e.g., *Blythia hmuifang*, *Pareas modestus*, *Gongylosoma scriptum*, *Smithophis atemporalis*, *Hebius lacrima*, *Trimeresurus salazar*, *Trachischium aptei*, *Trimeresurus arunachalensis*, *Smithophis arunachalensis*, *Hebius pealii* (Vogel et al. 2017, 2020; Lalremsanga 2018; Bhosale et al. 2019; Captain 2019; Giri et al. 2019; Purkayastha & David 2019; Das et al. 2020; Mirza et al. 2020). Tripura is a landlocked, small, hilly state surrounded by Assam & Mizoram of India and Bangladesh on three sides (Image 1). So far, 21 species of snakes under 19 genera and six families have been reported from the state (Majumder 2012; Purkayastha et al. 2020). Earlier, only one species of the genus *Boiga*, *B. ochracea* was recorded from the state (Majumder et al. 2012; Purkayastha et al. 2020).

Boiga gocool (Gray, 1835) is a nocturnal, arboreal, mildly venomous snake that occurs in tropical semi-evergreen and degraded forests, tall grasslands, and tea gardens at lower elevations of 50–1,000 m (Das et al.

2010; Wallach et al. 2014). It feeds mainly on lizards but sometimes also on small birds and mammals. *Boiga gocool* is poorly known, has a narrow distribution, and is thus rarely reported in regional inventory reports with only a few preserved specimens in scientific collections (Das et al. 2010). This is a southern Asian species having definite distribution records from northern and eastern India, Bangladesh, and Bhutan (Ahsan et al. 2015; Das et al. 2016). Of late, a few records of this species were reported from many other places. In India, *B. gocool* is reported from Assam- Manas National Park, Guwahati (Purkayastha et al. 2011), Kaziranga National Park (Das et al. 2007), Arunachal Pradesh, Manipur, Meghalaya, Nagaland (Das et al. 2007; Bhupathy et al. 2013), Sikkim (Chettri et al. 2011), West Bengal (Das et al. 2007), northern Odisha (Mohalik et al. 2020), and Uttar Pradesh (Choure et al. 2020). It has been listed as Schedule IV species under the Indian Wildlife (Protection) Act, 1972 (Ahmed et al. 2009) whereas under IUCN Red List category, it stands as ‘Not Evaluated’.

In this note, we report our sighting of *B. gocool* in Tripura state. The current survey site is situated within the Khowai district of Tripura (24.064N & 91.596E;

Editor: S.R. Ganesh, Chennai Snake Park, Chennai, India.

Date of publication: 26 September 2021 (online & print)

Citation: Nath, S., B. Singh, C. Debnath & J. Majumder (2021). First record of the Eastern Cat Snake *Boiga gocool* (Gray, 1835) (Squamata: Colubridae) from Tripura, India. *Journal of Threatened Taxa* 13(11): 19652–19656. <https://doi.org/10.11609/jott.7051.13.11.19652-19656>

Copyright: © Nath et al. 2021. Creative Commons Attribution 4.0 International License. JoTT allows unrestricted use, reproduction, and distribution of this article in any medium by providing adequate credit to the author(s) and the source of publication.

Funding: Wild Tripura Foundation.

Competing interests: The authors declare no competing interests.

Acknowledgements: Authors express their earnest thanks to Mr. Pallab Chakraborty, director of Sepahijala Zoological Park, Sepahijala, Tripura, India for helping in identification of the species and Wild Tripura Foundation, Tripura, India for help to study the herpetofaunal diversity of Tripura.



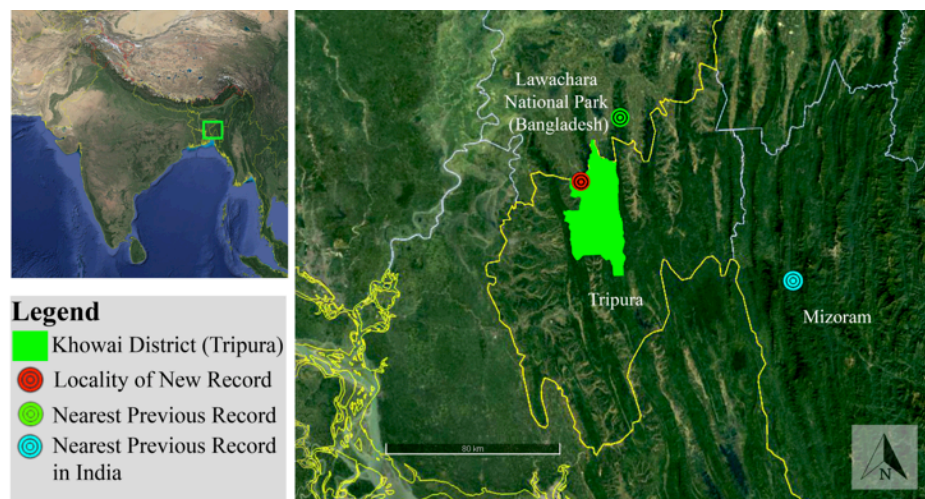


Image 1. Showing new locality record of *B. gocoool* in India and its nearest previous records. © Google maps.

