

A NEW SPECIES OF AMPHISBAENA FROM THE STATE OF AMAZONAS,  
BRASIL (REPTILIA, AMPHISBAENIA, AMPHISBAENIDAE)

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*Amphisbaena hugoi*, sp. n., from the site of the Balbina hydroelectric dam, in the state of Amazonas (01°53'S, 59°28'W), is sufficiently characterized by having (one specimen known): 4 preanal pores; 225 body annuli; 36 tail annuli, with autotomy constriction on the 13th annulus, 16 dorsal and 18 ventral segments to a midbody annulus; body color pattern a brown back and a white belly, clearly demarcated, anteriorly at the level of the lateral sulcus, posteriorly one and then two scales below it, with a thin light line on the lateral sulcus, a white cap on the head, dorsally extending onto the neck; autotomy annulus ventrally brown-colored.

Key words: *Amphisbaena* – Amazônia

During the filling of the hydroelectric reservoir at Balbina, state of Amazonas, with the consequent flooding of a large area of forest, the federal agency in charge of generation of electricity in northern Brasil, Eletro-norte, put into action a program of rescue of animal specimens for scientific purposes. Among the materials received by the Museum there was a small amphisbaenid which I judge to belong to a new species. In the good tradition of systematic zoologists, I name it in honor of Hugo de Souza Lopes, whom I have known and admired for the last fifty years or so.

*Amphisbaena hugoi*, sp. n.

Holotype: MZUSP 68644. Brasil: Amazonas: Balbina, April 4, 1988. Received from Eletro-norte.

*Diagnosis* – A small, slender species. No fusions of head shields. Body annuli 225, tail annuli 36, autotomy constriction on the 23th annulus. Segments on a midbody annulus 16/18. Four well expressed preanal pores. Dorsum brown, finely reticulate with white; cephalic cap extending onto the neck. Ventral parts white.

*Description* – Length 127 + 27 mm; head width 3.6 mm. Habitus slender. Head blunt, rounded. Rostral small, not apparent in dorsal view. Of the cephalic median sutures, that between the frontals a little longer than the others, which are subequal. One pair of en-

larged, squarish occipitals. Ocular small, irregularly polygonal. Three upper labials, the first high, triangular; the second, the largest, meeting in front the nasal, thus narrowly separating the prefrontal from the first labial; third labial square, small. Dorsally to the third labial a stack of three scales, of which the top-most and largest fits between the ocular, the frontal, the parietal and two large scales of the first transverse row behind the angulus oris. Symphysial small, anvil-shaped. Post-symphysial much larger, irregularly pentagonal, longer than wide, narrower in front. Three lower labials, the first very large, reaching the level of the middle of the second upper labial, in contact with the post-symphysial along all of the latter's margin; second and third lower labials small, squarish. Between the anterior two thirds of the third lower labials, behind the post-symphysial and the first lower labial, a row of four scales, two large laterals ("malars" of Gans & Alexander, 1962) meeting the posterolateral corners of the post-symphysial, and two central post-genials. One further transverse row of six scales, the outermost the largest, in contact with the posterior third of the second and with the whole length of the third lower labials.

No dorsal sulcus. Lateral sulci becoming apparent at about the level of the 50th body annulus, never deeply incised. Dorsal segments very regular, once and one quarter longer than wide, with aligned sutures. Ventral segments also aligned, becoming broader toward the

middle, where they are once and one half as wide as long. Preanal row with ten scales; in front of it four pores, slightly elliptical transversely, with pronounced plugs.

Tail cylindrical at the base, becoming slightly swollen after annulus 13, the autotomy ring. Tail segments similar to the body ones, those at the tip effaced.

Head dorsally immaculate white, the cap reaching a length of about 6 annuli on the neck; annuli 4-6 with scattered brown segments. Remainder of dorsum brown, with very fine reticulations made by light segment edges. Dark color extending anteriorly down the sides to the lateral sulcus, posteriorly to one and then two segments farther down. Lateral sulcus practically unpigmented, resulting into a light line separating the brown of the back from the white or smudged segments below the sulcus. The venter is whitish, immaculate. The front edge of the tail annuli shows ventrally dark smudging; the autotomy annulus and the tip the tail are distinctly marked with brown.

