



New Localities and Prey Records for the Hispaniolan Brown Racer (*Haitiophis anomalus*), with Comments on Dorsal Pattern Variation

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Photographs by the author.

The Hispaniolan Brown Racer, *Haitiophis anomalus* (Peters 1863; Fig. 1), is one of the largest dipsadid snakes (Hedges et al. 2009), reaching a maximum known snout-vent length (SVL) of 2 m (Thomas et al. 2007). The species has been considered inexplicably rare due the scarcity and sporadic nature of encounters with individuals (Powell and

Henderson 1998; Henderson and Powell 2009). Recently, Landestoy et al. (2013) reported 31 individuals (both living and dead) from throughout the southwestern Dominican Republic, but mostly from the Valle de Neiba, suggesting that these snakes have a distribution pattern linked to dry lowlands. Also in the aforementioned work, a new locality record



Fig. 1. An adult male Hispaniolan Brown Racer (*Haitiophis anomalus*; SVL = 1.05 m, TL = 1.52 m) from HW 44 near the intersection with HW 48 (18.39386°N, 71.12487°W; elev. 155 m), Barahona Province (collected 11 May 2016), currently at ZooDom (Parque Zoológico Nacional).



Fig. 2. The currently known range of the Hispaniolan Brown Racer (*Haitiophis anomalus*). Black dots represent two new localities and red dots indicate previously known records in the southwestern Dominican Republic (modified from Landestoy et al. 2013).

at HW 2 at the border of Azua and Barahona Provinces extended the previously known range to the east. Two new localities presented herein (Fig. 2) further extend the range of this species some 55.8 km to the east (airline distance per Google Earth): (1) **Palmar de Ocoa, Azua Province** (18.28998°N, 70.57147°W; elev. 30 m). A specimen at the Museo Nacional de Historia Natural de Santo Domingo (MNHNSD 23.3221) with a SVL = 1.05 m and total length (TL) = 1.26 m (with a stubby tail; unsexed) was collected by locals, who killed it, injected it with formaldehyde, and

preserved it dry (Fig. 3). The specimen still shows the predominantly brown unpatterned dorsum. Despite shrinking and the rather wrinkled scales, I was able to count midbody scale rows, which totaled 21, differing from species of all other related genera (to 19 scale rows) except *Alsophis*, which is absent from the Greater Antilles (Hedges et al. 2009). The date and time of collection are unknown, but the preserved specimen was acquired on 2 March 2014. I made a quick visit to the area near where it was reportedly captured (near a cemetery in the outskirts of Palmar de Ocoa, Azua Province); the habitat is dry scrubland in hilly country. According to locals, several individuals of *H. anomalus* have been observed in those hills. (2) **Arroyo Limón, El Limón, San José de Ocoa Province** (18.49476°N, 70.50169°W; elev. 365 m). A female with a SVL = 1.74 m (MNHNSD 23.2977) had been killed by visitors at 1100–1200 h on 23 March 2016 during the Easter-week holidays; they found the snake on the banks of the Río El Limón, where it crosses RD 41 5.5 km south of the town of San José de Ocoa, San José de Ocoa Province. This record represents the easternmost locality of the species' currently known range.

Besides inhabiting dry lowland areas, *Haitiophis anomalus* has now been recorded from the foothills of four of the most important mountain ranges of the Dominican Republic: Sierra de Bahoruco, Sierra de Neiba, Sierra Martín García, and now the Cordillera Central. The species appears to occupy the dry, undeveloped southern slopes and associated hills of the latter mountain range in the dry south-central lowlands within the Llanos de Azua and Peravia Province.