129m), the forest patch of the survey area was primarily mixed moist deciduous type (Choudhary et al. 2019) having tree species like *Tectona grandis*, *Shorea robusta*, *Dalbergia sissoo*, *Bombax ceiba*, *Phayllanthus emblica*, and *Mangifera indica* spread over an undulating terrain with moderate canopy cover.

The observation made by us was based on opportunistic sightings in the field. On 12 July 2020, during a field visit to Khowai, we noticed a snake passing by near the Khowai river bridge at evening 1539 h. The snake was restrained using a snake hook with utmost safety for making morphological observations and measurements. Photographs were taken using DSLR camera. The length of the individual from snout to vent (SVL) was measured by measuring tape. Gender was confirmed by observing everted hemipenis of the individual and subsequently, the snake was released where it was initially observed.

The recorded individual showed morphological characters as follows: triangular head, distinctly broader than the neck; dorso-laterally compressed body consisting of yellowish-brown dorsal colour with paired dorsolateral series of 45 black vertical Y-shaped markings on the either side which was separated from one another only by the light yellowish vertebral scale row; black markings edged with white; anterior-most six Y-shaped markings fused to form small black lines; markings broken down to small black spots posteriorly; tail with a few small irregular brownish spots, but without markings towards the tip; a large dark brownish arrow-shaped mark with darker edges begins at the posterior part of the inter-nasals, covering the top of the head; an arrow shaped mark followed by black, round spot on nape (Image 2a); a black postocular stripe

extending from jaw angle to neck, ending at lower 3rd dorsal scale row; supra-labials and infra-labials white, with small black markings on sutures; pupil black with yellow iris; ventral yellowish-white with small black spots at the lateral edges (Image 2b). The gender of the individual was confirmed as male, by observing everted hemipenis. The length of the individual from snout to vent (SVL) measured 652 mm and tail length (TL) was 165 mm. Comparing the above data with the identification keys and descriptions specified in standard literature (Whitaker & Captain 2008; Ahmed et al. 2009; Das et al. 2010; Mohalik et al. 2020) the snake was positively identified as *Boiga gocoool*.

Comparing the morphological characteristics between the known *Boiga* species in northeastern India, it is evident that the dorsolateral series of 45–50 dark brownish and whitish edged Y or T shaped marks, divided by distinct light vertebral scale row and a narrow black diamond or circular shaped nuchal dot, that never reaches to the sides of the body were major distinguishing characteristics of *B. gocoool* (Table 1). In the past, much confusion existed regarding distinguishing between *B. gocoool* and its closely related and one of the most widely distributed yet poorly studied congener in Indian subcontinent, *B. t. trigonata* (Das et al. 2010). Regardless, *B. gocoool* has a lot in common with *B. t. trigonata* in terms of habits, body proportions, and skin colour, but *gocoool* can be differentiated from *trigonata* by strongly enlarged vertebral scales and an entirely distinct head and dorsal body colour pattern, and dorsolateral series of 45–50 dark brownish and whitish edged Y-shaped marks which are prominently divided by a light vertebral scale row; whereas *B. trigonata* has yellow to whitish, dark edged, angular markings,

Table 1. Morphological comparisons of body (dorsal and ventral), head and tail morphology between *B. gocoool* and other congeneric species from the Indo-Burma hotspot.

Species	Dorsal body	Ventral body	Head and tail	Distribution in Indo-Burma	References
<i>gocoool</i>	Dorsal colour yellowish-brown; dorsolateral series of 45–50 dark brownish and whitish edged Y or T shaped marks.	Light yellowish- brown ventral colour with small dark brown margins or pattern less.	Head noticeably larger than neck; wide eye with vertical pupil, long tail.	Arunachal Pradesh, Assam, Nagaland, Manipur, Mizoram, Bhutan, and Bangladesh.	Das et al. 2010; Das et al. 2016; Lalremsanga & Lalronunga 2017; Whitaker & Captain 2008
<i>cyanea</i>	Dorsal colour uniform green or greyish- or bluish-green; black Interscale colour, same colour on the head and few dorsal scales.	Greenish- or yellowish-white belly; subcaudal scales are paired in a zig-zag pattern.	Head triangular with rounded tip, distinctly wider than body. Top of the head is normally same colour as the dorsal or has a brownish hue. Like other arboreal snakes, long thin tail with pointed tip.	Arunachal Pradesh, Assam, Meghalaya, Mizoram, Sikkim, Bangladesh, and Bhutan.	Das et al. 2010; Lalremsanga & Lalronunga 2017; Whitaker & Captain 2008
<i>multifasciata</i>	Dorsal pattern made up of narrow black irregular transverse bands separated by reddish-brown vertebral scale lines.	Ventral surface greyish-to reddish-brown.	Head wider than neck; large eye has vertical pupil. Long tail. Two black lines run across the top of the head; another runs down the neck, a black stripe runs behind the eye.	Arunachal Pradesh and Sikkim.	Tshewang, & Letro 2018; Das et al. 2010; Whitaker & Captain 2008
<i>multomaculata</i>	Dorsal colour is greyish-brown with dark brown markings, black edges, and brown; double series of conspicuous spots present.	Ventral colour is greyish-brown or impure white, marked with brown spots.	Head noticeably larger than neck; eye with vertical pupil; long tail.	Arunachal Pradesh, Assam, Nagaland, and Bangladesh.	Das et al. 2010; Whitaker & Captain 2008
<i>ochracea</i>	Dorsal body coral red, reddish- or yellowish-brown.	Scales on the anterior belly are yellow, while those on the mid-body and tail tip are light brown.	Head larger than neck; wide eye with vertical pupil; tail long and thin.	Sikkim, Assam, Tripura, Mizoram, Bhutan, and Bangladesh.	Das et al. 2010; Lalremsanga & Lalronunga 2017; Majumder et al. 2012; Whitaker & Captain 2008
<i>quincunciata</i>	Fine dark brown spots and a dark brown vertebral series make up the dorsal pattern.	Outer edges of the ventral surface are yellowish-white with white or brown spots	Three longitudinal stripes on the nape; head and neck distinct; body slender and elongated; eyes wide with vertical pupil.	Arunachal Pradesh, Assam, Mizoram, and Bhutan.	Chaida et al. 2020; Das et al. 2010; Lalremsanga & Lalronunga 2017
<i>siamensis</i>	Dorsal body yellowish-brown; many large black or dark brown oblique bands or V-shaped markings.	Ventral surface yellowish- or greyish-brown, with small dark brown spots present sometimes.	Head wider than neck; large eye has vertical pupil; tail long.	Arunachal Pradesh, Assam, Mizoram, Meghalaya, Sikkim, Nagaland, and Bangladesh.	Das et al. 2010; Lalremsanga & Lalronunga 2017; Whitaker & Captain 2008
<i>trigonata</i>	Dorsal colour brown or tan; darker zigzag markings that are possibly connected.	Underside of each belly scale white or tan, small black spots on the outer edges.	Head wider than neck; Large eye with vertical pupil; tail long; distinct pale Y-shaped mark appears on top of the head, which often black-edged.	Sikkim.	Das et al. 2010

