

Amphibian Survey from Mahad Tahsil Western Ghats, Maharashtra, India

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Abstract: *A study to find out the survey of amphibians at Mahad Tehsil of Raigad district from Western Ghats, Maharashtra India were carried out over a period of two years from June 2019 to November 2020 during rainy season. Western Ghats of India is well known for biodiversity hotspot. The selected site was Raigad, Shivtherghal, Birwadi, Mahad and Sav are well-known biodiversity hotspots in Mahad Tehsil, Western Ghats. The ecological parameters viz. rainfall, temperature, humidity etc. are favorable for inhabitations of amphibians. A total of 14 species of amphibians belongs to 6 families and 10 genera in Mahad Tehsil of 342 species of amphibian found in India belongs to 15 families.*

Keywords: Amphibian fauna, Western Ghats Mahad, etc.

I. INTRODUCTION

India has two well-known biodiversity hotspots amongst the 25-biodiversity hotspots of the world. Out of two, Western Ghats is one of the well-known biodiversity hotspots in India. As far as biodiversity is concerned the southern part of Western Ghats is more explored than the northern Western Ghats, Maharashtra. As far as Eastern part of Mahad Tehsil is concerned Raigad, Shivtherghal and Birwadi are well-known biodiversity hotspots. Due to abundant endemic and endangered species of wild fauna reported in Mahad tehsil, Mahad and Sav from Mahad Tehsil are well known for the endemic and endangered wild life fauna especially for amphibians.

Survey was carried out in Eastern part of Mahad Tehsil of Raigad district from June 2019 to November 2020 during rainy season. Raigad, Shivtherghal, Birwadi, Mahad and Sav are well-known biodiversity spots of Mahad Tehsil. The ecological parameters viz. rainfall, temperature, humidity etc. are favourable for inhabitations of amphibians.

Western Ghats of India is one of the 25-biodiversity hotspots in world. The status of India's biodiversity suggests that amongst vertebrate's highest endemism in amphibians and reptiles. The Western Ghats with heavy rainfall, moderate temperature, well grown vegetations with short dry season, provide the ideal environment for the occurrence of the amphibians. Frogs, toads and Caecilians are more explored in South and Central Western Ghats of India than northern Western Ghats of Maharashtra, might be enrich the frogs, toads and caecilian diversity. The survey on Indian amphibian fauna has been developed by many herpetologists such as Taylor (1968), Sekar (1999), Pillai and Ravichandran (1999), Daniel (1996), Mayer et al (2000), Padhye and Ghate (2002a and 2002b), Chanda (2002), Danial (2002), Giri et.al (2004), Andrews (2005), Kuramoto et al. (2007) Gururaja (2011), Dinesh et.al (2011), Dinesh et al (2012), Prasad et.al (2013), Biju et.al.(2014), Dahanukar et al. (2016), Garg and Biju (2017), Padhye et.al (2012, 2014, 20015, 2017), and Sajjian et.al (2017).

II. STUDY AREA

Mahad Tehsil in Raigad district of Maharashtra lies between latitude 18° 05' and 19°02' N and longitude 73°25' and 74°30' E. The famous Raigad located at latitude 18°14'N and longitude 73°30'E and Shivtherghal and Birwadi situated at latitude 18°05' N and longitude 73°35'E. The Mahad and Sav located at latitude 18°05' and 18° 00'N and longitude 73°25'E and 73°20'E respectively. The selected spots covered with grassland, semi evergreen forest and deciduous forest. Altitude of Raigad 870 m above the sea level and an average rainfall 3038 mm /year. Average temperature was 26°C. Biodiversity of frogs and caecilians were least known. Hence, the attempt has been made on fauna of amphibian from Mahad Tehsil.