Known and Potential Prey

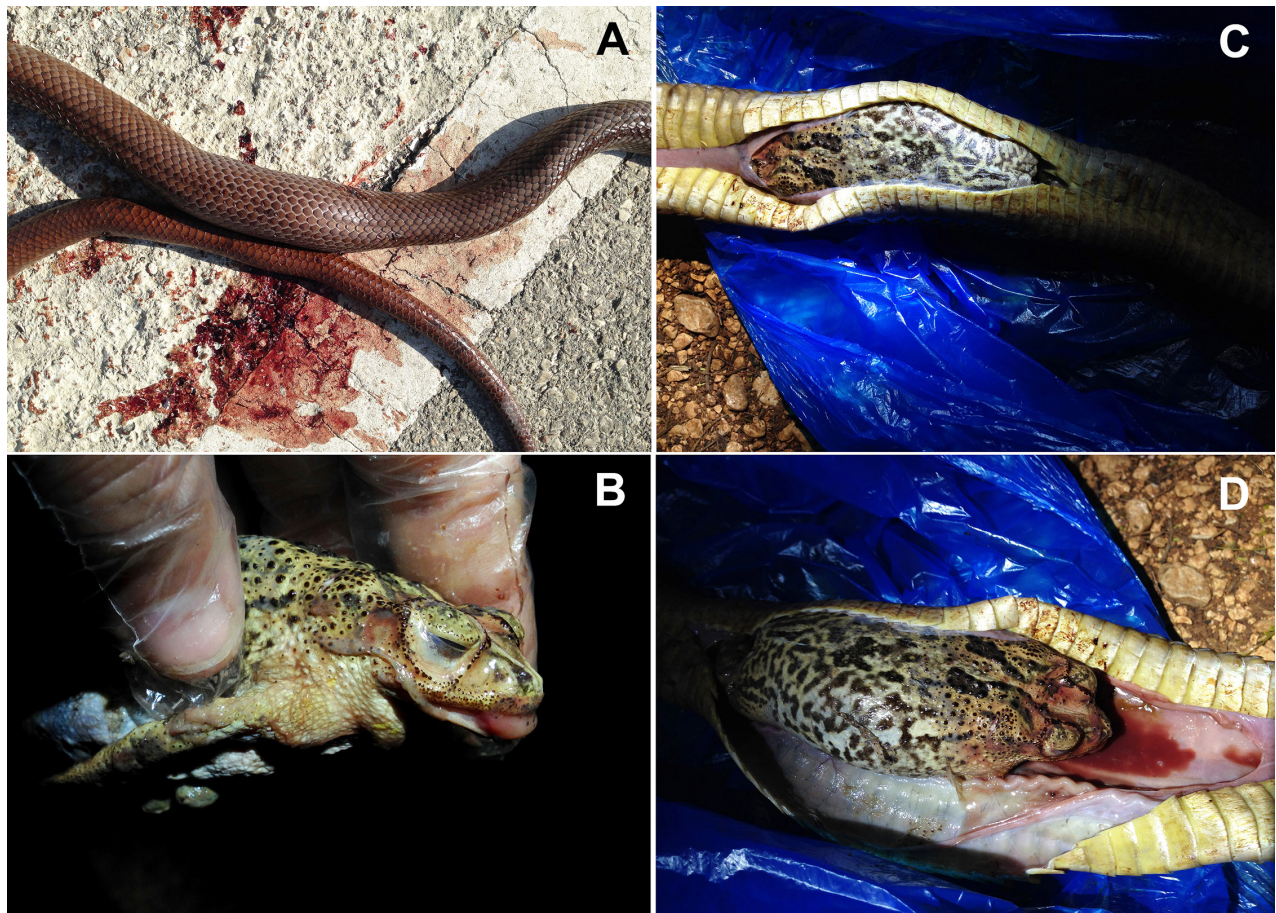
A dead (killed by humans) male *Haitiophis anomalus* (Fig. 4A; SVL = 1.14 m; MNHNSD 23.3220, preserved as a skull) found on 9 February 2017 with an ingested Southern Crested Toad (*Peltophryne guentheri*; Figs. 4B–D, MNHNSD 23.3219) adds to the list of prey known for the species (Table 1). The



Fig. 3. Dry-preserved specimen of a Hispaniolan Brown Racer (*Haitiophis anomalus*; MNHNSD 23.3221) from the Palmar de Ocoa area (Azua Province).

Table 1. Prey items recorded for wild-caught, preserved specimens and captive Hispaniolan Brown Racers (*Haitiophis anomalus*).

