REPTILES & AMPHIBIANS

Attempted Cannibalism in the Black-striped Snake (*Coniophanes imperialis*) in the Calakmul Biosphere Reserve, Campeche, Mexico

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Cannibalism is a widely reported occurrence across many herpetofaunal taxa including snakes, lizards, crocodilians, testudines, anurans, and salamanders. It is often an important part of trophic ecology that influences intraspecific dynamics, competition, and life histories of species (Polis and Myers 1985; Nishank and Swain 2019). In amphibians, cannibalism is particularly common and important in some species, with conspecifics sometimes contributing up to 25% of prey items. Cannibalism is speculated to occur in amphibians due to food scarcity, a means of population regulation, or to reduce intraspecific competition to enhance developmental growth and chance of survival, the latter especially important for amphibian larvae (Polis and Myers 1985). In contrast, cannibalism in reptiles usually occurs more sporadically, with conspecifics forming a small, yet consistent part of diets. This suggests that cannibalism occurs opportunistically as part of normal feeding behavior, and that cannibalistic individuals treat their conspecific prey as any other prey item (Polis and Myers 1985). In snakes, cannibalism is usually reported to occur in adults preying on juveniles or smaller individuals, although in some species there are reports of mothers consuming undeveloped eggs or stillborn offspring. Cannibalism is documented across many snake families, including Colubridae, Dipsadidae, Elapidae, and Viperidae (Polis and Myers 1985).

Coniophanes imperialis is a nocturnal, terrestrial, medium-sized snake of the family Dipsadidae, distributed from southern Texas, USA, through northern Central America to Honduras. Its diet generally consists of insects and small vertebrates such as lizards and amphibians (Carbajal Márquez et al. 2019; Díaz Gamboa et al. 2020). Herein we report the first known case of attempted cannibalism in *C. imperialis*.

On 14 June 2022, we observed an adult *C. imperialis* attempting to eat another adult *C. imperialis*, of similar size (Fig. 1). The first individual had its upper jaw closed over the head, and lower jaw inside the mouth of the second individual, whose lower jaw was free. The first snake had incurred an injury to the gular region, presumably caused by the other individual. This observation occurred a few meters away from the edge of an aguada (a temporary pond) in the Calakmul Biosphere Reserve, Campeche, Mexico (18.31714 N, 89.85865 W). We observed the interaction from 2216 h until 2253 h, during which no changes occurred in the relative positions of the two snakes, which appeared to be at an impasse. We did not witness the result of the attempted predation, but when we returned the next day to the same site, we found no sign of either individual.

Although *C. imperialis* is a relatively common and widely distributed species, this is the first published record of attempted cannibalism. Furthermore, its known diet rarely includes snakes. We found only one report of *C. imperialis* preying on another snake, a *Tantillita lintoni* (Carbajal

Fig. 1. An adult *Coniophanes imperialis* attempting to consume another adult *C. imperialis* in the Calakmul Biosphere Reserve, Campeche, Mexico. Photograph by Daniel Núñez-Robles.

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Márquez et al. 2019). Consequently, our findings, along with previous knowledge of cannibalism in snakes, suggest that cannibalism is a rare occurrence in *C. imperialis*. In contrast to previous observations of cannibalism in snakes that report the prey as juveniles or smaller individuals than the predator, this encounter involved two adults of similar size. Since we did not observe the complete interaction between the two individuals, we do not know whether the predation attempt was successful. Due to the way that their jaws were interlocked, we suspect that neither individual would have succeeded in overpowering and consuming the other. Furthermore, we do not know whether it would have been possible for one of the snakes to successfully ingest and digest a prey item of comparable size. If one of the individuals had successfully consumed the other, it would have likely been unable to move far from that location while it was digesting its prey. Since we thoroughly searched the area the following morning and found no sign of either individual, we suspect that the most likely outcome of the interaction was that the predation attempt was abandoned.

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