

Dicephalism in the green racer snake, *Philodryas patagoniensis* (Serpentes, Colubridae), from southeastern Brazil

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Currently, the total number of verified cases of dicephalic snakes is 1287 (including 190 species in 102 genera) (Wallach, 2007; Albuquerque et al., 2010). This paper reports the second case of dicephalism in a green racer snake, *Philodryas patagoniensis* (Girard, 1857), with information on its external morphology, coloration and internal anatomy.

The specimen is deposited in the Coleção Zoológica de Referência da UFMS (ZUFMS-REP 1268). It was collected in the 1960's at a poultry farm in Mendes, district of Água Fria, (22°31'36S, 43°43'58W, 446 meters altitude), Rio de Janeiro, Brazil. The number of scales and measurements of the dicephalic green racer were compared with the known variation among normal individuals (Table 1).

The specimen is a neonate female with the following combination of characters (Figures 1-4): Right head/left head length from snout to fusion zone 13.72 mm/12.47 mm (5.91% and 5.47 of snout-vent length, respectively). 181 ventrals plus two preentrals from fusion zone to divided anal scale; 103 paired subcaudals. Tail length 63 mm (tail complete). Heads moderately short and distinct from necks. Rostrals slightly wider than high, visible from above. Nasals divided; one large loreal scale on each side; loreals quadrate, a little higher than wide. Eyes surrounded by the following scales: one large preocular on each side, thrice higher than wide; a pair of distinctive supraoculars, almost three times wider than long; upper postoculars higher than long;

lower postocular wider than high. Pupils round. Frontal pentagonal, longer than wide (4.81/2.31 right head; 4.70/2.30 left head), with anterior margin contacting prefrontals. Right head length 13.49 mm, 5.8% of SVL; snout length 3.90 mm; supralabials 7/7, with 3-4/3-4 entering orbit; infralabials 8/8, with 4-4 contacting first genials. Left head length 12.71 mm, 5.6% of SVL; snout length 3.51 mm; supralabials 7/7, with 3-4/3-4 entering orbit; infralabials 10/9, with 4-4 contacting first genials. Dorsal scales smooth, with one apical pit, in 19-19-15 rows. The oesophagus and trachea are duplicated but more posterior organs are normal in number and position. The heart is malformed, with the atria positioned caudally in relation to the single ventricle. The maxillae possess one or two teeth, possibly owing to poor preservation of the specimen before its donation to ZUFMS in 2005.

Colouration

Dorsal colouration pale upon which are rows of small irregularly shaped brown dots extending from each neck to end of trunk (Figure 1). The paravertebral rows are more prominent, being separated from each other by a pale vertebral stripe, which continues onto the tail. Tail dots are indistinct in this specimen. Center of



Figure 1. Dorsal view of dicephalic *Philodryas patagoniensis* (ZUFMS-REP 1268) from Mendes, RJ, Brazil. Length of scale bar: 1 cm.

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Figure 2. Lateral view of heads of dicephalic *Philodryas patagoniensis* (ZUFMS-REP 1268) from Mendes, RJ, Brazil. Length of scale bar: 0.25 cm.

each supraocular scale marked with a small black spot (Figure 2). Black pigment occupies lateral edges of each supralabial in both heads. Chin, throat and belly are pale (colour). This colour pattern is similar to that found in other newborn *P. patagoniensis* (see Giraudo, 2001).

The label information associated with this specimen reveals that it was the single dicephalic specimen within a clutch of newborn specimens. The note was written by the late collector, Arthur Irineu de Souza Filho, who witnessed the birth of those specimens and probably killed the dicephalic specimen immediately after birth. The total length of ZUFMS-REP 1268 falls within the known variation for newborn *Philodryas patagoniensis* (see Pontes and Di-Bernardo, 1988; Giraudo, 2001; Carreira *et al.*, 2005).

Prado (1946) identified a dicephalic snake (IBSP 10592) as *Philodryas schotti*. This specimen was studied by Belluomini (1966), who provided three photographs and a radiograph. Lema (1982) was the first person to identify this specimen as a *Philodryas patagoniensis*, and he referred to it with trinomials as *P. P. patagoniensis*. Matz (1989) listed this snake but misspelled its name as *P. patogoniensis*. Payen (1991) also classified this specimen as *P. patagoniensis*.

A craniodichotomous *Philodryas olfersii* was described by Vizotto (1975) on the basis of a specimen from Flórida Paulista, São Paulo, Brazil.

ZUFMS-REP 1268 represents the 521st case of dicephalism in the family Colubridae, the 21nd xenodontine and the 31st dicephalous snake in Brazil (see Wallach, 2007). Smith and Pérez-Higareda (1987) classified dicephalic snake specimens into seven categories. According to their classification ZUFMS-REP 1268 is a craniodichotomous specimen. Specimens falling into this category have two incompletely divided heads, and a single body and tail.



Figure 3. Ventral view of heads of dicephalic *Philodryas patagoniensis* (ZUFMS-REP 1268) from Mendes, RJ, Brazil. Length of scale bar: 0.25 cm.

Acknowledgements. Franco L. Souza (ZUFMS) granted permission to examine the specimen. Daniel Irineu de Souza Dainezi, grandson of Arthur Irineu de Souza Filho, provided us with additional data from specimen. Gláucia Pontes (PUCRS) confirmed the identification of the specimen. David Cundall (Lehigh University) and Robert A. Thomas (Loyola University New Orleans) read the entire manuscript and offered valuable suggestions. NA particularly thanks Gecele Paggi (UFMS) for her assistance in preparing the figures.

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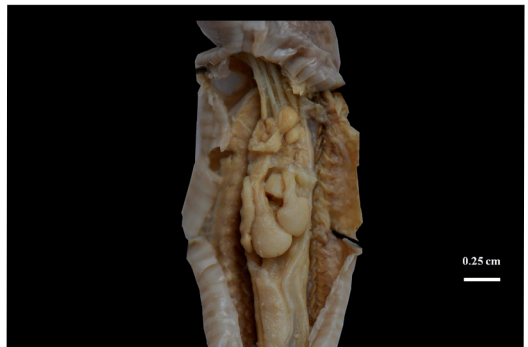


Figure 4. Heart of dicephalic *Philodryas patagoniensis* (ZUFMS-REP 1268) from Mendes, RJ, Brazil. Length of scale bar: 0.25 cm.

Table 1. Comparison of number of scales and maxillary teeth of ZUFMS-REP 1268 with the known variation in normal individuals of *Philodryas patagoniensis*. Literature data from Giraudo (2001) and Carreira et al. (2005).

Character	ZUFMS-REP 1268	Literature data
Preoculars	1-2/1-2	1-2/1-2
Postoculars	1-2/1-2	1-2/1-2
Supralabials	7-7/7-7	7-7/7-7
Infralabials	8-8/10-9	9-9/9-9
Dorsal scale rows	19-19-15	19-19-15
Ventrals	181	150-198
Subcaudals	103	66-120

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