



Tadpole of *Leptodactylus oreomantis* Carvalho, Leite & Pezzuti 2013 (Anura, Leptodactylidae)

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Leptodactylus oreomantis, a member of *Leptodactylus fuscus* species group (*sensu* Heyer 1978), is a leptodactylid frog endemic to the montane rocky fields of Chapada Diamantina (the northern portion of the Espinhaço mountain range), Bahia State, Brazil (Carvalho *et al.* 2013). Although tadpole morphology provides relevant information for anuran taxonomy and systematics (see Langone & de Sá 2005; Miranda *et al.* 2014), only calls and adult morphology were evaluated in the description of this species. Herein, we describe and illustrate the external morphology and internal oral anatomy of *L. oreomantis* tadpoles and compare it with tadpoles of related species.

We collected and analyzed *Leptodactylus oreomantis* tadpoles from two sites at Chapada Diamantina, Bahia State, Brazil. Specimens are housed at Museu de Zoologia, Universidade Estadual de Feira de Santana (MZFS) and Coleção do Laboratório de Anfíbios e Répteis, Universidade Federal do Rio Grande do Norte (AAGARDA). The first three lots (MZFS lots 568–9 and 577) were collected in small puddles in Parque Municipal Sempre-Viva, Mucugê municipality (12°59'31"S, 41°20'32"W, approximately 970 m a.s.l.) in November 2005, and March and April 2006; the fourth lot (AAGARDA 9535) was collected in a narrow sandy bottom stream at Chapada Diamantina National Park, Palmeiras municipality (12°34'19"S, 41°29'38"W; approximately 950 m a.s.l.) in January 2013. Three tadpoles from each locality were reared in the laboratory until metamorphosis was completed to confirm species identity. Measurements and description were based on 14 specimens at stages 34–36 (Gosner 1960). Measurements, terminology, and labial tooth row formula follow Altig (1970) and McDiarmid & Altig (1999), except for interorbital distance, which was taken between the inner margins of the eyes. We measured tadpoles with a micrometer eyepiece in a Leica-EZ4D stereomicroscope. For the internal oral anatomy, two tadpoles at Gosner stage 36 were dissected and their oral structures stained with Alcian Blue. Drawings were prepared with the aid of a camera lucida. Internal morphological features were recorded following the methodology and terminology presented by Wassersug (1976).

The following measurements were taken in millimeters from 14 tadpoles (range, average \pm standard deviation): total length (TL; 31.5–42.5, 37.2 \pm 2.7); body length (BL; 10.3–12.6, 11.5 \pm 0.7); body maximum height (BH; 4.2–6.0, 5.0 \pm 0.5); body width (BW; 5.8–8.2, 6.8 \pm 0.7); tail length (TaL; 21.2–29.9, 25.8 \pm 2.2); maximum tail height (MTH; 5.1–6.8, 5.6 \pm 0.4); maximum tail musculature height (TMH; 2.5–4.2, 3.4 \pm 0.4); maximum dorsal fin height (DFH; 1.4–2.2, 1.7 \pm 0.3); maximum ventral fin height (VFH; 1.2–1.7, 1.4 \pm 0.2); interorbital distance (IO; 1.6–2.8, 2.1 \pm 0.4); eye diameter (E; 1.6–1.8, 1.7 \pm 0.1); nostril diameter (N; 0.2–0.3, 0.3 \pm 0.05); nostril-snout distance (NS; 0.5–1.2, 0.9 \pm 0.2); oral disc width (ODW; 2.2–2.8, 2.5 \pm 0.2).

Description. Tadpoles elongated, body ovoid in lateral view and elliptical in dorsal view (Fig. 1A, B), wider than high (BH/BW = 0.69–0.79); body height about 44% of body length (BH/BL = 0.40–0.51), body length 31% of total length (BL/TL = 0.28–0.34). Snout rounded in dorsal and lateral views. Nostrils dorsolaterally located, rounded, closer to the snout than to the eyes, diameter 4% of body width (N/BW = 0.03–0.05). Eyes dorsal, dorsolaterally directed (Fig. 1B), eye diameter approximately 25% of body width (E/BW = 0.22–0.29) and 15% of body length (E/BL = 0.13–0.16); interorbital distance about 30% of body width (IO/BW = 0.24–0.43). Spiracle single, sinistral, short, laterally positioned, located at the middle third of the body length, below the body lateral midline (Fig. 1A). Long, medial vent tube attached to the ventral fin, with medially directed opening (Fig. 1A, C). Tail long (TaL/TL = 0.66–0.72), higher than the body height (BH/MTH = 0.82–0.98). Tail musculature moderate to robust (TMH/MTH = 0.46–0.71; TMW/BW = 0.40–0.55).

