

REPTILIA: SQUAMATA: TROPIDOPHIIDAE

TROPIDOPHIS BUCCULENTUS

Catalogue of American Amphibians and Reptiles.

Powell, R. 2002. *Tropidophis bucculentus*.

***Tropidophis bucculentus* (Cope)**

Navassa Island Dwarf Boa

Ungalia bucculenta Cope 1868:129. Type locality, "Navassa Island." Syntypes, National Museum of Natural History (USNM) 12370 (an egg, rotted and destroyed 09 April 1958) and 12377, three specimens, an adult female and two subadult males, date of collection unknown, collected by W.J. Rasin (examined by author). See **Remarks**.

Ungalia maculata: Boulenger 1893:112 (part).

Tropidophis maculata: Barbour 1914:328 (part).

Tropidophis bucculenta: Stejneger 1917:279.

Tropidophis pardalis bucculentus: Stull 1928:36.

Tropidophis bucculentus: Barbour 1937:153.

Tropidophis melanurus bucculentus: Thomas 1966:83.

• **CONTENT.** *Tropidophis bucculentus* is monotypic.

• **DEFINITION.** *Tropidophis bucculentus* is a tropidophiid of moderately large size (the only known adult is a female with SVL = 655 mm). The body is stout and the head is distinct from the neck. Spurs at the sides of the vents are present in males.

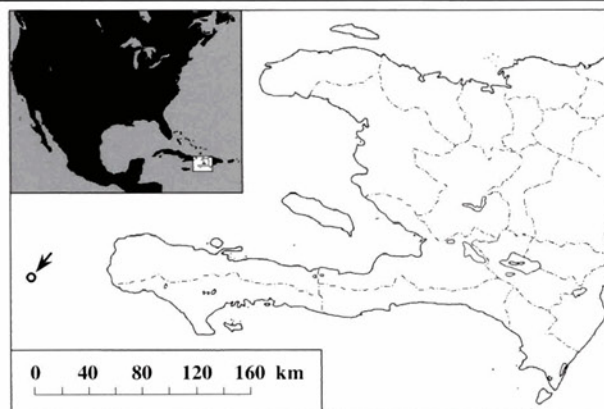
Head scalation consists of oculars 1–3, temporals 3–4 or 4–4, supralabials 10 with 4 and 5 entering the eye, and infralabials 11–12. Most dorsal body scales are keeled, in 24–25–19, 25–25–19, or 25–27–19 rows. Ventrals number 183–186, subcaudals number 28–30. These counts differ slightly from those previously published; Stejneger (1917), Stull (1928), and Thomas (1966) provided slightly varying counts for the same USNM specimens. Bailey (1937) provided the following counts for an additional specimen (ANSP 10281; see **Remarks**): 25–27–17 dorsal scale rows, 184 ventrals, and 32 subcaudals.

Dentition is as follows: maxillary teeth 12, mandibular teeth 15, palatines 4–5, and pterygoids 10–11 (Stull 1928).

The hemipenes (Stull 1928) and sulci fork twice, with the unforked basal region, the area of the primary forks, and the area of secondary forks about equal in length. The lining is flounced longitudinally in the secondary forks and transversely in the primary forks, with the transverse flouncing grading into papillae bordering the sulcus. The basal portion is smooth, except for slight longitudinal folds bordering the sulcus, which converge into a single papilla on either side of the sulcus just anterior to the first fork.

Dorsal ground color is pale brown. The pattern has faded in all existing specimens, but six alternating rows of darker brown spots are present, with the middorsal pair, 4–5 scales in length, confluent, and those in the lateral rows smaller, 1–2 scales in length, less distinct, and often with broken outlines. Two lateral brown stripes are indistinct, although Stejneger (1917) referred to them as "plainly visible." The venter is pale cream and unspotted, except for several small spots near the vent. The underside of the tail bears two rows of alternating brown spots. The tip of the tail is very pale. Thomas (1966) referred to a "typical *melanurus* cephalic figure" being discernible in one specimen, but these few faint smudges were difficult to characterize.

