



Body-bending Behavior in the Cuban Racer, *Cubophis cantherigerus* (Squamata, Dipsadidae): Possible Mimicry with the Monkey Ladder Vine, *Bauhinia glabra* (Caesalpinaceae)

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Predation plays an important role in population dynamics (Begon et al. 2006). In order to avoid predation, snakes, despite being legless, exhibit a diverse repertoire of anti-predator mechanisms. These include quick escapes, anti-predator signaling, and counter-attacks (Greene 1988). Further tactics function to diminish the likelihood of detection. Crypsis, for example, can be combined with other forms of camouflage, such as the “body bending behavior” (BBB) reviewed for some snakes by Duarte (2012). This behavior has never been reported for any Antillean snake. Herein, we report an instance of BBB in a Cuban snake, apparently serving to mimic lianas.

The Cuban Racer, *Cubophis cantherigerus* (Bibron 1840) (Fig. 1), is a diurnal, ground-dwelling snake that occurs in a wide range of habitats across much of Cuba (Schwartz and Henderson 1991) and exhibits a diverse anti-predation repertoire. These are fast-moving snakes that avoid enemies by fleeing rapidly using serpentine locomotion. The fast movement combines with a more-or-less homogeneous color pattern to render an estimation of speed and trajectory by potential predators very difficult. If cornered, individuals often execute an aggressive display by elevating the anterior third of the body, expanding the anterior ribs in a cobra-like fashion, and occasionally opening the mouth (Fig. 2). As last resort, occasional individuals feign death (Rodríguez-Cabrera et al. 2014). If captured, snakes may defend themselves by rotating quickly along the longitudinal axis or struggling intensely with a discharge of scent glands accompanied by biting.

The senior author observed BBB in an adult Cuban Racer on 30 October 2008 at 1039 h (Figs. 1 & 3) when approached while crossing a rustic trail (21.9264801°N, 84.4781635°W, datum: WGS 84) between the weather station “La Bajada” and Las Perlas Cave in the Guanahacabibes Biosphere Reserve, Pinar del Río Province, western Cuba. The snake stopped moving, contorted its body into small



Fig. 1. A Cuban Racer (*Cubophis cantherigerus*) from Guanahacabibes, Pinar del Río Province, western Cuba. Photograph by Javier Torres.

bends and flattened dorsoventrally. Both bending and flattening were in the same plane. In this position, the snake looked very similar to the Monkey Ladder Vine (*Bauhinia glabra* Jacq.), a native liana with a peculiar flattened and bended stem, although the flattening and bending in the plant are in perpendicular planes (Fig. 3B). *Bauhinia glabra* is largely restricted to western Cuba (with one record from eastern



Fig. 2. Gaping combined with a cobra-like defensive display in a Cuban Racer (*Cubophis cantherigerus*) from Alturas de Banao, Sancti Spiritus Province, central Cuba. Photograph by Raimundo López-Silvero.



Fig. 3. (A) A Cuban Racer (*Cubophis cantherigerus*) from Guanahacabibes, Pinar del Río Province, western Cuba, exhibiting body-bending behavior with an arrow indicating the head. Photograph by Javier Torres. (B) Monkey Ladder Vine (*Bauhinia glabra*) from Santa Cruz River Canyon, Pinar del Río Province, western Cuba. Photograph by Tomás M. Rodríguez-Cabrera.

Cuba), where it is abundant in several vegetative communities between 50 and 300 m above sea level (Barreto-Valdés 2013).

Cubophis cantherigerus and *B. glabra* overlap in both geographical and ecological distributions. Overlap also exists between body widths of *C. cantherigerus* (except possibly neonates) and the smaller stem widths of *B. glabra*. These stems can reach the tree crowns but many also lay on the ground. *Cubophis cantherigerus* is largely terrestrial but does climb trees. Coloration of the stems varies from grayish to several intensities of brown, which, in general, are also the colors of *C. cantherigerus*.

The liana mimicry was particularly effective in this case because the snake remained motionless and we were able

to approach very closely (e.g., Fig. 1B) and easily captured what is typically a very fast, restless snake. This individual was healthy and began to struggle and expel the content of its scent glands immediately after capture. When released, it moved away rapidly.

In snakes, BBB has been associated with thermoregulation, signaling displays in the presence of potential predators, and crypsis (Duarte 2012). Following the conceptual framework of Stevens and Merilaita (2011), BBB can be considered in this case a combination of crypsis (diminished detection probability) and masquerade (diminished recognition probability). It was triggered by the approach of a potential predator, in response to which the snake stopped moving and remained motionless on a substrate that it effectively matched (diminished detection probability). It simultaneously masqueraded by mimicking an element of the habitat that was uninteresting for a potential predator (diminished recognition probability).

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