



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](http://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.

# Journal of Threatened Taxa

Building evidence for conservation globally

[www.threatenedtaxa.org](http://www.threatenedtaxa.org)

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

## NOTE

### AN ADDITIONAL RECORD OF THE TAMDIL LEAF-LITTER FROG *LEPTOBRACHELLA TAMDIL* (SENGUPTA ET AL., 2010) (AMPHIBIA: MEGOPHRYIDAE) FROM DAMPA TIGER RESERVE, MIZORAM, INDIA

Vanlalsiammawii, Remruatpuii, V.L. Malsawmhriatzuali, Lalmuansanga,  
Gospel Zothanmawia Hmar, Saisangpuia Sailo, Ht. Decemson, Lal Biakzuala &  
H.T. Lalremsanga

26 May 2020 | Vol. 12 | No. 8 | Pages: 15951–15954

DOI: 10.11609/jott.5999.12.8.15951-15954



For Focus, Scope, Aims, Policies, and Guidelines visit <https://threatenedtaxa.org/index.php/JoTT/about/editorialPolicies#custom-0>

For Article Submission Guidelines, visit <https://threatenedtaxa.org/index.php/JoTT/about/submissions#onlineSubmissions>

For Policies against Scientific Misconduct, visit <https://threatenedtaxa.org/index.php/JoTT/about/editorialPolicies#custom-2>

For reprints, contact <[ravi@threatenedtaxa.org](mailto:ravi@threatenedtaxa.org)>

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.

Member



Publisher & Host







## An additional record of the Tamdil Leaf-litter Frog *Leptobrachella tamdil* (Sengupta et al., 2010) (Amphibia: Megophryidae) from Dampa Tiger Reserve, Mizoram, India

Vanlalsiammawii<sup>1</sup> , Remruatpuii<sup>2</sup> , V.L. Malsawmhriatzuali<sup>3</sup> , Lalmuansanga<sup>4</sup> ,  
Gospel Zothanmawia Hmar<sup>5</sup> , Saisanguia Sailo<sup>6</sup> , Ht. Decemson<sup>7</sup> , Lal Biakzuala<sup>8</sup> &  
H.T. Lalremsanga<sup>9</sup>

<sup>1–9</sup> Department of Zoology, Mizoram University, P.O Box No. 190 Tanhril, Aizawl, Mizoram 796004, India.

<sup>1</sup>siammawikito@gmail.com, <sup>2</sup>remruatpuii@gmail.com, <sup>3</sup>mssyhmars5@gmail.com, <sup>4</sup>muana1421@gmail.com, <sup>5</sup>goszhmar@gmail.com,

<sup>6</sup>takawka78@gmail.com, <sup>7</sup>htdecemson@gmail.com, <sup>8</sup>bzachawngthu123@gmail.com, <sup>9</sup>htlrsa@yahoo.co.in (corresponding author)

Among anurans, family Megophryidae consists of 251 species with two subfamilies, of which the subfamily Leptobrachiinae is the largest with 154 species under four genera. The Tamdil Leaf-litter Frog belongs to the genus *Leptobrachella* Smith, 1925, which includes 75 species known to be distributed from southern China, northeastern India, Myanmar through Thailand, Vietnam to Malaya, Borneo, and Natuna Island (Frost 2020). *Leptobrachella tamdil* was described by Sengupta et al. (2010) as *Leptolalax tamdil* on the basis of two specimens collected from Tamdil National Wetland, Mizoram, northeastern India on the 19 April 2007. After its description, many herpetological surveys did not yield additional specimens from the type locality and its surrounding habitats (Lalremsanga et al. 2015; Lalropeki 2018; Lalbiakzuala & Lalremsanga 2019). The species remains known only from its type locality for more than a decade. This paper presents a third specimen of *L. tamdil* which was rediscovered from Dampa Tiger Reserve, Mamit District, Mizoram.