	Species	Family	Date	Reference
Wild-caught	Southern Crested Toad	Bufonidae	9 February 2017	This paper
		(<i>Peltophryne guentheri</i>)		
	Unidentified anole	Dactyloidae	14 September 1922	Henderson and Sajdak (1996)
		(<i>Anolis</i> sp.)		
	Unidentified boa	Boidae	Not recorded	Landestoy et al. (2013)
	(<i>Chilabothrus</i> sp.)			
	Smooth-billed Ani	Cuculidae	10 October 2010	Landestoy et al. (2013)
	(<i>Crotophaga ani</i>)			
	House Mouse	Muridae	26 January 1968	Henderson and Sajdak (1996)
	(<i>Mus musculus</i>)			
Captivity	Dominican Giant Anole	Dactyloidae	—	Landestoy et al. (2013)
		(<i>Anolis baleatus</i>)		
	Unidentified anole	Dactyloidae	—	Incháustegui and Arias (2002)
		(<i>Anolis</i> spp.)		
	Unidentified ameiva	Teiidae	—	Incháustegui and Arias (2002)
	(<i>Pholidoscelis</i> spp.)			
	House Mouse	Muridae	—	Landestoy et al. (2013)
	(<i>Mus musculus</i>)			

**Fig. 4.** A dead male Hispaniolan Brown Racer (*Haitiophis anomalus*; MNHNSD 23.3220, preserved as a skull) found on 9 February 2017 with an ingested Southern Crested Toad (*Peltophryne guentheri*; MNHNSD 23.3219): (A) Snake with stomach bulge, (B) extracted toad, (C and D) dissected snake and the dead toad somewhat inflated.

