

# Anurans of Ousteri Lake, Puducherry, India



Ousteri Lake is characterised by freshwater wetland with varied habitat types. An inventory of anuran was undertaken from September, 2014 to November, 2016 with 390 ha of land area. We recorded a total of 16 anuran species among which Dicroglossidae were diverse with 7 species followed by Microhylidae 4, Bufonidae 3 and Rhacophoridae with 2 species. Members of Bufonidae were abundant in all of the habitats in Ousteri wetland. The present study emphasises the maintaining high quality of aquatic ecosystem are essential for anuran diversity.

## Introduction

Anuran role are very important in maintaining ecosystem health, diversity of anuran is good indicator of environmental health (Trishala et al. 2016). Anuran are sensitive to changes in the quality of natural ecosystem (Crump 2010). Anuran also important component in ecosystem structure and functions, nutrient cycling and predatory changes in the food web (Daniel & Kimberly 2014). Worldwide anuran population 7,044 species have been reported (Frost 2011), and India is home to 342 anuran species (Dinesh et al. 2012). Anuran facing a number of threats due to habitat modifications, pollution and climate change (Abigail 2010; Stuart et al. 2004 & Mohlamatsane et.al 2012), hundreds of amphibian species now face extinction (Stuart et al. 2004). Monitoring and assessment of anuran in an ecosystem are important in conservation management plan.

A study conducted by Salim Ali Centre for Ornithology and Natural History SACON (2011) recorded 10 anuran species and another study conducted by Seshadri et al, (2012) reported 14 anuran species from Ousteri Lake. Since anuran have been found to occupy a wide variety of habitats (Neelesh & Anand 2005), our study covered different habitats within Ousteri Lake. The objective of the present study was to inventory of anuran in the Ousteri Lake.

## Methods and study areas

We conducted survey during September, 2014 to November, 2016 covering a total area of 390 ha in Ousteri Lake. The interstate Lake is spread over Puducherry and Villupuram District of Tamil Nadu regions located between 11°56'-11°58"N and 79°44'-79°45"E (Fig1.). The Lake was declared as the first bird sanctuary in Puducherry region by the Government of Puducherry in 2008 and 15<sup>th</sup> bird sanctuary by the Government of Tamil Nadu in 2014. The lake was notified as one of the important bird areas (Bird Life International 2004). Mean annual temperature and rainfall at the study area was 30°C and 1311-1172 mm respectively. Ousteri Lake receives the bulk of rainfall during northeast



## Images



*Duttaphrynus melanostictus*



*Duttaphrynus scaber*



*Duttaphrynus stomaticus*



*Fejervarya limnocharis*



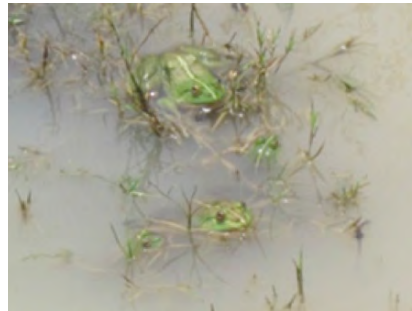
*Euphlyctis cyanophlyctis*



*Hoplobatrachus tigerinus*



*Sphaerotheca breviceps*



*Euphlyctis hexadactylus*



*Hoplobatrachus crassus*



*Euphlyctis aloysii*



*Kaloula taprobanica*



*Microhyla ornata*



*Uperodon systoma*



*Uperodon variegatus*



*Polypedates maculatus*



*Polypedates leucomystax*

monsoon October-December. Ousteri is a freshwater wetland with regular input from monsoon rainfall and excess water from Veedur dam by Suthukeni channel. Its floral and faunal diversity is rich comprising 480 plants, 14 mammals (SACON, 2011) and 15 fish species (Alexandar & Siva Sankar 2013), 23 reptiles (Alexandar & Jayakumar 2014) and 87 birds (Alexandar et al. 2018).

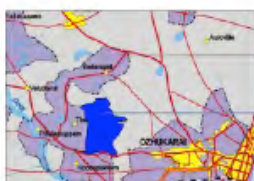
The Anuran survey was conducted using opportunistic visual search and photographic techniques during day and night in different habitats to prepare checklist of frog species (Daniels 2005; Seshadri et al. 2012; Vivek et al. 2011 & Ramakrishna et al. 2013). The survey was carried out in different habitats within Ousteri Lake and various threats to anurans were also recorded.

