

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

A NEW SUBSPECIES OF THE MALAYAN BAMBOO BAT (CHIROPTERA: VESPERTILIONIDAE: *TYLONYCTERIS MALAYANA EREMTAGA*) FROM THE ANDAMAN ISLANDS, INDIA

Chelmala Srinivasulu, Aditya Srinivasulu, Bhargavi Srinivasulu & Gareth Jones

26 January 2018 | Vol. 10 | No. 1 | Pages: 11210–11217

10.11609/jott.3906.10.1.11210-11217



For Focus, Scope, Aims, Policies and Guidelines visit <http://threatenedtaxa.org/index.php/JoTT/about/editorialPolicies#custom-0>
For Article Submission Guidelines visit <http://threatenedtaxa.org/index.php/JoTT/about/submissions#onlineSubmissions>
For Policies against Scientific Misconduct visit <http://threatenedtaxa.org/index.php/JoTT/about/editorialPolicies#custom-2>
For reprints contact info@threatenedtaxa.org





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

Journal of Threatened Taxa | www.threatenedtaxa.org | 26 January 2018 | 10(1): 11210–11217

A NEW SUBSPECIES OF THE MALAYAN BAMBOO BAT (CHIROPTERA: VESPERTILIONIDAE: *TYLONYCTERIS MALAYANA* *EREMTAGA*) FROM THE ANDAMAN ISLANDS, INDIA

Chelmala Srinivasulu¹, Aditya Srinivasulu², Bhargavi Srinivasulu³ & Gareth Jones⁴

OPEN ACCESS



^{1,3}Natural History Museum and Wildlife Biology & Taxonomy Lab, Department of Zoology, University College of Science, Osmania University, Hyderabad, Telangana 500007, India

²Biodiversity Research and Conservation Society, 303 Nestcon Orchid, Kanajiguda, Tirumalgiri, Secunderabad, Telangana 500015, India

^{1,3}Systematics, Ecology & Conservation Laboratory, Zoo Outreach Organisation (ZOO), No 12, Thiruvannamalai Nagar, Saravanampatti-Kalapatti Road, Saravanampatti, Coimbatore, Tamil Nadu 641035, India

⁴School of Biological Sciences, Life Sciences Building, 24 Tyndall Avenue, Bristol BS8 1TQ, UK

¹chelmalasrinivasulu@gmail.com (corresponding author), ²juramaia98@gmail.com, ³bharisrini@gmail.com, ⁴gareth.jones@bristol.ac.uk

Abstract: The bamboo bats belonging to the genus *Tylonycteris* are unique due to their morphology and ecology, and are known from few locations in South Asia. We collected voucher specimens of *Tylonycteris malayana* from North Andaman Island, which forms the basis of the first specimen-based record of this species from the Andaman & Nicobar Islands, and the second record from India. Our analyses based on morphometrics, craniodental measurements, bacular morphology and molecular phylogeny based on cytochrome c oxidase subunit I gene indicate that the insular population of *T. malayana* may have diversified in isolation to differ from the mainland forms, and could represent putative new subspecies, described herein. In light of the new findings, we discuss the importance of conducting detailed study on the specimens of the Lesser Bamboo Bat earlier reported from the Andaman & Nicobar Islands to ascertain their taxonomic status.

Keywords: Bamboo Bat, cryptic diversity, molecular phylogeny, North Andaman Island, *Tylonycteris pachypus*.

The chiropteran fauna of the Andaman Islands has been the subject of study since 1902 (Miller 1902; Hill 1967; Aul et al. 2014). The family Vespertilionidae is represented by several species, including the bamboo bats of the genus *Tylonycteris*. Hitherto, only the Lesser Bamboo Bat *Tylonycteris pachypus* (Temminck, 1840) was reported from the Andaman Islands (Dobson 1876; Hill 1967; Aul 2014). While studying the chiropteran diversity of the Andaman Islands, we collected two specimens of bamboo bats of the genus *Tylonycteris* from North Andaman Island. Tu et al. (2017) while describing a new species, *T. tonkinensis*, from northeastern Laos and northern Viet Nam, reassigned

DOI: <http://doi.org/10.11609/jott.3906.10.1.11210-11217> | ZooBank: urn:lsid:zoobank.org:pub:3AB096B0-2B14-4D7E-BDD4-8A260768CBA8

Editor: Paul Racey, University of Exeter, Devon, UK.

Date of publication: 26 January 2018 (online & print)

Manuscript details: Ms # 3906 | Received 17 November 2017 | Final received 11 January 2018 | Finally accepted 13 January 2018

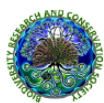
Citation: Srinivasulu, C., A. Srinivasulu, B. Srinivasulu & G. Jones (2018). A new subspecies of the Malayan Bamboo Bat (Chiroptera: Vespertilionidae: *Tylonycteris malayana eremtaga*) from the Andaman Islands, India. *Journal of Threatened Taxa* 10(1): 11210–11217; <http://doi.org/10.11609/jott.3906.10.1.11210-11217>

Copyright: © Srinivasulu et al. 2018. 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: UGC-UKIERI Thematic Partnership Programme, New Delhi; University Grants Commission, New Delhi; Science and Engineering Board, Department of Science and Technology, Government of India

Competing interests: The authors declare no competing interests.