Dampa Tiger Reserve, the largest protected area in Mizoram is located in Mamit District along the international border with Bangladesh. It covers an area of ca. 500km<sup>2</sup> (23.387–23.705 °N & 92.273–92.431 °E) and lies in the western part of Mizoram. It has remained one of the least explored areas of northeastern India and till date, very few studies have been taken up to record its faunal richness. During herpetological collections for an inventory 14 February 2020, an individual, adult male frog was collected from Tuilut Stream (23.697°N & 92.371°E, 449m) at around 19.15h ca. 59km west of the type locality. The collected specimen (MZMU–1631) is preserved in 70% ethanol and catalogued in the Departmental Museum of Zoology, Mizoram University, Aizawl, Mizoram, India. Careful observation of the specimen revealed it to be the Tamdil Leaf-litter Frog *Leptobrachella tamdil* (Sengupta et al. 2010). The morphometric measurements were taken with Mitutoyo (505-730 D15TX) dial callipers and are given to the nearest 0.1mm. The sex was determined through

**Editor:** Neelesh Dahanukar, Indian Institute of Science Education and Research (IISER), Pune, India.

**Date of publication:** 26 May 2020 (online & print)

**Citation:** Vanlalsiammawii, Remruatpuii, V.L. Malsawmhriatzuali, Lalmuansanga, G.Z. Hmar, S. Sailo, Ht. Decemson, L. Biakzuala & H.T. Lalremsanga (2020). An additional record of the Tamdil Leaf-litter Frog *Leptobrachella tamdil* (Sengupta et al., 2010) (Amphibia: Megophryidae) from Dampa Tiger Reserve, Mizoram, India. *Journal of Threatened Taxa* 12(8): 15951–15954. <https://doi.org/10.11609/jott.5999.12.8.15951-15954>

**Copyright:** © Vanlalsiammawii et al. 2020. 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:** National Mission for Himalayan Studies (NMHS), Uttarakhand and Department of Biotechnology (DBT), New Delhi.

**Competing interests:** The authors declare no competing interests.

**Acknowledgements:** We thank the Chief Wildlife Warden, Department of Environment, Forest and Climate Change, Government of Mizoram for the permission of herpetofaunal collections in Mizoram (Memo No: A. 33011/2/99-CWLW/225). We acknowledged the National Mission for Himalayan Studies (NMHS), Uttarakhand and Department of Biotechnology (DBT), New Delhi for financial assistance. We also appreciated the forest staff of Dampa Tiger Reserve for their help and cooperation during the course of field work.



