



New locality record of Assam Forest Frog, *Hylarana leptoglossa* (Cope, 1868) (Anuran: Ranidae) with Morphometric Features from Siliguri, Jalpaiguri, West Bengal, India

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➤ Abstract:

Hydrophylax leptoglossa is a species of true frog in the genus *Hylarana*, commonly known as the long-tongued frog. It is endemic to north eastern India, Bangladesh, Myanmar, and western Thailand. It is also known under the common names Assam forest frog, Cope's frog and Cope's Assam frog. Recently, it has been reported from Bhutan. Currently, the genus *Hydrophylax* has four recognized species, of which *Hydrophylax leptoglossa* (Assam forest frog) occurs in the northeastern Indian states of Assam, Mizoram, Tripura and Meghalaya (Frost 2021). Recently, *Hydrophylax leptoglossa* was found in the northern part of West Bengal, Toribari in Siliguri, which signifies the new locality record of the species. Morph metric data for species identification and habitat characteristic are provided.

➤ Keywords:

Assam forest frog, *Hydrophylax leptoglossa*, New locality record, morphometric features, new sighting, Conservation, Siliguri, Jalpaiguri,

➤ Introduction:

Hydrophylax leptoglossa, also known as Cope's frog, is a medium-sized aquatic, terrestrial insectivore and nocturnally active frog. This species has been observed adjacent to various types of water bodies including ponds, streams, pools, lakes and in the forest area, as well as away from the water in long grass habitat in parts of this species' range that are undergoing declines in quality associated with the expansion of agricultural land (Sodhi et al., 2009), and the species has been observed breeding in plantation. The species is distributed in eastern India (Mizoram, Assam, Tripura and Meghalaya), Bangladesh, western Thailand and southern Myanmar (Ahmed 2015; Frost 2017; IUCN SSC Amphibian Specialist Group 2016). India has four species of *Hydrophylax* genus, namely *Hydrophylax bahuvistara* (Padhye et al., 2015), *Hydrophylax gracilis* (Gravenhorst, 1829), *Hydrophylax leptoglossa* (Cope, 1868), *Hydrophylax malabaricus* (Tschudi, 1838). According to IUCN, the species has been categorized under the segment of least concern. In the present communication, the specimen was recorded from Siliguri in Jalpaiguri district, which represents the new locality in the state of West Bengal, India.

➤ Study area:

Siliguri ($26^{\circ}43'56.3196''\text{N}$ and $88^{\circ}24'37.0296''\text{E}$) is a city in northern West Bengal, located near the foothills of the southern Himalayas along the banks of the river Mahananda, near the border between India and Bangladesh. It is known as the Gateway of Northeast India. Siliguri is strategically important for West Bengal with expedient access to four international borders namely, China, Nepal, Bhutan and Bangladesh. Warm summers, cooler winters and a severe monsoon defines Siliguri's climate. The average annual temperature is recorded to be around 23.2°C , but during the summers the temperature varies from a minimum of 18°C to 22°C . January is the coldest month of the year, with an average temperature of 16.4°C . About 80% of the annual rainfall is perceived between the months of June and September.