Acknowledgements: The authors thank UGC–UKIERI Thematic Grants Programme, New Delhi; CS thanks DST-SERB, New Delhi; BS (UGC-PDF) thanks UGC, New Delhi for research grants. We thank the Principal Chief Conservator of Forests (Wildlife) and Chief Wildlife Warden, Andaman & Nicobar Forest Department for study and collection permits; staff of the Andaman & Nicobar Forest Department for local logistics. We are thankful to Dr. Paul J.J. Bates and Dr. Malcolm Pearch for access to the collection at the Harrison Zoological Institute and helping us study the collection; Mr. A. Gopi and Mr. Tauseef Hamid Dar, project fellows for field work; the Head, Department of Zoology, Osmania University and UGC DSA-I (SAP II) for necessary facilities; and the locals at Chipu Village for their hospitality.



UKIERI
UK-India Education
and Research Initiative

University of
BRISTOL



the forms of *Tylonycteris robustula* Thomas, 1915 from northeastern India across mainland Southeast Asia to *Tylonycteris malayana* Chasen, 1940, and restricted *T. robustula* s. str. to Sumatra. Detailed study of the specimens from the Andaman Islands, supported by phylogenetic analysis, revealed them to be *T. malayana*, albeit differing from the nominate form, thus prompting the description of a new insular subspecies.

STUDY AREA AND METHODS

As part of an Indo-UK bat survey and conservation project, we surveyed the Andaman Islands between 2014 and 2016. In November 2015, we mist-netted two small male bamboo bats near Bamboo Tekri, Chipu Village, North Andaman Island, and because we were unsure of their identity, preserved them as vouchers. We took external measurements on live specimens and craniodental measurements of the extracted skulls of the vouchers using digital Vernier calipers (Mitutoyo™, to the nearest 0.01 mm). The following external and craniodental measurements were taken—External: FA, forearm length; E, ear length; TL, tail length; Tib, tibia length; Hf, hindfoot length; 3mt, third metacarpal; 4mt, fourth metacarpal; 5mt, fifth metacarpal; 1ph3mt, first phalange of third metacarpal; 2ph3mt, second phalange of third metacarpal; 1ph4mt, first phalange of fourth metacarpal; 2ph4mt, second phalange of fourth

metacarpal; Craniodental: GTL, greatest length of the skull; CBL, condylobasal length; CCL, condylocanine length; CM³, maxillary tooththrow; C¹–C¹, anterior palatal width; M³–M³, posterior palatal width; ZB, zygomatic breadth; BB, braincase breadth; CM₃, mandibular tooththrow; M, mandible length. Bacula were extracted and stained following the standard method (Topal 1958). We compared our specimens with two specimens of *T. malayana* (labelled as *T. robustula* pre-Tu et al. 2017) from Malaysia, housed in the Harrison Zoological Museum, UK (specimen nos. 2.7443 and 3.7444), and also with external and craniodental measurements of the nominate form provided by Vuong Tan Tu (pers. comm., October 31, 2017).

Wing punches from the specimens were taken and preserved in silica gel. Genomic DNA was then extracted using DNEasy Blood and Tissue kit (QIAGEN). A PCR was conducted to amplify partial cytochrome c oxidase subunit 1 (COI) gene sequences using forward and reverse primers VF1d (5'-TTCTCAACCAACCACAARGAYATYGG-3') and VR1d (5'-TAGACTTCTGGGTGGCCRAARAAYCA-3') (Ivanova et al. 2006). The PCR reaction was performed in a 25µl reaction volume containing 2µl of template DNA, 12.5µl of 2X reaction buffer (0.05U/µL Taq DNA polymerase, reaction buffer, 4mM MgCl₂, 0.4mM of each dNTPs), 0.5µl of each primer, and 9.5µl nuclease free water. The thermal profile followed included: 94°C

Table 1. List of cytochrome C oxidase subunit I (COI) sequences used to conduct phylogenetic analysis, with collection localities and GenBank accession numbers.

