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Amphibian Diversity from Chandel Area of Sahyadri Tiger Reserve (Maharashtra, India)

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Abstract: ***The survey on amphibian diversity was carried from Chandel area of Sahyadri Tiger Reserve (STR) located in Shahuvadi Tehsil of Kolhapur district at 17.2454954°N and 73.7448622° E. This area is of heavy rainfall during monsoon and is situated at catchment area of Ramnadi. It constitutes about 2321 hectares area with dense forests, wood lands and plateaus. For present study survey of amphibians was carried out during December2018 to December 2019.The survey is based on intensive search of amphibians on the basis of actual sighting, their calls, turning rocks and their egg clusters (for some species). During study 14 species of amphibians from six families were reported.***

Keywords: Sahyadri Tiger Reserve, Chandel, Amphibians, Diversity

1. Introduction

Sahyadri Tiger Reserve is located in the Sahyadri Ranges of the Western Ghats of Maharashtra. It consists of Ghats, moist deciduous forests, rich evergreen, semi-evergreen and rain forests. It spread over the junction of four districts of Satara, Sangli, Kolhapur and Ratnagiri. Koyna Wildlife Sanctuary forming the northern portion and Chandoli National Park forming the southern part of the reserve. Recently reserve is extended towards Radhanagari Wildlife Sanctuary. The core area is about 600.12 km^2 (231.71 sq. mi) and the buffer area constitutes 565 km^2 (218 sq. mi). Thetotal area of Sahyadri Tiger Reserve is 1,166 km^2 (450 sq. mi).Amphibians are a unique group of vertebrates containing about 8100 known species. The 2004 Global Assessment (Baillie et al. 2004) found that nearly 32% of the world's amphibians are threatened, representing 1856 species. The number of extinct and threatened species will probably continue to rise (Stuart et al. 2004). Amphibians play a major role in ecosystem. The adults are secondary consumers in most of the food chain and are biological pest controller. They are biological indicators and very sensitive; can detect the slight change in environment. According to Cook and Ferguson (1976) severe decline in populations of amphibian have been noted in many parts of the world. In some cases, amphibian decline has been observed in areas totally free from any human interference (Lips, 1998; Matton, 2000). Amphibians in Western Ghats form an important faunal group, but it is incompletely documented (Bossuyt, 2002).New species of phillautus species from Western Ghats were described by Kuramoto and Joshy,2003; Bossuyt, 2002.In India total 447 amphibian species are present, of which 20 species are critically endangered and 35 species are endangered (Dinesh et al. 2020). Pande and Pathak (2005) and Lavate and Mule (2009) reported five and sixteen species of amphibians respectively at Chandoli National Park. Abraham et al. (2013) described several new species and genera of amphibians from the Western Ghats. There are several species are not yet formally described (Bini et al. 2006). Four amphibian species was listed by Abdar (2014). The amphibians of Western Ghats are diverse and unique with more than 80% of the 181 species being endemic to the region (Radhakrishnan and Rajmohana, 2012). New species and genera of amphibians were reported (Biju et al. 2006).Hence the present study was undertaken to fill up the gap between and make a checklist of amphibian fauna from Chandel region. Chandel area is a part of Sahyadri Tiger Reserve and is a protected area. The area shows high diversity of flora and fauna as human interference is strictly prohibited in these areas.

2. Materials and Methods

The present study was carried out in Chandel area of Sahyadri Tiger Reserve located in Shahuvadi Tehsil of Kolhapur district at 17.2454954°N and 73.7448622° E. It covers an area about 2321 hectares. It is a core region of Chandoli National Park. The average annual temperature at Chandoli is 33°c and the average rainfall at this region is 248 mm. in a year with an average humidity 42%.

Chandel situated on top of hill, lie in the catchment area of the Ramnadi. During several visits from December 2018 to December 2019 we studied various species of amphibians. They should be noted either on the basis of actual sighting, presence of egg clutches, by their calls along the streams and through patches of forest during day light and early night hours. The checklist had prepared by using photographic record of amphibian species and with the help of available identification keys (Boulenger, 1890). The information regarding habitat will be collected and studied by actual spot visits in the area, and the standard methods of observation and classification will be followed with the help of existing literature.

