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continued on the back inside cover

Cover: Green Bee-eater with colour pencils and watercolor wash by Elakshi Mahika Molur.



## New distribution records of two uncommon microhylid frogs, *Melanobatrachus indicus* Beddome, 1878 and *Mysticellus franki* Garg & Biju, 2019 from Nelliampathy, Kerala, India

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*Melanobatrachus indicus* Beddome, 1878 or the Galaxy Frog was first described from the Anamalai Hills of Tamil Nadu (Beddome 1878). This southern Western Ghats endemic belonging to the monotypic genus *Melanobatrachus* is the sole representative of the subfamily Melanobatrachinae (Frost 2023). The IUCN has categorized this species as ‘Vulnerable’ (IUCN SSC Amphibian Specialist Group 2022), and it has been ranked as a high-priority EDGE species by the Zoological Society of London (Isaac et al. 2012). It is a rarely observed frog and has been reported from select locations in South India by only a handful of researchers since its discovery (Table 1, Figure 1). Another microhylid species *Mysticellus franki* Garg & Biju 2019, or the Mysterious Narrow-mouthed Frog was described from the Suganthagiri region (11.5386°N, 76.0538°E, 852 m) of the central Western Ghats in Wayanad district, Kerala. This genus is also monotypic; interestingly, its closest relative is the southeastern Asian genus *Micryletta* (Garg

& Biju 2019). Since its discovery, this little-known frog has not been reported from any other location. In the current note, we report an additional distribution record for these elusive frogs from the southern Western Ghats.

While surveying for skinks and ants around Nelliampathy Forest Reserve on 16 October 2022, at 1050 h, we encountered two adult individuals [34 mm and 32 mm snout-vent length (SVL)] of *M. indicus* (Image 1); sex undetermined). The individuals were found inside a patch of secondary evergreen forest around a reclaimed cardamom plantation (10.4730°N, 76.6738°E according to World Geodetic System WGS84; 970 m; Image 3). Both individuals were found under rotten logs along a forest pathway, approximately 10 meters from one another. Except for Nixon & Bhupathy (2007), prior records have found this species closely associated with water bodies (Rajkumar et al. 2021) whereas our location point was 150 m away from a perennial stream. The frogs showed typical external characters such as body

