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First Time Record of Canadian Toad Anaxyrus hemiophrys (Cope,1886), (Amphibia; Anura; Bufonidae) from Idukki District, Kerala State, India

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Abstract:
The Canadian toad frog, Anaxyrus hemiophrys (Cope,1886) is reported first time from Idukki district, Kerala. It is an anuran Amphibia under the family Bufonidae. The species is listed as "Least Concern" under IUCN Red List. In this paper discuss about the Canadian toad descriptions, habitat, biology and threats.

Key words; Amphibia, Anura, Idukki, Canadian toad, Least Concern, south India.

INTRODUCTION

Amphibians are the primary tetra pods arose between quite a while back, which interfaces between land environment and water biological system. these creatures of land and water are the primary connection among fishes and the reptiles assuming a significant part as both prey and hunter in pecking order. The creatures of land and water are serving us by diminishing irritations in the harvest fields or by checking the number of inhabitants in bugs which go about as vector for some sicknesses. Creatures of land and water, a novel gathering of vertebrates containing north of 7,000 known species, are the extensions among land and water biological system which are presently compromised overall because of different reasons.

Amphibians are important predator and prey species in both aquatic and terrestrial habitats, especially in the tropics where the diversity and abundance of taxa are high. According to Whiles *et al.* (2006) loss of one species is akin to loss of two species in the case of amphibians. Baillie *et al.* (2004) stated that among the vertebrates of the world, amphibians are the most threatened taxa and have the highest proportion of species on the verge of extinction. The most pervasive threats to amphibians are habitat loss and habitat degradation.

For the amphibians of the Western Ghats the species accumulation curve has not yet reached a plateau (Aravind *et al.* 2004). According to Nameer *et al.* (2015) & Das (2015) 90% of amphibians in Kerala are endemic to the Western Ghats and 33% belong to various threatened categories. Generally, protected area networks are considered as the corner stone of biodiversity conservation efforts.

Hence, for a realistic conservation strategy one should evaluate the conservation value of these multiple land use systems such as agroecosystems. The present study is expected to shed light on the amphibian diversity and richness in Forest area and ecosystems of Kerala.

STUDY AREA

Materials and Methods

On 6th April 2023 evening around 04.30 hours, an uncommon anuran Amphibia was caught under a, near forest area of Kanthalloor is a village in Devikulam taluk of Idukki district in the Indian state of Kerala. It is a village nestled in the Western Ghats of India. The salubrious climate and the picturesque landscapes and wide variety of tropical crops coupled with the close proximity of Munnar, has transformed this village into a tourist destination. In this (Canadian toad, *Anaxyrus hemimorphy's)* toad species was first time record in Idukki district, Kerala state in India.