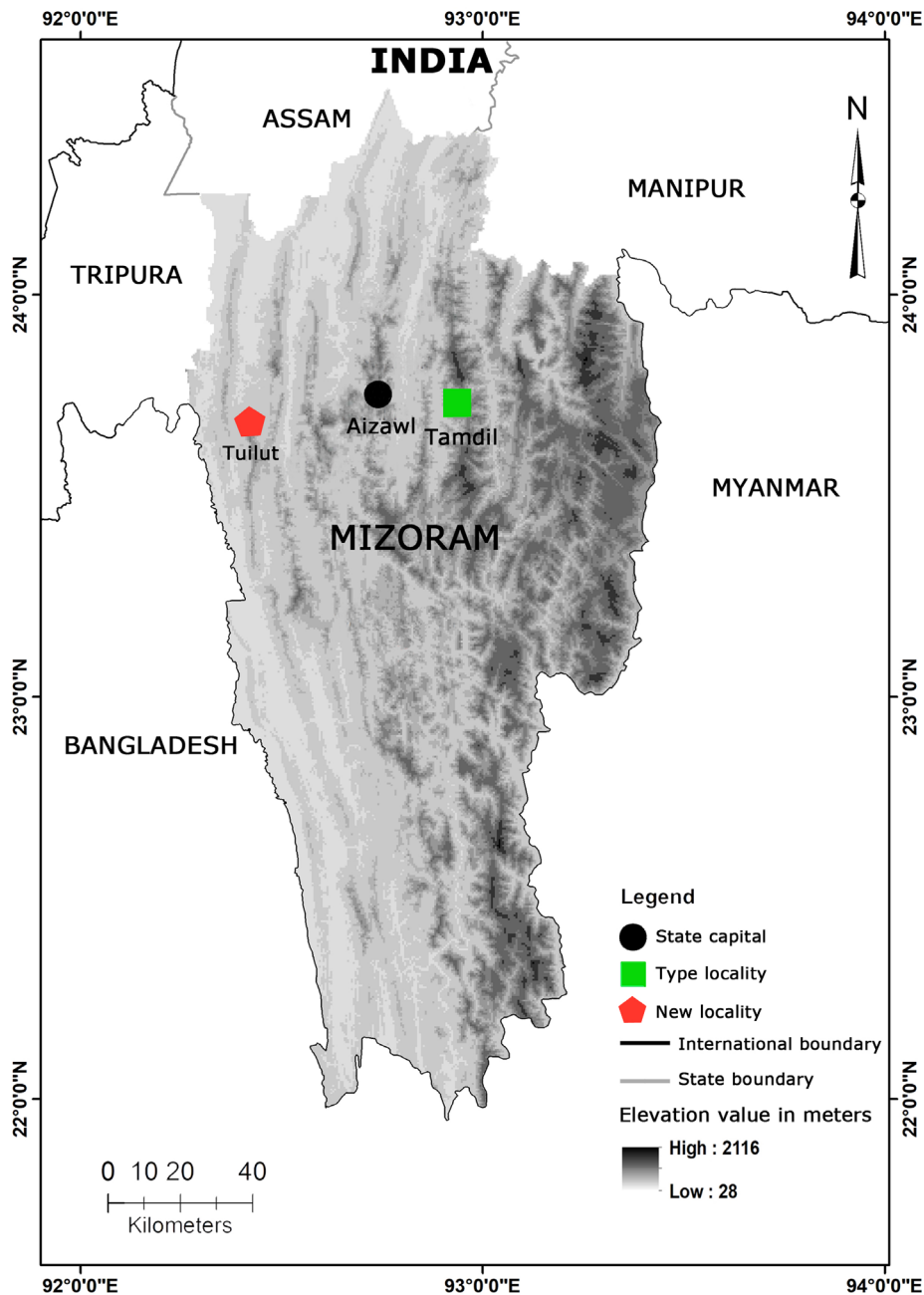


Figure 1. Mizoram State showing the type locality (in green square) and new locality (in red polygon) of *Leptobrachella tamdil*.

dissection.

We used the following abbreviations for measurements and morphometry: SVL – snout to vent length (from tip of snout to vent); IN – internarial distance (distance between nostrils); HL – head length (distance between angle of jaws and snout-tip); HW – head width (measured at angle of jaws); HD – head depth (greatest transverse depth of head, taken posterior of the orbital region); ED – eye diameter (horizontal diameter of the eyes); E-S – eye to snout distance (distance between anterior-most point of eyes and tip of snout); E-N – eye

to nostril distance (distance between anterior-most point of eyes and nostrils); E-T – eye to tympanum distance (distance between posterior corner of orbit and anterior corner of tympanum); UE – upper eyelid width (greatest width of upper eyelid); IO – interorbital distance (least distance between upper eyelids); HTD – horizontal tympanum diameter (greatest diameter of tympanum along horizontal plane); VTD – vertical tympanum diameter (greatest diameter of tympanum along vertical plane); FL – forelimb length (distance between elbow and base of outer tubercle); F1 – first



Image 1. A male *Leptobrachella tamdil* collected from Tuilut Stream in Dampa Tiger Reserve, Mizoram, northeastern India.

finger length; F2 – second finger length; F3 – third finger length; F4 – Fourth finger length; TBL – tibia length (distance between surface of knee and surface of heel, with both tibia and tarsus flexed); IMT – length of inner metatarsal tubercle (greatest length of inner metatarsal tubercle); IPT - length of inner palmar tubercle (greatest length of inner palmar tubercle); T1 – first toe length; T2 – second toe length; T3 – third toe length; T4 – fourth toe length; T5 – fifth toe length; A–G – axilla to groin distance (distance between posterior edge of forelimb at its insertion to body to anterior edge of hind limb at its insertion to body) and BW – body width (greatest width of body).

The specimen is mid-sized (SVL 31.3mm smaller than 32.3mm in the male holotype) (Image 1; Table 1), allocated to *Leptobrachella tamdil* (Sengupta et al. 2010) showing the following combination of characters: head wider than long (HW/HL ratio 1.14); vocal sac indistinct; snout obtusely pointed when viewed dorsally and laterally; projecting slightly beyond mandible; nostrils dorso-laterally positioned, nearer to tip of snout than to eye (E-N/E-S ratio 0.52); canthus rostralis obtuse; internarial distance greater than distance from anterior margin of eye to nostril (IN/E-N ratio 1.28); eye large (ED/HL ratio 0.47; ED/E-N ratio 1.72); pupil elliptical; interorbital space flattened, interorbital width greater than upper eyelid width (IO/UE ratio 1.55); vomerine teeth absent; choanae located at anterior of palate; tongue subtriangular, bifid; snout smooth; dorsum tuberculate; tuberculated eyelids; tympanum & supratympanic fold distinct; supratympanic fold

Table 1. Morphometric measurements of *Leptobrachella tamdil* including holotype (ZSI A10962), paratype (ZSI A10963) and present specimen (MZMU 1631, collected from Dampa Tiger Reserve, Mamit District, Mizoram).