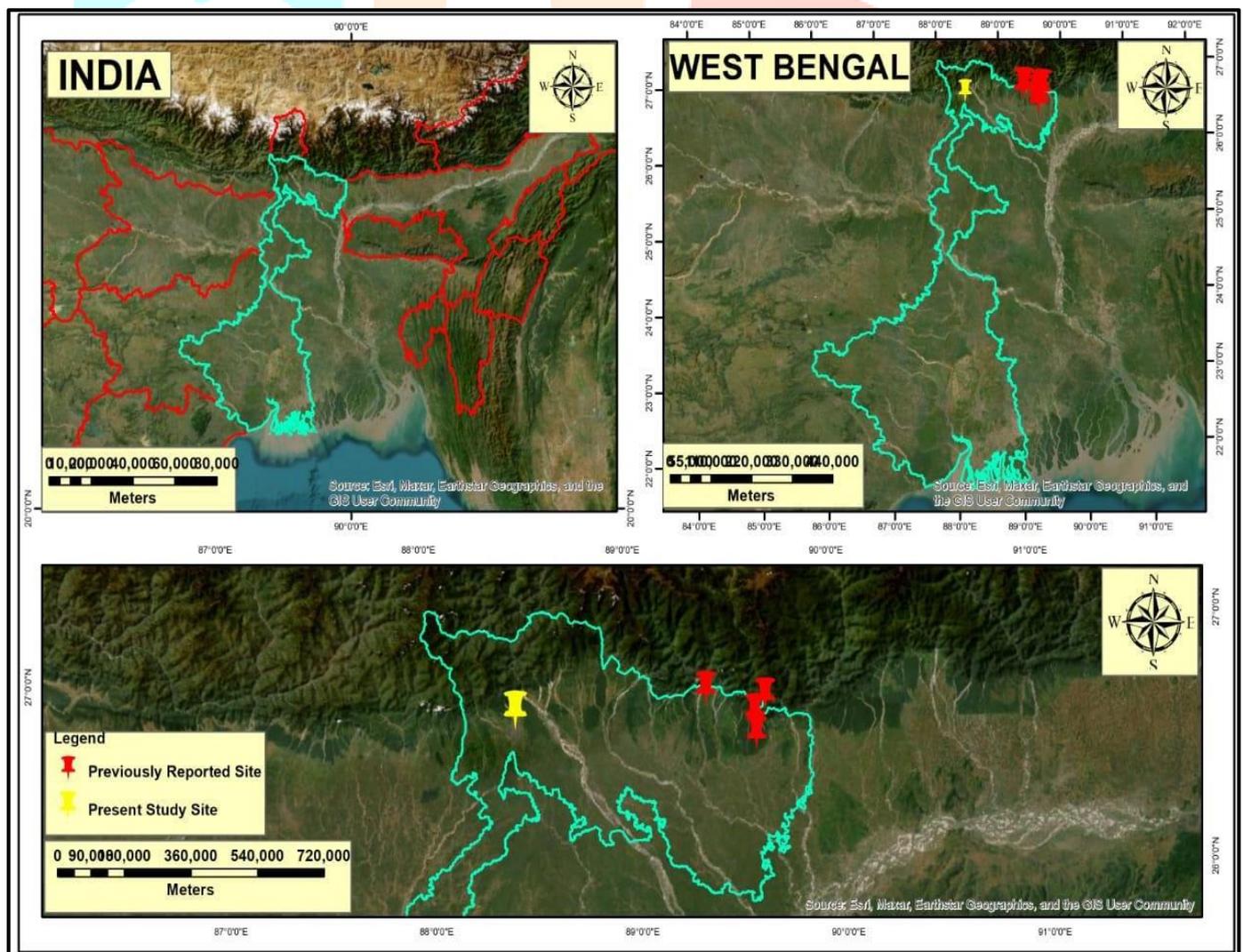


Fig 1: Map of Toribari in Siliguri, West Bengal, India, showing sampling sites of Assam Forest Frogs (*Hydrophylax leptoglossa*). Previously reported localities are marked in red and new localities are marked in yellow.

➤ **Results:**

The species was collected from the water surface of a small lake, which was situated beside the Toribari primary school near Bengal Safari, Siliguri. The calling males are found sitting on the root of the tree. The specimen was substantiated to be an adult male (Assam Forest frog) with the help of description in (Deuti et al., 2017).

The species has a unique sound profile as "taka-taka-taka-taka" and the gap between two calls is around 4.5 seconds nearing a frequency of approx. 2.9 KHz mostly. The weather was cloudy and the surrounding temperature was 33°C. We performed a complete morph metric study on a male Assam forest frog collected from the Toribari village.