	Species	Collection locality	GenBank accession no.
1.	<i>Tylonycteris malayana eremtaga</i> ssp. nov.	Near Bamboo Tekri, Chipu Village, North Andaman Island, Andaman and Nicobar Islands, India	MG807173
2.	<i>Tylonycteris malayana</i>	Northeastern India, India	KX496400
3.	<i>Tylonycteris malayana</i>	Northeastern India, India	KX496398
4.	<i>Tylonycteris malayana</i>	Vu Quang National Park, Ha Tinh, Viet Nam	KX496402
5.	<i>Tylonycteris malayana</i>	Virachey National Park, Taveng Village, Rattanakiri, Cambodia	KX496370
6.	<i>Tylonycteris malayana</i>	Kbal Spean, Koulén NP, Siem Reap, Cambodia	KX496420
7.	<i>Tylonycteris malayana</i>	Ulu Kenas Recreational Forest, Perak, Malaysia	KX496394
8.	<i>Tylonycteris pachypus</i>	Pane Bandar Barbu 1,200m, Sumatra, Indonesia	KX496366
9.	<i>Tylonycteris pachypus</i>	Deli, Sumatra, Indonesia	KX496536
10.	<i>Tylonycteris fulvida</i>	Vu Quang NP, Ha Tinh, Viet Nam	KX496474
11.	<i>Tylonycteris fulvida</i>	Na Don, Phuong Vien, Cho Don, Bac Kan Prov., Viet Nam	KX496506
12.	<i>Tylonycteris robustula</i>	Berastagi, Sumatra, Indonesia	KX496367
13.	<i>Tylonycteris robustula</i>	Pane Bandar Barbu 1200m, Sumatra, Indonesia	KX496368
14.	<i>Tylonycteris tonkinensis</i>	Hat Hin, Nam Sing River, Phongsaly Prov., Laos	KX496442
15.	<i>Tylonycteris tonkinensis</i>	Na Don, Phuong Vien, Cho Don, Bac Kan Prov., Viet Nam	KX496431
16.	<i>Pipistrellus javanicus</i>	1km Sw Of Ban Houana, Khammouan, Laos	HM541255
17.	<i>Hypsugo cadornae</i>	Along Banks Of Xekaman, Attapu, Laos	HM540636

for 1 min, five cycles of 94°C for 30s, 50°C for 40s, and 72°C for 1 min, followed by 35 cycles of 94°C for 30s, 55°C for 40s, and 72°C for 1 min, with a final extension at 72°C for 10 min. The amplified PCR products were sequenced using an ABI prism 3730 sequencer (Applied Biosystems, USA) and big dye terminator sequencing kit (ABI Prism, USA). The gene sequence (633 base pairs, GenBank accession number MG807173) obtained in the study was analyzed using BLAST (Altschul et al. 1990) to double-check the quality of the sequence. Additional sequences of other related species were retrieved from the NCBI GenBank database for phylogenetic analysis (Table 1). The sequences were aligned using MUSCLE (Edgar 2004) incorporated in MEGA6 (Tamura et al. 2013) using default parameters. JModelTest 2 was used to choose the best-fitting maximum likelihood DNA substitution model for the dataset, based on Bayesian Information Criterion (BIC) scores for each model type (Guindon & Gascuel 2003; Darriba et al. 2012). The analysis used the Hasegawa-Kishino-Yano + Gamma [ncat=4] (HKY+G, BIC = 5144.08) nucleotide substitution model (Hasegawa et al. 1985). We constructed a Bayesian Inference of phylogeny in the BEAST 1.8.2 package (Drummond et al. 2012), with default priors, using the nucleotide substitution model obtained for a chain length of 10 million generations, sampling every 1000 generations. The tree was rooted using *Pipistrellus javanicus* and *Hypsugo cadornae* as outgroup taxa. We double-checked convergence by plotting likelihood

scores against generations in Tracer v1.6 (Rambaut et al. 2014). The first 20% of the trees were discarded as burn-in, and chronograms were created using TreeAnnotator v1.8.2 (as part of the BEAST package) and visualized in FigTree v1.4.1 (Rambaut 2009). Kimura 2-parameter (K2P) pairwise distances were calculated using MEGA6.

RESULTS

We confirmed the identity of the specimens as *T. malayana*, based on external and craniodental measurements, diagnostic characters, and molecular phylogeny using partial cytochrome c oxidase subunit I gene sequence. Owing to discernible variation in morphological and craniodental measurements, bacular structure, and genetic distance, we describe a new insular subspecies of *T. malayana*.

Tylonycteris malayana eremtaga ssp. nov. (Images 1a,b, 2a–g, 3a–c)

urn:lsid:zoobank.org:act:003A365F-B5E5-4EE8-B150-C7E6D8000731

Andaman Bamboo Bat

Holotype: NHMOU.CHI.151.2015, adult male, 06.xi.2015, near Bamboo Tekri (13.373°N & 92.999°E), Chipu Village, Diglipur, North Andaman Island, Andaman & Nicobar Islands, India; coll. A. Gopi & Tauseef Hamid Dar.

Paratype: NHMOU.CHI.152.2015, adult male, other details same as holotype.



Image 1. *Tylonycteris malayana eremtaga* ssp. nov., holotype (NHMOU.CHI.151.2015) from Chipu Village, North Andaman Island, Andaman Islands, India, showing lateral view of head (a) and ventral view, showing characteristic club-shaped foot (b).

Table 2. External and craniodental measurements of *Tylonycteris malayana eremtaga* ssp. nov. from Chipu Village, North Andaman Island, Andaman Islands, India with comparison of *T. malayana* following Tu et al. (2017), and *T. robustula sensu lato*, following Bates and Harrison (1997), from Northern Myanmar (now included under *T. malayana* as per Tu et al. 2017). For *T. malayana* and *T. robustula sensu lato* the values are mean (range). Measurements are in mm. Abbreviations as stated in text.