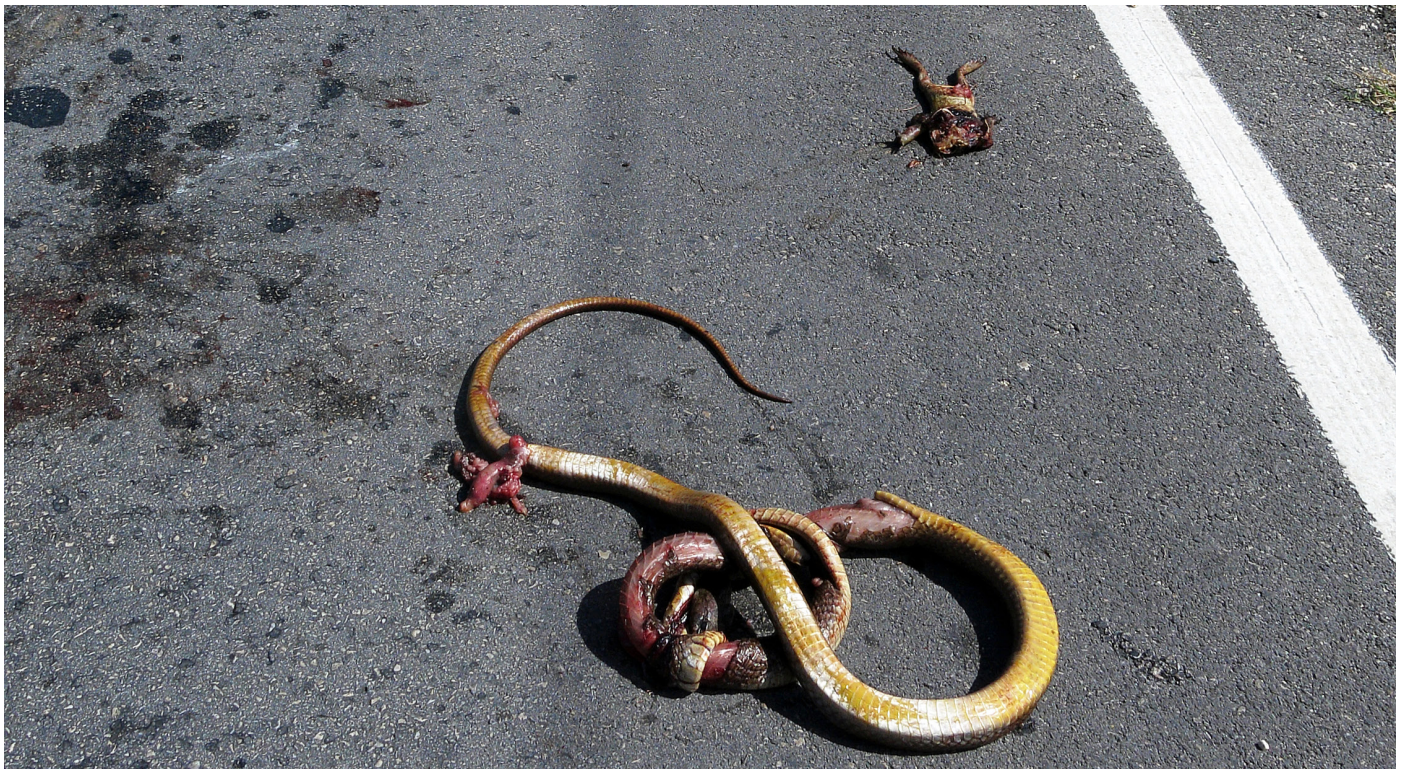


Fig. 5. A roadkilled Hispaniolan Brown Racer (*Haitiophis anomalus*) next to a dead Cane Toad (*Rhinella marina*).

toad was a gravid female (SVL = 100 mm) that had been swallowed headfirst and apparently had remained partially inflated. These toads are nocturnally active facultative burrowers that seek refugia during the daytime, usually in their own manufactured burrows (MALT, unpubl. data), whereas these snakes are known to be diurnally active foragers; the

circumstances of the predator-prey encounter are unknown. The toad did not appear to be a roadkill, suggesting that it had been hunted (rather than scavenged) by the snake. On 11 February 2014, in the same area (HW 46 near Mella, Independencia Province), I encountered another snake roadkilled next to a dead Cane Toad (*Rhinella marina*; Fig. 5);