(a) Morphometric Analysis:

Medium-sized frogs (42- 50mm) have a smooth skin and long legs. The body is elongated. The skin is strongly granulated; the throat, chest, belly, thigh and tibia are smooth. The snout (8.09mm) extends beyond the mouth. Nostril is present at the snout tip. The diameter of the eye (5.74mm) is very less whereas the eardrum is very big. Two distinct dorsolateral folds run from above the eyes on both sides of the body up to the region. The tympanum (3.23mm) is distinct, flat, and circular. Fingers and toes are elongated. The tips of fingers and toes are also rounded. The webbing disc is partially absent. Toes are webbed, which are large and distinct.

Table 1: Morph metrics (in mm) of *Hydrophylax leptoglossa* (Cope, 1868) from Toribari, Siliguri, Jalpaiguri

Morphological Character	Length(in mm)
Snout vent length(SVL)	46.75
Head length (HL)	15.12
Head width(HW)	14.08
Snout length(SL)	8.09
Inter narial length(INL)	4.23
Eye diameter(ED)	5.74
Inter orbital length(IOL)	4.34
Tympanum diameter(TD)	3.23
Tibial length(TL)	24.31
Fore limb length(Fl)	16.31
Anterior eye to nostril(EN)	3.43
Femur length(FL)	16.04
Nuptial pad length(NPL)	2.45
Hand length(HL)	3.44

(b) Color:

Small black dots with deep brown color present at the dorsal side. Similarly, dorso lateral folds are also deep brown. Blackish brown is present on the lateral side. Eyes with a golden rim, but the pupil are black. Brown with chocolate brown spots present at the fore and hind limbs. Hind limbs have dark cross bars. Ventrally, the surface is white, spotted, or marbled with black brown. According to our study report, its microhabitat is characterized thick vegetation, agriculture fields and various types of water bodies including streams, pools, ponds and lakes (Fig.2). Males call from thick vegetation mounds in submerged fields. According to IUCN Status, the species comes under least concern.



Fig 2- Habitat of Assam Forest frog, near Toribari, Siliguri.

