



New Prey Records for Two Snakes of the Genus *Tropidophis* (Tropidophiidae) from Urban Habitats in La Habana, Cuba

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Only a few of the 17 species of *Tropidophis* (Squamata: Tropidophiidae) in Cuba tolerate urban environments. The Giant Trope (*T. melanurus*), Spotted Brown Trope (*T. pardalis*), Spotted Red Trope (*T. maculatus*), and, to a lesser degree, the Yellow-banded Trope (*T. semicinctus*) and Gracile Banded Trope (*T. wrighti*) are found in such habitats (Rodríguez Schettino et al. 2013). Other species are rarely found in urban environments, which appear to impose novel selective pressures

mabouia) have been recorded (Armas and Iturriaga 2017; Rodríguez-Cabrera et al. 2020a, 2020b). The Spotted Red Trope (Fig. 1), a gracile semi-arboreal species, is known to prey on anoles (*Anolis* spp.) and frogs of the genus *Eleutherodactylus* in both urban and natural environments (Rodríguez-Cabrera et al. 2020a, 2020c). Whether hard-bodied arthropods are taken by these snakes deliberately or incidentally as part of the stomach contents of vertebrate prey



Fig. 1. An adult female Spotted Brown Trope (*Tropidophis pardalis*) from Embil, Boyeros Municipality (left) and an adult female Spotted Red Trope (*Tropidophis maculatus*) from Alturas de la Víbora, Arroyo Naranjo Municipality (right), both in La Habana Province, Cuba. These are the same snakes that were found earlier with stomach bulges (see below). Photographs © A. Hernández Gómez.

related to several key variables, including prey availability.

Feeding habits of snakes in the genus *Tropidophis* are poorly known (see Rodríguez-Cabrera et al. 2020a for a review). The sparse information on the diet of the Spotted Brown Trope (Fig. 1), a small ground-dwelling species, comes from urban environments — and only two synanthropic prey species (the Cuban Flat-headed Frog, *Eleutherodactylus planirostris*, and the Tropical House Gecko, *Hemidactylus*



Fig. 2. Freshly caught adult female Spotted Brown Trope (*Tropidophis pardalis*) from Embil, Boyeros Municipality, La Habana Province, Cuba, with a stomach bulge. Photograph © A. Hernández Gómez.

remains uncertain (Rodríguez-Cabrera et al. 2020a, 2020c). Herein we report predation events, one of them involving

arthropods, by a Spotted Brown Trope and a Spotted Red Trope in urban environments in La Habana.



Fig. 3. Backyards in Embil, Boyeros Municipality (left), and in Alturas de la Víbora, Arroyo Naranjo Municipality (right), La Habana Province, Cuba, where we found an adult female Spotted Brown Trope (*Tropidophis pardalis*) and an adult female Spotted Red Trope (*Tropidophis maculatus*), respectively, with stomach bulges. Photographs © A. Hernández Gómez.

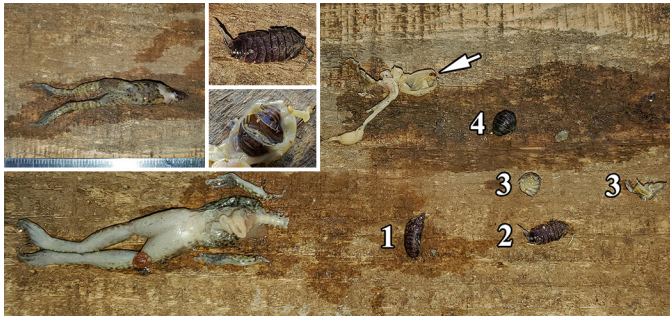


Fig. 4. Partially digested Cuban Flat-headed Frog (*Eleutherodactylus planirostris*) (ventral view) regurgitated by an adult female Spotted Brown Trope (*Tropidophis pardalis*). Arthropods from the stomach of the frog are: Swift Woodlice (*Porcellionides pruinosus*) (1–3) and a Little Sea Pillbug (*Cubaris murina*) (4); the arrow marks an African Big-headed Ant (*Pheidole megacephala*) in the open stomach of the frog. The insets show a dorsal view of the partially digested frog before the arthropods were extracted (left), and close ups of a Swift Woodlouse (center top) and the Little Sea Pillbug (center below). Photographs © A. Hernández Gómez.



Fig. 5. A freshly caught adult female Spotted Red Trope (*Tropidophis maculatus*) from Alturas de la Víbora, Arroyo Naranjo Municipality, La Habana Province, Cuba, with a stomach bulge. Photograph © A. Hernández Gómez.