with irregular branching across the vertebral scale row, often connected in a zigzag manner. The sole congener of *B. gocoool* recorded from the state was *B. ochracea* (Majumder et al. 2012; Purkayastha et al. 2020) which can be readily distinguished without confusion from *B. gocoool* by its patternless or indistinct dark transverse dorsolateral bands on coral red, reddish- or yellowish-brown dorsal body (Table 1).

With the centre of radiation of *B. gocoool* lying in the

plains and low hills of north and south of the Brahmaputra valley, Assam, (Das et al. 2010), recent records of *B. gocoool* from Odisha (Mohalik et al. 2020) and Uttar Pradesh (Choure et al. 2020), extend its known distribution range further to the south and west, respectively. The current record of *B. gocoool* from Tripura eventually fills the void in its northeastern Indian distribution. The present survey site is about 40 km north-east from Agartala, the state capital and about 35 km south to the



Image 2. *Boiga gocoool* with identification marks: a—Black Y-shaped vertical markings with white edges on either side separated from one another only by pale yellowish vertebral scale row; anterior most Y-shaped markings fused to form small black lines; dark brownish arrow-shaped mark covering the top of the head followed by a black, somewhat round-shaped spot on the nape | b—Black postocular stripe; white supralabials and infralabials with small black markings on their sutures; black pupil with yellow coloured iris; yellowish-white ventral with small black spots at the outer lateral edges. (© Sumit Nath).

nearest previously recorded locality for the species from Lawachara National Park, Sylhet District, Bangladesh (Rahman et al. 2013). The nearest occurrence of *B. gocoool* from the present survey site, within northeastern India, is that of Mizoram (Lalremasanga & Lalronunga 2017; Choure et al. 2020). Despite being situated in the Indo-Burma biodiversity hotspot, Tripura is rather poorly studied from the herpetofauna assessment viewpoint. Most of the herpetofaunal studies were limited to a few taxa and locations of the state (Majumder et al. 2012; Purkayastha et al. 2020). Before the current record, only one species of the genus *Boiga* (*B. ochracea*) was reported from Tripura, whereas eight representatives of the genus have been reported and found to be occurring in northeastern India, partly sympatric with *B. gocoool* (Table 1). Hence, the first record of *B. gocoool* from this state will contribute towards updating the checklist of the herpetofauna of Tripura. Future studies on the genus *Boiga* and other snake species sympatric with *B. gocoool* throughout the state is much needed.