	ZSI A10962 (Holotype)	ZSI A10963 (Paratype)	MZMU 1631
Sex	Adult male	Adult female	Adult male
Morphometric (in mm)			
SVL	32.3	31.8	31.3
IN	3.2	3.1	3.2
HL	8.7	8.8	9.2
HW	12.0	12.0	10.5
HD	5.2	4.8	4.4
ED	4.5	4.6	4.3
IO	5.1	5.8	4.8
E-S	4.7	4.7	4.6
E-N	2.8	2.7	2.5
E-T	1.1	1.4	1.3
UE	3.4	3.5	3.1
HTD	2.9	3.1	2.5
VTD	2.3	2.2	2.1
FL	4.3	3.5	4.1
TBL	16.0	15.7	14.2
IMT	1.9	1.8	1.8
IPT	2.2	1.8	2.1
A-G	13.8	13.8	13.7
BW	9.7	11.9	9.8

extending to posterior edge of tympanum; macroglands (preaxillary, pectorals, femoral and ventrolateral glands) present; under surfaces of forelimbs, shanks & thighs smooth. Fore limbs short (FL/SVL ratio 0.29); nuptial pads absent; indistinct subarticular tubercles; relative length of fingers: F3 > F2 > F1 > F4 (7.3mm > 4.5mm > 4.4mm > 4.2mm); fingers lacking webbing, tips rounded, not disk-like; inner and outer metacarpals present. Hind limbs relatively long and slender (TBL/SVL ratio 0.49), with heels overlapping when limbs are held perpendicular to body; outer metatarsal tubercle absent; toe webbing basal, tips not dilated apically, bearing dermal fringes; relative length of toes: T4 > T3 > T5 > T2 > T1 (12.4 mm > 9.3mm > 8.6mm > 6.3mm > 3.8mm); subarticular tubercles indistinct. The morphometric data is provided in Table 1.

In life, forehead and dorsum mid-grey, with irregular dark grey blotches; flanks with large dark blotches; that partially encircle pale tubercles; eyes with bright orange iris pigmentation mostly restricted to upper orbit;





Image 2. Habitat in which *Leptobrachella tamdil* was found at Tuilut stream, Dampa Tiger Reserve, Mizoram, northeastern India.

blackish dark vertical ellipsoid pupil; dark tympanic mask present; venter pale pinkish grey; dark greyish-black labial bars present and limbs with dark cross-bars; fingers and toes with faint dark transverse stripes; macroglands pale pink.

The habitat where the specimen was found is located in the core area of the western part of Dampa Tiger Reserve. The natural vegetation in the reserve is tropical evergreen to semi-evergreen, corresponding to the Cachar Tropical Evergreen 1B/C3 and semi-evergreen 2B/C2 forest (Champion & Seth 1968). The forest in the moist valleys is lofty and evergreen, while the steeper slopes on the west aspect have more deciduous elements, often with sympodial bamboos in the understory. Tuilut, the slow-flowing stream where sampling took place (Image 2; Fig. 1), is surrounded by tropical evergreen and moist deciduous forest dominated by *Oroxylum indicum*, *Trema orientalis*, *Ziziphus ncurve*, *Calamus erectus*, *Tinospora cordifolia*, *Acacia pennata*, *Calamus acanthospathus*, *Ulmus lancifolia*, *Macropanax dispermus*, *Pandanus fascicularis*, *Pterospermum acerifolium*, *Ficus fistulosa*, and *Melocana baccifera*. The specimen was collected from the exposed pebbles in the vicinity of a slow-flowing stream. Atmospheric temperature and relative humidity during the collection period were 14.7°C and 81.9 %, respectively. Other frogs found in sympatry include *Amnirana* cf. *nicobariensis*,

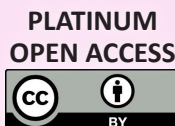
*Amolops* sp., *Microhyla berdmorei*, and *Odorrana chloronota*.