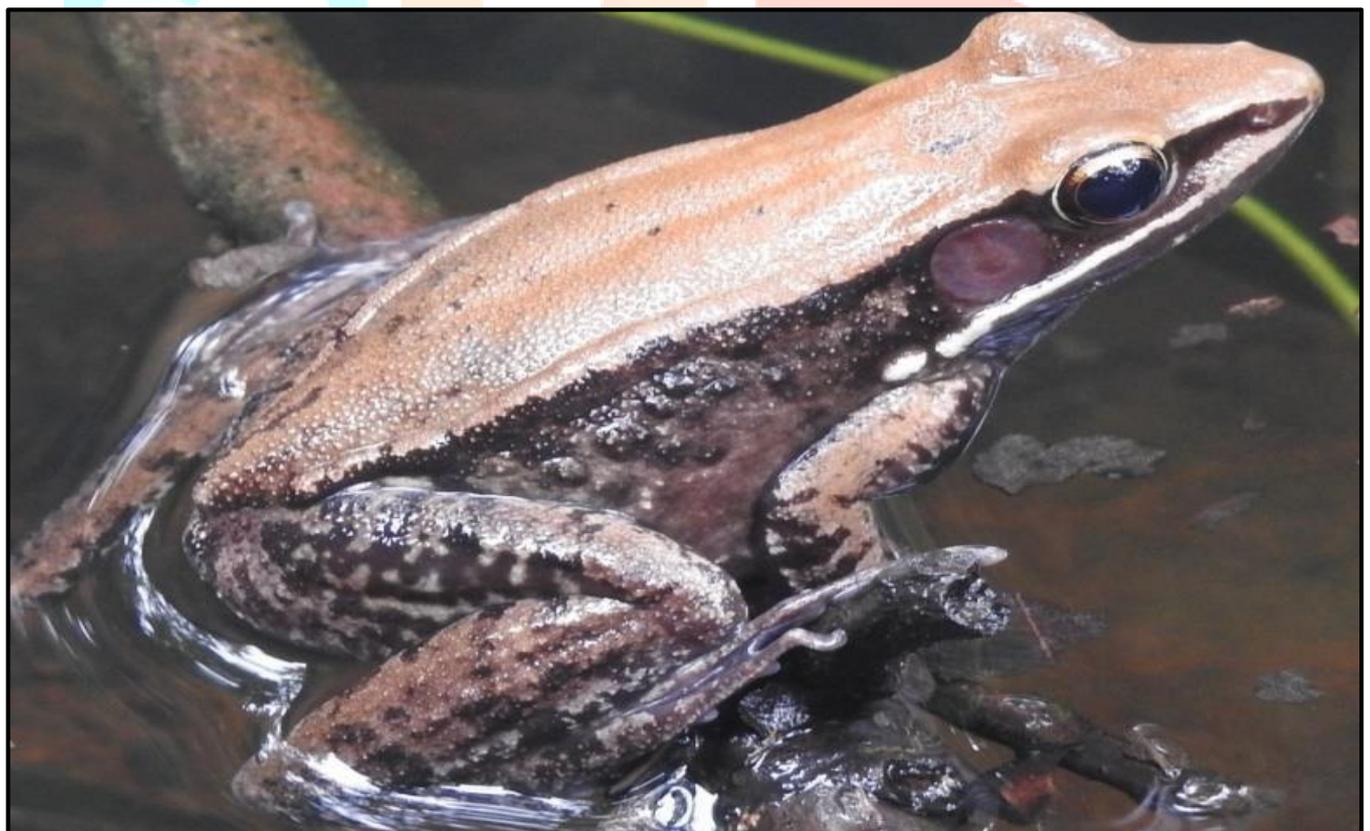


Fig 3 – Dorsal view of Assam Forest frog.