• **DIAGNOSIS.** Because of the relatively high number of ventral scales and midbody dorsal scale rows and a pattern of dorsal spots, *Tropidophis bucculentus* could be confused with the following West Indian species: *T. caymanensis*, *T. galacelidus*, *T. haitianus*, *T. hendersoni*, *T. maculatus*, and *T. melanurus*.



MAP. Distribution of *Tropidophis bucculentus*. The circle denotes Navassa Island, the type locality and entire range of the species.

From *T. galacelidus*, *T. hendersoni*, and *T. maculatus* (maximum TLs < 400 mm), *T. bucculentus* can be distinguished by its relatively large and robust body (Hedges and Garrido 2001). From *T. haitianus* and other members of the *T. melanurus* group (*T. caymanensis* and *T. melanurus*), *T. bucculentus* can be distinguished by keeled dorsal scales (smooth in *T. haitianus*) and fewer ventrals (191–212 in *T. caymanensis* and 198–224 in *T. melanurus*; Schwartz and Henderson 1985).

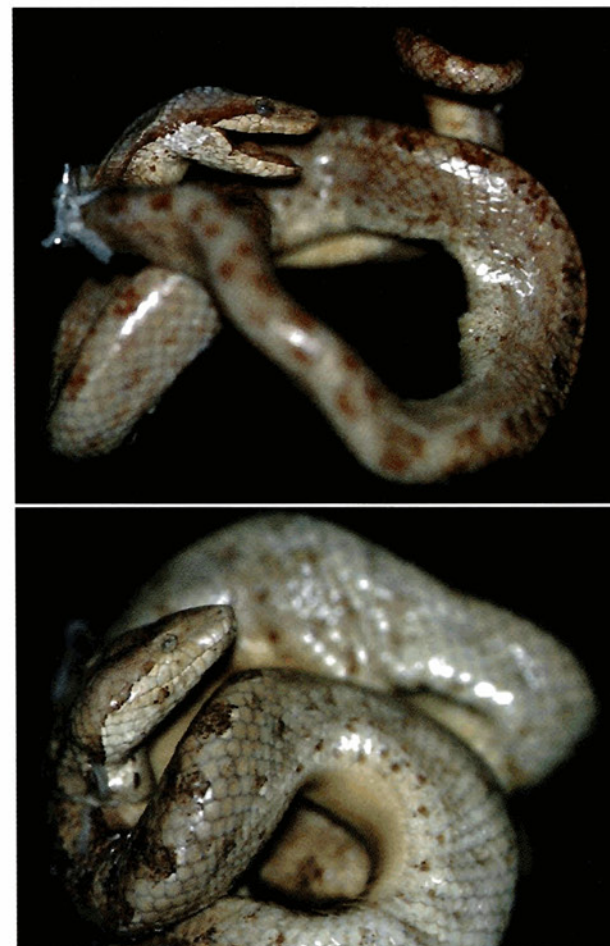


FIGURE. Adult female (top) and subadult male *Tropidophis bucculentus* (syntypes, USNM 12377).

• **DESCRIPTIONS.** The only detailed description is that of Stull (1928, as *Tropidophis pardalis bucculentus*). Thomas (1966, as *T. melanurus bucculentus*) provided a less extensive description. The original description (Cope 1868) is cursory, and that in Schwartz and Henderson (1991) is largely admixed with descriptions applicable to the subspecies of *T. melanurus*.

• **ILLUSTRATIONS.** No photographs of *Tropidophis bucculentus* have been published until now. Stull (1928) included a diagrammatic illustration of a hemipenis.

• **DISTRIBUTION.** *Tropidophis bucculentus* was endemic to Navassa Island, where presumably it was found islandwide prior to its extinction (see **Remarks**).

• **FOSSIL RECORD.** None (but see **Remarks**).