#### DISCUSSION

The new species is readily characterized by the number of pores, 4, by the high counts of annuli and segments (225 + 36, 16/18) and by the striking color pattern.

Among species with four pores, four have comparable counts of body annuli: *vermicularis*, from northeastern Brasil (211-254), *nigricauda*, from the Atlantic forests of eastern Brasil (223-236), *vanzolinii*, from Guyana (225-228), and *carvalhoi*, from northeastern Brasil (231-245).

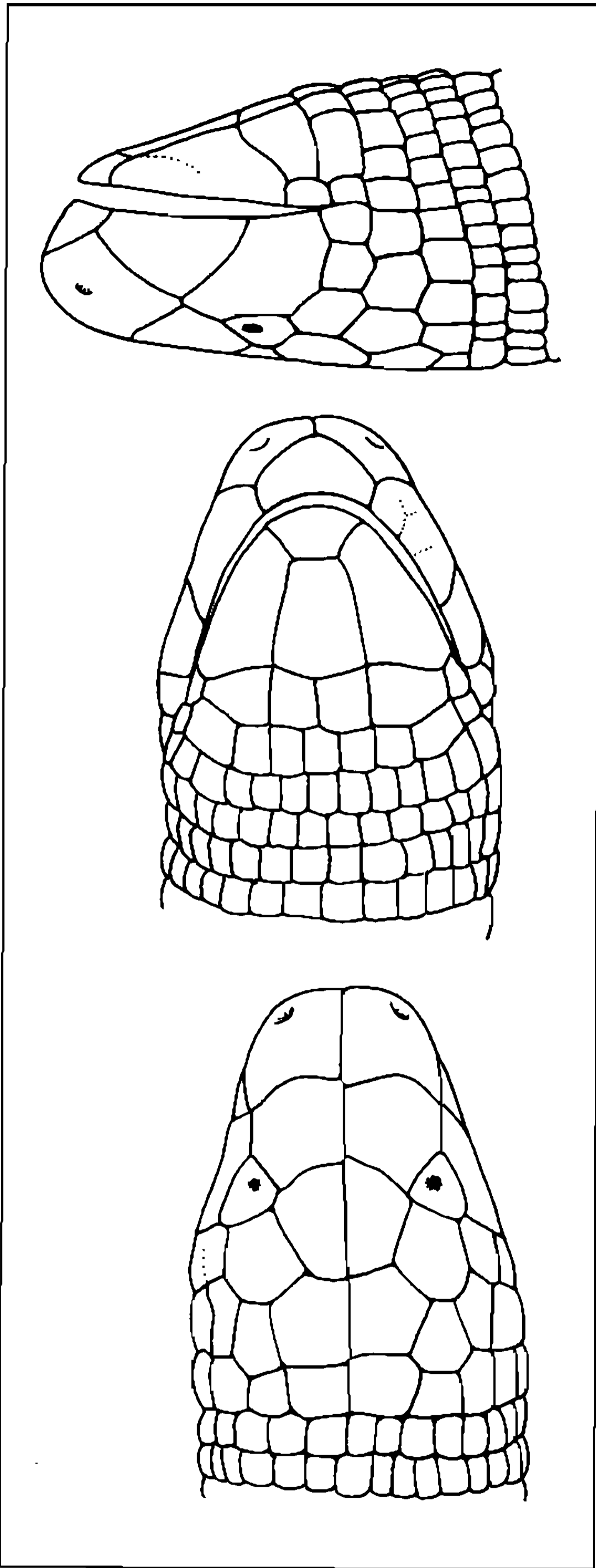
*Amphisbaena vermicularis* Wagler, 1824, has many points of similarity with the new species. It is a rather common form (I have before me 89 specimens) and has been adequately described and illustrated in the literature (Gans & Amdur, 1966; Vanzolini, Ramos-Costa & Vitt, 1980): its quantitative characters can be treated with confidence. It has a relatively high number of tail annuli (23-30), but does not reach the 36 of *hugoi*. The autotomy constriction falls on the 5th to 7th ring, significantly far from the 13th of *hugoi*. The number of dorsal segments is larger by at least two in *vermicularis* (18-26 against 16). In the number of ventral annuli there is

overlap (18-24 and 18). The pattern of head scales is quite similar in the two forms, but there are two important differences: *vermicularis* has 4 supralabials (3) and 3 post-genials (2). The pattern of sulci is about the same in the two forms; the segments of *vermicularis* are relatively narrower, as revealed by the higher counts. The tail of *vermicularis* rather resembles that of *hugoi*, but the interannular sulci are deeper, and the segments at the tip are well incised.

