



Amphibian Fauna of Chinnar Wildlife Sanctuary, Kerala, India

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Abstract

Amphibians are characterized by their ability to live both aquatic and terrestrial habitats. Few species are permanently lives as land dwellers, while some of other species have completely aquatic mode of life. Chinnar Wildlife Sanctuary is one of the protected area of Kerala, where amphibian documentation is very less. In this context, a rapid survey on amphibians was initiated to document the anurans in the landscape. Three major vegetation types namely Riparian, dry deciduous and evergreen forests were covered for the survey. Both nocturnal and diurnal survey was made along the streams and rivers. Time-constrained Visual Encounter Surveys involves systematic search of an area or habitat for a prescribed time. Eighteen species of amphibians belongs to eight families were collected based on the present study. Out of 18 species, nine are endemic to Western Ghats and five of them are threatened.

Keywords: Amphibian; Survey; Endangered; Chinnar Wildlife Sanctuary; Western Ghats

Introduction

Amphibians belongs to the class Amphibia that also called herpetofauna of vertebrate. The term Amphibians is derived from Greek words “amphibious” for their dual life style (Amphi-dual; Bios-life). They are characterized by their ability to live both aquatic and terrestrial habitats. Few species are permanently lives as land dwellers, while some of other species have a completely aquatic mode of life [1]. Amphibians are classified into three Orders namely; 1. Anura (Greek: An-absent, Oura-Tail) includes frogs and toads. 2. Caudata (Greek: Cauda-Tails) includes Newts and Salamanders and 3. Gymnophina (Greek: Gymno-Naked, Ophios-snake) includes Caecilians. Anuran includes frogs and toads which are belonging to the genus Bufo are described as toads where as members of genus Rana are referred as frogs. In the order Caudata (literally meaning tailed Amphibians)

there are no clear distinctions between the two categories of Newts and Salamanders, both common names are often interchanged [2].

To implement conservation programmes for amphibians, it is important to understand the factors that control their diversity in the region. Amphibians play an important role in the ecosystem because they feed on insects, including many pest species of agricultural crops. They are also important food sources for many larger animals such as water birds, mammals, reptiles, and even spiders and larger insects. They often have the role of economical importance to humans as a food source [3,4] medical resource in some regions (Chinese medicine), and as an important potential source of future pharmaceutical drugs [5]. Most of the endemic species have restricted distribution, confined to the rainforests of the Western Ghats [6].

Similar studies were also conducted in Cauvery delta region where the water may appear clean but there is enormous physico-chemical elements dissolved in it, in which it contaminates water and affect the quality of water and life [7]. However, this region supports a dense human population, mainly associated with agricultural activities, which impose severe anthropogenic pressures on the natural biotic communities [8].

About 5 % (314) of world amphibian is reported from India, of which more than 75% of them are restricted their distribution to a narrow strips of moist forests in Western Ghats [9,10]. Within India, the Western Ghats shares one of such large number of endemic amphibians and hence it has been recognised as hottest hot spot in the world. Although we have diverse amphibians, our knowledge pertaining to their distribution and abundance remains unknown in most part of the Western Ghats including several well known protected areas. Chinnar Wildlife Sanctuary is one of such a protected area, where amphibian documentation was not done earlier. In this context, a rapid survey on amphibians was initiated to document the anurans in the landscape.

Methods

Three major vegetation types namely Riparian, dry deciduous and evergreen forests were covered for the survey. Both nocturnal and diurnal survey was made along the streams and rivers. Time-constrained Visual Encounter Surveys involves systematic search of an area or habitat for a prescribed time [11]. A total of 25 hours of Visual Encounter Survey was adopted in few linear water bodies namely Chinnar, Pambar, Kannimar odai (Near Chungam) and an

unknown stream near Mangaparai. Trees (bark, buttress, root and holes), leaf litters, fallen logs, boulders and crevices were examined to locate amphibians. Quadrate search was not followed during the survey since it is a peak dry season in the Western Ghats and further detectability of amphibians on floor during lean period is low in dry landscapes like Chinnar.

The observed amphibians were identified up to species level following the description of Boulenger [12], Daniel [13-17]. Further, recent descriptions of new species from Western Ghats were also used. Nomenclature of Frost. et al. [18] and Das, et al. [19] were used. Conservation status of each species was obtained from the IUCN website [20].

Results and Discussion

Altogether, 18 species of amphibians belongs to eight families were collated based on the present study and published secondary sources [21]. Bronzed frog dominated the community in the low and mid elevation water bodies followed by Skipper frog and Beddome's leaping frog. Out of 18 species, nine are endemic to Western Ghats and five of them are threatened (Table 1). Some of the wet zone species (*Micrixalus fuscus*, *Nyctibatrachus aliciae*, *Nyctibatrachus major* and *Nyctibatrachus minor*) were recorded during the study however there are possibilities to occur more in the upper reaches of the sanctuary (for instance Mangaparai). Although an exploration was done in the upper reaches, due to the severe litter and bush fire in the wet evergreen patches during the survey, none of these species were recorded. Inventory of low number of species (18 species) during the present study may be attributed to survey in dry period and short duration of study.

Sl.No	Systematic Order	Scientific Name	Common Name	Endemic to WG	IUCN Status
1	Class: Amphibia Order: Anura Family: Bufonidae	<i>Duttaphrynus melanostictus</i>	Black-spectacled Toad	NE	LC
2	Family: Dicroglossidae	<i>Duttaphrynus scaber</i>	Ferguson's Toad	NE	LC
3		<i>Euphlyctis cyanophlyctis</i>	Indian skipper frog	NE	LC
4		<i>Fejervarya brevipalmata</i>	Short-webbed Frog	EN	DD
5		<i>Fejervarya keralensis</i>	Verrucose Frog	NE	LC
6		<i>Sphaerotheca breviceps</i>	Indian burrowing frog	NE	LC
7		Family: Micrixalidae	<i>Micrixalus fuscus</i>	Dusky Torrent frog	EN
8	Family: Microhylidae	<i>Microhyla ornate</i>	Ornate narrow-mouthed frog	NE	LC
9		<i>Microhyla rubra</i>	Red Narrow-mouthed frog	NE	LC
10		<i>Uperodon systoma</i>	Marbled balloon frog	NE	LC

11	Family: Nyctibatrachidae	<i>Nyctibatrachus aliciae</i>	Alice's Wrinkled frog	EN	EN
12		<i>Nyctibatrachus major</i>	Large Wrinkled frog	EN	VU
13		<i>Nyctibatrachus minor</i>	-	EN	EN
14	Family: Ranidae	<i>Hylarana temporalis</i>	Bronzed Frog	EN	NT
15	Family: Ranixalidae	<i>Indirana beddomii</i>	Beddome's Leaping frog	EN	LC
16	Family: Rhacophoridae	<i>Polypedates maculates</i>	Common tree frog	NE	LC
17		<i>Polypedates pseudocruciger</i>	Yellow tree frog	EN	LC
18		<i>Rhacophorus malabaricus</i>	Malabar flying frog	EN	LC

EN= Western Ghats endemic (Marked in bold); NE=Western Ghats Non-Endemic; LC=Least Concern; NT=Near Threatened; VU=Vulnerable; EN=Endangered (Threatened frogs are marked with bold).

Table 1: List of amphibians recorded from Chinnar Wildlife Sanctuary.

Summary

Lesser number of amphibian species are recorded from the present survey may be due to the survey was conducted during dry season and there are possibilities of recording more species during monsoon period. Long term studies is warranted to get the complete list of amphibians and their seasonal variability.

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