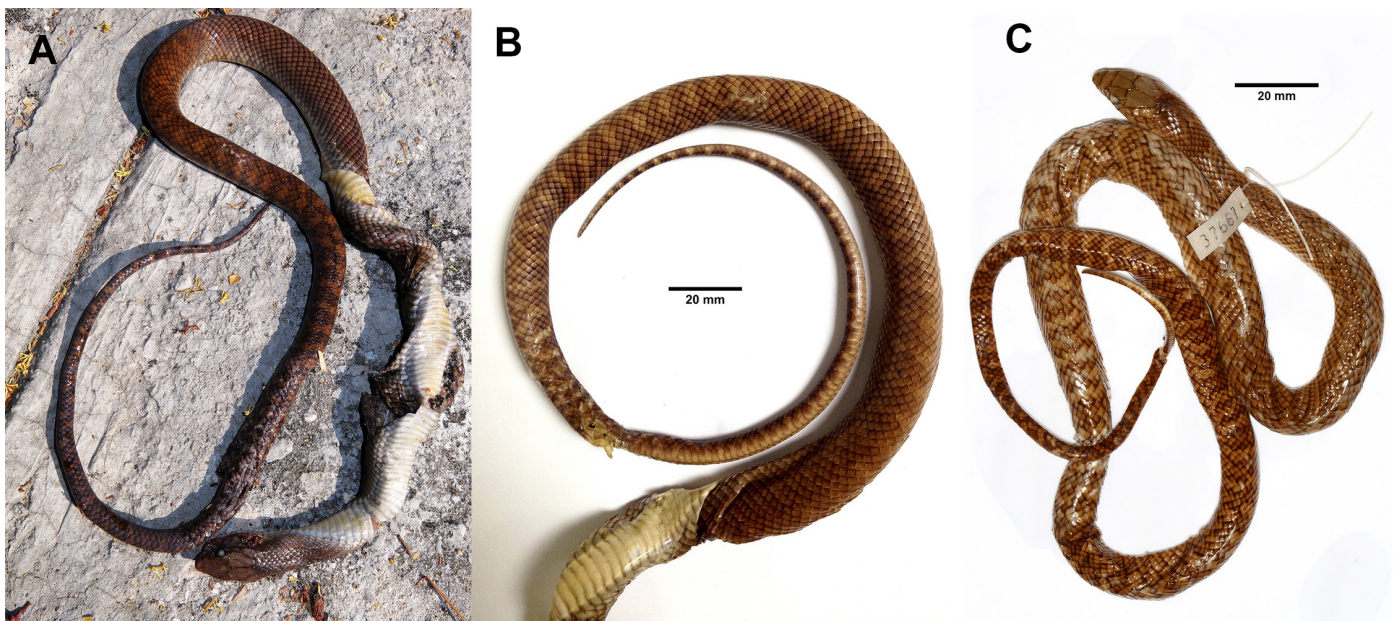


Fig. 6. Dorsal patterns of young Hispaniolan Brown Racers (*Haitiophis anomalus*): (A & B) Freshly roadkilled and preserved specimen (MNHNSD 23.2976) with crossbars posteriorly, (C) preserved specimen (MCZ R-37667) from Île de la Tortue (Haiti).

I found no evidence of predation but cannot rule out the possibility that the snake was killed while attempting to scavenge the toad. I found no other toad carcasses along this long stretch of road (Duvergé to Cabral). Although individual *H. anomalus* have been observed allegedly chasing or scanning for other prey (Rhinceros Iguana, *Cyclura cornuta*, and a rat, *Rattus* sp.), no confirmation of successful predation is available (Incháustegui and Arias 2002; Landestoy et al. 2013); consequently, Table 1 lists under “wild” only prey revealed by examining stomach contents of snakes taken in nature.

Dorsal Pattern Variation

Nine more individual *Haitiophis anomalus* can be added to the list of recent records since the 31 reported by Landestoy et al. (2013). Among these, one roadkill (MNHNSD 23.2976; Postrer Río, Independencia Province) was preserved because it was a small individual; this female (SVL = 0.56 m, TL = 0.74 m) stands in sharp contrast to presumed adults for which TL was >1 m (not all were sexed). The presence of crossbars posteriorly (Fig. 6A–B) clearly distinguishes this smaller specimen from most of the 39 larger individuals I have examined that are essentially patternless (Powell and Henderson 1998; MALT, pers. obs.). Powell and Henderson (1998) noted,

however, that “Specimens from Île de la Tortue [Haiti] may have a faint pattern of chevrons anteriorly and crossbars posteriorly” and that “the juvenile dorsal pattern consists of ragged crossbands 1–3 scales wide,” as in a specimen from the Museum of Comparative Zoology (MCZ R-37667; Fig. 5C; approximate TL = 0.50 m) which Cochran (1934, 1941) described as having “faint dark narrow crossbars ... posteriorly, with even, fainter suggestions of chevron-shaped blotches on the neck and anterior part of body.” Schwartz (1966) described a similar pattern in Puerto Rican Racers (*Borikenophis portoricensis*), noting that some specimens are “transversely banded with dark and slightly paler zones,” and commented that this condition appears more frequently in smaller snakes. However, a few adult *H. anomalus* from the Valle de Neiba have black or dark brown spots and blotches on the dorsum or the tail (Fig. 7A–C).

Conservation

The conservation status of *Haitiophis anomalus* was recently listed as Vulnerable on the IUCN Red List (Incháustegui et al. 2016). However, a previous assessment by the Ministerio de Medio Ambiente y Recursos Naturales de la República Dominicana (2011) listed the species as Critically



Fig. 7. Dorsal pattern variation in adult male Hispaniolan Brown Racers (*Haitiophis anomalus*): (A–B) Captive and roadkilled individuals, respectively, both from the Valle de Neiba, (C) captive individual from near Vicente Noble (Barahona Province).

Endangered. Historically, the range included Monte Cristi Province (Dominican Republic) and Haiti, from which no recent records have been recorded. Despite the recent records from the Dominican Republic and the fact that this species occurs in several protected areas (Reserva Biológica Loma Charco Azul, Parque Nacional La Gran Sabana, Parque Nacional Lago Enriquillo, Parque Nacional Anacaona, Parque Nacional Sierra Martín García, and Parque Nacional Jaragua), it appears to have a relatively restricted range in which it faces a combination of threats that include habitat destruction, potential predation by the mongoose (Henderson and Sajdak 1996), killing by traffic on roads, and persecution by humans who often kill any snake encountered. This species' large size and diurnal activity renders it especially vulnerable to the last three threats mentioned.

Acknowledgements

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