In color pattern there are also both important similarities and differences. *A. vermicularis* has as well a dark back and a light belly, clearly demarcated. The segmental sutures on the back are very light, resulting in a more distinctly reticulate pattern. The dorsal color extends to 3-4 segments below the lateral sulcus, which, in a number of specimens, but not always, forms a longitudinal light line similar to that of *hugoi*. The front edges of the tail annuli are more sharply marked with brown, the markings becoming still heavier distally. The autotomy annulus is not patterned. Finally, *vermicularis* has not a white cap: the head has the same general shade of reddish brown as the dorsum, and shows irregular, ill defined lighter areas on the snout.

*Amphisbaena nigricauda* Gans, 1966, from the Atlantic forest in the state of Espirito Santo, has no resemblance to *hugoi* except in the high number of body annuli (222-226). Major differences (besides many minor but significant ones) are: *nigricauda* is definitely prognathous; it has only 19-24 tail annuli, with the autotomy constriction on 6-9, and only 10/16 segments per annulus. The color pattern is unique: the animal is overall a light brown, with the end of the tail (the 6-8 distal annuli) dark brown – whence the name.

*Amphisbaena vanzolinii* Gans, 1963, from Guyana, has also an overlapping number of annuli with *hugoi*, 225-228. The number of caudal annuli is not known, as the type, and only published specimen, has a mutilated tail. Segments (12-13/16-17) are fewer than in *hugoi*. The color pattern is also distinctive, the back being dark brown (the segments having slightly darker centers), fading down the sides to a lighter (but not white) ventral coloring. There is no cap.



*Amphisbaena hugoi*, sp. n. Pholidosis of the head, holotype.

Finally, *A. carvalhoi* Gans, 1965, from less xeric areas in northeastern Brasil, has a higher number of body annuli (231-245) than *hugoi*. Tail annuli are fewer (19-22, autotomy constriction on 7-8), and so are dorsal segments

(12-14/18). The color pattern is another one of darker brown on the back, reticulated by light sutures, fading somewhat ventrally.

*Distribution* – *Amphisbaena hugoi* is known at this point from a single locality in Central Amazonia. Six other species of the genus were heretofore known from the same general area: *alba* Linné, 1758; *fuliginosa* Linné, 1758; *mitchelli* Procter, 1923; *slevini* Schmidt, 1936; *stejnegeri* Ruthven, 1922; *tragorhectes* Vanzolini, 1971; *vanzolinii* Gans, 1963.

The last named has already been discussed. The others must be considered, keeping in mind the possibility of extreme variation, but there are really no identification problems.

*Amphisbaena slevini*, revised by Gans (1963) and common in Manaus and neighborhood, has 4 pores but less than 212 body and 26 caudal annuli; segments are likewise in low numbers, 10-14/10-14. The color pattern is "a uniform medium brown" (Gans, l. c.).

*Amphisbaena alba* (revised by Gans, 1962) has an unmistakable habitus: the adults are long (up to 500 mm snout to vent) and stout (head width to 21 mm). The adult color pattern is also characteristic: the dorsum is dark reddish brown, changing down the sides to a whitish belly. Hatchlings, however, which are as long as 180 mm snout to vent, may be troublesome to identify, as they have a peculiar blotched pattern (Gans, 1962). Additionally, pores may be as few as 4, and body annuli vary from 194 to 248, encompassing *hugoi*. Other meristic characters, though, are diagnostic: tail annuli 13-21, without constriction, and total number of segments 65-85.

*Amphisbaena fuliginosa* (revised by Vanzolini, 1951), a species in the size range of *vermicularis*, has a characteristic color pattern, described with marvelous concision by Boulenger (1885: 438): "Black and white varied, either the one or the other colour predominating". One of the subspecies, *amazonica* Vanzolini, 1951, has a white cap, but the body pattern is always variegated; even heavily melanistic specimens show no dorso-ventral contrast. Otherwise, in the relevant geographic area, body annuli are always fewer than 220, tail annuli fewer than 30, and segments 20-26/20-26.

