

## First report of *Raorchestes sanctisilvaticus* (Das and Chanda, 1997) sacred grove bush frog from Chhattisgarh, India

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### ABSTRACT

Sacred grove bush frog *Raorchestes sanctisilvaticus* (Das and Chanda, 1997) (formerly known as *Philautus sanctisilvaticus*) is essentially a forest dependent specialist having preference for mainly mature forest. The type locality of the species is Kapildhara falls (23°10' N: 81° 70' E) in Amarkantak of Anuppur district, Madhya Pradesh (Das and Chanda, 1997). Interestingly after discovery of the species, since then it has not been reported by the subsequent workers from this region. This species is listed as critically endangered due to very small area of occupancy (10km<sup>2</sup>) and also due to decline in the extent and quality of its habitat (Das et al., 2004). The current sighting in Bastar district is remarkable because the present locality is c.f. 430 km from the earlier locale. With report of occurrence of the species from Bastar Plateau, this study makes first record of the critically endangered sacred grove bush frog *Raorchestes sanctisilvaticus* from Chhattisgarh, India.

**Key words:** Amphibia; *Raorchestes sanctisilvaticus*, Bastar Plateau, Chhattisgarh; KVNP, MFR; Critically Endangered

### Introduction

**S**acred grove bush frog *Raorchestes sanctisilvaticus*, formerly known as *Philautus sanctisilvaticus*, is essentially a forest dependent specialist having preference for mainly mature forest. The first sighting and collection of the species was made way back in 1962 by Singh (vide Das and Chanda, 1997) from the Kapildhara falls (23° 10' N, 81° 70' E), in Amarkantak of Anuppur district, Madhya Pradesh. The current sightings in Bastar are c.f. 430 km from Amarkantak.

The frog is small-sized, relatively robust looking with a narrow waist. The species is characterized by short head, wider than long; snout flattened; eyes large with extremely small tympanum, almost

concealed. The species is nocturnal and arboreal, associated with old growth, tropical, moist, semi-evergreen and mesic forest and does not occur outside forest. It presumably breeds by direct development, like other species in the genus (Das et al., 2004).

Chandra and Gajbe (2005) made an inventory of herpetofauna of Madhya Pradesh and Chhattisgarh and reported 19 species of amphibians belonging to 13 genera and four families. Furthermore, Dutta (2015b) reported 16 species of amphibians from Bastar plateau but *Raorchestes sanctisilvaticus* was not included in the list. The sacred grove bush frog (*Raorchestes sanctisilvaticus*) has so far not been reported from Chhattisgarh state and hence the present report of this species from Bastar district is the first report of the species from Chhattisgarh, India. This species was observed from two different localities in Machkote Forest Range (MFR) and also from Kanger Valley National Park (KVNP).

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### Material and Methods

The Machkot forest Range (MFR) is spread over an area of 341.049 km<sup>2</sup> and the Kanger Valley

National Park (KVNP) is spread over about 200 km<sup>2</sup> area. Both the forest areas are sal dominated with about 80 per cent canopy cover and receive an annual average rainfall of about 140 cm. The summer temperature rarely goes above 43°C. These characters make the area sub-humid and sub-tropical. Climatically both the Amarkantak area on the one hand and Machkot forest and Kanger Valley National Park area on the other hand are nearly similar to each other and probably is the reason for the discontinuous distribution of the species.

The Kanger Valley was declared as a National Park in the year 1982. Name of the park is derived from the Kanger River, flowing through the area. The national park is about 30Km away from Jagdalpur city towards south-east direction. The landscape of the National Park is highly heterogeneous and a hilly terrain. The area has low flat, gentle areas to steep slopes, plateaus, valleys, subterranean dissolution geomorphologic limestone caves intersected with rivers and streams. The diverse habitats of the National Park help to sustain large variety of flora and fauna as well and considered to be a hotspot of biodiversity in Central India. Most part of the National Park is sal (*Shorea robusta*) forest, with saja (*Terminalia tomentosa*) as co-dominant tree species. Thickets of bamboo are also common in the area.

Within the National Park area transition of sal forest in to teak forest is also observed where from one side the dominance of sal weins away and is taken over by the teak and vice versa. The transition zone between the two species forms an ecotone. The park has several temperate plant species including *Mallotus philippensis* and several fern species like the tree fern, *Cyathia spinulosa*. Ground flora is dominated by *Curcuma sp.* and *Amorphophallus poenifolius*. *Chromolaena odorata* is the most prominent exotic, invasive plant species with more abundance in the periphery of the National Park.

## Results and Discussion

The *Raorchestes* specimens collected from Bastar show characteristic morphological similarities with the type specimens of *Raorchestes sanctisilvaticus* except small differences in colour pattern. Individuals observed during present studies revealed following characters. Head wider than long; tympanum small, concealed; webbing on toe IV was up to basal subarticular tubercle on the inner side and to the distal subarticular tubercle on the outer side; dorsum brownish-grey with a dark forehead; sides of the body brown with cream reticulations. The

**Figure-1. First sighting of the *Raorchestes* specimens made in Machkote Forest Range near Ganesh Bahar Nullah on 19<sup>01</sup>'46.04" N and 82<sup>09</sup>'47.2" E at 545m above MSL on 19<sup>th</sup> August 2011 at 20.27 hr.**



**Figure-2. Second sighting of the *Raorchestes* species was made on 27<sup>th</sup> of March 2012 at 11.28hr in KVNP at 18°53'21.8" N and 81°55'17.3" E at 478m above MSL**



mature individuals collected were of snout to vent length 20 to 23.6 mm. Tips of fingers and toes dilated into large, rounded and flattened disks with distinct circummarginal grooves separating dorsum of disks from ventrum; tibia long; dorsum of body smooth except for a narrow median dermal fold along dorsum; upper eyelids tuberculate; throat, pectoral, abdominal region as well as under surface of thighs with large, flattened, juxtaposed tubercles; and the under surface of forelimbs smooth.

The first sighting of the species was made in Machkote Forest Range near Ganesh Bahar Nullah on 19°01'46.04" N and 82°09'47.2" E at 545m above MSL on 19<sup>th</sup> August 2011 at 20.27 hr (Figure-1). Some more sightings of the species were made in the same (rainy) season. Subsequently photography and videography of the species was made on 27<sup>th</sup> of March 2012 at 11.28hr in KVNP at 18°53'21.8" N and 81°55'17.3" E at 478m above MSL (Figure-2). This species can be very frequently seen in this area. Once, as many as three individuals were found under aestivation under a fallen and rotting log of *Shorea robusta*. The species is nocturnal but can be seen during the day time, especially in rainy and cloudy weather. Nevertheless, the species has, so far, not been observed outside the forest area.

Machkot forest and Kanger Valley National Park areas are poorly surveyed in terms of faunal diversity. Recent surveys yielded significant results with report of Black-naped Oriole, Ruby-cheeked Sunbird (Chandra *et al.*, 2015) and the rare bird Rufous-bellied Eagle (Dutta, 2015a). Hence it is presumed that systematic and long term surveys in

the area will result in finding more interesting species from Bastar plateau. Furthermore, action plans can be prepared for saving these conservation dependent species from the catastrophic habitat destruction.

## Conflict of Interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

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