



Cannibalism in the Yucatecan Casquehead Treefrog (*Triprrion petasatus*) in the Calakmul Biosphere Reserve, Campeche, Mexico

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The Yucatecan Casquehead Treefrog (*Triprrion petasatus*) is a medium-sized hylid frog distributed primarily in lowland, seasonally dry semi-deciduous forest and savanna in southern Mexico, Guatemala, and Belize. Breeding occurs during the rainy season in ephemeral water bodies called aguadas, where females deposit eggs, which hatch into tadpoles and develop over several weeks, depending on food availability (Duellman 2001). Tadpoles of *T. petasatus* are considered omnivorous and generalist with a diet consisting of detritus, algae, invertebrates, and occasionally other anurans (Jacobson et al. 2019; Theodorou et al. 2020). In the Calakmul Biosphere Reserve, Campeche, Mexico, ongoing drought in recent years, in combination with increasing variation in rainfall patterns, has resulted in a reduction of aguadas (Barão-Nóbrega et al. 2022). With limited water availability for breeding, anurans such as *T. petasatus* and other hylids often utilise artificial water reservoirs as breeding sites (Colston et al. 2015; Jacobson et al. 2019; Theodorou et al. 2020). Consequently, the congregation of anurans and other taxa in artificial water bodies may result in novel interactions between species and amongst individuals of the same species. Here we report a *T. petasatus* tadpole consuming a dead conspecific.

At 2200 h on 11 June 2022, we observed a *T. petasatus* tadpole feeding upon a similarly sized dead *T. petasatus* tadpole (SVL = 1.52 cm; Tail length = 2.68 cm; ca. 1 g) (Fig. 1), in a water tank at the KM20 research camp (18.36487 N, 89.89254 W, WGS 84, 275 m elev.) in the Calakmul Biosphere Reserve. After a few minutes of observation, we caught the living *T. petasatus* tadpole and its conspecific prey, which continued to feed while being kept in water in a plastic bag for identification and measurements (Fig. 1). We did not observe the *T. petasatus* tadpole catching and killing its prey, therefore we do not know whether it was a predation event or necrophagy. This observation occurred in the same location that Theodorou et al. (2020) reported several *T. petasa-*

tus tadpoles consuming Common Mexican Treefrog (*Smilisca baudinii*) metamorphs. We observed three further instances



Fig 1. A Yucatecan Casquehead Treefrog (*Triprrion petasatus*) tadpole consuming a dead *T. petasatus* tadpole, observed in an artificial water tank in the Calakmul Biosphere Reserve, Campeche, Mexico. Photograph by Daniel Núñez-Robles.

of *T. petasatus* tadpoles consuming *S. baudinii* metamorphs at approximately the same time as this observation. We also noted that there was an abundance of *S. baudinii* tadpoles and metamorphs, and several species of invertebrates also present in the water tank.

Cannibalism is a widely documented occurrence in amphibians, with many records existing for larval anurans cannibalizing larvae and eggs, especially in ephemeral sites (Polis and Myers 1985). In the literature there is contrasting evidence for the effects of cannibalism on tadpole growth. Some studies suggest that tadpoles only resort to cannibalism when there is an insufficient quantity or quality of food available. Consequently, cannibalism increases the probability of survival, but there is evidence that it is detrimental to tadpole growth, delaying metamorphosis and stunting the size of adults (Jefferson et al. 2014; Jacobson et al. 2019). Jacobson et al. (2019) reported reduced growth rate specifically for cannibalistic *T. petasatus* tadpoles. Conversely, Crump (1990) suggested that tadpole development is enhanced through cannibalism. Furthermore, cannibalistic individuals may benefit from reduced intraspecific competition, especially in locations where water availability is limited, such as the Calakmul Biosphere Reserve.

Tripurion petasatus tadpoles have previously been recorded consuming conspecifics by Jacobson et al. (2019), both through active predation and necrophagy, though it is unclear if other species of anurans were available as prey items in this case. Therefore, this note provides further insight into the circumstances in which cannibalism occurs in this species. Our observations of *T. petasatus* tadpoles consuming both conspecifics and *S. baudinii* indicate that *T. petasatus* may not necessarily have a preference for prey items, and will consume whichever species is available, including individuals of the same species. If the *T. petasatus* tadpoles that were being consumed were already dead, the living tadpoles may have been

exhibiting necrophagy, since it requires less energy to feed on dead conspecifics than to hunt live prey of another species. Future research in this area should focus on investigating whether *T. petasatus* has a preference for prey species, over a prolonged observational period, and identifying whether it actively cannibalizes conspecifics or feeds on already dead individuals.

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