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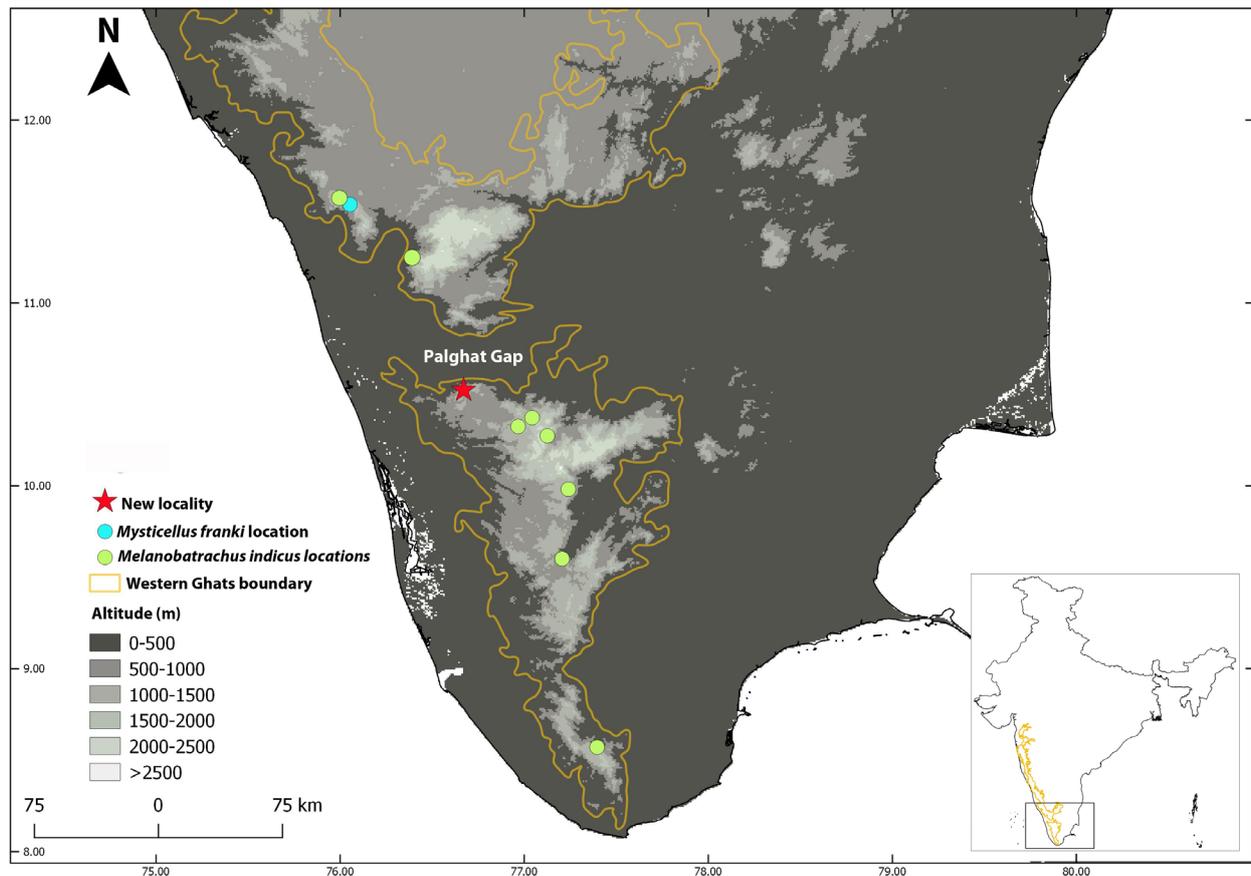
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slender; dorsal surface granular; ventral smooth; black body with numerous bluish-white spots and scarlet-orange blotches near the groin, belly, and between forelegs. When handled, the frogs appeared motionless with limbs tucked close to the body, indicating classical defensive behavior while under stress (Kanagavel & Tapley 2015).

On the same day, fieldwork in the vicinity of Kesavanpara (10.5236°N, 76.6708°E according to World Geodetic System WGS84; 950 m) at 1310 h yielded a single adult individual (22 mm SVL) of *M. franki* (Image 2; sex undetermined) under a medium-sized fallen log. The frog was encountered in a disturbed patch of stunted evergreen forest alongside a trail leading to Kesavanpara viewpoint (Image 4). The individual was identified based on overall coloration and external phenotypic characters mentioned in Garg & Biju (2019). These included lack of webbing between fingers; rudimentary webbing between toes; lateral surfaces from the tip of the snout up to the groin prominently dark blackish-brown; two prominent dark blackish-brown ‘false-eye’ spots on either side of the groin extending just above the hind

**Table 1. Previous locality records of *Melanobatrachus indicus*.**

	Locality	Year	References
1	Anamalai, Tamil Nadu	1878, 2013	Beddome (1878); Kanagavel & Tapley (2013)
2	Walaghāt (present day Walakkad), Kerala	1880	Beddome (1880)
3	Valparai, Tamil Nadu	1928, 2000	Roux (1928), Ishwar 2000
4	KMTR, Tamil Nadu	1997	Vasudevan (1997)
5	Periyar Tiger Reserve, Kerala	1997	Daltry & Martin (1997)
6	Matthiketan Shola, Kerala	2007, 2021	Nixon & Bhupathy (2007); Rajkumar et al. (2021)
7	Marayoor, Kerala	2013, 2017	Rajkumar et al. (2021); Palot & Sureshan (2017)
8	Chinnar Wildlife Sanctuary, Kerala	2015	Rajkumar et al. (2021)
9	Eravikulam National Park, Kerala	2015	Rajkumar et al. (2021)
10	Wayanad, Kerala	2016	Rajkumar et al. (2021)
11	Parambikulam Tiger Reserve, Kerala	2021	Newspaper article ( <a href="https://www.thehindu.com/news/national/kerala/18-new-amphibian-species-found-in-parambikulam/article38111812.ece">https://www.thehindu.com/news/national/kerala/18-new-amphibian-species-found-in-parambikulam/article38111812.ece</a> )