Fig. 6. Regurgitation of an adult male Cuban Green Anole (*Anolis porcatius*) by an adult female Spotted Red Trope (*Tropidophis maculatus*) from Alturas de la Víbora, Arroyo Naranjo Municipality, La Habana Province, Cuba. Photographs © A. Hernández Gómez.



Fig. 7. The Cuban Green Anole (*Anolis porcatius*) from La Habana (left) and the Cuban Flat-headed Frog (*Eleutherodactylus planirostris*) (right) are very common synanthropic species. Photographs © Raimundo López-Silvero (left) and T.M Rodríguez-Cabrera (right).

At about 2000 h on 15 November 2020, we found an adult female Spotted Brown Trope (250 mm SVL, 20.3 g; Fig. 2) active on the ground in a backyard in Embil, Boyeros Municipality, La Habana Province, Cuba (23.072564, -82.388313; WGS 84; elev. ~40 m asl) (Fig. 3). We noticed a stomach bulge and forced regurgitation by palpation revealed an adult Cuban Flat-headed Frog with the head and anterior part of the body already digested (Fig. 4). A small isopod (8 mm total length) was revealed during the process and a more thorough examination divulged three more isopods (one fragmented) and an ant in the stomach of the frog (Fig. 4). The arthropods were identified as three Swift Woodlice, *Porcellionides pruinosus* (Oniscidea: Porcellionidae), one Little Sea Pillbug, *Cubaris murina* (Oniscidea: Armadillidae), and one African Big-headed Ant, *Pheidole megacephala* (Hymenoptera: Formicidae).

At about 1000 h on 18 February 2021, we found an adult female Spotted Red Trope (370 mm SVL, 35 g) (Fig. 5) under an empty drink box on a pile of debris in a backyard in Alturas de la Víbora, Arroyo Naranjo Municipality, La Habana Province, Cuba (23.058661, -82.373715; WGS 84; elev. ~60 m asl) (Fig. 3). We noticed a stomach bulge and forced regurgitation by palpation revealed an adult male Cuban Green Anole, *Anolis porcatius* (83 mm SVL, 12.2 g), which had been ingested

head first (Fig. 6). After regurgitation the snake weighed 22.5 g, so the prey mass represented ca. 35% of the snake's mass. No signs of digestion were evident, so we assumed that the anole had been eaten no earlier than the previous night. Note that, although we used the name "*A. porcatius*," evidence supports the hypothesis that populations purportedly of this species from western Cuba (Fig. 7) are conspecific with the North American Green Anole, *A. carolinensis* (Glor et al. 2004, 2005; Reynolds et al. 2018; Wegener et al. 2019).

This is the third report of a Cuban Flat-headed Frog (Fig. 7) as prey of the Spotted Brown Trope (Armas and Iturriaga 2017; Rodríguez-Cabrera et al. 2020a, 2020b), which suggests that this widely distributed and often very abundant frog might be frequent prey, at least for individuals inhabiting urban areas. The two species of isopods (Fig. 8) and the ant are invasive synanthropes in Cuba, and the ant is even listed among the 100 worst invasive alien species of the world (Lowe et al. 2000; Schmalfuss 2003; Jass and Klausmeier 2006). All were extremely abundant in the backyard where we found the Spotted Brown Trope (Fig. 3). That they represent an important component in the diet of an opportunistic species such as the Cuban Flat-headed Frog is not surprising.

The bodies of the five arthropods were relatively intact when compared to the partially digested frog (Fig. 4). Such discoveries must be analyzed cautiously, since they could lead to misinterpretations regarding the diet of these snakes (see Rodríguez-Cabrera et al. 2020c for similar findings).

Because anoles tend to sleep on perches above ground level, both in plants and in human-made structures such as buildings, fence mesh, and barbed wire, the Spotted Red Trope probably found its prey using an active foraging strategy. This coincides with comments in Díaz and Cádiz (2020) and Rodríguez-Cabrera et al. (2020a, 2020c), who described this species as a climbing, semi-arboreal snake.

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Fig. 8. A Little Sea Pillbug (*Cubaris murina*) (left) and a Swift Woodlouse (*Porcellionides pruinosus*) (right). Isopods of these species were found in the stomach of a Cuban Flat-headed Frog (*Eleutherodactylus planirostris*) that had been regurgitated by the adult female Spotted Brown Trope (*Tropidophis pardalis*). Photograph © T.M Rodríguez-Cabrera.

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