



## Additions to the Amphibian fauna of Arunachal Pradesh, India

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### Abstract

The amphibian diversity of Arunachal Pradesh has increased by 3 species after studying the backlog collection of APRC/ ZSI, Itanagar. The 3 species belongs to 3 genera, 3 families and 1 order. Of the 3 species, 1 species is least concern, 1 is data deficit and 1 not evaluated as per IUCN.

**Keywords:** Anura, APRC, New state records, Taxonomy, ZSI

### Introduction

Arunachal Pradesh is one of the least explored areas in the world. The rich biodiversity of the easternmost state of India was never in doubt but what is lacking is the detailed study of the various faunal and floral groups of the state. Arunachal Pradesh falls under the Eastern Himalaya biodiversity hotspot. The rich diversity is ascribed to its unique location in the transition zone between the Palearctic and Oriental biogeographic regions. Being nestled in the lap of the Himalayas, Arunachal Pradesh has a range of climatic conditions; from grasslands to tropical to temperate to permanent snowline. This diverse climatic conditions harbor different habitats and micro-habitats from plains to rugged landscape to high altitude lakes to swift flowing hilly rivers. Despite some detailed studies on the mammalian, avian, fish and certain invertebrate groups, there still exist a lot of lacunae in the comprehensive faunal account of the state. In the case of amphibians, Arunachal Pradesh has not yet been completely documented which is apparent from the new records and new discoveries of amphibians being reported on a regular basis by several workers.

Virtually nothing was known about the amphibian fauna of Arunachal Pradesh till the publication of Zoological Results of the Abor Expedition, 1911-1912

by N. Annandale (1912). Subsequently, several authors enriched our understanding about the amphibian diversity of the state (Boulenger, 1920; Smith, 1929; Ahl, 1931; Mansukhani *et al.*, 1976; Inger and Dutta, 1986; Sarkar and Sanyal, 1985; Chanda, 1990, 1992, 1994; Bordoloi *et al.*, 2000 and several others). Chanda (2002) published a handbook on Indian amphibians where he included 43 species from Arunachal Pradesh. Sen (2004) reported 46 species of amphibians belonging to 6 families and 2 orders from the state. Bordoloi and Borah (2009) studied the diversity of amphibians in 11 districts of the state and raised the species count to 63. Subsequently, many more species have been added to the amphibian fauna of Arunachal Pradesh by different workers either as new records or new discoveries. Some of these latest additions were through the works of Mathew & Sen (2009), Borah *et al* (2013), Kamei *et al* (2009, 2013), Mahony *et al.* (2013), Sarania *et al.* (2015), Biju *et al.* (2016) and many others. In addition to all these, we report another 3 new records of anuran amphibians from this Himalayan state of India based mainly on the study of unidentified collections present in the Arunachal Pradesh Regional Centre (APRC) of Zoological Survey of India (ZSI), Itanagar.

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## Abbreviations

APRC/ZSI : Arunachal Pradesh Regional Centre/Zoological Survey of India  
 Coll. : Collected by  
 IUCN : International Union for Conservation of Nature  
 ZSI : Zoological Survey of India

## Materials and Methods

Examination of the unidentified amphibian collection in APRC, ZSI, Itanagar, was done to ascertain the diversity in the State. Frost (2017) was followed for identification. The following morphometric measurements were taken with a digital caliper and are in millimeter (mm) – SVL-Snout-Vent Length; HL-Head Length; HW-Head Width and SL-Snout Length. For distribution records, Mathew & Sen (2010), Saikia (2012), Saikia & Sen (2012) and Frost (2017) were followed.

## Results

Three anuran amphibians belonging to 3 genera, 3 families and 1 order are being reported for the first time from the Himalayan state of Arunachal Pradesh. These are *Fejervarya syhadrensis*, *Xenophrys zunhebotoensis*, and *Polypedates assamensis*. Of the 3 species, 1 species is least concern, 1 is data deficit and 1 not evaluated as per IUCN.

## Systematic Account

Class AMPHIBIA

Order ANURA

Family DICROGLOSSIDAE

Genus *Fejervarya* Bolkey, 1915

1. *Fejervarya syhadrensis* (Annandale, 1919)

Syhadra Frog (Figure 1)



Figure 1. *Fejervarya syhadrensis*.

1919. *Rana limnocharis syhadrensis* Annandale, *Rec. Indian Mus.*, **16**: 123.

*Material examined*: 1 ex., ZSI/V/APRC/A-107, Near Roing, Lower Dibang Valley, Arunachal Pradesh, 01.v.2015, S. D. Gurumayum & Party; 1 ex., ZSI/V/APRC/A-109, Coll. River Dikrong, Doimukh, Papumpare, Arunachal Pradesh, 02.vii.2016, B. Saikia & Party; 1 ex., ZSI/V/APRC/A-150, Golosa, Coll. Sejosa, East Kameng, Arunachal Pradesh, 12.xi.2003, D. Dam; 2 exs., ZSI/V/APRC/A-169, Siang River, East Siang, Coll. Arunachal Pradesh, 30.ii.1996, Coll. P. T. Bhutia.