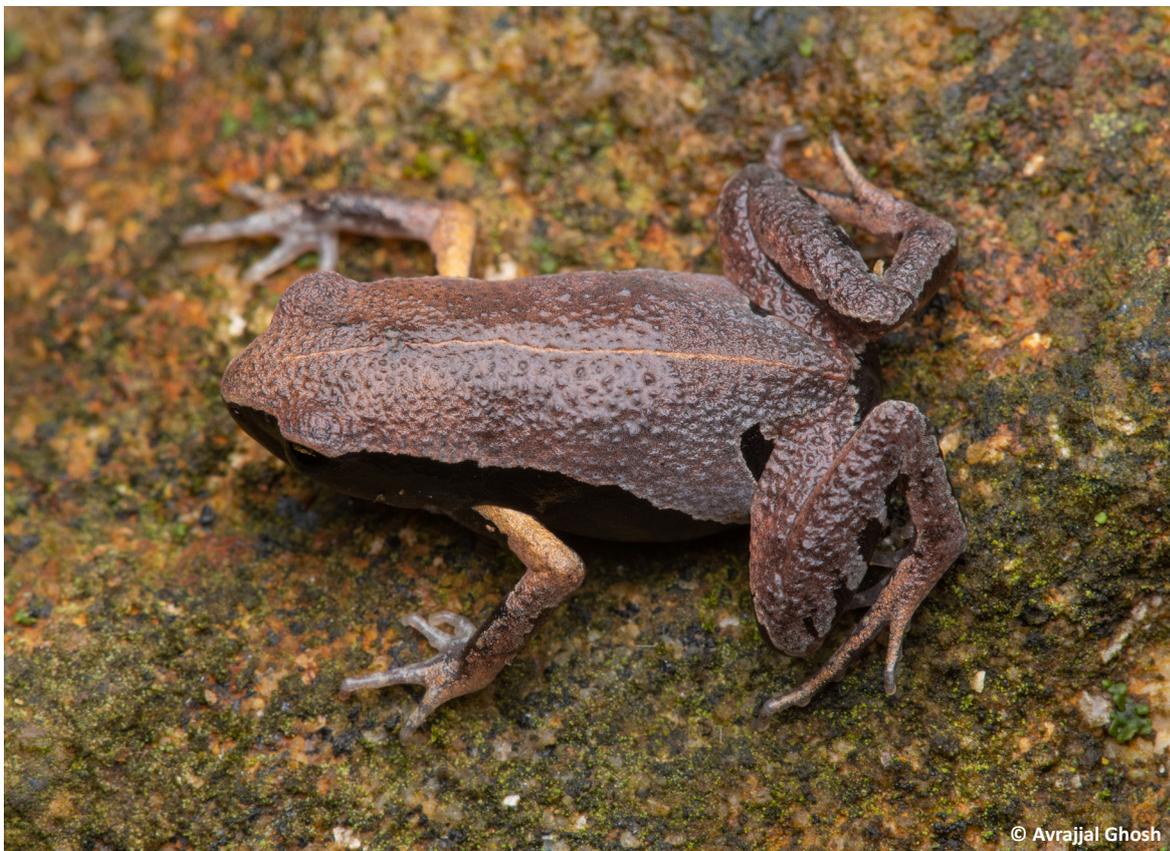


**Figure 1. Map of southern peninsular India showing distribution points of *Mysticellus franki* and *Melanobatrachus indicus*.**



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Image 1. *Melanobatrachus indicus* from Nelliampathy.