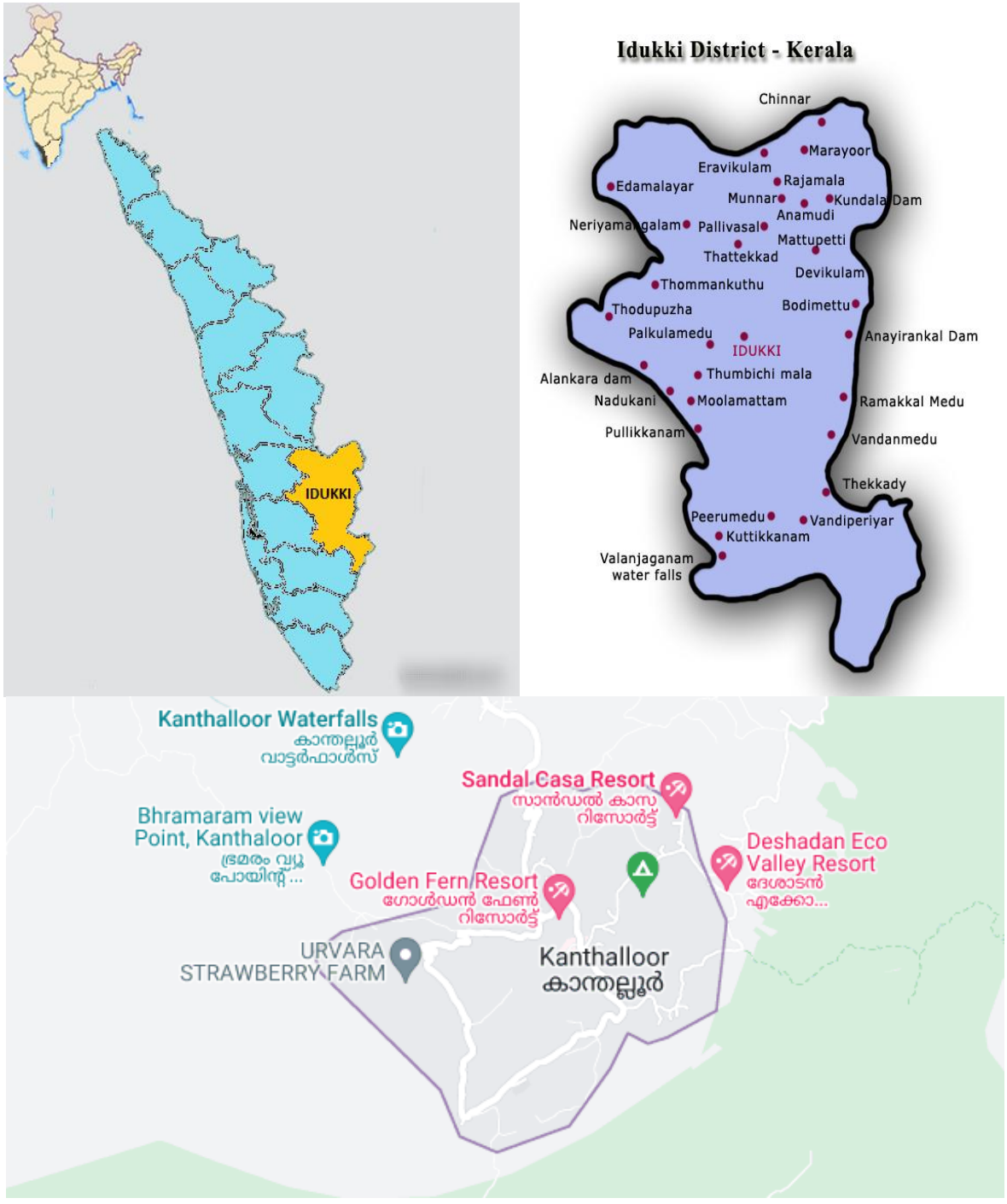

Figure 1. study area in Kanthalloor, Devikulam taluk, Idukki district, Kerala, India

Figure 2. Canadian toad *Anaxyrus hemiophrys* (Cope,1886).

DESCRIPTION

The Canadian Frog is a medium-sized amphibian and can develop to 9 cm in body length, with guys being somewhat more modest than females. People are tan, light brown, dim, caramel green or rosy brown with more obscure blotches. There is generally a white or cream-hued vertebral stripe that runs down the back, however it tends to be blurred on certain people. The stomach is white to tan with dim spotting. Canadian Frogs have granular skin with huge mole like knocks, an enormous, kidney-molded parotoid organ behind each eye, and articulated cranial peaks (raised edges between the eyes). The legs are short and there are two noticeable tubercles on the rear feet that are utilized for tunneling. Hatchlings (fledglings) have long tails with an enormous balance and need front legs (recently incubated fledglings are legless). The hatchlings are dark with a bi-shaded tail and clear tail balances. The hatchlings can grow up to 3 cm in complete length before transformation. The rearing call is a piercing quaver.

We found that edge habitat between upland and wetland landscapes is important for breeding Canadian Toads based on the quadratic relationship between toad occurrence and the proportion upland covariate. Models consistently showed toad occurrence in wetlands directly adjacent to uplands. Toads are known to typically leave wet areas to forage in uplands following breeding, so proximity of breeding sites to upland habitat seems to be important (Roberts and Lewin 1979; Hamilton *et al.* 1998; Hannon *et al.* 2002; Bull 2006; Long and Prepas 2012).

