

SHORT COMMUNICATION

# Morphology and geographical distribution of the poorly known snake *Umbrivaga pygmaea* (Serpentes: Dipsadidae) in Brazil

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The South American snake genus *Umbrivaga* Roze, 1964, is found in Colombia, Peru, Ecuador, French Guiana, Venezuela, and Brazil (Peters and Orejas-Miranda 1970, Markezich and Dixon 1979, Miyata 1982, Dixon and Soini 1986, Vanzolini 1986, Martins and Oliveira 1998, Fernandes *et al.* 1999, Vigle 2008, Vidal *et al.* 2010). Although the validity of this genus remains uncertain (Vidal *et al.* 2010), three species currently are recognized: *U. pygmaea* (Cope, 1868), *U. mertensi* Roze, 1964, and *U. pyburni* Markezich and Dixon, 1979 (Vidal *et al.*

2010). *Umbrivaga pygmaea* was described by Cope (1868) from an undetermined locality—either Napo or the vicinity of Marañon in Peru. It is the most widely distributed species in the genus, with records in Colombia, Ecuador, French Guiana, Peru, and Brazil (Peters and Orejas-Miranda 1970, Markezich and Dixon 1979, Miyata 1982, Dixon and Soini 1986, Vanzolini 1986, Martins and Oliveira 1998, Fernandes *et al.* 1999, Vigle 2008, Vidal *et al.* 2010). Despite its broad distribution, specimens are relatively rare in collections and thus, it is poorly known. In Brazil, *U. pygmaea* was recorded in the municipalities of Manaus and Tefé, state of Amazonas (Martins and Oliveira 1998, Fernandes *et al.* 1999), and in the municipality of Almerim, state of Pará (Ávila-Pires

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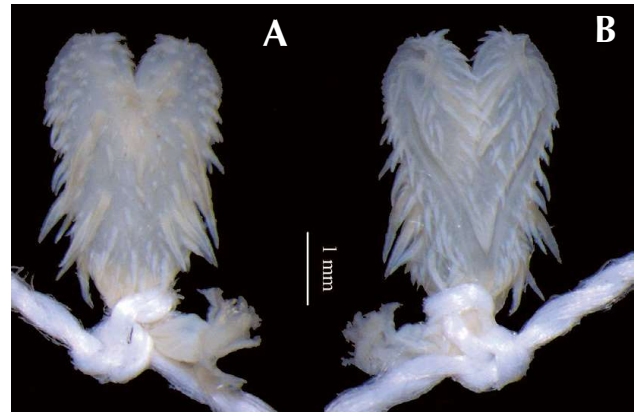
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*et al.* 2010). Herein, we describe the hemipenis, along with variation in morphological characters and color pattern, and present new distributional data for *U. pygmaea* in Amazonas, Brazil, based upon new specimens collected in areas of dense forest.

We examined seven specimens of *Umbrivaga pygmaea* housed in two Brazilian collections—the Herpetological Collection of the Instituto Nacional de Pesquisas da Amazônia (INPA-H) and the Museu Nacional (MNRJ). All were from the state of Amazonas, as follow: Reserva Extrativista do baixo Juruá: (INPA-H 17160–62); Iranduba: Gasoduto Coari-Manaus (INPA-H 18260); Manicoré: Rodovia BR-319, Km 350 (INPA-H 22984) and Rodovia BR-319, Km 300 (INPA-H 26290); and Uruará: (MNRJ 17979).

Ventral scales were counted following the method of Zaher *et al.* (2008). The right hemipenis was prepared from a previously fixed specimen (MNRJ 17979) following the technique of Pesantes (1994) and Manzani and Abe (1988). We used the hemipenial morphological terminology of Zaher (1999). Sex was determined by the presence or absence of an hemipenis detected through a ventral incision at the base of the tail.

The hemipenes are slightly bilobed, bearing several spines and apical discs in the distal region of the lobes, which are neither capitate nor calyculate. Inverted, the organ extended to the level of the eighth subcaudal scale. The sulcus spermaticus is deep and divides on the basal region of the organ; the sulcus branches in a centrifugal direction and terminates on the distal part of the apical disc. Apical disks are located laterally in the distal region of the lobes. On the sulcate side, the basal portion of the hemipenis bears several spines. The enlarged intrasulcar spines decrease in size toward the distal regions of lobes. The asulcate side has small spines on the lobes and the basal region of the organ. Enlarged spines are concentrated on the lateral region of medial portion of the organ; they decrease in size toward the lobes and the center of hemipenial body (Figure 1).