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Image 2. *Mysticellus franki* from Nelliampathy showing its characteristic black groin spots and the mid-dorsal stripe.



Image 3. Habitat of *Melanobatrachus indicus* from Nelliampathy.



Image 4. Habitat of *Mysticellus franki* from Nelliampathy.

legs; a thin mid-dorsal line extending from the tip of the snout up to the vent; ventral surfaces of throat, belly, arms, and legs dark with multiple greyish-white blotches and speckles. Other species of anurans recorded in sympatry were *Clinotarsus curtipes*, *Duttaphrynus* sp., *Raorchestes* sp., and frogs of the family *Ranixalidae*.

The current distribution point for *M. indicus* is approximately 37 km north-west from its closest reported locality at Valparai, Tamil Nadu State. Most other distribution points for the species occur south of the Palghat gap (PG from here on) (Figure 1), a

significant biogeographic barrier for amphibians in the Western Ghats (Biswas & Karanth 2021). Only two distribution locations north of the PG are known for this frog. While Beddome (1880) mentions its occurrence in Walaghât (present day Walakkad, around Silent Valley National Park), Rajkumar et al. (2021) report its presence from Wayanad without any precise locality. These two localities are ca. 80 km and 140 km north of Nelliampathy, respectively. The distribution of *M. franki* in Nelliampathy is also notable for a similar reason. Suganthagiri, the only other known locality for this species in the Wayanad plateau, is ca. 132 km north of Kesavanpara, surmounting the PG. Thus, Nelliampathy is now the only place south of PG where these two species of anurans occur in sympatry. Further field investigations might also yield these species in sympatry/syntopy in the Wayanad-Walakkad region north of PG. It would be interesting to look at the ecology and genetic structure of *M. indicus* north of the PG and *M. franki* south of PG to understand if these populations are indeed homogenous. Alternately, it is likely that the populations of *M. indicus* and *M. franki* on either side of the gap might represent cryptic allopatric species forming a part of a larger species complex. Another interesting observation is the presence of *M. franki* in the disturbed patch of forest near Kesavanpara viewpoint. It further supports the existence of this enigmatic species around human settlements (Garg & Biju 2019).

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## Article

**Documenting butterflies with the help of citizen science in Darjeeling-Sikkim Himalaya, India**

– Aditya Pradhan, Rohit George & Sailendra Dewan, Pp. 22771–22790

## Communications

**Determinants of diet selection by Blackbuck *Antelope cervicapra* at Point Calimere, southern India: quality also matters**

– Selvarasu Sathishkumar, Subhasish Arandhara & Nagarajan Baskaran, Pp. 22791–22802

**An update on the conservation status of Tibetan Argali *Ovis ammon hodgsoni* (Mammalia: Bovidae) in India**

– Munib Khanyari, Rigzen Dorjay, Sherab Lobzang, Karma Sonam & Kulbhushansingh Ramesh Suryawanshi, Pp. 22803–22812

**An annotated checklist of the avifauna of Karangadu mangrove forest, Ramanathapuram, Tamil Nadu, with notes on the site's importance for waterbird conservation**

– H. Byju, N. Raveendran, S. Ravichandran & R. Kishore, Pp. 22813–22822

**Habitats and nesting habits of Streaked Weaver *Ploceus manyar* in select wetlands in the northern districts of Tamil Nadu, India**

– M. Pandian, Pp. 22823–22833

**Genetic evidence on the occurrence of *Channa harcourtbutleri* (Annandale, 1918) in Eastern Ghats, India: first report from mainland India**

– Boni Amin Laskar, Harikumar Adimalla, Shantanu Kundu, Deepa Jaiswal & Kailash Chandra, Pp. 22834–22840

**Redefining *Pallisentis ophiocephali* (Thapar, 1930) Baylis, 1933 from two freshwater fishes of Channidae family of Hooghly District, West Bengal, India**

