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A comment on the oral dermal flaps of *Elachistocleis* Parker, 1927 (Anura: Microhylidae) larvae

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The Neotropical frog genus *Elachistocleis* Parker consists of 17 species, most of them described in the last two decades. External morphology characters traditionally used in anuran systematics to distinguish among species, such as skin texture, dermal protuberances, cranial chests and nuptial pads, are of relative value in *Elachistocleis* (Pereyra *et al*. 2013). In addition, the majority of species descriptions do not include relevant biological data like advertisement call, osteology, and tadpole morphology. In the context of the integrative taxonomy, the availability of these data are crucial to improve our understanding of the evolution and systematic of genus *Elachistocleis*. Particularly, tadpole characters can be an important tool for species identification and phylogenetic reconstructions (Altig 2007; Haas 2003; McDiarmid & Altig 1999).

To date, tadpole external morphology in the genus *Elachistocleis* was reported for *E. bicolor* (Rossa-Feres & Nomura 2006; Williams & Gudynas 1987), *E cesarii* (Magalhães *et al*. 2012), *E. erythrogaster* (Kwet & Di-Bernardo 1998), *E. haroi* (Pereyra *et al*. 2013), *E. ovalis* (Kenny 1969), *E. panamensis* (Vera Candioti 2006), *E. pearsei* (Lynch 2006) and *E. surinamensis* (Kenny 1969), and an undescribed species from São Paulo State, Brazil (Rossa-Feres & Nomura 2006). Like in adults, tadpole external morphology among species of *Elachistocleis* is remarkably similar. There are no clearly identifiable differences in body shape (triangular in lateral view and oval in dorsal and ventral views), the eyes are laterally positioned, there is a single and posteriorly oriented spiracle, keratinized structures or papillae at the oral disc are absent, and all species present paired dermal flaps in front of the oral opening, at the tip of snout (e.g. Magalhães *et al*. 2012; Pereyra *et al*. 2013).

Tadpole variation between species of *Elachistocleis* was reported mainly for the paired oral flaps. For instance, Rossa-Feres & Nomura (2006) use the edges of this structure to distinguish between two species. Recently, Magalhães *et al*. (2012) have reported the presence of "short and semi–circular" oral flaps in *E. cesarii* (Magalhães *et al*. 2012, Fig. 1D). These authors showed that in *E. cesarii* the oral flaps may appear slightly expanded without contact between their central edges. In contrast, dermal flaps in contact or slightly overlaped was mentioned as general characteristic for the genus. This character is evident in frontal view of the larvae snout (Fig. 1B, 1D).

We consider that the "short and semi–circular" oral flaps described for *E. cesarii* could be problematic for exploring differences among *Elachistocleis* larvae. The authors based their description in specimens at a Gosner's stages ranging from 27 to 34 (drawn specimen at stage 27). Dermal flap length and expansion should vary during the ontogeny like other larval structures, as was demonstrated during the larval development of *Dermatonotus muelleri* (Fabrezi *et al*. 2012), a microhylid species with free-swimming and feeding tadpoles closely related to genus *Elachistocleis* (de Sá *et al*. 2012).

Hence, to avoid variation due to ontogenetic changes, tadpole descriptions of external morphology in anurans usually include advanced developmental stages, ranging from 35 to 38 Gosner stages (e.g. Altig 2007; Grosjean 2005; Laufer & Barreneche 2008; McDiarmid & Altig 1999; Randrianiaina *et al*. 2009). In this regard, there is evidence that *Elachistocleis* larvae undergo morphological changes at advanced ontogenetic stages (e.g. Lavilla & Langone 1991 for *E. bicolor*). To explore this subject, we studied larvae of *Elachistocleis bicolor* and *E. haroi* between stages 27 and 38, in order to assess the possible existence of ontogenetic variation in the configuration of the dermal oral flaps. The specimens of *E. bicolor* were collected by CB and F. Kolenc in Southern Uruguay (Museo Nacional de Historia Natural,

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