III. MATERIALS AND METHODS

Frogs were collected through (i) visual encounter survey, and (ii) sampling of breeding sites. Frogs obtained from road kills. Measurement of. Samples were preserved in 8% formaldehyde solution for fixation and preservation. In June 2019 to November 2020 conducted survey in different selected spots of study areas of Mahad Tehsil Eastern part of Western Ghats (Fig- 1) as a part to the study of amphibian fauna. Surveys were carried out mostly Raigad, Shivtherghal, Birwadi, Mahad and Sav at fifteen days interval mostly during night in rainy season. Surveyed various habitats such as open land, dense forest, mixed forest and cultivated fields such as groundnut, paddy, and nachani. Studies diversity of amphibians especially Frogs, Toads and Caecilians particularly during night at ponds, shallow streams, hilly waterfalls, and moist places nearby rivers, brooklets, ponds, swamps and its nearby moist and shadow places. Only sample specimen of unknown species carried out in laboratory for further identification. The amphibian species were identified with by referring standard keys (Boulenger, 1990, Daniel, 1975, Sarkar, 1999 and Gururaja, 2012).

During survey used the Nikon Camera for photographs of frogs, toads and caecilians; Head torches for light, Plastic bottles for only collecting unknown sample specimen. After getting photographs frogs, toads and caecilians were released in their natural habitat. Caecilians especially Ichthyophis, was encountered by digging the soil up to depth 10 to 30 cm, rolling the stones, logs, leaf litters and also surveyed the road accident specimens.