References

- Aengals, R., V.S. Kumar, M.J. Palot & S.R. Ganesh (2018). A checklist of reptiles of India. Zoological Survey of India. Date of Download : 27/12/2020. <https://zsi.gov.in/checklist/Reptiles>
- Ahmed, M.F., A. Das & S.K. Dutta (2009). *Amphibians and Reptiles of Northeast India: A Photographic Guide*. Aaranyak, Guwahati, xiv+170pp.
- Ahsan, M.F., I.K.A. Haidar & M.M. Rahman (2015). Status and diversity of snakes (Reptilia: Squamata: Serpentes) at the Chittagong University Campus in Chittagong, Bangladesh. *Journal of Threatened Taxa* 7(14): 8159–8166. <https://doi.org/10.11609/jott.2431.7.14.8159-8166>
- Bhosale, H.S., G.G. Gowande & Z.A. Mirza (2019). A new species of fossorial natricid snakes of the genus *Trachischium* Günther, 1858 (Serpentes: Natricidae) from the Himalayas of northeastern India. *Comptes Rendus - Biologies* 342(9–10): 323–329. <https://doi.org/10.1016/j.crv.2019.10.003>
- Bhupathy, S., S.R. Kumar, J. Paramanandham, P.T. Nathan & S.P. Kumar (2013). Conservation of reptiles in Nagaland, India. Bioresources and Traditional Knowledge of Northeast India. Mizo Post Graduate Science Society (MIPOGRASS), Sikulpuikawn, Aizawl, 181–186pp.
- Captain, A., V. Deepak, R. Pandit, B. Bhatt & R. Athreya (2019). A new species of pitviper (Serpentes: Viperidae: *Trimeresurus* Lacepède, 1804) from west Kameng District, Arunachal Pradesh, India. *Russian Journal of Herpetology* 26(2): 111–122. <https://doi.org/10.30906/1026-2296-2019-26-2-111-122>
- Chaida, L., A. Das, U. Tshering & D. Wangdi (2020). Assamese Cat Snake *Boiga quincunciata* (Wall, 1908) (Reptilia: Squamata: Colubridae)–new country record for Bhutan. *Journal of Threatened Taxa* 12(5): 15664–15667. <https://doi.org/10.11609/jott.5597.12.5.15664-15667>
- Choudhary, B. K., Majumdar, K., & Datta, B. K. (2019). Potential Biomass Pools and Edaphic Properties of Plantation Forest in Tripura, India. *International Journal of Ecology and Environmental Sciences* 45(4): 369–381.
- Choure, G., P. Kashyap, S. Adhikari & H.T. Lalremasanga (2020). First Record of the Arrowback Tree Snake, *Boiga gocoool* (Gray 1835) (Reptilia: Squamata: Colubridae), from Uttar Pradesh, India. *Reptiles & Amphibians* 27(3): 436–437.
- Das, A., V. Deepak, A. Captain, E.O.Z. Wade & D.J. Gower (2020). Description of a new species of *Smithophis* Giri et al. 2019 (Serpentes: Colubridae: Natricinae) from Arunachal Pradesh, India. *Zootaxa* 4860(2): 267–283. <https://doi.org/10.11646/zootaxa.4860.2.8>
- Das, A., D.J. Gower & V. Deepak (2020). Lost and found: Rediscovery and systematics of the Northeast Indian snake *Hebius pealii* (Slater, 1891). *Vertebrate Zoology* 70(3): 305–318. <https://doi.org/10.26049/VZ70-3-2020-04>
- Das, A., P.P. Mohapatra, J. Purkayastha, S. Sengupta, S.K. Dutta, M.F. Ahmed & F. Tillack (2010). A Contribution to *Boiga gocoool* (Gray, 1835) (Reptilia: Squamata: Colubridae). *Russian Journal of Herpetology* 17(3): 161–178.
- Das, A., P. Sharma, H. Surendran, A. Nath, S. Ghosh, D. Dutta, J. Mondal & Y. Wangdi (2016). Additions to the herpetofauna of Royal Manas National Park, Bhutan, with six new country records. *Herpetology Notes* 9(November): 261–278.
- Giri, V.B., D.J. Gower, A. Das, H.T. Lalremasanga, S. Lalronunga, A. Captain & V. Deepak (2019). A new genus and species of natricine snake from northeast India. *Zootaxa* 4603(2): 241–264. <https://doi.org/10.11646/zootaxa.4603.2.2>
- Lalremasanga, H.T. & S. Lalronunga (2017). *Mizoram rul Chanchin. Biodiversity and Nature Conservation Network (BIOCON) B-27, Mission Veng, Aizawl, Mizoram*, 129pp.
- Lalremasanga, H.T. (2018). First Record of the Species *Gongylosoma scriptum* (Theobald, 1868) (Squamata: Colubridae) From India. *Hamadryad* 38(1): 12–19.
- Majumder, J., P.P. Bhattachajee, K. Majumdar, C. Debnath & B.K. Agarwala (2012). Documentation of herpetofaunal species richness in Tripura, northeast India. *NeBio* 3(1): 60–70.
- Mirza, Z.A., H.S. Bhosale, P.U. Phansalkar, M. Sawant, G.G. Gowande & H. Patel (2020). A new species of green pit vipers of the genus *Trimeresurus* Lacepède, 1804 (Reptilia, Serpentes, Viperidae) from western Arunachal Pradesh, India. *Zoosystematics and Evolution* 96(1): 123–138. <https://doi.org/10.3897/ZSE.96.48431>
- Mohalik, R.K., P.P. Mohapatra, P. Mardaraj, S. Sahoo, A.K. Bhilala, N.B. Kar & S.K. Dutta (2020). First record of *Boiga gocoool* (Gray, 1835) (Reptilia: Squamata: Colubridae) from Northern Odisha with notes on morphology and natural history. *Records of the Zoological Survey of India-A Journal of Indian Zoology* 120(2): 189–192.
- Purkayastha, J. & P. David (2019). A new species of the snake genus *hebius thompson* from northeast India (Squamata: Natricidae). *Zootaxa* 4555(1): 79–90. <https://doi.org/10.11646/zootaxa.4555.1.6>
- Purkayastha, J., N. Khan & S. Roychoudhury (2020). A preliminary checklist of herpetofauna occurring in Rowa Wildlife Sanctuary, Tripura, India. *Environmental Science and Engineering*. Springer International Publishing, 225–233pp.
- Rahman, S.C., S.M.A. Rashid, K. Das & L. Luiselli (2013). Composition and structure of a snake assemblage in an altered tropical forest-plantation mosaic in Bangladesh 34: 41–50. <https://doi.org/10.1163/15685381-00002867>
- Sheht, C. & A. Zambre (2012). A new Record of *Boiga gocoool* (Gray, 1835) (Reptilia: Colubridae) from western Arunachal Pradesh, India. *Sauria* 34(3): 51–54.
- Vogel, G., H.T. Lalremasanga & A. Vanlalhrima (2017). A second species of the genus *Blythia* Theobald, 1868 (Squamata: Colubridae) from Mizoram. *Zootaxa* 4276(4): 569–581. <https://doi.org/10.11646/zootaxa.4276.4.8>
- Vogel, G., T. van Nguyen, H.T. Lalremasanga, L. Biakzuala, V. Hrima & N.A. Poyarkov (2020). Taxonomic reassessment of the *Pareas margaritophorusmacularius* species complex (Squamata, Pareidae). *Vertebrate Zoology* 70(4): 547–569. <https://doi.org/10.26049/VZ70-4-2020-02>
- Wallach, V., K.L. Williams & J. Boundy (2014). *Snakes of the world: a catalogue of living and extinct species*. CRC press, USA, 1237 pp.
- Whitaker, R. & A. Captain (2008). *Snakes of India: The Field Guide*. Draco Books, Chennai, India, 273pp.

