

First Record of *Polypedates Maculatus* (Gray, 1830) Common Indian Tree-frog, in Daltonganj (Palamau), India

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Research

Abstract

During the survey of amphibian species of Daltonganj, a very uncommon type of frog recorded. This frog was recorded from the branch of a tree near about the Department of Zoology GLA College Dalton Ganj. The frog was The *Polypedates Maculatus* (common Indian tree frog) is reported first time from Palamau District of Jharkhand province. It is an anuran Amphibian under the family Rhacophoridae and genus *Polypedates*. The species is listed as "LC" under IUCN Red List category.

Keywords: Amphibia; Anura; Daltonganj; Indian tree frog; *Polypedates maculatus*; Rhacophoridae; LC.

Introduction

Amphibians are very important and integral part of any ecosystem. Both terrestrial and aquatic food chain includes the amphibians as functional unit. Anuran amphibians are very pretty creature feed on several types of insects and other invertebrates as well are food of many predators [1-2]. Frogs also act as indicator species and give the idea about health of ecosystem. Conservation of different amphibian species is very essential for the proper functioning of the ecosystem [3-4]. Decline of amphibian population throughout the planet, is the indicator of poor ecological health. In the tropical region this decline is very notable. During the early 1990s the Decline of amphibian population was first documented [5]. Out of nearly 7600 global amphibian species, ~32% population suffering threatened with extinction, ~43% experiencing declines, and another 22% with data deficient [6], this phenomenon is rightly addressed by Wake and Vredenburg [7] as the Earth's sixth mass extinction. The major threat to the survival of amphibian species is habitat loss, fragmentation and various anthropogenic activities. Others factor like global climate change, the infection caused by deadly chytrid fungus, *Batrachochytrium dendrobatidis*, environmental

pollutants including immunosuppressive effects of pesticides, anthropogenic eutrophication, invasive alien species etc. are also major factors of amphibian decline [8-10]. Survey and Exploration of different amphibians in Jharkhand province is not satisfactory [11-13]. we have tried to work of amphibian species found in Jharkhand state. During our survey an uncommon amphibian species was encountered in the G L A College campus Daltonganj. The purpose of the study is to present first record of common Indian tree frog, *Polypedates Maculatus* from Daltonganj, Jharkhand, India.

Material and Methods

On 09 October 2020 in afternoon 01.30 hours, an uncommon anuran Amphibia was seen on a tree of Bel, near about the verandah of ground floor Department of Zoology G.L.A College Medininagar, Jharkhand (24°02'42.2"N, 84°05'37"E), outskirts of Daltonganj town, Palamau of Jharkhand Province (Study site Plate-1). Photographs were taken in Nikon Cool pix 500. The frog was caught and put in earthen pot with some grass and little amount of water and brought to the Department of Zoology, G.L.A. College Medininagar, Jharkhand for the identification and examination. The mouth of the jar was covered with a net to avoid escaping of the frog. Several insects like grasshopper nymph, damsel fly, dragon fly, ants etc. were put in the pot as live food on regular basis. Body weight was measured through Sartorius make digital balance (0.1g). Length of whole body and different body parts was measured in cm scale. The frog was kept in captivity up to 11 October 2020. Later it was released in the College Campus. Identification of frog was made through the identification keys [14-16]. (Figure 1)

Results

The frog was identified as *Polypedates Maculatus* (Gray, 1830), Common Indian tree frog (Fig-2-3). *Polypedates*

Maculatus is the member of amphibian order Anura and family Rhacophoridae. It was medium sized slim-waisted frog. Head was broader than long, Snout is obtusely pointed projecting slight beyond the mouth. Nostril is closer to the tip of the snout than the eye. A dark brown line exists between snout and eye on each side. A dark black marking extends from the nostril on

both sides of the head, covering the eye, down the flanks right nearly up to the middle of the belly. The limbs are cross-banded with black stripes and the lower side of the thighs patterned with round yellow spots. Tympanum is distinct. When the frog was stationary, sacral vertebrae form a pair of distinct elevations on the back Figure 2.



Figure 1: G.L.A College campus, Medininagar Jharkhand (Sampling area).



Figure 2: Polypedates Maculatus (Recorded from Medininagar Palamau Jharkhand).

Table 1. Morphometric measurement of Polypedates Maculatus (Indian tree frog).

S No.	Morphological Characters	Measurement	
1.	Body Weight	26.2 gm	
2.	Body Length (Snout-vent length)SVL	7.4 cm	
3.	Eye-snout tip distance	1.0 cm	
4.	Head length	2.3 cm	
5.	Head width	2.6 cm	
6.	Diameter of tympanum	5.3 mm	
7.	Eye diameter	6.1 mm	
8.	Eye-nostril distance	8.1 mm	
9.	Nostril diameter	1.1 mm	
10.	Distance between eyes	1.1 cm	
11.	Width at trunk	2.4 cm	
12.	Width at abdomen	1.3 cm	
13.	Distance between two ends of the jaw	2.6 cm	
14.	Diameter of tip of second finger	1.1 mm	
15.	Fore -limb length	Humerous	2.2 cm
		Radio-ulna	1.7 cm
	Hind limb length	Femur	3.7 cm
		Tibia-fibula	3.8 cm
		Astragalus calcaneum	2.2 cm

Discussion

The species is listed as Least Concern under IUCN Red List considering its wide distribution, tolerance of a broad range of habitats, supposed large population and because it is unlikely to be declining to qualify for listing in a more threatened category. This species is found all over most of Bangladesh, Bhutan, India, Nepal, and Sri Lanka. It has been reported from the West Bengal, Orissa, Bihar Uttar Pradesh and this is the first record of this frog from Jharkhand state. Prior to this record no any record about this species from Jharkhand state. However, from regional/national perspective, unlike other widely distributed anuran species like *Duttaphrynus melanostictus*, *Hoplobatrachus tigerinus* etc. in this area, the Indian tree frog has a patchy distribution and seldom occurs here. The possible cause of this species to be found here is due to migration or adaptation to reside on tree. This species is recorded from nearby district of Bihar state as from Gaya and Aurangabad by Pankaj N and Sarkar, A.K respectively [17,11]. However, it is the first district as well state record of *Polypedates Maculatus* from Medininagar, Jharkhand. In tree frogs, dorsal color change is prevalent. This change in dorsal colour due to environmental conditions as well due to intrinsic factor also. Dorsal colour change of this species helps to adjust body temperature [19], minimize water loss [18], avoid predation by background matching [19], and/or also play an important role in sexual selection and mating [20-21]. This phenomenon is known as metachrosis. The color change is due to the rearrangement of pigment granules in present in dermal cells. Three kinds of dermal dendritic pigment cells, chromatophores like xanthophores, iridophores and Melanophores are present in this species [22].

The Morphometric measurements of the specimen collected are given in Table 1.

Conclusion

Amphibians are because of very small creature posing a great threat. There required a master plan for their survey, conservation and their continuous monitoring as well. The present paper deals with the first sighting record of this northern most district of Jharkhand province. This is the first state record of tree frog (*Polypedates Maculatus*) from Jharkhand state also. Further study on amphibian species of this state required for the assessment of amphibian diversity of this district and state as well.

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