



## The tadpole of *Eupsophus nahuelbutensis* (Anura: Neobatrachia): external morphology, chondrocranium, and comments on its natural history

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### Abstract

The tadpole of the endemic Chilean frog *Eupsophus nahuelbutensis* is described. The description includes external morphology, chondrocranium, and comments on natural history and systematics. This tadpole is endotrophic-nidicolous and unpigmented, resembling other larvae of the genus. In spite of its endotrophy and some typical traits of nidicolous tadpoles, the larva of *E. nahuelbutensis* does not differ significantly from a generalized exotrophic larvae. In addition, ecomorphological and biological characteristics of the tadpole of *E. nahuelbutensis* are discussed and compared with other members of *Eupsophus*.

**Key words:** *Eupsophus nahuelbutensis*, nidicolous tadpole, systematics, Alsodinae, Chile

### Introduction

Frogs of the genus *Eupsophus* Fitzinger, 1843 are currently represented by ten species (*E. calcaratus*, *E. contulmoensis*, *E. emiliopugini*, *E. insularis*, *E. migueli*, *E. nahuelbutensis*, *E. queulensis*, *E. roseus*, *E. septentrionalis*, and *E. vertebralis*), endemic to the *Nothofagus* forests of Southern Chile and Argentina (Formas 1995, Ibarra-Vidal *et al.* 2004, Veloso *et al.* 2005). At present, the tadpoles of five species of *Eupsophus* have been described: *E. roseus* (Formas & Pugín 1978), *E. calcaratus* (Formas 1989a, Vera Candiotti *et al.* 2005), *E. emiliopugini* (Formas 1989b), *E. vertebralis* (Formas 1992), and *E. queulensis* (Cárdenas-Rojas *et al.* 2007a). These tadpoles are noticeable and uncommon because they are endotrophic and live in small, water-filled holes or chambers at the end of single or complex tunnels in the ground near streams or in flooded ground (Úbeda & Nuñez 2006). Morphologically, these tadpoles have been characterized by the tendency to reduction of the keratinized buccal structures, scarce pigmentation, internal organs visible through unpigmented skin, and large amount of vitellum that remains until metamorphosis (Formas 1989a, Vera Candiotti *et al.* 2005). These features place them in the nidicolous guild of larvae as defined by Altig and Johnston (1989), and were considered apomorphic by Formas (1992) in the context of the subfamily Telmatobiinae (*sensu* Lynch 1978), representing one of the few distinctive taxonomic features of *Eupsophus*.

Recent taxonomic rearrangements, based mainly on molecular data (Correa *et al.* 2006, Frost *et al.* 2006, Roelants *et al.* 2007), show that telmatobiine frogs are a polyphyletic assemblage, and on the basis of this information, *Eupsophus* has been removed from the family Leptodactylidae Werner, 1896, and placed in Cycloramphidae Bonaparte, 1850 (Frost *et al.* 2006). Despite this new flood of data, the current hypotheses are still in need of considerable attention, mainly because they are weakly supported by the morphological data, or there are cases of incongruence due to homoplastic characters.