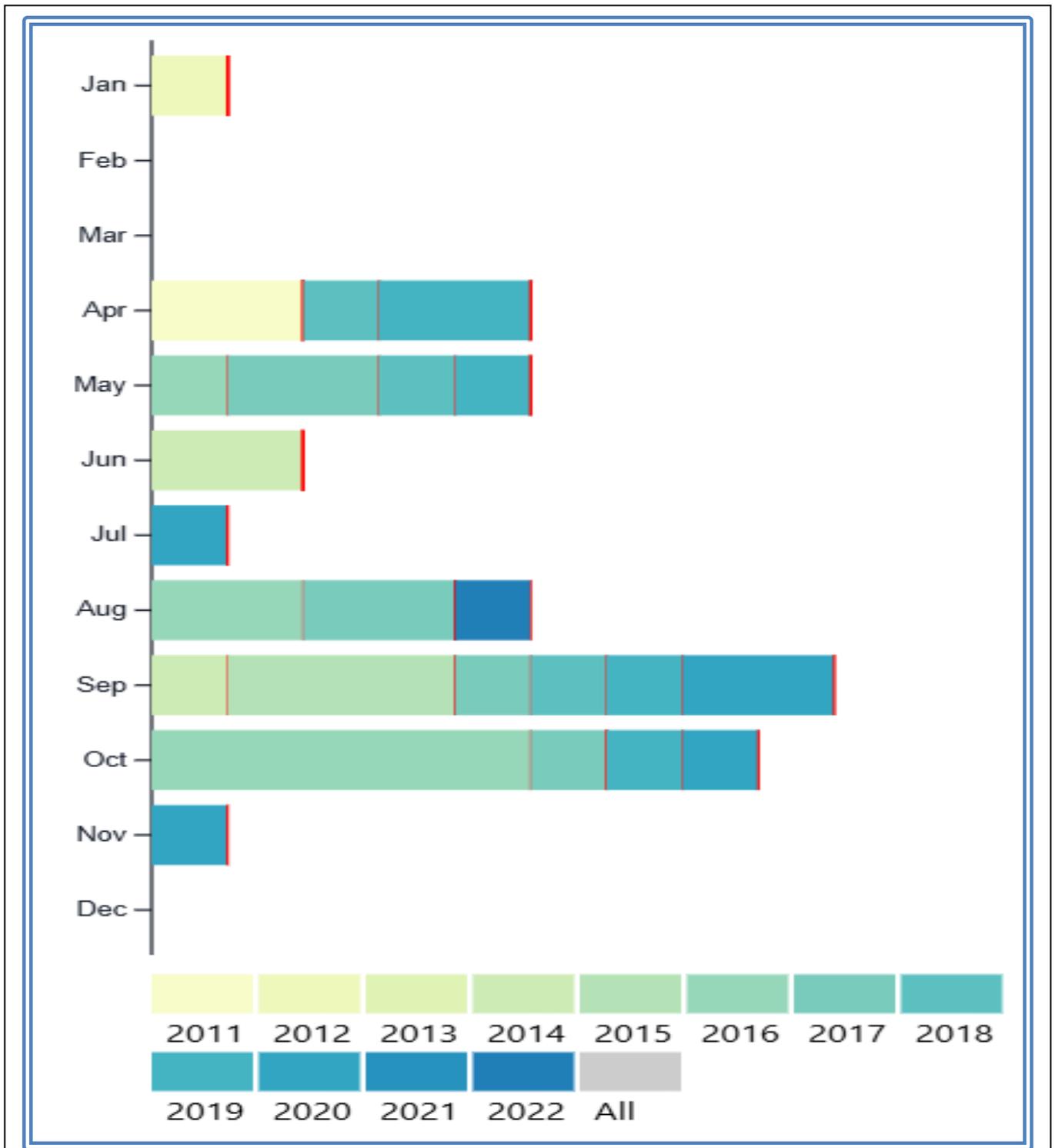
@Sanjaypaira

Fig 4.- Vocal sac of male Assam Forest Frog



@Sanjaypaira

Fig. 5: Hind Foot of an Assam Forest Frog (5 digits).



Source-<https://indiabiodiversity.org/species/show/280976>

Fig 6 - Temporal Distribution month wise Observed (1972-2022)