Dr. Albert G. Orr, Griffith University, Nathan, Australia
Dr. Sameer Padhye, Katholieke Universiteit Leuven, Belgium
Dr. Nancy van der Poorten, Toronto, Canada
Dr. Kareen Schnabel, NIWA, Wellington, New Zealand
Dr. R.M. Sharma, (Retd.) Scientist, Zoological Survey of India, Pune, India
Dr. Manju Siliwal, WILD, Coimbatore, Tamil Nadu, India
Dr. G.P. Sinha, Botanical Survey of India, Allahabad, India
Dr. K.A. Subramanian, Zoological Survey of India, New Alipore, Kolkata, India
Dr. P.M. Sureshan, Zoological Survey of India, Kozhikode, Kerala, India
Dr. R. Varatharajan, Manipur University, Imphal, Manipur, India
Dr. Eduard Vives, Museu de Ciències Naturals de Barcelona, Terrassa, Spain
Dr. James Young, Hong Kong Lepidopterists' Society, Hong Kong
Dr. R. Sundararaj, Institute of Wood Science & Technology, Bengaluru, India
Dr. M. Nithyanandan, Environmental Department, La Ala Al Kuwait Real Estate. Co. K.S.C., Kuwait
Dr. Himender Bharti, Punjabi University, Punjab, India
Mr. Purnendu Roy, London, UK
Dr. Saito Motoki, The Butterfly Society of Japan, Tokyo, Japan
Dr. Sanjay Sondhi, TITLI TRUST, Kalpavriksh, Dehradun, India
Dr. Nguyen Thi Phuong Lien, Vietnam Academy of Science and Technology, Hanoi, Vietnam
Dr. Nitin Kulkarni, Tropical Research Institute, Jabalpur, India
Dr. Robin Wen Jiang Ngiam, National Parks Board, Singapore
Dr. Lionel Monod, Natural History Museum of Geneva, Genève, Switzerland.
Dr. Ashesh Shivam, Nehru Gram Bharti University, Allahabad, India
Dr. Rosana Moreira da Rocha, Universidade Federal do Paraná, Curitiba, Brasil
Dr. Kurt R. Arnold, North Dakota State University, Saxony, Germany
Dr. James M. Carpenter, American Museum of Natural History, New York, USA
Dr. David M. Claborn, Missouri State University, Springfield, USA
Dr. Kareen Schnabel, Marine Biologist, Wellington, New Zealand
Dr. Amazonas Chagas Júnior, Universidade Federal de Mato Grosso, Cuiabá, Brasil
Mr. Monsoon Jyoti Gogoi, Assam University, Silchar, Assam, India
Dr. Heo Chong Chin, Universiti Teknologi MARA (UiTM), Selangor, Malaysia
Dr. R.J. Shiel, University of Adelaide, SA 5005, Australia
Dr. Siddharth Kulkarni, The George Washington University, Washington, USA
Dr. Priyadarsanan Dharma Rajan, ATREE, Bengaluru, India
Dr. Phil Alderslade, CSIRO Marine And Atmospheric Research, Hobart, Australia
Dr. John E.N. Veron, Coral Reef Research, Townsville, Australia
Dr. Daniel Whitmore, State Museum of Natural History Stuttgart, Rosenstein, Germany.
Dr. Yu-Feng Hsu, National Taiwan Normal University, Taipei City, Taiwan
Dr. Keith V. Wolfe, Antioch, California, USA
Dr. Siddharth Kulkarni, The Hormiga Lab, The George Washington University, Washington, D.C., USA
Dr. Tomas Ditrich, Faculty of Education, University of South Bohemia in Ceske Budejovice, Czech Republic
Dr. Mihaly Foldvari, Natural History Museum, University of Oslo, Norway
Dr. V.P. Uniyal, Wildlife Institute of India, Dehradun, Uttarakhand 248001, India
Dr. John T.D. Caleb, Zoological Survey of India, Kolkata, West Bengal, India
Dr. Priyadarsanan Dharma Rajan, Ashoka Trust for Research in Ecology and the Environment (ATREE), Royal Enclave, Bangalore, Karnataka, India