**Figure 1.** The right hemipenis of *Umbrivaga pygmaea* (MNRJ 17979) collected in the municipality of Uruará, state of Amazonas, Brazil. (A) asulcate side, (B) sulcate side.

Meristic data for the seven specimens (Table 1) are similar to those available in the literature with a few exceptions; values presented by Markezich and Dixon (1979) are noted parenthetically. Subcaudal scales vary from 27–33 (29–38). One specimen (INPA-H 18260) is distinguished by having three supralabials (3–5) in contact with the orbit on the right side of head and an extra posterior temporal scale (1 + 3) on both sides of the head (Table 1).

The dorsal color pattern of preserved specimens is coffee-brown; the flanks are lighter. The dorsal scales on the anterior part of the body have white edges; this part of the dorsum bears transverse dark bands that are most evident in defensive hood-displays (Figure 2). A longitudinal dark stripe extends along the side of the snake from the midlength of the body to the tip of tail. The dorsal surface of the head is reddish brown and the supralabials are whitish cream (Figure 3). The color pattern of specimens agrees with Cope's original description (Cope 1868) and subsequent literature (Dixon and Soini 1986, Martins and Oliveira 1998), with exception of the brighter orange ventral coloration in life of the specimen that was collected (Figure 2); the orange changed to cream when the individual was preserved.

**Table 1.** Morphometric and meristic data for *Umbrivaga pygmaea*. Abbreviations: SVL (snout–vent length, mm); TL (tail length, mm); M (male); F (female); D (dorsal row on neck/midbody/preloacal); V (ventrals); SC (subcaudals); CI (cloacal); d (divided); SL (supralabial scales); SLO (supralabial scales in contact with orbit); IL (infralabial scales); ILA (number of infralabials scales in contact with anterior chinshields); ILP (number of infralabial scales in contact with posterior chinshields); POc (preocular); PoOc (postocular); T (temporals).

Specimen	Sex	SVL	TL	D	V	SC	CI	SL	SLO	IL	ILA	ILP	POc	PoO	T
INPA-H 17160	M	160	27	17/17/15	127	29	d	6/6	3+4/3+4	8/8	1–4/1–4	4, 5/4, 5	1/1	1/1	1+2/1+2
INPA-H 17161	M	159	32	17/17/15	123	31	d	6/6	3+4/3+4	8/8	1–4/1–4	4, 5/4, 5	1/1	1/1	1+3/1+2
INPA-H 17162	M	154	26	17/17/15	124	27	d	6/6	3+4/3+4	8/8	1–4/1–4	4, 5/4, 5	1/1	1/1	1+2/1+2
INPA-H 18260	F	79	13	17/17/15	124	27	d	7/6	3+4+5/3+4	8/8	1–4/1–4	4, 5/4, 5	1/1	1/1	1+3/1+3
INPA-H 22984	M	166	30	17/17/15	129	30	d	6/6	3+4/3+4	8/8	1–4/1–4	4, 5/4, 5	1/1	2/2	1+2/1+2
INPA-H 26290	M	113	19	17/17/15	136	31	d	6/6	3+4/3+4	8/8	1–4/1–4	4, 5/4, 5	1/1	2/2	1+2/1+2
MNRJ 17979	M	125	23	17/17/15	124	33	d	6/6	3+4/3+4	8/8	1–4/1–4	4, 5/4, 5	1/1	1/1	1+2/1+2
Markezich and Dixon 1979	M	—	—	17/17/15	122–133	29–38	d	6/7	2+3/3+4	8/9	1–4/1–4	4, 5/4, 5	1/1	1/1	1+2/1+2
Markezich and Dixon 1979	F	—	—	17/17/15	122–129	33–38	d	6/7	2+3/3+4	8/9	1–4/1–4	4, 5/4, 5	1/1	1/1	1+2/1+2




