

## Life history traits of the snake *Phalotris lativittatus* (Xenodontinae: Elapomorphini) from the Brazilian Cerrado

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**Abstract.** Data on life history traits (fecundity, egg size, relative clutch mass, hatchling size) of the snake *Phalotris lativittatus* are reported. This is the first record of such data for this rare endemic species of the Brazilian Cerrado biome. Fecundity is low, but relative clutch mass is high for the species, as well as for other fossorial squamates.

**Keywords.** Relative clutch mass, fecundity, hatchling size, incubation period, growth rate.

The snake genus *Phalotris* belongs to the tribe Elapomorphini and is composed of nearly 14 species with fossorial habits (Uetz, 2009). *Phalotris lativittatus* is a rare, medium-sized species distributed endemically in Cerrado vegetation areas in São Paulo state (Ferrarezzi, 1993; Sawaya, Marques and Martins, 2008; Vasconcelos and Santos, 2009). Data on feeding habits are unknown, but as well as congenics, it is likely that diet may be constituted of other elongated fossorial vertebrates (Sawaya, Marques and Martins, 2008). Reproductive data are also unknown for the species. Herein, we present the first record about oviposition, fecundity, egg size, relative clutch mass (RCM), incubation period, and hatchling size of *P. lativittatus*.

On 11<sup>th</sup> January of 2008, a gravid female *P. lativittatus* with a snout vent length (SVL) of 703 mm, tail length (TL) of 64 mm, and mass of 95 g was collected using pitfall traps and drift fences (Corn, 1994; Cechin and Martins, 2000) in the Assis Ecological Station (22°33' to 22°36'S, 50°23' to 50°22'W; 500-590 m in altitude), municipality of Assis, central western region of São Paulo State, southeastern Brazil. This ecological station (1,761 ha) is a representative protected area of the Brazilian Cerrado biome and it is covered mostly (94%) by Cerradão (see Durigan and Ratter, 2006).

The snake was placed in a plastic box (SanRemo 975; 564 × 385 × 371 mm) with leaves as substrate. On

14<sup>th</sup> January 2008 it laid 5 eggs within the cage. Eggs averaged 45.2 ± 3.3 mm in length (range = 39.8-48.7 mm), 14.5 ± 0.2 mm in width (range = 14.2-14.9 mm) and 6.5 ± 0.4 g in mass (range = 6.0-6.9 g). Clutch mass was 32.7 g and after oviposition the female weighed 62.0 g. The RCM (total clutch mass/body mass of mother after oviposition; cf. Shine, 1980) was 0.53. The female was deposited at the Herpetological Collection "Alphonse Richard Hoge", at Instituto Butantan (IBSP) with voucher IB 76925.

Four out of five eggs were incubated. Eggs were housed in plastic containers (two per container) half-buried with moistened vermiculite and submitted to two different thermal treatments, one with a mean temperature of 24 ± 2 °C and the other with mean temperature of 28 ± 2 °C. All eggs incubated at 28 °C hatched on 27<sup>th</sup> March 2008, after an incubation period of 73 days and one from 24 °C hatched on 12<sup>th</sup> May 2008, after an incubation period of 119 days. The egg that did not hatch was dissected and contained one dead full term embryo. Hatchlings (2 males and 1 females) averaged 234.3 ± 22.3 mm SVL (range = 220-260 mm), 28.3 ± 4.0 mm TL (range = 24-32 mm) and 5.2 ± 1.6 g (range = 3.4-6.4 g). The hatchlings color pattern differed from that of the mother. Hatchlings' patterns were clearer, with whitish nuchal collar and supralabials and less evident lateral stripes (Figure 1).

The hatchlings were placed in a 30 × 15 × 20 cm terrarium, with soil, a water dish and maintained in captivity for 30 days. During this period we offered hatchling dipsadid snakes as food, but hatchling *P. lativittatus* refused to feed. Initial growth rate during the first month was 1.75 mm per week. After this period, the hatchlings were deposited at IBSP (voucher: IB 76809, 76810, 76811).

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**Figure 1.** A. Clutch of *Phalotris lativittatus* eggs. B-C. Difference in color pattern between adult and hatchling individuals. B. Mother and C. hatchling. Scale bar = 2 cm.

Reproductive data are, in general, lacking for all Elapomorphini snakes. This occurs in part due to the fossorial habits of the group, what makes observations difficult to accomplish. This is the first report on life history traits for *P. lativittatus*. The only published data for the group are for *P. punctatus* from Argentina (Leynaud, 2003) and *Elapomorphus quinquelineatus* from Brazil (Travaglia-Cardoso, Rocha and Puerto, 2001). Both species presented low fecundity (2 eggs) and elongated eggs. As well as in these species, in *P. lativittatus* fecundity appeared to be low, eggs were elongated, and RCM was high. These features appear to be recurrent in fossorial squamates (see Balestrin

and Di-Bernardo, 2005; Andrade, Nascimento and Abe, 2006) and may represent a strategy of maximizing the reproductive output and minimizing the costs associated with locomotion of gravid females inside underground tunnels. However, more detailed studies on this group should be conducted to test this idea.

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