Browne and Paszkowski (2010) found that Western Toads travelled nearly 2 km to reach hibernation sites in the Boreal Forest. Canadian Toads have been recorded to move up to 1.5 km from the breeding wetland and use upland habitats for overwintering (Constible *et al*. 2010; Patrick Garcia *et al*., unpubl. report). While not physically observed, it can be inferred that neigh boring upland habitats are used by Canadian Toads in our study area for post-breeding foraging and for access to overwintering habitat. Historically, many viewed the Canadian Toad as the least terrestrial of the bufonids found in western North America (Breckenridge and Tester 1961;

Roberts and Lewin 1979). Early reports on this species did not associate this toad with forest habitats (Breckenridge and Tester 1961; Roberts and Lewin 1979). Here, we found the first-time record of the Canadian toad (*Anaxyrus hemiophrys*) from kanthaloor, (near forest area) Idukki district, Kerala state, India.

SIMILAR SPECIES

The Canadian Amphibian can be mistaken for the American Frog, Incredible Fields Frog, Western Frog and Fields Spadefoot. In any case, the Canadian frog is the main species with cranial peaks that associate at the rear of the head to from a conspicuous knock (chief). The Western Frog needs cranial peaks, and the cranial peaks of the American Frog and Extraordinary Fields Amphibian separate at the rear of the head and structure a "V" shape. The scope of the American Amphibian covers with the Canadian Frog in south eastern Manitoba and the species interbreed around here, making ID of certain people troublesome. The Fields Spadefoot needs cranial peaks and parotoid organs and has vertical understudies (CHS,2019).

HABITAT

Canadian Frogs breed in different shallow amphibian territories, like the edges of lakes, lakes, wetlands, slow-streaming segments of streams and waterways, and trenches. Reproducing locales are situated in open natural surroundings, like grassland and aspen parkland, as opposed to in forested regions. Throughout the mid-year, Canadian Amphibians scatter into earthbound environments, like grassland and meadow, aspen parkland, forest, and willow or lush swamps, yet they by and large stay near water. People rest underground underneath the ice line in tunnels that they exhume (CHS,2019).

BIOLOGY

Canadian Amphibians rest for a significant part of the year and are just dynamic from May until early September. Guys call to draw in females during the reproducing season, which happens in May to early July, contingent upon scope. During rearing, the male handles the female (amplexus) and treatment happens remotely in oceanic territories as the female lay's eggs. The female lays 3,000-6,000 eggs in two long strings. The eggs grow quickly and hatch in 2-7 days and the fledglings change into adolescent frogs following 6 two months, contingent upon water temperature. Guys arrive at sexual development 1-3 years after transformation, while females mature at 3-4 years old. Canadian Frogs can live to as long as 12 years old, yet most just carry on with a couple of years. People search for different bugs, fundamentally insects and scarabs, as well as insects and different spineless creatures. Poisons that dissuade hunters are created by organs in the amphibian's skin, especially in the parotoid organs and the mole like knocks. Canadian Frogs are less lenient toward dry circumstances than different amphibians and they are commonly found near water or in clammy conditions (CHS,2019).

THREATS

Canadian Amphibians happen all through enormous scopes of Canada that are generally lacking, and dangers to this species are negligible all through the majority of its reach. Natural surroundings annihilation, especially the deficiency of rearing lakes, can bring about populace declines or nearby extirpation. Pesticides/herbicides, street salt and other natural poisons can be inconvenient to frog and amphibian populaces by causing direct mortality as well as formative disfigurements. Street mortality can be a critical danger when streets divide the species' territory. Microorganisms, for example, chytrid organism and Rana infection, can cause mass mortality of frog and amphibian populaces. Environmental change likewise represents a danger

to this animal groups, especially by expanding the recurrence and seriousness of dry spells (CHS,2019).

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