Specimen Details	<i>T. malayana eremtaga</i> ssp. nov.		<i>T. malayana</i> (n=29)	<i>T. robustula sensu lato</i>
	Holotype NHMOU.CHI.151.2015 Adult Male	Paratype NHMOU.CHI.152.2015 Adult Male		
External				
HB	37.3	36.0	–	41.1 (40.0–44.0) (n=6)
FA	26.2	23.3	26.4 (25.5–27.5)	27.5 (26.6–28.1) (n=6)
E	10.2	10.2	–	9.7 (8.5–10.5) (n=6)
TI	27.8	26.3	–	28.3 (26.0–31.0) (n=6)
Tib	12.1	10.3	–	–
Hf	6.2	5.8	–	5.3 (5.0–5.5) (n=6)
3mt	25.5	22.9	–	26.1 (25.8–26.4) (n=6)
4mt	25.7	22.5	–	25.8 (25.4–26.0) (n=6)
5mt	24.7	22.2	–	25.0 (24.8–25.6) (n=6)
1ph3mt	11.0	10.4	–	–
2ph3mt	12.3	11.4	–	–
1ph4mt	9.6	8.4	–	–
2ph4mt	5.4	5.5	–	–
Craniodental				
GTL	11.7	11.5	12.34 (11.73–12.90)	12.3 (12.0–12.7) (n=4)
CBL	11.6	11.4	–	–
CCL	10.9	10.7	11.23 (10.66–11.82)	11.3 (11.1–11.7) (n=5)
ZB	8.8	9.0	–	9.0 (8.9–9.1) (n=2)
BB	6.7	6.5	6.78 (6.40–7.36)	7.0 (6.9–7.0) (n=5)
C ¹ –C ¹	3.8	4.0	4.09 (3.81–4.46)	–
CM ³	4.1	3.7	4.06 (3.74–4.31)	4.0 (3.9–4.1) (n=6)
M ³ –M ³	5.5	5.5	5.54 (5.13–5.90)	4.3 (4.3–4.4) (n=4)
CM ₃	3.9	3.8	4.32 (4.08–4.53)	5.6 (5.4–5.8) (n=6)
M	8.1	8.0	8.71 (8.25–9.19)	8.7 (8.5–9.0) (n=6)
RW	6.1	5.7	–	5.5 (5.3–5.6) (n=5)

Diagnosis: A small bat with a forearm length up to 23.3–26.25 mm. Dorsal pelage uniformly grey-brown, venter slightly paler; wings and interfemoral membrane dark brown. Although the new subspecies is essentially similar to nominotypic *T. m. malayana* (see Tu et al. 2017), it varies from the nominate form slightly in having smaller craniodental features (GTL: 11.5 in *T. m. eremtaga* ssp. nov. vs 11.73–12.90 in *T. m. malayana*). The rostrum is robust in *T. m. eremtaga* ssp. nov., shorter and broader than that of the nominate subspecies (CM³: 3.7–4.1 in *T. m. eremtaga* ssp. nov. vs 3.74–4.31 in *T. m. malayana*; RW: 5.7–6.1 in *T. m. eremtaga* ssp. nov. vs 5.3–5.6 in *T. robustula sensu lato* (see Bates & Harrison

1997). Externally, the fur color of *T. m. eremtaga* ssp. nov. appears to be uniform grey-brown while that of *T. m. malayana* is dark brown.

Description: A small bat with a forearm length up to 26.25mm. Head characteristically flat, projecting forwards and downwards (Image 1a). Ears roughly triangular with broadly rounded tips. Tragus short and broad. Base of the thumb and the soles of the feet have broad fleshy pads (Image 1b). Wings short with 3rd, 4th and 5th metacarpals roughly equal in length. Wing and interfemoral membranes dark brown (Image 1a,b), pelage fine and dense, uniformly grey-brown on the dorsum, slightly paler on the ventral surface.

