



New Elevational and Locality Records and Notes on the Natural History of the Tamdil Leaf-litter Frog, *Leptobranchella tamdil* (Sengupta, Sailo, Lalremsanga, Das, and Das 2010) (Megophryidae), in Mizoram, India

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The anuran family Megophryidae consists of 284 species that collectively range from Pakistan and western China, eastward to the Philippines and the Greater Sunda Islands (Frost 2021). Twenty-eight of these species occur in India (Dinesh 2020), ten of which are endemic to the northeastern part of the country (Saikia and Kharkongor 2017). The genus *Leptobranchella* Smith 1925 contains 86 currently recognized species, of which the Tamdil Leaf-litter Frog (*L. tamdil*) was described by Sengupta et al. (2010) on the basis of two specimens collected from the Tamdil National Wetlands, Saitual District, Mizoram, India. Vanlalsiammawii et al. (2020) reported an additional record from the Dampa Tiger Reserve, and Decemson et al. (2021) reported the occurrence of this species from Manipur, India.

We conducted Visual Encounter Surveys (VES) throughout Mizoram from February to May 2021 (Fig. 1), during which we collected 15 Tamdil Leaf-litter Frogs (nine males and six females) (Fig. 2) from the Sialring Stream, Dampa



Fig. 2. A Tamdil Leaf-litter Frog (*Leptobranchella tamdil*) from Sihzau Stream, Zotlang, Champhai District, Mizoram, India. Photograph by H.T. Lalremsanga.

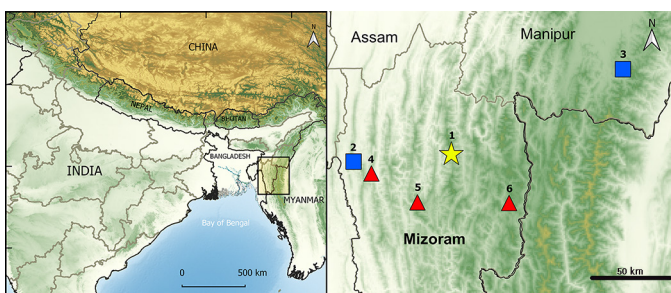


Fig. 1. Map showing the distribution of the Tamdil Leaf-litter Frog (*Leptobranchella tamdil*) in northeastern India. The type locality is indicated by the yellow star, published records are represented by blue squares, and the new records in Mizoram are marked by red triangles.

Tiger Reserve (23.626572°N, 92.477578°E; 518 m asl), the Hmuifang Community Reserved Forest (23.355006°N, 92.753772°E; 1,458 m asl), and Zotlang, Champhai District (23.449886°N, 93.303097°E; 1,385 m asl). Specimens were catalogued and fixed in 70% ethanol solution at the Departmental Museum of Zoology, Mizoram University (MZMU). Morphometric measurements (Table 1) follow Sengupta et al. (2010). Photographic vouchers were submitted to the Natural History Museum of Mizoram, Mizoram University, Aizawl, Mizoram, India (NHMM/G/2–4). The identity of all specimens collected was verified by Saibal Sengupta.

Museum no.	2265	2266	739A	739B	739C	739D	739E	2367A	2367B	2367C	2367D	2367E	2367F	2367G	2367H	
Sex	M	M	F	F	F	F	M	F	M	M	F	M	M	M	M	
Date of Collection	28.02.2021		25.03.2021					25.04.2021								
	Hmuifang		Dampa Tiger Reserve (Sialring Stream)					Zotlang, Champhai District								
Measurements (mm)																
SVL	28.96	29.44	38.94	36.06	33.72	37.14	29.36	40.50	26.3	23.48	32.54	25.5	25.88	26.38	25.6	
IN	2.90	2.78	3.84	3.74	3.24	3.26	3.04	3.69	2.82	3.21	3.44	2.76	2.66	2.68	3.04	
HL	11.64	10.84	14.88	14.36	10.86	13.84	11.30	14.76	10.6	10.01	13.95	10.85	10.46	10.94	10.50	
HW	10.86	9.78	13.64	13.2	11.52	12.24	10.64	13.52	9.68	9.06	12.13	9.1	10.12	9.94	9.42	
HD	3.50	3.12	4.34	3.52	4.52	3.48	3.38	4.38	3.16	3.01	4.61	3.22	3.44	3.46	3.50	
ED	4.63	4.18	5.42	5.34	5.04	5.10	4.52	5.58	4.52	3.81	5.04	4.52	4.36	4.42	4.08	
IO	3.10	3.32	3.72	3.74	4.31	3.56	3.05	3.68	3.12	3.36	3.54	3.18	3.34	3.16	2.84	
E-S	4.14	4.00	5.48	5.34	4.54	4.68	4.19	5.32	4.02	3.80	4.84	4.14	3.88	4.44	3.95	
E-N	2.12	2.62	2.90	3.04	2.56	2.72	2.38	2.86	2.32	2.20	2.74	2.28	2.36	2.34	2.62	
E-T	1.12	1.04	1.68	1.58	1.28	1.36	1.28	1.62	1.06	1.14	1.46	1.30	1.32	1.23	1.26	
UE	3.23	2.84	4.38	3.58	3.06	4.38	3.04	4.20	2.68	3.10	3.71	2.68	2.58	2.89	2.60	
HTD	2.12	2.26	2.58	2.72	2.59	2.50	2.04	2.80	2.22	1.96	2.74	1.92	2.14	2.22	2.28	
VTD	2.12	2.08	2.58	2.60	2.46	2.50	1.94	2.72	2.20	1.94	2.72	2.00	2.16	2.30	1.74	
FL	7.28	7.32	10.42	10.72	8.65	8.96	7.48	11.17	7.68	6.68	8.34	6.78	7.17	7.06	6.68	
TBL	13.16	12.92	18.24	16.5	15.22	17.06	13.46	17.84	13.06	12.98	15.94	12.56	12.74	12.49	12.06	
IMT	1.78	1.50	2.02	1.86	1.53	1.94	1.30	1.52	1.52	1.09	1.92	1.70	1.66	2.08	1.94	
IPT	1.80	1.24	1.66	2.02	1.39	1.76	1.36	1.52	1.36	0.72	1.58	1.22	1.24	1.42	1.19	
A-G	14.24	13.94	16.72	17.26	13.52	17.9	13.7	18.92	11.56	11.02	14.34	10.98	10.88	11.78	11.08	
BW	10.41	10.08	14.88	12.40	10.12	10.66	9.88	11.90	10.54	9.13	9.82	8.92	9.15	10.80	10.21	