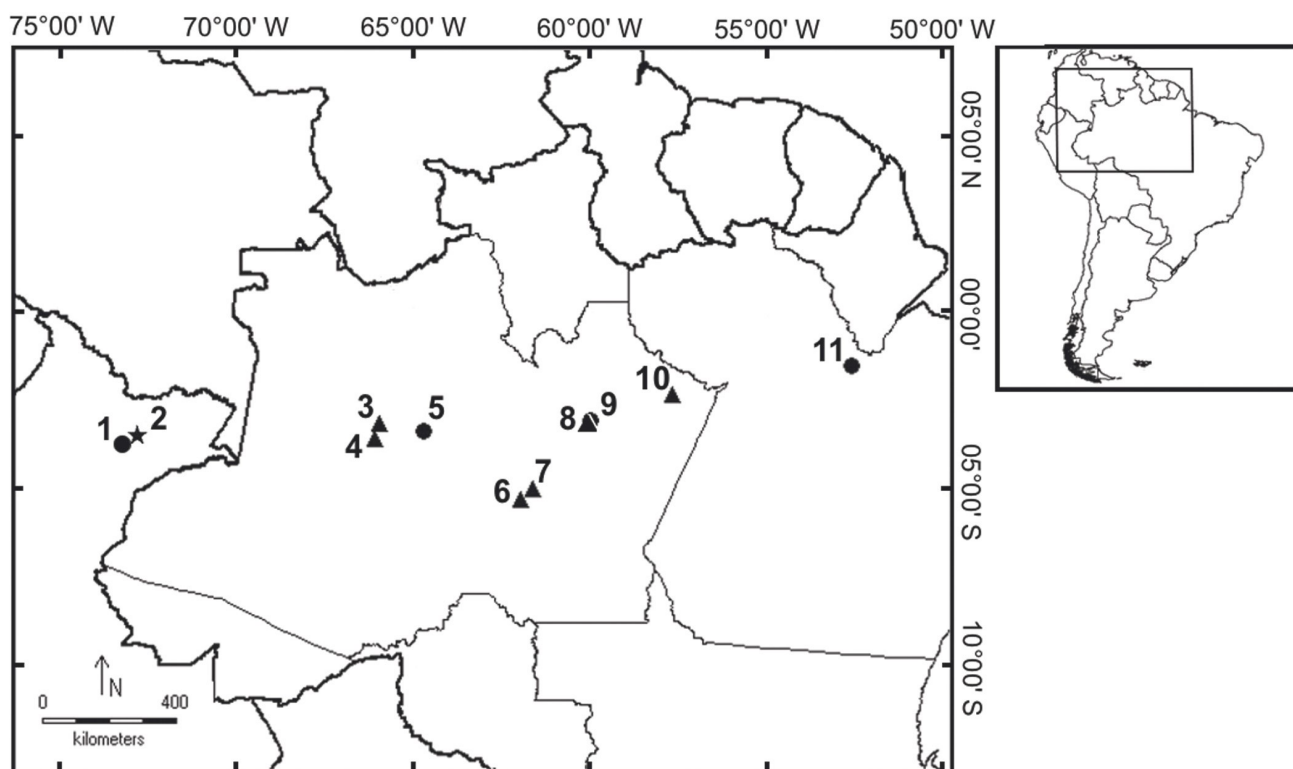
**Figure 2.** Live specimen of *Umbrivaga pygmaea* (MNRJ 17979, male, SVL 125 mm) from the municipality of Urucará, Amazonas, Brazil. (A) Dorsal and ventral patterns; (B) defensive hood-display.



**Figure 3.** Head detail of preserved specimen of *Umbrivaga pygmaea* (MNRJ 17979) from the municipality of Urucará, Amazonas, Brazil. From top to bottom: dorsal, ventral and lateral color pattern.

The present study extends the known geographical distribution of *Umbrivaga pygmaea* about 230 km southward (straight line) and represents the southernmost record of this species (Figure 4). Although the species has a relatively wide geographic distribution, there are many gaps its range. This probably reflects a sampling bias of this relatively small, secretive snake. In addition, specimens were collected near large rivers, suggesting that the presumed habitat preferences reported by Dixon and Soini (1986) and Martins and Oliveira (1998) may be an artifact of easily accessible collecting sites near large rivers in Amazonia.

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**Figure 4.** Geographic distribution of *Umbrivaga pygmaea* in the Amazon region (AM) of Brazil. Star: type-locality; circle: bibliographic records; triangle: new record in this study. (1) Marañon, Peru; (2) Napo, Peru; (3) Juruá, AM; (4) Juruá, AM; (5) Tefé, AM; (6) Manicoré, AM; (7) Manicoré, AM; (8) Iranduba, AM; (9) Manaus, AM; (10) Urucará, AM; (11) Almerim, Pará.

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