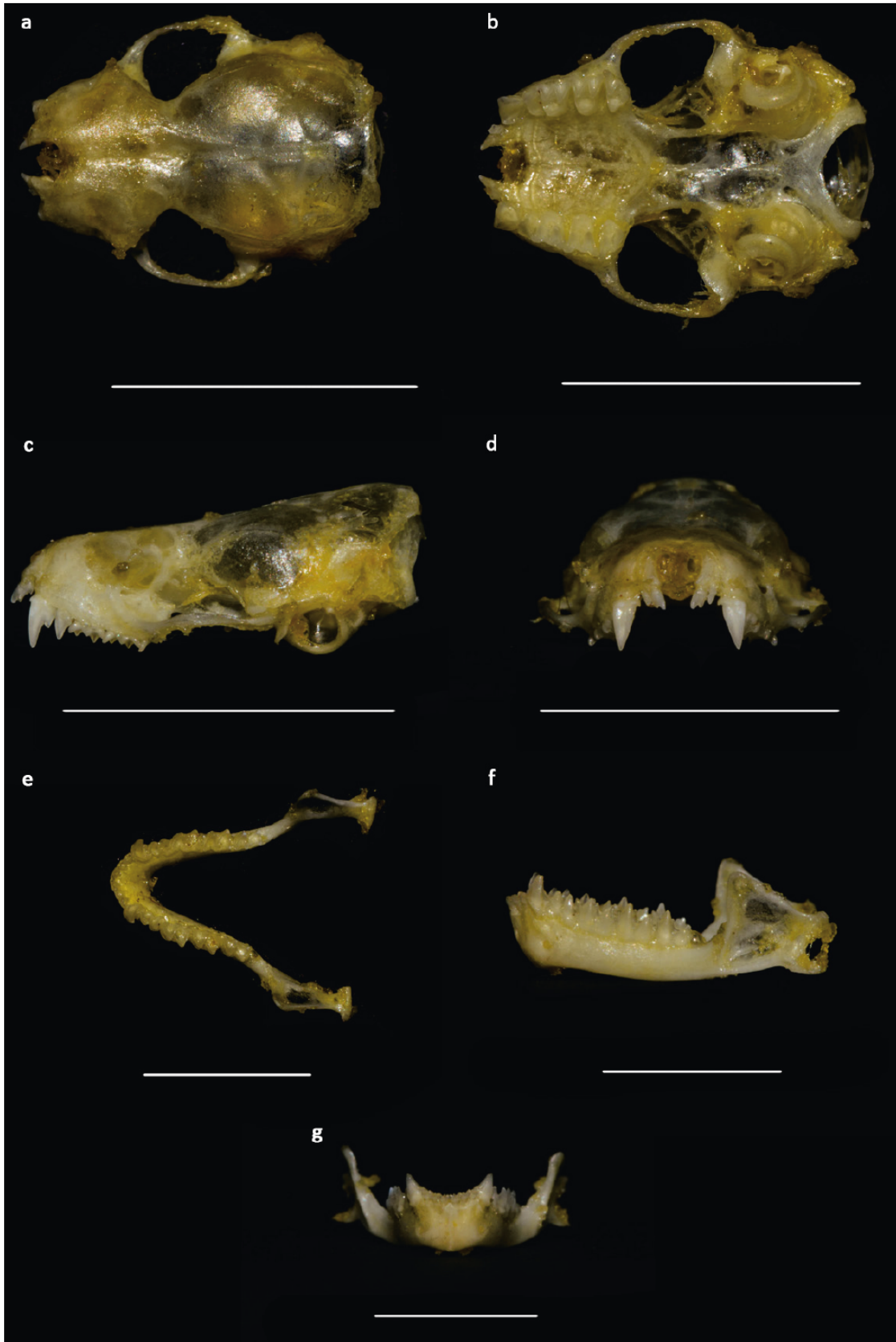


Image 2. Dorsal (a), ventral (b), lateral (c) and frontal (d) view of the skull and dorsal (e), lateral (f) and frontal (g) view of the mandible of *Tylonycteris malayana eremtaga* ssp. nov. (NHMOU.CHI.151.2015) from Chipu Village, North Andaman Island, Andaman Islands, India with detail of size and shape of the upper canine and incisors. Scale = a–c: 10 mm; d–g: 5 mm.

Table 3. K2P pairwise distance matrix of the taxa of genus *Tylonycteris* (Chiroptera: Vespertilionidae)

Species		1	2	3	4	5	6
1	<i>T. m. eremtaga</i> ssp. nov.	0					
2	<i>T. m. malayana</i>	2.2–4%	0				
3	<i>T. tonkinensis</i>	6.4–7%	5.2–5.8%	0			
4	<i>T. robustula</i>	9.50%	6.90%	7.6–8.2%	0		
5	<i>T. fulvida</i>	17.7–19.2%	17.70%	17–19.3%	17.9–19.4%	0	
6	<i>T. pachypus</i>	17.8–19.9%	14.8–16.9%	14.2–15.5%	16.40%	6.4–7.0%	0

Image 3. Dorsal (a), ventral (b) and lateral (c) view of the baculum of *Tylonycteris malayana eremtaga* ssp. nov. (NHMOU.CHI.151.2015) from Chipu Village, North Andaman Island, Andaman Islands, India. Scale = 0.1 mm.

The skull is small, with a length (GTL) up to 11.7mm. The whole skull is characteristically flattened and broad (Image 2a,c,d). The breadth of the braincase exceeds twice the occipital height, and the rostrum is short and broad (Image 2a), with distinct supraorbital projections. Sagittal crest absent. Lambdoid crest weakly developed. Mesopterygoid space wide and short. Horizontal ramus of each half-mandible is relatively thick, coronoid process large, condyle and angular process well developed (Image 2f).

Upper tooththrow length (CM³) up to 3.8mm. The first incisor (*i*³) is large, narrow and bicuspidate; second is unicuspidate and roughly equal to the length of the outer cusp of *i*². The upper canine is separated from *i*³ by a short diastema, and is double the length of *i*². Upper canine has a distinct posterior secondary cusp. Upper premolar (*pm*⁴) has a crown area approximately half that of *m*¹ and slightly exceeds half of the height of the upper canine. *M*¹ slightly exceeds *m*² in breadth, and has a distinct protocone. *M*³ lacks a metastyle but it is not greatly reduced. The three lower incisors are tricuspidate and located adjoining the lower canine. Lower canine weak, not as robust as the upper canine

and slightly exceeding the protoconid of *m*₂ in height. *Pm*₂ and *pm*₄ are equal in size and compressed in the tooththrow, anterior part of *pm*₂ positioned on the posterior cingular cusp of the canine. In *m*₁ and *m*₂, the talonid exceeds the trigonid in size, in *m*₃ they are roughly equal.