• **PERTINENT LITERATURE.** Few references refer specifically to Navassan material; notable exceptions are Stejneger (1917), Stull (1928), Bailey (1937), Thomas (1966), and Powell (1999). Thomas (1966) followed Stejneger (1917) and Bailey (1937) in referring the species to the *T. melanurus* group, an assignment generally accepted by subsequent authors. Schwartz and Marsh (1960), however, had listed the species in the *T. pardalis* group, presumably based on Stull's (1928) work. Hedges and Garrido (2001) compared *T. bucculentus* to *T. hendersoni*. Hedges (in review) discussed biogeography, affinities (*T. melanurus* group), and species status, and provided information on morphology and pattern in tabular form.

The species (under various names listed in the synonymy) is included in notes, checklists, guides, and keys by Banks et al. (1987), Barbour (1914, 1930, 1935, 1937), Boulenger (1893), Cochran (1961), McDiarmid et al. (1999), MacLean et al. (1977), Powell and Henderson (1999), Powell et al. (1999), Schmidt (1921), Schwartz and Henderson (1985, 1988, 1991), Schwartz and Thomas (1975), and Tolson and Henderson (1993).

Additional references to this species may be indistinguishably subsumed under the names of the species with which it has been subspecifically linked.

• **REMARKS.** Bailey (1937) suggested that the additional syntype (Cope [1868] had mentioned four specimens) was at the Academy of Natural Sciences of Philadelphia (ANSP 10281). Data for this specimen, however, are lacking, and remarks in the ANSP catalog (N.S. Gilmore, in litt., 30.XI.00) refer the reader to Bailey (1937) and Thomas (1966).

Tropidophis bucculentus is probably extinct. Unlike *Cyclura onchiopsis*, which was undoubtedly vulnerable to human exploitation and habitat alteration, as well as introduced predators, the cause of extinction for *T. bucculentus* is less obvious. Relatively small, secretive snakes are not likely to have been exterminated by humans, even during the most intense period of human activity on Navassa (phosphate mining in the last half of the 19th century). However, Ekman (1929), after a visit to Navassa at a time when a lighthouse keeper was in residence, stated categorically that "There are no snakes on Navassa." Powell (1999) suggested that exotic predators were most likely responsible. That the syntypes were mistakenly attributed to Navassa is highly unlikely; one of the USNM syntypes contained a specimen of *Celestus badius* (Thomas 1966), an extant Navassan endemic.

No fossil material attributable to *Tropidophis* has been identified from Navassa. However, Patton (1967 [1968]) listed *Alsophis* sp. (Colubridae) among "fossil vertebrates of probable Pleistocene age." Because Patton (1967 [1968]) also listed *Geochelone* sp. and *Pseudemys* sp. among fossils found, and the presence of naturally occurring populations of these species

on Navassa is highly unlikely, the "*Alsophis*" fossils may be spurious or misidentified (possibly *Tropidophis*?).

Most Navassan reptiles show obvious Hispaniolan affinities, largely attributable to proximity and the fact that prevailing winds would facilitate east-to-west dispersal. The Cuban affinities of *Tropidophis bucculentus* (and of *Anolis longiceps*, another Navassan endemic) are more difficult to explain. Powell (1999) suggested that hurricanes, with circular winds that could propel material from eastern Cuba to the south, might be responsible. Alternative, albeit less attractive hypotheses are that Navassa, riding the Caribbean Plate, might once have been much closer to Cuba, or the apparent relationships are a "misleading consequence of convergence."

• **ETYMOLOGY.** The specific name, *bucculentus*, is from the Latin, meaning "with full cheeks," probably in reference to bulging jaw muscles.

• **COMMENT.** Frank and Ramus (1995) assigned to *Tropidophis melanurus* the common name, "Navassa Island Blacktail Dwarf Boa." Although *T. bucculentus* was at that time generally treated as a subspecies of *T. melanurus*, the latter is undeniably a Cuban species. In addition, *T. bucculentus* lacks the black tail characteristic of the nominate form.

• **ACKNOWLEDGMENTS.** George R. Zug, USNM, and Ned S. Gilmore, ANSP, graciously provided information on the specimens in their care.

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