Natural history notes on the endangered Golden Tree Frog *Phytotriades auratus* from Trinidad

The Golden Tree Frog *Phytotriades auratus* (Boulenger, 1917) (Fig. 1) is a small hylid found on the island of Trinidad and in Venezuela (Auguste *et al.* 2023). It is restricted to mountaintops where the tank bromeliad *Glomeropitcairnia erectiflora* Mez, 1905 occurs (Rivas and de Freitas 2015). *P. auratus* is currently classified as Endangered on the IUCN Red List on account of its restricted distribution and it is locally listed as an Environmentally Sensitive Species by the Environmental Management Authority of Trinidad and Tobago (Auguste *et al.* 2023). Major threats to this species include climate change and disease (Lehtinen *et al.* 2023). Conservation actions are crucially needed. However, information on the biology of the frog remains sparse. Only recently was the vocalization characterized, along with reproductive behaviour and tadpole diet (Lehtinen *et al.* 2024). Most other aspects of the frog's ecology are unknown, likely due to its isolation at the top of mountain peaks. Therefore, it is imperative that more information on the frog's natural history be documented, which can then be used to inform its conservation and management.

On 13 July 2025, a team of naturalists hiked up El Tucuche mountain in Trinidad (UTM 20P 673000E, 1186900N). Our aim was to observe Golden Tree Frogs in their natural habitat near the summit. Around 1915h, on the southern slope, one of us (RJA) heard at least three individuals calling. The calls were recognized using those recorded by Lehtinen *et al.* (2024). Other members of the team on the northern slope spotted the first individual at around 1930h. Within less than an hour, seven other individuals were spotted all along the north side of the trail within approximately 100 m of the first. We took photographs of four of these individuals in their natural habitat. From these sightings, we were able to observe aspects of the frog's natural history that, to the best of our knowledge, have not been previously documented in the literature.

Fig. 1. Golden Tree Frog *Phytotriades auratus* observed on giant tank bromeliad *Glomeropitcairnia erectiflora* near the summit of El Tucuche, Trinidad. Photo by Zakariyya Ali.

Fig. 2. Golden Tree Frogs observed on a palm leaf (A) and pepper plant (B). Photos by Renoir J. Auguste and Saifudeen Muhammad.

Microhabitat use

The Golden Tree Frog was believed to live exclusively in the giant tank bromeliad *G. erectiflora* (Clark *et al.* 1995, Auguste *et al.* 2023). However, we observed two individuals on a palm leaf (Arecaceae) around 1945h and another on a pepper plant (Piperaceae) (Fig. 2). When we observed the frogs on the plants, they were not vocalizing and were stationary. Based on their posture of sitting upright on the plants, we speculate that they may have been waiting to feed on any passing prey. Our observations suggest the Golden Tree Frog will use other types of vegetation and are not exclusive to the tank bromeliad. Therefore, the tank bromeliad is not the only plant that requires protection within the frog's habitat, but other vegetation in the surrounding area as well.

Adult diet

While photographing an individual Golden Tree Frog on a tank bromeliad, a beetle flew in and landed on top of the frog (Fig. 3). With its front leg, the frog quickly swiped the beetle from its back, towards its mouth and then swallowed it. It took only a few seconds for the frog to complete this opportunistic predation event, so we were unable to get more detailed photographs, but by comparing it to images on iNaturalist the beetle appears to fall within the broad superfamily Elateroidea. Knowledge on aspects of the adult Golden Tree Frog diet have not been reported though we know the tadpoles are detritivorous (Lehtinen *et al.* 2024). It can

be expected this species feeds on a variety of invertebrates, as most frogs do, but we can now confirm that Elateroidea beetles constitute part of their diet. Further observations will be required to get a better idea of what other invertebrates are important for the diet of adult Golden Tree Frogs as these, along with the different types of plants they perch on, will be important for their survival.

Fig. 3. A black and red beetle in the superfamily Elateroidea landed on the frog's back (left) which was quickly consumed by the frog (right). Photos by Nicholas Walker.

Potential abscess

Among the eight Golden Tree Frogs we observed on the night, one had an unusual protrusion on the right side of its body (Fig. 4). Upon closer inspection of photographs of the frog, it appeared to look like an abscess. From the literature, abscesses have been reported in many frogs (Pessier 2002), though here we report it in the Golden Tree Frog for the first time. The cause of the potential abscess is unknown as we did not collect the frog. Bacterial infections are considered major contributing factors to abscesses in frogs (Pessier 2002), however, there are other forms of skin disease from which frogs also suffer.

Chytridomycosis (chytrid fungus) caused by the fungal pathogen *Batrachochytrium dendrobatidis* Longcore, Pessier & D.K. Nichols,1999 (Bd) is a disease that is responsible for the decline of many frog species worldwide (Luedtke *et al.* 2023) and recently it was detected in the Golden Tree Frog in Trinidad (Lehtinen et al. 2023). This suggests that in addition to Bd, the Golden Tree Frog may be prone to other infections which may put the population at risk. We recommend future surveys of the frogs should assess whether or not this is a common phenomenon.

Carrying out research and natural history observations on endangered species like the Golden Tree Frog is important, especially given the ongoing decline in amphibians worldwide (Luedtke *et al.* 2023). Within one night a team of naturalists were able to document novel insights into the natural history of this elusive and threatened frog. Future monitoring of the Golden Tree Frog may reveal additional insights which can inform the species' conservation management and help contribute to its survival.

Fig. 4. A potential abscess on a golden tree frog. Photo by Nicholas Walker.

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