The baculum of the new subspecies is located at the tip of the short penis, which has a globular glans. It has a broad, flared base (0.3mm) (Image 3), which is concave in the holotype and slightly notched in the paratype. The shaft of the baculum of the holotype is long (0.4mm in length), straight, with a slight ventral concavity beneath the broadly rounded tip. In the lateral aspect, the shaft of the baculum is long and straight, and the base is flared, unlike that of the nominate subspecies, in which the shaft curves dorsally along its length, and the base is knob-like (Hill & Harrison 1987). The paratype matches the holotype in all characters excepting size (Table 2).

Molecular phylogeny: The phylogenetic tree obtained from the analysis of COI gene of the *Tylonycteris* species supports the distinctness of the Andaman population with the taxa previously assigned to *T. robustula* sensu lato and *T. pachypus* sensu lato

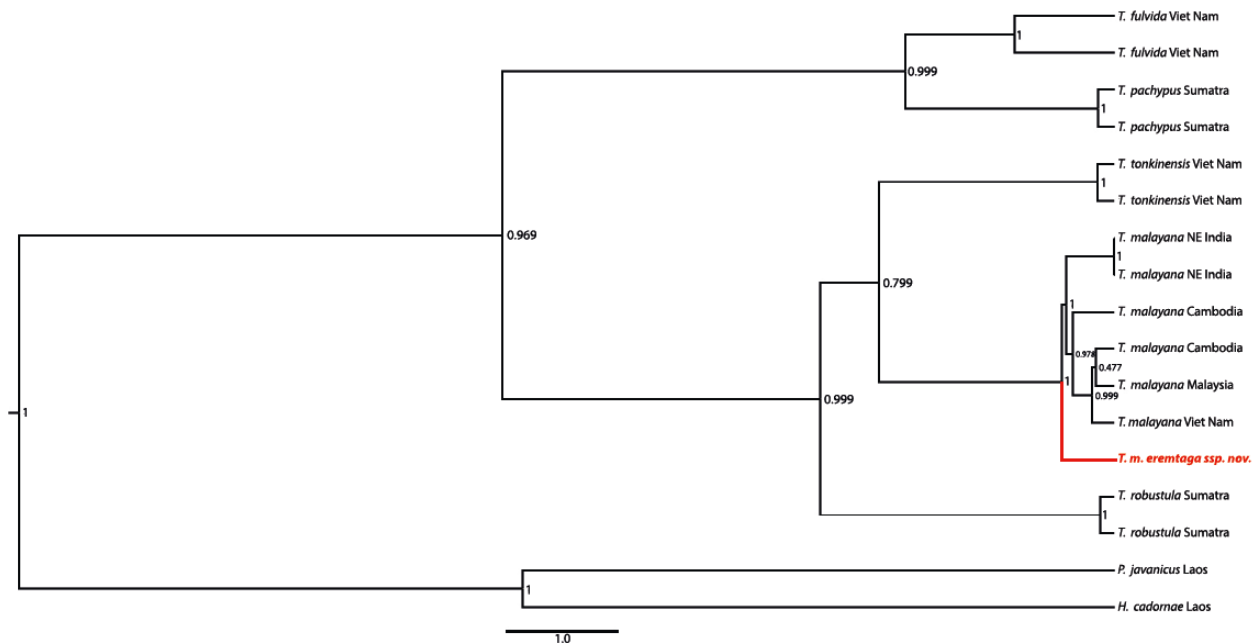


Figure 1. Bayesian Inference (BI) tree based on partial Cytochrome c oxidase subunit I (COI) gene sequences using Hasegawa-Kishino-Yano nucleotide substitution model with gamma distribution [4 discrete categories] (HKY+G, BICc = 5144.082). Values at the nodes are posterior probability values. *Pipistrellus tenuis* and *Hypsugo cadornae* are used as outgroup taxa.

clading separately with high posterior support, in agreement with Tu et al. (2017). Within the *T. robustula* sensu lato clade, five distinct subclades were observed: one subclade of *T. robustula* sensu stricto from Sumatra, one subclade of *T. tonkinensis* from Laos and Viet Nam, two separate subclades of *T. m. malayana* from Southeast Asia and India respectively, and one subclade of *T. m. eremtaga* ssp. nov. from the Andaman Islands, supported by high posterior probability (> 0.75) (Fig. 1). The distinctness of the new subspecies is also supported by K2P distances of 2.2–4% from the nominate subspecies for the COI gene (Table 3).

Etymology: The subspecific epithet, '*eremtaga*,' is a Latinized noun derived from the Aka-Kora dialect of the Great Andamanese language, meaning 'forest-dweller'.

Ecological notes: The presence of multiple males in the area suggests the existence of a colony of these bats in the near vicinity of the village. The specimens collected from Chipu Village, Diglipur, North Andaman Island were found to share their habitat with other species such as the Greater Short-nosed Fruit Bat *Cynopterus sphinx*, the Lesser Short-nosed Fruit Bat *Cynopterus brachyotis*, Tickell's Bat *Hesperoptenus tickellii*, and the Andaman Intermediate Horseshoe Bat *Rhinolophus affinis andamanensis*. This subspecies is currently known only from Chipu Village, Diglipur, North Andaman Island, Andaman & Nicobar Islands, India.