Fishes

Dr. Neelesh Dahanukar, IISER, Pune, Maharashtra, India
Dr. Topiltzin Contreras MacBeath, Universidad Autónoma del estado de Morelos, México
Dr. Heok Hee Ng, National University of Singapore, Science Drive, Singapore
Dr. Rajeev Raghavan, St. Albert's College, Kochi, Kerala, India
Dr. Robert D. Sluka, Chiltern Gateway Project, A Rocha UK, Southall, Middlesex, UK
Dr. E. Vivekanandan, Central Marine Fisheries Research Institute, Chennai, India
Dr. Davor Zanella, University of Zagreb, Zagreb, Croatia
Dr. A. Biju Kumar, University of Kerala, Thiruvananthapuram, Kerala, India
Dr. Akhilesh K.V., ICAR-Central Marine Fisheries Research Institute, Mumbai Research Centre, Mumbai, Maharashtra, India
Dr. J.A. Johnson, Wildlife Institute of India, Dehradun, Uttarakhand, India

Amphibians

Dr. Sushil K. Dutta, Indian Institute of Science, Bengaluru, Karnataka, India
Dr. Annemarie Ohler, Muséum national d'Histoire naturelle, Paris, France

Reptiles

Dr. Gernot Vogel, Heidelberg, Germany
Dr. Raju Vyas, Vadodara, Gujarat, India
Dr. Pritpal S. Soorae, Environment Agency, Abu Dubai, UAE.
Prof. Dr. Wayne J. Fuller, Near East University, Mersin, Turkey
Prof. Chandrashekhar U. Rivonker, Goa University, Taleigao Plateau, Goa. India
Dr. S.R. Ganesh, Chennai Snake Park, Chennai, Tamil Nadu, India
Dr. Himansu Sekhar Das, Terrestrial & Marine Biodiversity, Abu Dhabi, UAE

Birds

Dr. Hem Sagar Baral, Charles Sturt University, NSW Australia
Dr. Chris Bowden, Royal Society for the Protection of Birds, Sandy, UK
Dr. Priya Davidar, Pondicherry University, Kalapet, Puducherry, India
Dr. J.W. Duckworth, IUCN SSC, Bath, UK
Dr. Rajah Jayapal, SACON, Coimbatore, Tamil Nadu, India
Dr. Rajiv S. Kalsi, M.L.N. College, Yamuna Nagar, Haryana, India
Dr. V. Santharam, Rishi Valley Education Centre, Chittoor Dt., Andhra Pradesh, India
Dr. S. Balachandran, Bombay Natural History Society, Mumbai, India
Mr. J. Praveen, Bengaluru, India
Dr. C. Srinivasulu, Osmania University, Hyderabad, India
Dr. K.S. Gopi Sundar, International Crane Foundation, Baraboo, USA
Dr. Gombobaatar Sunde, Professor of Ornithology, Ulaanbaatar, Mongolia
Prof. Reuven Yosef, International Birding & Research Centre, Eilat, Israel
Dr. Taej Mundkur, Wetlands International, Wageningen, The Netherlands
Dr. Carol Inskipp, Bishop Auckland Co., Durham, UK
Dr. Tim Inskipp, Bishop Auckland Co., Durham, UK
Dr. V. Gokula, National College, Tiruchirappalli, Tamil Nadu, India
Dr. Arkady Lelej, Russian Academy of Sciences, Vladivostok, Russia
Dr. Simon Dowell, Science Director, Chester Zoo, UK
Dr. Mário Gabriel Santiago dos Santos, Universidade de Trás-os-Montes e Alto Douro, Quinta de Prados, Vila Real, Portugal
Dr. Grant Connette, Smithsonian Institution, Royal, VA, USA
Dr. M. Zafar-ul Islam, Prince Saud Al Faisal Wildlife Research Center, Taif, Saudi Arabia

Mammals

Dr. Giovanni Amori, CNR - Institute of Ecosystem Studies, Rome, Italy
Dr. Anwaruddin Chowdhury, Guwahati, India
Dr. David Mallon, Zoological Society of London, UK
Dr. Shomita Mukherjee, SACON, Coimbatore, Tamil Nadu, India
Dr. Angie Appel, Wild Cat Network, Germany
Dr. P.O. Nameer, Kerala Agricultural University, Thrissur, Kerala, India
Dr. Ian Redmond, UNEP Convention on Migratory Species, Lansdown, UK
Dr. Heidi S. Riddle, Riddle's Elephant and Wildlife Sanctuary, Arkansas, USA
Dr. Karin Schwartz, George Mason University, Fairfax, Virginia.
Dr. Lala A.K. Singh, Bhubaneswar, Orissa, India
Dr. Mewa Singh, Mysore University, Mysore, India
Dr. Paul Racey, University of Exeter, Devon, UK
Dr. Honnavalli N. Kumara, SACON, Anaikatty P.O., Coimbatore, Tamil Nadu, India
Dr. Nishith Dharaiya, HNG University, Patan, Gujarat, India
Dr. Spartaco Gippoliti, Socio Onorario Società Italiana per la Storia della Fauna "Giuseppe Altobello", Rome, Italy
Dr. Justus Joshua, Green Future Foundation, Tiruchirappalli, Tamil Nadu, India
Dr. H. Raghuram, The American College, Madurai, Tamil Nadu, India
Dr. Paul Bates, Harison Institute, Kent, UK
Dr. Jim Sanderson, Small Wild Cat Conservation Foundation, Hartford, USA
Dr. Dan Challender, University of Kent, Canterbury, UK
Dr. David Mallon, Manchester Metropolitan University, Derbyshire, UK
Dr. Brian L. Cypher, California State University-Stanislaus, Bakersfield, CA
Dr. S.S. Talmale, Zoological Survey of India, Pune, Maharashtra, India
Prof. Karan Bahadur Shah, Budhanilakantha Municipality, Kathmandu, Nepal
Dr. Susan Cheyne, Borneo Nature Foundation International, Palangkaraja, Indonesia
Dr. Hemanta Kafley, Wildlife Sciences, Tarleton State University, Texas, USA