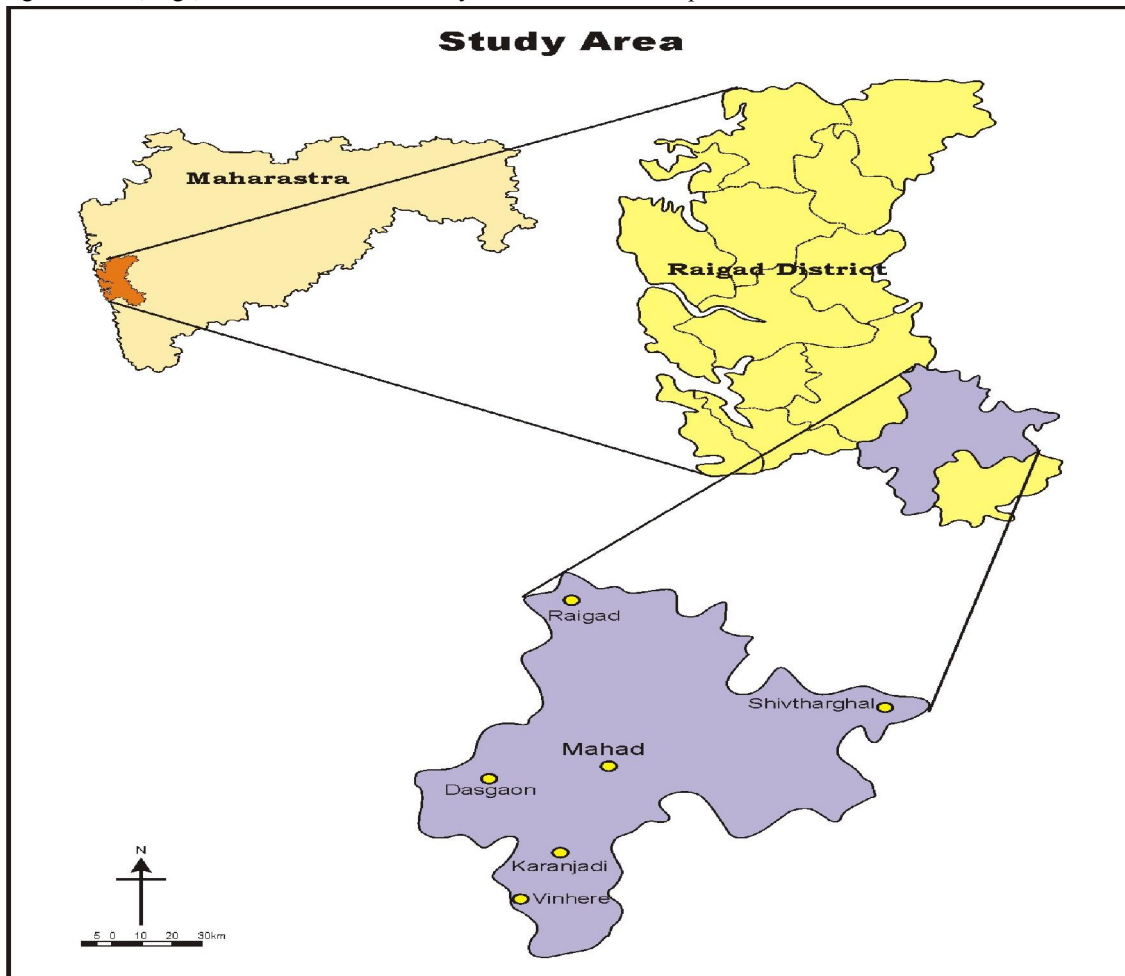


Figure 1: Map of study Area of Amphibian Survey of Mahad Tehsil of Raigad district of Western Ghats, Maharashtra

IV. RESULT AND DISCUSSION

In Maharashtra, Padhye and Ghate (2002a) reported 43 species that are distributed in six families from the Maharashtra. Sawarkar and Kasable (2009) reported 10 species from Nagpur city Maharashtra. Padhye and Ghate (2002b) reported 30 species that are distributed in six families from the Pune district, Maharashtra. Prasad, et.al (2013) listed 37 species distributed in 8 families and 14 genera from Satara district. Sajjian et.al (2017) 30 species of amphibians belonging to 19 genera of 9 family and 2 orders from Sangli district. During this survey, we reported 14 species of amphibians belongs to 6 families and 10 genera in Mahad Tehsil of 342 species of amphibian found in India belongs to 15 families.

Table 1: Checklist of Amphibian Fauna of Mahad Tehsil of Raigad district, Western Ghats, Maharashtra

Sr. No.	Common Name	Scientific name	States
A) Family: -Dicroglossidae Gray 1825			
I) Genus: <i>Hoplobatrachus</i> Peters, 1863			
1	Asian bullfrog	<i>Hoplobatrachus tigerinus</i> Daudin, 1802	Abundance
II) <i>Euphlyctis</i> Fitzinger, 1843			
2	Indian green frog	<i>Euphlyctis hexadactylus</i> Lesson, 1834	Common
3	Indian skipper frog	<i>Euphlyctis cyanophlyctis</i> Schneider, 1799	Common
B) Family: - Ranixalidae Dubois 1987			
III) Genus: <i>Indirana</i> Laurent, 1986			
4	Beddome's leaping frog	<i>Indirana beddomii</i> Günther, 1876	Common
IV) Genus: <i>Indosylvirana</i> Oliver, Prendini, Kraus and Raxworthy, 2015			
5	Bronzed frog	<i>Indosylvirana temporalis</i> Gunther, 1864	Common
V) Genus: <i>Zakerana</i> Pyron & Wiens 2011			
6	Nilgiri frog	<i>Zakerana nilagirica</i> Jerdon, 1854	
C) Family: -Rhacophoridae Hoffman 1932			
VI) Genus: <i>Polypedates</i> Tschudi 1838			
7	Indian tree frog	<i>Polypedates maculatus</i> Gray, 1834	Common
D) Family: -Bufonidae Gray 1825			
VII) Genus: <i>Duttaphrynus</i> Frost et al., 2006			
8	Asian common toad	<i>Duttaphrynus melanostictus</i> Schneider, 1799	Abundant
9	Indian marbled toad	<i>Duttaphrynus stomaticus</i> Lutken, 1864	Abundant
E) Family: -Microhylidae Gunther 1858			
VIII) Genus: <i>Microhyla</i> Tschudi 1838			
10	Ornate narrow-mouthed frog	<i>Microhyla ornata</i> Dumeril and Bibron, 1843	Common
IX) Genus: <i>Uperodon</i> Dumeril and Bibron, 1843			
11	Marbled balloon frog	<i>Uperodon Systema</i> Schneider, 1799	Common
12	Indian dot frog	<i>Uperodon marmorata</i> Rao, 1864	Rare
13	Indian balloon frog	<i>Uperodon globulosus</i> Gunter, 1864	Abundant
F) Family: -Ichthyophide Taylor 1968			
X) Genus: <i>Ichthyophis</i> Fitzinger 1826			

14	Bombay caecilian	<i>Ichthyophis bombayensis</i> Taylor, 1960	Rare
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V. CONCLUSION

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