DISCUSSION

One taxon, *Tylonycteris pachypus* sensu lato, has so far been reported to be present on Andaman Islands, from Wimberleygunj, South Andaman Island (Hill 1967), and Webi and Karmatang in North Andaman Island (Aul 2014), principally based on external morphology and forearm length. In light of the recent taxonomic revision (Tu et al. 2017), and the discovery of the *T. malayana eremtaga* ssp. nov. from the Andaman Islands, it is imperative that the specimens collected earlier from the Andaman Islands (Dobson 1876; Hill 1967; Aul 2014) need to be re-examined further to ascertain their correct identity.

The bamboo bats belonging to genus *Tylonycteris* depend on bamboo forests, and harvesting of bamboo for commercial purpose, destruction of bamboo forests, forest fire, and increased use of pesticides in fringe villages might have a negative impact on the survival of these species.

REFERENCES

- Altschul, S.F., W. Gish, W. Miller, E.W. Myers & D.J. Lipman (1990). Basic local alignment search tool. *Journal of Molecular Biology* 215(3): 403–410; [http://doi.org/10.1016/S0022-2836\(05\)80360-2](http://doi.org/10.1016/S0022-2836(05)80360-2)
- Aul, B. (2014). Record of *Tylonycteris pachypus* (Lesser Bamboo Bat) from Andaman Islands. *Ambient Science* 1(1): 44–46; <http://doi.org/10.21276/ambi.2014.01.1.nn03>
- Aul, B., P.J.J. Bates, D.L. Harrison & G. Marimuthu (2014). Diversity, distribution and status of bats on the Andaman and Nicobar

- Islands, India. *Oryx* 48(2): 204–212; <http://doi.org/10.1017/S0030605312000646>
- Bates, P.J.J. & D.L. Harrison (1997).** *Bats of the Indian Subcontinent*. Harrison Zoological Museum, Sevenoaks, Kent, UK. 258pp.
- Darriba, D., G.L. Taboada, R. Doallo & D. Posada (2012).** jModelTest 2: more models, new heuristics and parallel computing. *Nature Methods* 9(8): 772; <http://doi.org/10.1038/nmeth.2109>
- Dobson, G.E. (1876).** Monograph of the Asiatic Chiroptera and catalogue of the species of bats in the collection of the Indian Museum, Calcutta. Indian Museum, London.
- Drummond, A.J., M.A. Suchard, D. Xie & A. Rambaut (2012).** Bayesian Phylogenetics with BEAUti and the BEAST 1.7. *Molecular Biology and Evolution* 29(8): 1969–1973; <http://doi.org/10.1093/molbev/mss075>
- Edgar, R.C. (2004).** MUSCLE: multiple sequence alignment with high accuracy and high throughput. *Nucleic Acids Research* 32(5): 1792–1797; <http://doi.org/10.1093/nar/gkh340>
- Guindon, S. & O. Gascuel (2003).** A simple, fast and accurate method to estimate large phylogenies by maximum-likelihood. *Systematic Biology* 52: 696–704; <http://doi.org/10.1080/10635150390235520>
- Hasegawa, M., H. Kishino & T. Yano (1985).** Dating of the human-ape splitting by a molecular clock of mitochondrial DNA. *Journal of Molecular Evolution* 22(2): 160–174; <http://doi.org/10.1007/BF02101694>
- Hill, J.E. (1967).** The bats of Andaman and Nicobar Islands. *Journal of the Bombay Natural history Society* 64: 1–9.
- Hill, J.E. & D.L. Harrison (1987).** The baculum in the Vespertilioninae (Chiroptera: Vespertilionidae), with a systematic review, a synopsis of *Pipistrellus* and *Eptesicus*, and the descriptions of a new genus and subgenus. *Bulletin of the British Museum (Natural History) Zoology* 52: 225–305.
- Ivanova, N.V., J.R. Dewaard & P.D.N. Hebert (2006).** An inexpensive, automation-friendly protocol for recovering high-quality DNA. *Molecular Ecology Notes* 6: 998–1002; <http://doi.org/10.1111/j.1471-8286.2006.01428.x>
- Miller, G.S. (1902).** The mammals of the Andaman and Nicobar Islands. *Proceedings of the United States National Museum* 24: 751–795.
- Rambaut, A. (2009).** FigTree version 1.4 [computer program] <http://tree.bio.ed.ac.uk/>
- Rambaut, A., M.A. Suchard, D. Xie & A.J. Drummond (2014).** Tracer version 1.6 [computer program] <http://tree.bio.ed.ac.uk/software/tracer/>
- Tamura, K., G. Stecher, D. Peterson, A. Filipski & S. Kumar (2013).** MEGA6: Molecular Evolutionary Genetics Analysis Version 6.0. *Molecular Biology and Evolution* 30(12): 2725–2729; <http://doi.org/10.1093/molbev/mst197>
- Topal, G. (1958).** Morphological studies on the os penis of bats in the Capathian Basin. *Annales historico-naturales Musei nationalis hungarici* 50(New series 9): 331–342.
- Tu, V.T., G. Csorba, M. Ruedi, N.M. Furey, N.T. Son, V.D. Thong, C. Bonillo & A. Hassanin (2017).** Comparative phylogeography of bamboo bats of the genus *Tylonycteris* (Chiroptera, Vespertilionidae) in Southeast Asia. *European Journal of Taxonomy* 274: 1–38; <http://doi.org/10.5852/ejt.2017.274>