3. Results and Discussion

During survey fourteen amphibian species from six families were reported; of these seven species are endemic to

Western Ghats. One species is vulnerable while, one is endangered species. The species *Indosalviranacaesari* is schedule IV, near threatened species according to IUCN Red List but the high abundance of *Indosalviranacaesari* were seen in this area due to the favourable environmental conditions are present in this area for their survival. The checklist of Amphibian species from Chandel area is given below. (Table No.1)

Table 1: Checklist of Amphibians from Chandel region

Sr. No.	Name of the Species	Common name	Family	IUCN Status
1.	*Duttaphrynusmelanostictus* (Schneider,1799)	Common Indian toad	Bufonidae	LC
2.	*Euphlyctiscyanophyctis* (Schneider,1799)	Indian skittering frog	Dicroglossidae	LC
3.	*Fajervaryasahyadrensis* (Annandale,1919)	Bombay wart frog	Dicroglossidae	LC
4.	*Hoplobatrachustigrinus* (Daudin,1802)	Indian bull frog	Dicroglossidae	LC
5.	*Sphaerothecabreviceps* (Schneider,1799)	Indian burrowing frog	Dicroglossidae	LC
6.	*Sphaerothecadobsonii* (Boulenger, 1882)	Dobson's burrowing frog	Dicroglossidae	LC
7.	*Uperedonmormorata (Rao,1937)*	Marbledramnella	Microhylidae	EN
8.	*Microhylaornarata (Dumeril and Bibron, 1841)*	Ornate narrow mouthed frog	Microhylidae	LC
9.	*Clinotarsuscurtipes* (Jerdon, 1853)	Bicoloured frog	Ranidae	NT
10.	*Hydrophylaxbahuvistara (*Padhye, Jadhav, Modak, Nameer and Dahunukar,2015)	Fungoid frog	Ranidae	LC
11.	*Indosalviranacaesari* (Biju,Garg,Mohoni,Wijayathalika,Senevirathne and meegaskumbura,2014)	Bronzed frog	Ranidae	NT
12.	*Indiranabeddomii* (Gunther,1875)	Beddom's leaping frog	Ranixalidae	LC
13.	*Polypedates maculates* (Gray,1834)	Common indian tree frog	Rhacophoridae	LC
14.	*Raochestesbombayensis* (Anandale,1919)	Bombay bush frog	Rhacophoridae	VU

EN: Endangered, LC: Least concerned, NT: Near threatened, VU: Vulnerable

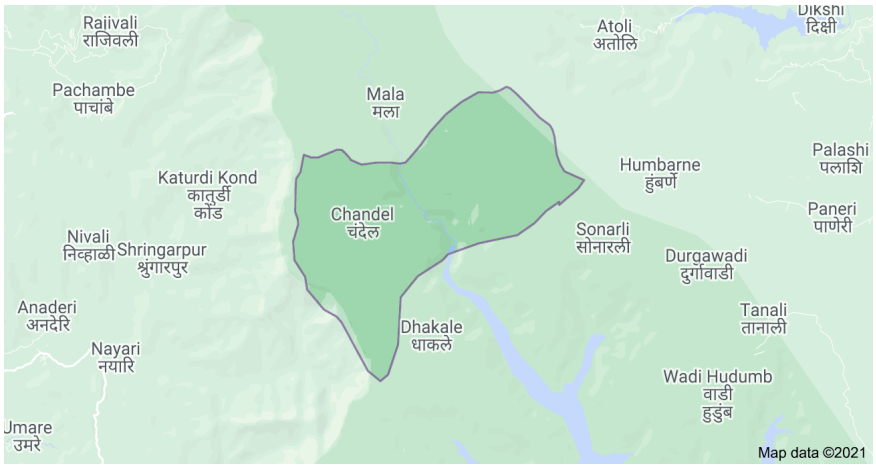

Figure 1: Location map of the study area: Chandel

4. Discussion

The study area contains lakes, streams, river, hill slopes, woodlands high rain fall, paddy fields and grasslands. It provides high diversity of habitat which is responsible for diversity of amphibian species. It shows that non endemic species are well adapted to this area. *Indosalviranacaesari* is a near threatened species but shows high abundance in this area is because of the Chandel area has a good environmental condition for their habitat and as the area is a part of reserve forest there is no any human interference seen. It provides good environment and non-disturbance to the species for the survival. There are least challenges for growth and diversity of species. From the study area, out of fourteen amphibian species seven species are non-endemic and seven species are endemic to Western Ghats. This area shows rare, vulnerable, least concerned and near threatened species. Hence the survey will provide the baseline information for conservation of amphibian species and biodiversity studies.

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