

Project Update: February 2020

Summer Report

Introduction

Amphibians require water bodies and moderate temperature conditions. Considering that Afghanistan is characterised by high altitude and xeric conditions, it is unsurprising that the amphibian fauna of the country is scant. A 2004 global assessment (Baillie et al., 2004) found that 32% of the world's frogs are threatened. The continuous deforestation and pollution of environment and water bodies aid frog disappearance in Afghanistan. These amphibians are mainly found in relatively stable populations hence most have been listed as least concern. The usually known causes for the extinction of frogs, toads, salamanders and other amphibian species are the loss of their habitat through human activities, pollution, spreading of invasive species and hunting for food. The most important factor in Afghanistan is that people's negligence and poor understanding of their ecological value. The common threat will be addressed through awareness campaign. Involvement of people is the most effective methods of conservation.

Methods

Rapid inventory of frog diversity in the four different habitats was conducted for summer and spring season.

1. Cultivated land, areas where water is available and conventional crops like rice, wheat, and horticulture crops, especially apple, are cultivated. The water source may be tube well or canal water.
2. Uncultivated land, areas where inland water is brackish or lands that are not cultivable.
3. Human habitation, the houses, buildings, ruins, factories, schools and the street parks including the nearby debris materials.
4. Water bodies, catchments areas of Kabul River, Darunta dam, canals, waste disposal ponds, and irrigation water channels.

The sampling method consists of walking through paths, regardless of the boundaries among sites types. The frog diversity was estimated using acoustic survey with visual encounter of adults.

Result for spring and summer finding

Afghanistan is generally an amphibian-poor country because of its prevailing arid environmental conditions. However, AmphibiaWeb (Anonymous, 2006) lists eight species of amphibians found in Afghanistan. Four are toads, three are frogs and one is a salamander.

Family: Bufonidae

Bufo stomaticus Syn. *Bufo andersonii*- Indus Valley Toad

Toads in Afghanistan are represented by four species of the genus *Bufo*. Toads are essentially nocturnal but also become active in the daytime during the breeding season. They usually emerge at sunset from holes and crevices between stones, in brick walls, and in the ground. They roam widely through vegetation, feeding on insects and their larvae, earthworms, juvenile toads, worm snakes, etc. The toads

are attracted to lit areas under lampposts to feed on photophilic arthropods.



Left: *Bufo andersonii*. Right: *Bufo viridis*.

Bufo viridis

Currently only two *Bufo* species are observed out of four recorded in Afghanistan. It was recorded from many places in agriculture fields as well as in urban area.

Hoplobatrachus tigerinus

It is commonly known as the Indus valley bullfrog or Indian bullfrog. It is largest species of frog found in Afghanistan, but it is rarely encountered.



Hoplobatrachus tigerinus

Family: Ranidae

1. *Euphlyctis cyanophlyctis*- skipping frog (Syn: *Rana cyanophlyctis*).
2. *Rana ridibunda*- marsh frog.
3. *Paa sternosignata*- Baluch Mountain frog (Syn: *Rana sternosignata*).



Left: *Chrysopaa sternosignata*. Right: *Pelophylax terentievi*.

It is thoroughly aquatic species, and it never leaves water, even when water freezes during the winter season.



Left: Research Assistant counting frogs inside the irrigation canal. Right: Doing field work inside paddy field.



Left: *Pelophylax terentievi* Female and *Chrys opaa sternosignata* Male. Left & Right: The mating of two frogs.



Unknown species



Above: Exposed tadpole inside drying paddy field.



Research Assistant inside Lady Finger plantation.

Threat to frogs

Amphibians are experiencing declines in populations and extinction of species at a rate far beyond any other group in recent times in Afghanistan. The lack of awareness and any conservation effort aggravated the decline. Other threats are plastic pollution in rivers and irrigation canals. Algal blooms in ponds are also common.



A two-day awareness programme was conducted with university students which improved the attitude toward amphibian conservation.



Left: Awareness programme conducted in Kunar University student. Right: Awareness programme conducted inside the classroom. Below: Awareness education conducted with farmers.



The study was conducted through questionnaires and found that farmers do not know about the importance of frogs in the farm ecosystem. Through awareness education they have learnt about the importance of frogs.