**Results and discussion**

We recorded 16 anuran species belonging to 4 families during the entire study period (Table 1). Dicroglossidae was the

most common species observed during the survey, these species were abundant in grasslands and stagnant water bodies. Sri Lankan Painted Frog *Kaloula taprobanica* were abundant in almost all types of habitats except main water bodies. Indian Bull Frogs *Hoplobatrachus tigerinus* was found near to water channels, water pools and lake riparian areas, these frogs were found in different colours. The Asian Common Toad *Duttaphrynus melanostictus* species was widely found in most of the habitats except water pools, and it was highly abundant near human habitation, while other species were found only in restricted habitats. Termite Nest Frog *Uperodon variegatus*, was occasionally found in near to water channels as well as in open dry lands where the termite nests were abundant. Common Skittering Frog *Euphlyctis cyanophlyctis*, was widespread in the study area.

Though the conservation status of all anurans fall under ‘Least Concern’ category their



Map showing the survey locations around Ousteri Lake in Puducherry



**Table 1: Checklist of frog species recorded during the study in Ousteri Lake, Puducherry**

Sl. No	Family	Common Name	Species Name	IUCN Category	Habitats
1	Bufonidae	Asian Common Toad	<i>Duttaphrynus melanostictus</i> (Schneider, 1799)	LC	Grassland
2		Schneider's Toad	<i>Duttaphrynus scaber</i> (Schneider, 1799)	LC	Grassland
3		Indus Valley Toad	<i>Duttaphrynus stomaticus</i> (Lütken, 1864)	LC	Grassland
4	Dicroglossidae	Asian Grass Frog	<i>Fejervarya limnocharis</i> (Dubois, 1984)	LC	Grassland
5		Common Skittering Frog	<i>Euphlyctis cyanophlyctis</i> (Schneider, 1799)	LC	Grassland
6		Indian Bull Frog	<i>Hoplobatrachus tigerinus</i> (Daudin, 1802)	LC	Near watershed
7		Burrowing Frog	<i>Sphaerotheca breviceps</i> (Schneider, 1799)	LC	Paddy field
8		Indian Green Frog	<i>Euphlyctis hexadactylus</i> (Lesson, 1834)	LC	Pond
9		Jerdon's Bull Frog	<i>Hoplobatrachus crassus</i> (Jerdon, 1854 "1853")	LC	Grassland
10		Aloysius's Pond Frog	<i>Euphlyctis aloysii</i>	LC	Water pool
11	Microhylidae	Sri Lankan Painted Frog	<i>Kaloula taprobanica</i> (Parker, 1934)	LC	Near watershed
12		Ornate Narrow-mouthed Frog	<i>Microhyla ornata</i> (Duméril & Bibron, 1841)	LC	Grassland
13		Marbled Balloon Frog	<i>Uperodon systoma</i> (Schneider, 1799)	LC	Near watershed
14		Termite Nest Frog	<i>Uperodon variegatus</i> (Stoliczka, 1872)	LC	Near watershed
15	Rhacophoridae	Indian Tree Frog	<i>Polypedates maculatus</i> (Gray, 1830)	LC	Shrubs and Trees
16		Common Tree Frog	<i>Polypedates leucomystax</i> (Gravenhorst, 1829)	LC	Shrubs and Trees

LC = Least Concern

local population is decreasing due to shrinking of habitat (Sehadri et al. 2012). Anuran species are worst affected due to habitat destruction, intensive agricultural practices and increasing real estate business around the lake (Vitousek et al. 1997; Aravind & Gururaja 2011) Indian Green Frogs *Euphlyctis hexadactylus* and Indian Bull Frogs *Hoplobatrachus tigerinus* in temporary water pools are most affected by fishing activities by expel the water from pools as it's easy to catch fish when the water drying out. Occasionally some frogs are hooked when people were fishing with hook.

### Conclusion

The wetlands are facing serious threats due to anthropogenic activities and many of the wetlands are worst affected due to land use and land change (Mitsch &



Gosselink 2000; Prasad et al. 2002 & Vijayan et al. 2004). The major threats to anuran are modification of habitats (Robert 2004; Singh & Prakash 2007; Sharma & Mehra 2007; Ramakrishna et al. 2013 & Nair & Kumar 2013) and pollution. Farming activities, application of pesticides and fertilizers, tourist's, industrial and domestic solid and liquid waste dumping, real estate business around the lake, weed infestation, fishing and changes in the climatic conditions are major threats to the anuran population in Ousteri Lake (Suranjan et al 2012. Maintaining natural seasonal ponds and conservation of the native forest (Prasad et al. 2018; Hegde 2012) are essential for anuran diversity. Strong conservation measures are needed in Ousteri wetland for anuran species.

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