*Diagnosis*: A small frog; head pointed; canthus rostralis not prominent; nostril lateral, closer to snout; yellow mid-dorsal line, thin, sometime absent or incomplete; 1<sup>st</sup> and 2<sup>nd</sup> fingers equal, 3<sup>rd</sup> the longest; TTA reaches anterior corner of eye; dorsum grayish-greenish to brownish.

*Morphometry*: ZSI/V/APRC/A-107: SVL-23.22; HL-6.83; HW-8.51; SL-4.23.

ZSI/V/APRC/A-109: SVL-18.65. ZSI/V/APRC/A-150: SVL-18.68

*Distribution*: INDIA: Arunachal Pradesh, Assam, Manipur, Meghalaya in NE India and Western India. *Elsewhere*: Bangladesh; Nepal; Pakistan; Sri Lanka.

*IUCN Status*: Least Concern.

*Remarks*: Fairly common.

Family MEGOPHRYIDAE

Genus *Megophrys* Kuhl and Van Hasselt, 1822

2. *Megophrys zunhebotoensis* (Mathew & Sen, 2007)

Zunheboto's Horned Toad (Figure 2)



Figure 2. *Megophrys zunhebotoensis*.

2007. *Xenophrys zunhebotoensis* Mathew & Sen, *Cobra*, **1** (2): 20

**Material examined:** 1 ex., ZSI/V/APRC/A-111, 10 km from Midpu on Sagali Road, Papumpare, Arunachal Pradesh, 02.vii.2016, Coll. B. Saikia & Party.

**Diagnosis:** A medium sized frog; head broader; nostrils closer to eyes; supratympanic glandular fold white in colour; limbs slender; TTA reaches eye; fingers and toes tips swollen; dorsum slaty coloured; dark triangular patch between the eyes; a V shaped ridge behind the eyes, another similar ridge on the posterior dorsum, making an incomplete hour glass pattern; 2 parallel lines on the both sides of the V shaped ridges; axial and femoral glands present.

**Morphometry:** ZSI/V/APRC/A-111: SVL-66.3; HL-21.17; HW-25.92; SL-8.9.

**Distribution:** INDIA: Arunachal Pradesh, Meghalaya and Nagaland. *Elsewhere:* Not known.

**IUCN Status:** Data deficient.

**Remarks:** Rare. Presently endemic to NE India.

Family RHACOPHORIDAE

Genus *Polypedates* Tschudi, 1838

3. *Polypedates assamensis* Mathew & Sen, 2009

Dappled Tree Frog (Figure 3)



**Figure 3.** *Polypedates assamensis*.

2009. *Polypedates assamensis* Mathew & Sen. Studies on little known Amphibians of North East India. *Rec. Zool. Surv., Occ. Paper.* **293:** 1-64

**Material examined:** 1 ex., ZSI/V/APRC/A-106, Near Roing, Lower Dibang Valley, Arunachal Pradesh, 01.v.2015, Coll. S. D. Gurumayum & Party.

**Diagnosis:** A medium sized frog; head slightly broad; skin on head not co-ossified; loreal region concave; nostrils closer to snout; tympanum big and distinct; tongue notched; TTA reaches between eye and nostril; toes 2/3<sup>rd</sup> webbed; inner meta tarsal tubercle present, outer absent; dorsum brown with irregular black spots.

**Morphometry:** ZSI/V/APRC/A-106: SVL-47.69; HL-13.94; HW-14.83; SL-8.78.

**Distribution:** INDIA: Arunachal Pradesh, Assam and Meghalaya. *Elsewhere:* Not known.

**IUCN Status:** Not evaluated.

**Remarks:** Rare. Presently endemic to NE India.

## Discussion

While studying the amphibian backlog collection of APRC/ZSI, Itanagar, the authors came across 3 new state records from Arunachal Pradesh. Of the 3 new records, 1 belonged to the family Dicroglossidae, 1 species to Megophryidae, and 1 species to Rhacophoridae. While *Fejervarya syhadrensis* is found in 5 south Asian countries, the other two species are endemic to Northeast India. *Xenophrys zunhebotoensis* (in 2007) was described from Nagaland and *Polypedates assamensis* (in 2009), as the names suggest was described from Assam. Since then, these two species have been reported from Meghalaya, as well (Saikia & Sen, 2012; Saikia, 2012). The recent spurt in the discovery of so many anurans from the region only reiterates that the Northeast India lies in the confluence of two biodiversity hotspots.

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