– Prabir Banerjee & Biplob Kumar Modak, Pp. 22841–22849

**A new termite species of the genus *Bulbitermes* (Blattodea: Isoptera: Termitidae) from Meghalaya, India**

– Khired Sankar Das & Sudipta Choudhury, Pp. 22850–22858

**First report of the beetle *Henosepilachna nana* (Kapur, 1950) (Coleoptera: Coccinellidae) from Maharashtra with special reference to molecular phylogeny and host plants**

– Priyanka B. Patil & Sunil M. Gaikwad, Pp. 22859–22865

**Assessment of population, habitat, and threats to *Cycas pectinata* Buch.-Ham. (Cycadaceae), a vulnerable cycad in Bhutan**

– Sonam Tobgay, Tenjur Wangdi, Karma Wangchuck, Jamyang Dolkar & Tshering Nidup, Pp. 22866–22873

**Ecological niche modeling to find potential habitats of *Vanda thwaitesii*, a notified endangered orchid of Western Ghats, India**

– S. William Decruse, Pp. 22874–22882

**Occurrence of opportunistic invasive macroalgal genus *Caulerpa* and *Halimeda opuntia* in coral reefs of Gulf of Mannar**

– Chatragadda Ramesh, Koushik Sadhukhan, T. Shunmugaraj & M.V. Ramana Murthy, Pp. 22883–22888

## Short Communications

**Diversity of bees in two crops in an agroforestry ecosystem in Kangsabati South Forest Division, Purulia, West Bengal, India**

– Pallabi Das & V.P. Uniyal, Pp. 22889–22893

**An extended distribution and rediscovery of *Rhynchosia suaveolens* (L.f.) DC. (Fabaceae) for Maharashtra, India**

– Ajay K. Mishra, Vedhika Gupta, Ajay V. Rajurkar, Pankaj A. Dhole & Vijay V. Wagh, Pp. 22894–22899

## Notes

**New distribution records of two uncommon microhylid frogs, *Melanobatrachus indicus* Beddome, 1878 and *Mysticellus franki* Garg & Biju, 2019 from Nelliampathy, Kerala, India**

– Madhura Agashe, Avrajjal Ghosh, K. Dilshad, Maitreya Sil & Aniruddha Datta-Roy, Pp. 22900–22904

**First record of Brilliant Flash *Rapala melida nicevillei* (Swinhoe, 1911) (Lepidoptera: Lycaenidae: Theclinae) to Meghalaya, India**

– Suman Bhowmik, Atanu Bose, Jayant Ghanshyam Bhoir, Atanu Bora, Suraj Das, Shyamal Kumar Laha & Ngangom Aomoa, Pp. 22905–22907

**A note on the occurrence of *Cremnochonchus conicus* (Blanford, 1870) in Mumbai, India**

– Naman Kaji & Shubham Yadav, Pp. 22908–22910

***Jasminum angustifolium* (L.) Willd. var. *angustifolium* (Oleaceae): a new distribution record for West Bengal, India**

– Keya Modak & Monoranjan Chowdhury, Pp. 22911–22915

***Cyrtosia falconeri* (Hook.f.) Aver. (Orchidaceae): an addition to the flora of Jammu & Kashmir, India**

– Mushtaq Ahmed & Manjul Dhiman, Pp. 22916–22919

**New distribution record of *Roridomyces cf. phyllostachydis* (Agaricales: Mycenaceae), a bioluminescent fungus from Namdapha National Park, Arunachal Pradesh, India**

– Arijit Dutta, Sourav Gupta, Jayanta K. Roy & M. Firoz Ahmed, Pp. 22920–22923

**Photographic evidence of bioluminescent mushroom *Mycena chlorophos* (Mycenaceae) from Goa, India**

– Swanand R. Patil, Mirjoy M. Mathew, Abhijeet V. Patil, Ramesh N. Zarmekar, Pankaj R. Lad & Grenville Dcosta, Pp. 22924–22926

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