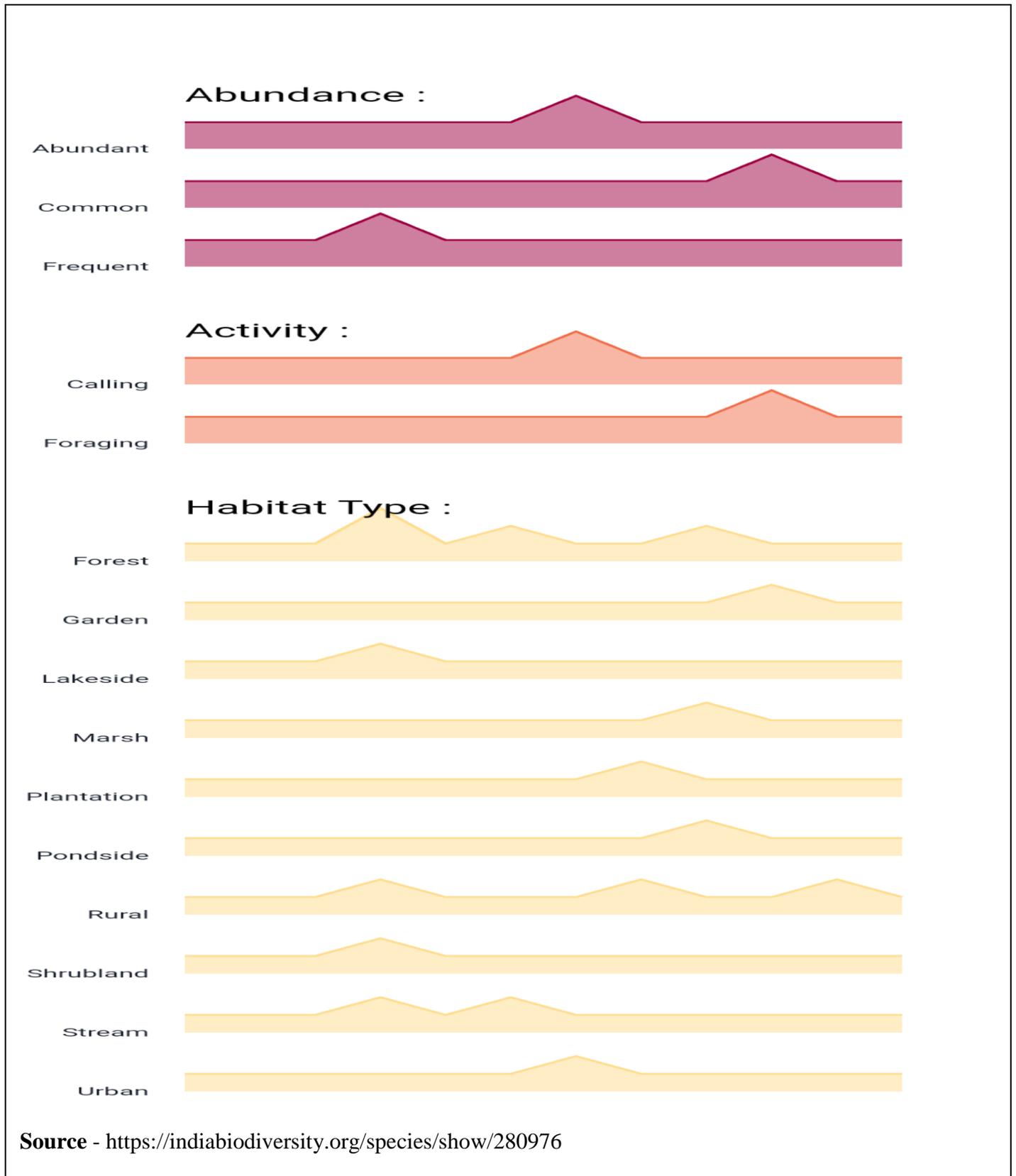
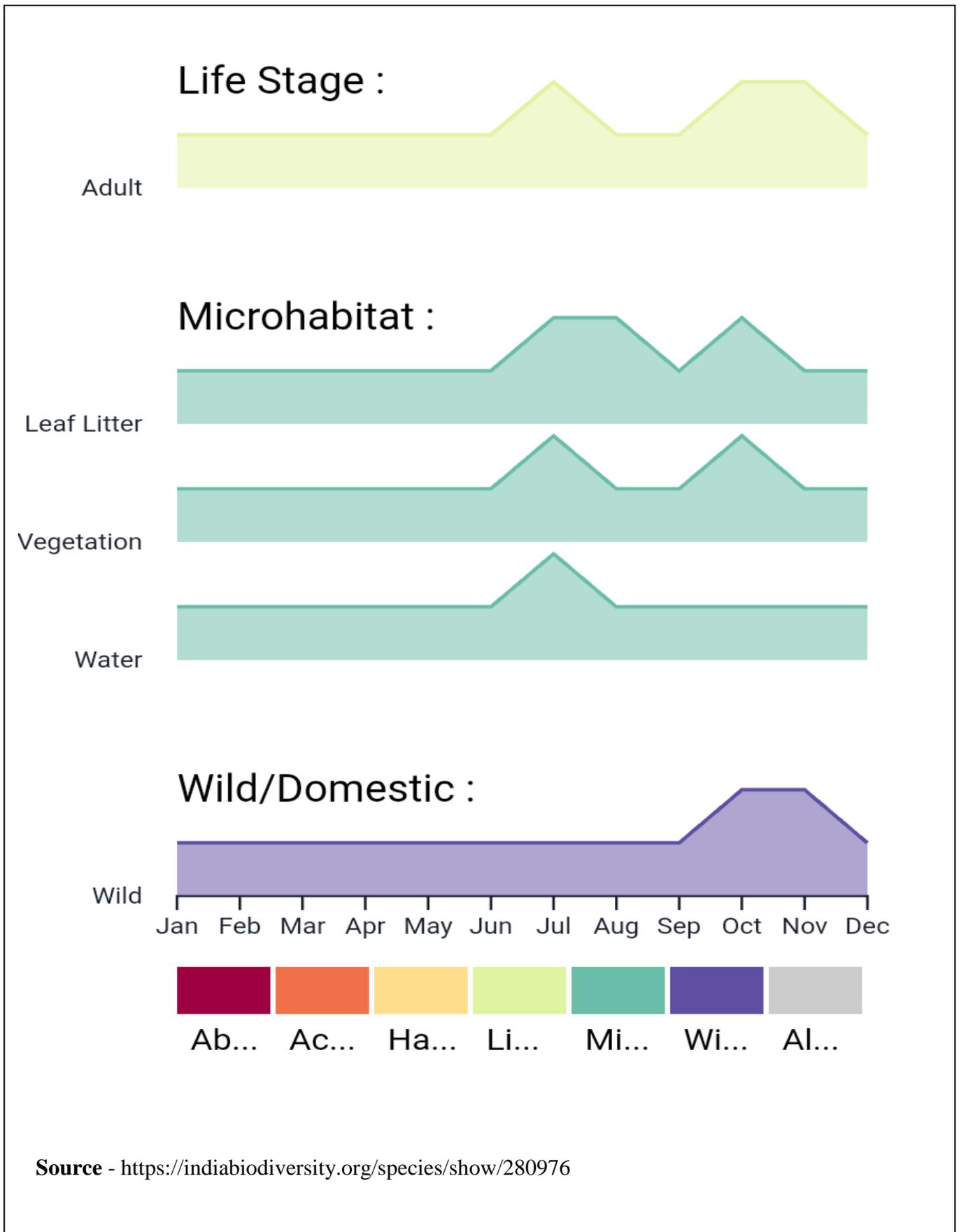