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)

January 2018 | Vol. 10 | No. 1 | Pages: 11105–11244

Date of Publication: 26 January 2018 (Online & Print)

DOI: 10.11609/jott.2018.10.1.11105-11244

www.threatenedtaxa.org

Articles

On the reproductive ecology of *Premna latifolia* L. and *Premna tomentosa* Willd. (Lamiaceae)

-- B. Dileepu Kumar, D. Sandhya Deepika & A.J. Solomon Raju, Pp. 11105–11125

Stream macro-invertebrate diversity of the Phobjikha Valley, Bhutan

-- Jigme Wangchuk & Kuenzang Dorji, Pp. 11126–11146

Communications

Population characteristics of *Silaum silaus* (L.) Schinz & Thell. (Apiaceae) in Mordovia, a highly threatened plant species at the northern limit of its range

-- Anatoliy A. Khapugin, Pp. 11147–11155

Distribution of *Nanhaipotamon hongkongense* (Shen, 1940) (Crustacea: Brachyura: Potamidae), a freshwater crab endemic to Hong Kong

-- David John Stanton, Michael Robertson Leven & Tommy Chung Hong Hui, Pp. 11156–11165

Status of birds in Agasthyamalai Hills, Western Ghats, Kerala, India

-- Madhumita Panigrahi & V.J. Jins, Pp. 11166–11184

A short-term survey report on the post-winter avian diversity in Corbett National Park and associated areas, Uttarakhand, India

-- Srinjana Ghosh & Tanmay Bhattacharya, Pp. 11185–11191

Short Communications

Rhododendron diversity along the Kusong-Panch Pokhari transect in Khangchendzonga Biosphere Reserve, the eastern Himalaya: a conservation perspective

-- Prem K. Chhetri, Bijoy Chhetri & Hemant K. Badola, Pp. 11192–11200

Report of a longhorn beetle *Cyrtanops punctipennis* White, 1853 (Coleoptera: Cerambycidae) from Maharashtra, India

-- Narendra M. Naidu & Hemant V. Ghate, Pp. 11201–11204

Butterflies of Peringome Vayakkara Panchayath, Kerala, India

-- C. Sneha, Pp. 11205–11209

A new subspecies of the Malayan Bamboo Bat (Chiroptera: Vespertilionidae: *Tylonycteris malayana eremtaga*) from the Andaman Islands, India

-- Chelmala Srinivasulu, Aditya Srinivasulu, Bhargavi Srinivasulu & Gareth Jones, Pp. 11210–11217

Small carnivores of Wayanad Wildlife Sanctuary, the southern Western Ghats, India

-- E.R. Sreekumar & P.O. Nameer, Pp. 11218–11225

Observations on the Nilgiri Marten *Martes gwatkinsii* (Mammalia: Carnivora: Mustelidae) from Pampadum Shola National Park, the southern Western Ghats, India

-- G. Anil, Navaneeth Kishor, Naseef Gafoor, Naseer Ommer & P.O. Nameer, Pp. 11226–11230

Notes

Record of the endemic orchid *Biermannia jainiana* (Asparagales: Orchidaceae: Epidendroideae) from its type locality, India

-- Krishna Chowlu & Jeewan Singh Jalal, Pp. 11231–11233

Sighting of the Common Shelduck *Tadorna tadorna* (Linnaeus, 1758) (Aves: Anseriformes: Anatidae) in Shettikeri Tank, Karnataka, India

-- Darwin Dasan Tamilinayan, Santhanakrishnan Babu & Honnavalli Nagaraj Kumara, Pp. 11234–11236

Ceylon Kentish Plover *Charadrius alexandrinus seebohmi* breeding in Vani Vilasa Sagara, Hiriya Taluka, Karnataka, India

-- Golusu Babu Rao, Santhanakrishnan Babu, Honnavalli Nagaraj Kumara & Mahesh Bilaskar, Pp. 11237–11239

A new sight record and range extension of the Grizzled Giant Squirrel *Ratufa macroura dandolena* (Mammalia: Rodentia: Sciuridae) in the Eastern Ghats of southern peninsular India

-- Sivanganaboopathidoss Vimalraj, Kothandapani Raman, Damodar Atmavadan Reddy, Bakthavachalam Harikrishnan, Bawa Mothilal Krishnakumar & Kanagaraj Muthamizh Selvan, Pp. 11240–11242

First record of the Dhole *Cuon alpinus* (Mammalia: Carnivora: Canidae) in Barandabhar Corridor Forest, Chitwan, Nepal

-- Saneer Lamichhane, Aashish Gurung, Chiranjibi Prasad Pokheral, Trishna Rayamajhi, Pabitra Gotame, Pramod Rai Regmi & Babu Ram Lamichhane, Pp. 11243–11244

Miscellaneous

National Biodiversity Authority