Other Disciplines

Dr. Aniruddha Belsare, Columbia MO 65203, USA (Veterinary)
Dr. Mandar S. Paingankar, University of Pune, Pune, Maharashtra, India (Molecular)
Dr. Jack Tordoff, Critical Ecosystem Partnership Fund, Arlington, USA (Communities)
Dr. Ulrike Streicher, University of Oregon, Eugene, USA (Veterinary)
Dr. Hari Balasubramanian, EcoAdvisors, Nova Scotia, Canada (Communities)
Dr. Rayanna Hellem Santos Bezerra, Universidade Federal de Sergipe, São Cristóvão, Brazil
Dr. Jamie R. Wood, Landcare Research, Canterbury, New Zealand
Dr. Wendy Collinson-Jonker, Endangered Wildlife Trust, Gauteng, South Africa
Dr. Rajeshkumar G. Jani, Anand Agricultural University, Anand, Gujarat, India
Dr. O.N. Tiwari, Senior Scientist, ICAR-Indian Agricultural Research Institute (IARI), New Delhi, India
Dr. L.D. Singla, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, India
Dr. Rupika S. Rajakaruna, University of Peradeniya, Peradeniya, Sri Lanka
Dr. Bahar Baviskar, Wild-CER, Nagpur, Maharashtra 440013, India

Reviewers 2018–2020

Due to pausity of space, the list of reviewers for 2018–2020 is available online.

The opinions expressed by the authors do not reflect the views of the Journal of Threatened Taxa, Wildlife Information Liaison Development Society, Zoo Outreach Organization, or any of the partners. The journal, the publisher, the host, and the partners are not responsible for the accuracy of the political boundaries shown in the maps by the authors.

Print copies of the Journal are available at cost. Write to:
The Managing Editor, JoTT,
c/o Wildlife Information Liaison Development Society,
No. 12, Thiruvannamalai Nagar, Saravanampatti - Kalapatti Road,
Saravanampatti, Coimbatore, Tamil Nadu 641035, India
ravi@threatenedtaxa.org

Journal of Threatened Taxa is indexed/abstracted in Bibliography of Systematic Mycology, Biological Abstracts, BIOSIS Previews, CAB Abstracts, EBSCO, Google Scholar, Index Copernicus, Index Fungorum, JournalSeek, National Academy of Agricultural Sciences, NewJour, OCLC WorldCat, SCOPUS, Stanford University Libraries, Virtual Library of Biology, Zoological Records.

NAAS rating (India) 5.64



OPEN ACCESS



The Journal of Threatened Taxa (JoTT) 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, reproduction, and distribution of articles in any medium by providing adequate credit to the author(s) and the source of publication.

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

September 2021 | Vol. 13 | No. 11 | Pages: 19431-19674

Date of Publication: 26 September 2021 (Online & Print)

DOI: 10.11609/jott.2021.13.11.19431-19674

www.threatenedtaxa.org

Articles

Understanding human-flying fox interactions in the Agusan Marsh Wildlife Sanctuary as basis for conservation policy interventions

– Sherryl L. Paz & Juan Carlos T. Gonzalez, Pp. 19431–19447

Argentinian odonates (dragonflies and damselflies): current and future distribution and discussion of their conservation

– A. Nava-Bolaños, D.E. Vrech, A.V. Peretti & A. Córdoba-Aguilar, Pp. 19448–19465

Communications

The diel activity pattern of small carnivores of Western Ghats, India: a case study at Nelliampathies in Kerala, India

– Devika Sanghamithra & P.O. Nameer, Pp. 19466–19474

Distribution and threats to Smooth-Coated Otters *Lutrogale perspicillata* (Mammalia: Carnivora: Mustelidae) in Shuklaphanta National Park, Nepal

– Gopi Krishna Joshi, Rajeev Joshi & Bishow Poudel, Pp. 19475–19483

Wildlife hunting practices of the Santal and Oraon communities in Rajshahi, Bangladesh

– Azizul Islam Barkat, Fahmida Tasnim Liza, Sumaiya Akter, Ashikur Rahman Shome & M. Fazle Rabbe, Pp. 19484–19491

Ethnozoological use of primates in northeastern India

– Deborah Daolagupu, Nazimur Rahman Talukdar & Parthankar Choudhury, Pp. 19492–19499

Factors influencing the flush response and flight initiation distance of three owl species in the Andaman Islands