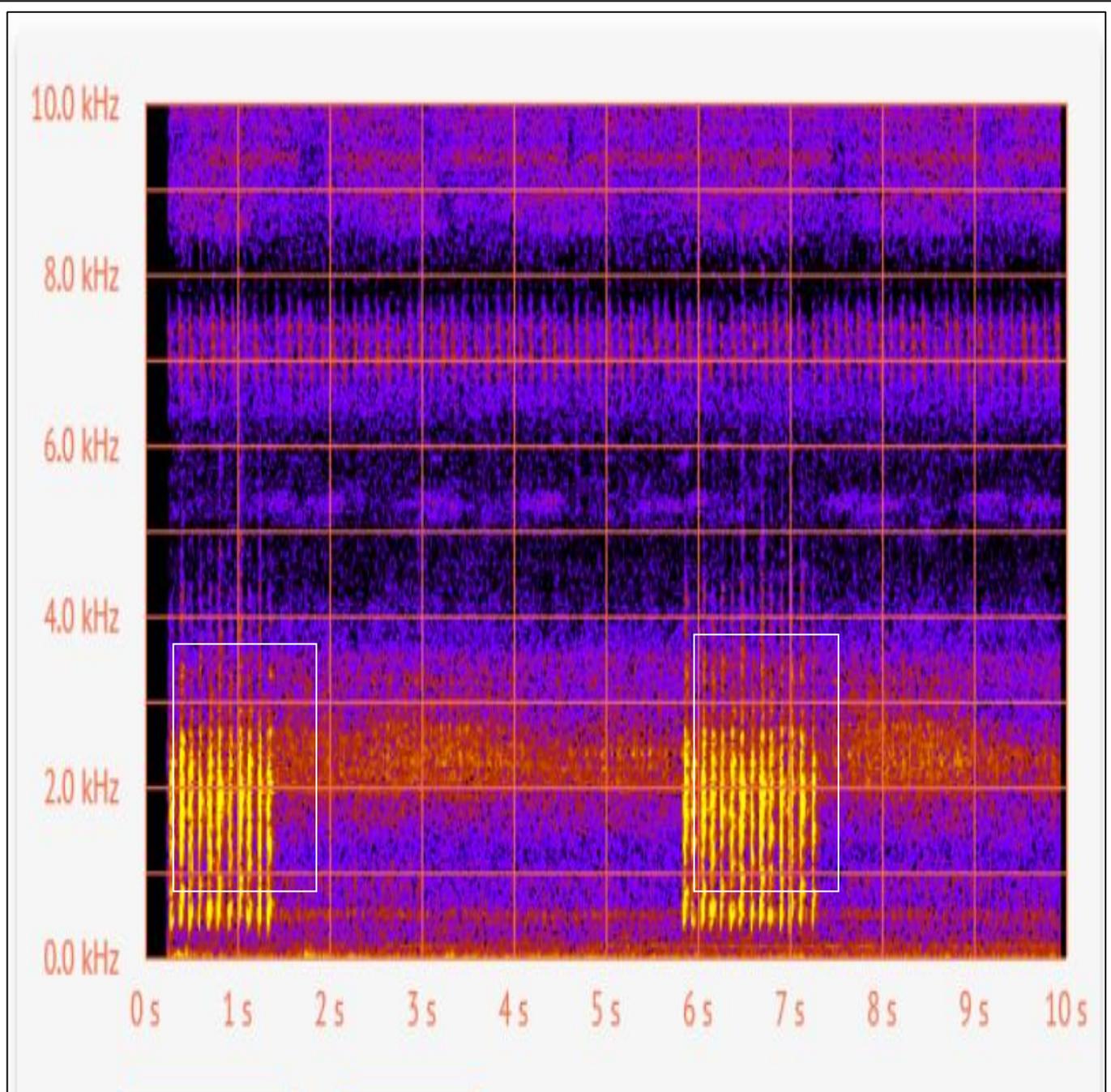