At present, as only three individuals are recorded so far, there is still very little information on the natural history and distribution range of *L. tamdil*. In fact, the conservation status for the species remains ambiguous till recently, where Deuti (2013) categorized this species as data deficient but later changed the status into not assessed by Dinesh et al. (2019), however, we suggested that the species is very rare, solitary and secretive with nocturnal behavior, and in need of a proper assessment on its conservation status. The macrohabitat of *L. tamdil* appears to consist primarily of slow-flowing stream mixed with rocky terrain within tropical semi-evergreen forest. By updating our knowledge of the distribution, *L. tamdil* remains endemic to Mizoram, India. Other aspects of the natural history of *L. tamdil* remain largely unknown and considerable work remains in order to fill gaps in its known range and determine whether its distribution extends further outside the state of Mizoram.

## References

- Champion, S.H.G. & S.K. Seth (1968). *A Revised Survey of the Forest Types of India*. The Manager of Publication, Govt. of India, New Delhi, 404pp.
- Deuti, K. (2013). Amphibia, pp. 67–137. In: Venkataraman, K., A. Chattopadhyay & K.A. Subramanian (eds). *Endemic Animals of India (Vertebrates)*. Zoological Survey of India, Kolkata, 235pp+26plates.
- Dinesh, K.P., C. Radhakrishnan, B.H. Channakeshavamurthy, P. Deepak & N.U. Kulkarni (2019). A checklist of amphibians of India with IUCN conservation status. Version 2.0. Online publication is available at [www.zsi.gov.in](http://www.zsi.gov.in) Updated till January 2019. (Downloaded on 10 April 2020)
- Frost, D.R. (2020). Amphibian Species of the World: an Online Reference. Version 6.1 (15.04.2020). Electronic Database accessible at <https://amphibiansoftheworld.amnh.org/index.php>. American Museum of Natural History, New York, USA. Accessed on 10 April 2020.
- Lalbiakzuala & H.T. Lalremsanga (2019). Geographic Distribution: India, Mizoram: *Fejervarya multistriata* (Amphibia: Anura: Dicroglossidae). *Herpetological Review* 52(2): 321.
- Lalremsanga, H.T., S. Sailo, C. Lalrinchhana, S. Lalronunga & Lalrotluanga (2015). Survey on the herpetofauna of Tamdil National Wetland, Mizoram, India, pp. 207–216. In: Sanyal, A.K., S.K. Gupta & S. Manna (eds.). *Biodiversity and Livelihood: Proceedings of National Conference on Biodiversity-Issues, Concern & Future Strategies*. 409pp.
- Lalropeki, E.S. (2018). Survey and documentation on the amphibian fauna of Tamdil National Wetland. MSc Thesis. Department of Zoology, Mizoram University, 72pp.
- Sengupta, S., S. Sailo, H.T. Lalremsanga, A. Das & I. Das (2010). A new species of *Leptolalax* (Anura: Megophryidae) from Mizoram, north-eastern India. *Zootaxa* 2406: 57–68.
- Smith, M.A. (1925). Contributions to the herpetology of Borneo. *Sarawak Museum Journal* 3: 15–34.





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](http://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)

May 2020 | Vol. 12 | No. 8 | Pages: 15767–15966

Date of Publication: 26 May 2020 (Online & Print)

DOI: 10.11609/jott.2020.12.8.15767-15966

[www.threatenedtaxa.org](http://www.threatenedtaxa.org)

## Communications

### Mammalian fauna in an urban influenced zone of Chandaka-Dampara Wildlife Sanctuary in Odisha, India

– Subrat Debata & Kedar Kumar Swain, Pp. 15767–15775

### Species in peril: assessing the status of the trade in pangolins in Nepal

– Prayash Ghimire, Nirjala Raut, Pragya Khanal, Suman Acharya & Suraj Upadhyaya, Pp. 15776–15783

### Diversity and synanthropy of flies (Diptera: Calypttratae) from Ecuador, with new records for the country

– Karen Blacio, Jonathan Liria & Ana Soto-Vivas, Pp. 15784–15793

### Butterfly diversity in Gidakom Forest Management Unit, Thimphu, Bhutan

– Thal Prasad Koirala, Bal Krishna Koirala & Jaganath Koirala, Pp. 15794–15803

### Butterfly diversity in heterogeneous habitat of Bankura, West Bengal, India

– Kalyan Mukherjee & Ayan Mondal, Pp. 15804–15816

### A second report on butterflies (Lepidoptera) from Ladakh Union Territory and Lahaul, Himachal Pradesh, India

– Sanjay Sondhi, Balakrishnan Valappil & Vidya Venkatesh, Pp. 15817–15827

### Collecting parasitic Aculeata (Hymenoptera) from rice ecosystems of Tamil Nadu, India

– J. Alfred Daniel & K. Ramaraju, Pp. 15828–15834

### An annotated checklist of sea slug fauna of Gujarat coast, India

– Piyush Vadher, Hitesh Kardani & Imtiyaz Belem, Pp. 15835–15851

### Additional description of the Algae Hydroid *Thyroscyphus ramosus* (Hydrozoa: Leptothecata: Thyroscyphidae) from Palk Bay, India with insights into its ecology and genetic structure