– Shanmugavel Sureshmarimuthu, Santhanakrishnan Babu, Honnavalli Nagaraj Kumara & Nagaraj Rajeshkumar, Pp. 19500–19508

Birds of Barandabhar Corridor Forest, Chitwan, Nepal

– Saneer Lamichhane, Babu Ram Lamichhane, Kapil Pokharel, Pramod Raj Regmi, Tulasi Prasad Dahal, Santosh Bhattarai, Chiranjibi Prasad Pokheral, Pabitra Gotame, Trishna Rayamajhi, Ram Chandra Kandel & Aashish Gurung, Pp. 19509–19526

On some additions to the amphibians of Gunung Inas Forest Reserve, Kedah, Peninsular Malaysia

– Shahriza Shahrudin, Pp. 19527–19539

Reviews

A review of research on the distribution, ecology, behaviour, and conservation of the Slender Lorises *Loris lydekkerianus* (Mammalia: Primates: Lorisidae) in India

– Mewa Singh, Mridula Singh, Honnavalli N. Kumara, Shanthala Kumar, Smitha D. Gnanaolivu & Ramamoorthy Sasi, Pp. 19540–19552

Bivalves (Mollusca: Bivalvia) in Malaysian Borneo: status and threats

– Abdulla-Al-Asif, Hadi Hamli, Abu Hena Mustafa Kamal, Mohd Hanafi Idris, Geoffrey James Gerusu, Johan Ismail & Muyassar H. Abualreesh, Pp. 19553–19565

Disentangling earthworm taxonomic stumbling blocks using molecular markers

– Azhar Rashid Lone, Samrendra Singh Thakur, Nalini Tiwari, Olusola B. Sokefun & Shweta Yadav, Pp. 19566–19579

A reference of identification keys to plant-parasitic nematodes (Nematoda: Tylenchida\Tylenchomorpha)

– Reza Ghaderi, Manouchehr Hosseini & Ali Eskandari, Pp. 19580–19602

Short Communications

Catalogue of herpetological specimens from Meghalaya, India at the Salim Ali Centre for Ornithology and Natural History

– S.R. Chandramouli, R.S. Naveen, S. Sureshmarimuthu, S. Babu, P.V. Karunakaran & Honnavalli N. Kumara, Pp. 19603–19610

A preliminary assessment of odonate diversity along the river Tirthan, Great Himalayan National Park Conservation Area, India with reference to the impact of climate change

– Amar Paul Singh, Kritish De, Virendra Prasad Uniyal & Sambandam Sathyakumar, Pp. 19611–19615

A checklist of orthopteran fauna (Insecta: Orthoptera) with some new records in the cold arid region of Ladakh, India

– M. Ali, M. Kamil Usmani, Hira Naz, Tajamul Hassan Baba & Mohsin Ali, Pp. 19616–19625

New distribution records of two *Begonias* to the flora of Bhutan

– Phub Gyeltshen & Sherab Jamtsho, Pp. 19626–19631

Rediscovery of *Aponogeton lakhonensis* A. Camus (Aponogetonaceae): a long-lost aquatic plant of India

– Debolina Dey, Shrirang Ramchandra Yadav & Nilakshee Devi, Pp. 19632–19635

***Glyphochloa acuminata* (Hack.) Clayton var. *laevis* (Poaceae): a new variety from central Western Ghats of Karnataka, India**

– H.U. Abhijit & Y.L. Krishnamurthy, Pp. 19636–19639

A cytomorphological investigation of three species of the genus *Sonchus* L. (Asterales: Asteraceae) from Punjab, India

– M.C. Sidhu & Rai Singh, Pp. 19640–19644

***Dryopteris lunanensis* (Dryopteridaceae) - an addition to the pteridophytic diversity of India**

– Chhandam Chanda, Christopher Roy Fraser-Jenkins & Vineet Kumar Rawat, Pp. 19645–19648

Notes

First record of Spotted Linsang *Prionodon pardicolor* (Mammalia: Carnivora: Prionodontidae) with photographic evidence in Meghalaya, India

– Papori Khatonier & Adrian Wansaindor Lyngdoh, Pp. 19649–19651

First record of the Eastern Cat Snake *Boiga gocool* (Gray, 1835) (Squamata: Colubridae) from Tripura, India

– Sumit Nath, Biswajit Singh, Chiranjib Debnath & Joydeb Majumder, Pp. 19652–19656

First record of the genus *Tibetanja* (Lepidoptera: Eupterotidae: Janinae) from India

– Alka Vaidya & H. Sankararaman, Pp. 19657–19659

***Austroborus cordillerae* (Mollusca: Gastropoda) from central Argentina: a rare, little-known land snail**

– Sandra Gordillo, Pp. 19660–19662

Intestinal coccidiosis (Apicomplexa: Eimeriidae) in a Himalayan Griffon Vulture *Gyps himalayensis*

– Vimalraj Padayatchiar Govindan, Parag Madhukar Dhakate & Ayush Uniyal, Pp. 19663–19664

Two new additions to the orchid flora of Assam, India

– Sanswarg Basumatary, Sanjib Baruah & Lal Ji Singh, Pp. 19665–19670

Wildlife art and illustration – combining black and white ink drawings with colour: some experiments in Auroville, India

– M. Eric Ramanujam & Joss Brooks, Pp. 19671–19674

Publisher & Host