papillae slightly rectangular, short and oriented medially with serrated margins, and medial papillae longer, conical, and oriented rostrally. Four long lingual papillae with bifurcated tips. Buccal floor arena (BFA) bounded by 7–8 pairs of long and attenuated papillae. Anterior half of the BFA mostly smooth, and posterior half with homogeneously distributed pustulations. Velar surface free, long, with short projections on its posterior margin; median notch present, but not very distinct.

The tadpole of *Leptodactylus oreomantis* exhibits a LTRF [2(1)/3(1)] like most of the described tadpoles in the *L. fuscus* species group (Langone & de Sá 2005, Borteiro & Kolenc 2007, Vera Candioti *et al.* 2007, Motta *et al.* 2010, Magalhães *et al.* 2013 and references therein). In this group only tadpoles of *L. albilabris* (Günther) (Heyer 1978), *L. mystaceus* (Spix) (Duellman 1978), *L. notoaktites* Heyer (de Sá *et al.* 2007), and *L. spixi* Heyer (Bilate *et al.* 2006) exhibited the LTRF 2(2)/3.

Similarly to *Leptodactylus tapiti* Sazima & Bokermann tadpole (Sazima & Bokermann 1978), the tadpole of *L. oreomantis* can be distinguished from most other species in the *L. fuscus* group by the unusually long tail (BL/TL = 31%) and the narrow and elongated body shape aspect (BL/TL over 33% and body shape overall robust and globular in most other tadpoles in the group; see Langone & de Sá 2005, Bilate *et al.* 2006, Borteiro & Kolenc 2007, de Sá *et al.* 2007, Vera Candioti *et al.* 2007, Motta *et al.* 2010, Magalhães *et al.* 2013). Moreover, E/BW ratio in *L. oreomantis* tadpoles (around 25%) is proportionally higher than other tadpoles in the *L. fuscus* group (e.g., for tadpoles of *L. gracilis* and *L. mystacinus* the proportion of E/BW is around 12% and 9% respectively; see Langone & de Sá 2005, and around 20% in *L. caatingae* tadpoles; Magalhães *et al.* 2013). Unfortunately, E/BW ratio was not considered in several previous tadpole descriptions of *L. fuscus* species group (*sensu* Langone & de Sá 2005).

In most cases, tadpole descriptions in the *Leptodactylus fuscus* group are restricted to specimens from single localities, limiting the appreciation of intraspecific character variation. Hence, morphometric traits are often not recommended as diagnostic characters of tadpoles in the *L. fuscus* group (Langone & de Sá 2005). Nevertheless, BL/TL and E/BW ratios in tadpoles of *L. oreomantis* differ significantly from most tadpoles in the *L. fuscus* group and may be used as diagnostic characters in these cases.

The tadpole of *Leptodactylus oreomantis* is further distinguished from tadpoles of *L. tapiti* (which also exhibit a narrow elongated body shape aspect; Sazima & Bokermann 1978; Langone & de Sá 2005) by the following combination of characters: dorsal fin emerging at body-tail junction and marginal papillae arranged in a single row (dorsal fin emerging at tail musculature and marginal papillae arranged in two rows in *L. tapiti*).

The internal oral anatomy of *Leptodactylus oreomantis* exhibits all features shared among tadpoles in the *L. fuscus* species group, such as: triangular buccal floor, small postnarial arena and lateral ridge papillae, and anterior half of the BFA mostly devoid of pustulations (see Miranda & Ferreira 2009; Miranda *et al.* 2014). The presence of four lingual papillae was reported for most of species in this group, exceptions are *L. notoaktites* and *L. caatingae* Heyer & Juncá, which exhibit only three lingual papillae (Magalhães *et al.* 2013).

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