– G. Arun, R. Rajaram & K. Kaleshkumar, Pp. 15852–15863

### Floristic composition and distribution pattern of herbaceous plant diversity in fallow lands of the central districts of Punjab, India

– Jashanpreet Kaur, Rajni Sharma & Pushp Sharma, Pp. 15864–15880

### Morphological and molecular phylogenetic studies on *Battarrea phalloides* (Agaricales): a new report to Indian mycobiota

– R. Kantharaja & M. Krishnappa, Pp. 15881–15888

### Diversity of polypores in Kerala Agricultural University main campus, Vellanikkara, Kerala, India

– M. Kiran, C.K. Adarsh, K. Vidyasagran & P.N. Ganesh, Pp. 15889–15904

## Short Communications

### On the evidence of the Irrawaddy Dolphin *Orcaella brevirostris* (Owen, 1866) (Mammalia: Cetartiodactyla: Delphinidae) in the Hooghly River, West Bengal, India

– Gargi Roy Chowdhury, Kanad Roy, Naman Goyal, Ashwin Warudkar, Rashid Hasnain Raza & Qamar Qureshi, Pp. 15905–15908

### Avifaunal diversity of Tilyar Lake, Rohtak, Haryana, India

– Jagjeet Singh, Sandeep Antil, Vivek Goyal & Vinay Malik, Pp. 15909–15915

### Life-history traits and courtship behaviour of four poorly known endemic bush frogs (Amphibia: Anura: Rhacophoridae) from the Western Ghats of India

– A.V. Abhijith & Shomen Mukherjee, Pp. 15916–15921

### A first record of *Camacinia harterti* Karsch, 1890 (Odonata: Libellulidae) from Arunachal Pradesh, India

– Arajush Payra, K.A. Subramanian, Kailash Chandra & Basudev Tripathy, Pp. 15922–15926

### Occurrence of *Fulgoraacia* (= *Epiricania*) *melanoleuca* (Lepidoptera: Epipyropidae) as a parasitoid of sugarcane loophopid planthopper *Pyrilla perpusilla* in Tamil Nadu (India) with brief notes on its life stages

– H. Sankararaman, G. Naveenadevi & S. Manickavasagam, Pp. 15927–15931

### A preliminary survey of soil nemafuna of Bhagwan Mahaveer Wildlife Sanctuary, Goa, India

– Kiran Gaude & I.K. Pai, Pp. 15932–15935

### Thirty-nine newly documented plant species of Great Nicobar, India

– Kanakasabapathi Pradheep, Kattukkunnel Joseph John, Iyyappan Jaisankar & Sudhir Pal Ahlawat, Pp. 15936–15944

## Notes

### An observation of homosexual fellatio in the Indian Flying Fox

*Pteropus medius* (Temminck, 1825) (Mammalia: Chiroptera: Pteropodidae)  
– K.S. Gopi Sundar & Swati Kittur, Pp. 15945–15946

### Diurnal observation of a Malayan Krait *Bungarus candidus* (Reptilia: Elapidae) feeding inside a building in Thailand

– Cameron Wesley Hodges, Anji D'souza & Sira Jintapirom, Pp. 15947–15950

### An additional record of the Tamdil Leaf-litter Frog *Leptobrachella tamdil* (Sengupta et al., 2010) (Amphibia: Megophryidae) from Dampa Tiger Reserve, Mizoram, India

– Vanlalsiammawii, Remruatpuii, V.L. Malsawmhriatuali, Lalmuansanga, Gospel Zothanmawia Hmar, Saisangpuia Sailo, Ht. Decemson, Lal Biakzuala & H.T. Lalremsanga, Pp. 15951–15954

### Records of dragonflies and damselflies (Insecta: Odonata) of Dipang Lake, with two new records to Nepal

– K.C. Sajjan & Juddha Bahadur Gurung, Pp. 15955–15961

### Henry's Rattan *Calamus henryanus* Becc. (Arecaceae), a new record to India

– Selim Mehmud & Himu Roy, Pp. 15962–15966

Member



Publisher & Host