Table 1. Morphometric measurements of Tamdil Leaf-litter Frogs (*Leptobrachella tamdil*) from three new localities in Mizoram, India.

Individuals were quite abundant along the Sihzau Stream at Zotlang during the month of May, which probably is attributable to aggregation for breeding. Moreover, the presence of gravid females suggests that the breeding period is during the onset of the monsoon as per observations of Sengupta et al. (2010), Vanlalsiammawii et al. (2020), and Decemson

et al. (2021). One gravid female from Zotlang, Champhai District (MZMU 2367A) (SVL 40.50 mm), contained 187 eggs. Decemson et al. (2021) reported a female with 105 eggs, but that individual was smaller (SVL 33.2 mm), which could explain the smaller clutch size (see also Gould et al. 2020). Gut contents of three specimens from Champhai (MZMU 2367C,D,F) included insects from four orders (Fig. 3). This is the first record of diet for this species.

The new localities documented herein represent the southernmost and highest elevational (1,458 m asl) records at the Hmuifang Community Reserved Forest, the westernmost record at Sialring, and the largest size (MZMU 2367A with SVL 40.50 mm) recorded for the species. These new distributional records also suggest that the species is likely to occur in the adjacent states of Assam, Tripura, and Nagaland in northeastern India, and also in neighboring Bangladesh and Myanmar.

Acknowledgements

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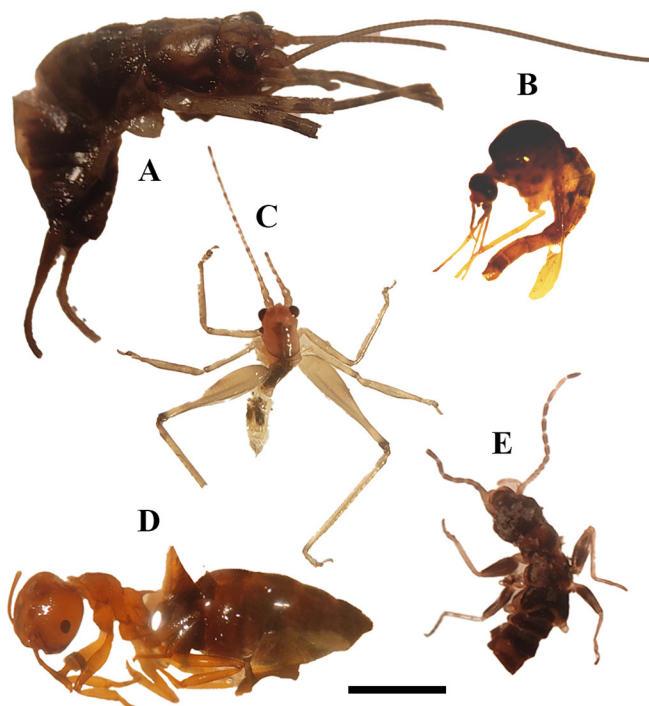


Fig. 3. Gut contents of a Tamdil Leaf-litter Frog (*Leptobrachella tamdil*) from Sihzau Stream, Zotlang, Champhai District, Mizoram, India: A. Orthoptera (katydid), B. Hemiptera, C. Orthoptera (cricket), D. Hymenoptera (ant), and E. Coleoptera (rove beetle). Scale bar = 3 mm. Compiled and photographed by Lal Muansanga.

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