*Amphisbaena mitchelli* (revised by Gans, 1963, 1964), from easternmost Pará, has characteristically two pores, 26-29 tail annuli (constriction on 6th or 7th) and 12-14/14-16 segments. The color pattern is dorsally uniform brown, fading ventrally.

*Amphisbaena stejnegeri*, so far known from Guyana (two specimens, Gans, 1963) is a prognathous form with 6 pores. It has a very peculiar arrangement of scales on the ventral aspect of the head, including fusion of symphysial and postsymphysial. Body annuli are 243-247; the number of tail annuli is not known, but the autotomy constriction is on the 9th annulus. Segments are 17-19/16-20, practically overlapping *hugoi*. The color pattern is unique: the head is immaculate; the back is densely mottled, more so posteriorly, and the venter is lighter, but a sharp demarcation is missing.

Finally, *A. tragorhectes*, from the lower Rio Trombetas, in western Pará, has some important features in common with *hugoi*: 4 preanal pores, a high number of caudal annuli (31), with constriction of the 12th, the segments at the tip of the tail obsolete. There is a rather clear demarcation between back and belly pigmentation. Body annuli, however, are fewer (196), and segments only 12/12. The dorsum is actually a darker brown than the belly, but the contrast is not nearly as marked as in *hugoi*. The white cap is signally missing, and the autotomy annulus is not pigmented. There are also several minor differences in head scutellation, principally in the conspicuously smaller size of the temporals in *hugoi*.

#### ACKNOWLEDGMENTS

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#### REFERENCES

- BOULENGER, G. A., 1885. *Catologue of the lizards in the British Museum (Natural History)*. Second edition. British Museum, London. xii + 436 p., 32 pls.
- GANS, C., 1962. Notes on amphisbaenids (Amphisbaenia, Reptilia). 5. A redefinition and bibliography of *Amphisbaena alba* Linné. *Amer. Mus. Novit.*, 2105: 1-31.
- GANS, C., 1963. Notes on amphisbaenids (Amphisbaenia, Reptilia). 7. Redescription and redefinition of *Amphisbaena mitchelli* Procter and *Amphisbaena slevini* Schmidt from the middle and lower Amazon, Brazil. *Amer. Mus. Novit.*, 2127: 1-22.
- GANS, C., 1963. Notes on amphisbaenids (Amphisbaenia, Reptilia). 8. A redescription of *Amphisbaena stejnegeri* and the description of a new species of *Amphisbaena* from British Guiana. *Amer. Mus. Novit.*, 2128: 1-18.
- GANS, C., 1964. *Amphisbaena mitchelli* Procter, recorded from Belem, Pará. *Herpetologica*, 20 (3): 192-194.
- GANS, C., 1965. On *Amphisbaena heathi* Schmidt, and *A. carvalhoi*, new species, small forms from the northeast of Brazil (Amphisbaenia, Reptilia). *Proc. California Acad. Sci.*, 31: 613-630.
- GANS, C., 1966. Studies on amphisbaenids (Amphisbaenia, Reptilia). 3. The small forms from southern South America commonly identified as *Amphisbaena darwini*. *Bull. Amer. Mus. Nat. Hist.*, 134: 185-260.
- GANS, C. & ALEXANDER, A. A., 1962. Studies on amphisbaenids (Amphisbaenia, Reptilia). 2. On the amphisbaenids of the Antilles. *Bull. Mus. Comp. Zool.*, 128: 67-158.
- GANS, C. & AMDUR, M. A., 1966. Redescription of *Amphisbaena vermicularis* Wagler, with comments on its range and synonymy (Amphisbaenia, Reptilia). *Proc. California Acad. Sci.*, 33: 69-99.
- VANZOLINI, P. E., 1951. Contributions to the knowledge of Brazilian lizards of the family Amphisbaenidae Gray, 1825. 6. On the geographical distribution and differentiation of *Amphisbaena fuliginosa* Linné. *Bull. Mus. Comp. Zool.*, 106: 1-65.
- VANZOLINI, P. E., 1971. New Amphisbaenidae from Brasil. *Papéis Avulsos Zool. (S. Paulo)*, 24: 191-195.
- VANZOLINI, P. E.; RAMOS-COSTA, A. M. & VITT, L. J., 1980. *Répteis das caatingas*. Academia Brasileira de Ciências, Rio de Janeiro. 161 p.