Fig 7- Traits distribution of Assam Forest frog



Source - <https://indiabiodiversity.org/species/show/280976>

Fig 8- Traits distribution of Assam Forest frog



Source - <https://academo.org/demos/spectrum-analyzer>

Fig 9 – Spectrogram of Assam Forest frog (time series data)

➤ **Discussion:**

Not much is known about the size of this species' population except that it has been detected in a number of surveys (Cope 1869, Anderson 1871, Chan-ard 2003, Lalremsanga et al., 2007, Mahoney and Reza 2007, Bortamuli et al. 2010, Matthew and Sen 2010, Hasan et al., 2011). The species is reportedly uncommon in Thailand, but relatively abundant were collected in Myanmar (G. Wogan pers. comm. date unknown). In Mizoram, India, it is also considered moderately abundant during the rainy season. Intensive sampling throughout Toribari, Siliguri, India in combination with morphometric analysis would be beneficial to identify further populations of these species to understand their geographical range, and potential conservation. Previously the species reported from Duars area of Northern west Bengal (Buxa tiger reserve, Chilpata forest and kodalbasti forest). The species found most of the wetlands in the Duars area as well as the forest floor among leaf litter. The species prefer such type of habitat. The species has adaptations that are best suited for the forest environment. But in recent times, it has faced ecological threats due to

habitat loss which decreased its availability in the wild. The population of this species has majorly been affected by anthropogenic activities. Our study indicates a decline in its population and a more fragmented distribution in future. Agricultural Intensification has become a major threat to the species in the area. Prompt action is needed to protect the frog species in the area. It can be done through awareness programs, regular monitoring, community involvement, poster presentation etc., among the people and youth conservation plans with adequate scientific ways that can ensure effectiveness to save these species under changing environmental conditions.

➤ **Acknowledgement:**

We are thankful to WNE (Sarisha Wildlife and Ecology Society) for their active support during the field study. We are thankful to Yuden Lepcha, Owner of Ronglee Homestay for their hospitality. Also, we are thankful to Chiranjit Barik for their help during data collection.

➤ **Conflict of Interest:**

The author declares that there is no conflict of interest.

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