

BOKERMANNOHYLA SAXICOLA (NCN), ***SCINAX CURICICA*** (Lanceback Treefrog), ***SCINAX SQUALIROSTRIS*** (Snouted Treefrog), ***TRACHYCEPHALUS MESOPHAEUS*** (Golden-eyed Treefrog), and ***ELACHISTOCLEIS SP.*** (Oval Frog). **MORPHOLOGY.** Malformation in frogs is known for adults (Blaustein et al. 2003. *Front. Ecol. Environ.* 1[2]:87–94) and tadpoles (Piha et al. 2006. *Environ. Toxicol. Chem.* 25[12]:3164–3170). In tadpoles, malformations may occur in all body parts (body, head, eyes, tails, and limbs). For tails, recorded malformations are two tails (Budischak et al. 2008. *Environ. Toxicol. Chem.* 27[12]:2496–2500), tail with a torsion at the distal and proximal regions (Haddad et al. 1990. *Rev. Bras. Biol.* 50[3]:739–744), and bifurcated or forked tails (USFWS 1999. *Standard Operating Procedures for Abnormal Amphibian Surveys*; Wright 2002. *Life Histories of the Frogs of Okefinokee Swamp, Georgia*, p. 307). The most common referred causes suggested for malformations (including those in post-metamorphic anurans) are injuries (Morgan 1990. *Biol. Bull.* 2[3]:111–119), parasites (Johnson et al. 2002. *Ecol. Monogr.* 72[2]:151–168), viral infection (Burton et al. 2008. *Vet. J.* 177:442–444), fungal infection (Blaustein et al. 2005. *Cons. Biol.* 19[5]:1460–1468), UV-B exposure (Uitregt et al. 2007. *Glob. Change Biol.* 13[6]:1114–1121; Licht 20003. *BioScience* 53[6]:551–561), environmental contamination from pesticides or other pollutants (Brunelli et al. 2009. *Aq. Toxicol.* 91[2]:135–142; Sayim 2008. *Turk. J. Zool.* 32:99–106, Paisio et al. 2009. *J. Hazard. Mat.* 167:64–68; Taylor et al. 2005. *Environ. Health Persp.* 113[11]:1497–1501), and natural hybridization (Haddad et al. 1990. *Rev. Brasil. Biol.* 50[3]:739–744).

During fieldwork between 1972 and 1974 five tadpoles were

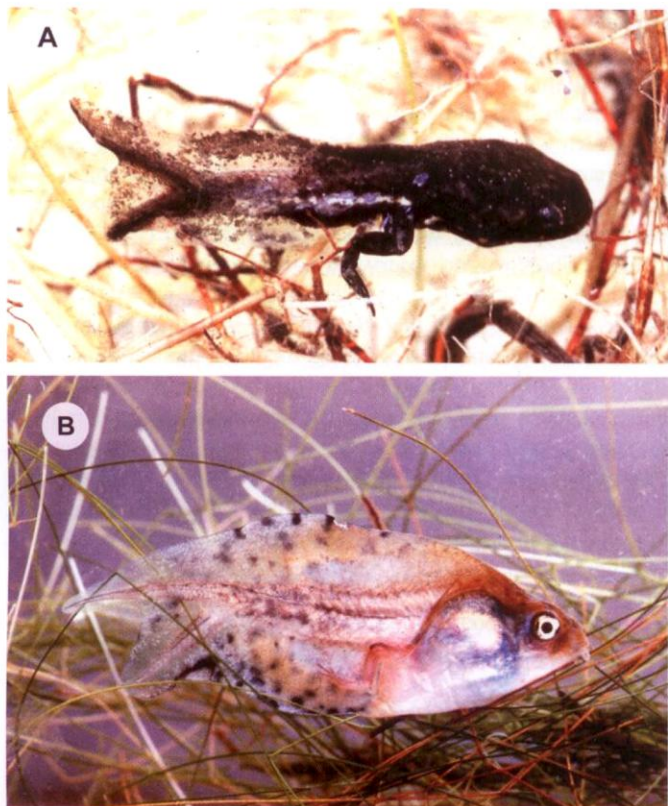


FIG. 1. Tadpoles of *Elachistocleis* sp. (A) and *Scinax curicica* (B) with bifurcated tails.

obtained that had bifurcated tails: one microhylid, *Elachistocleis* sp. (Fig. 1A) and four hylids, *Bokermannohyla saxicola* (ZUEC 15451), *Scinax curicica* (ZUEC 15575; Fig. 1B), *S. squalirostris* (ZUEC 15452), and *Trachycephalus mesophaeus* (ZUEC 16252). The microhylid and the first three hylids were collected at Serra do Cipó, municipality of Jaboticatubas, state of Minas Gerais, SE Brazil, whereas the fourth hylid was collected in the municipality of Ubatuba, state of São Paulo, SE Brazil. These specimens are in the Amphibian Collection of the Museu de Zoologia “Prof. Adão José Cardoso” (ZUEC), Universidade Estadual de Campinas, Campinas, Brazil. The swimming ability of the fork-tailed tadpoles apparently was unaffected or little affected by the malformation, although the mid-water hovering tadpole of *S. curicica* might be hampered in its foraging (I. Sazima, pers. comm.).

This type of malformation (forked tail) has been classified as superficial as it may be the result of healed injuries (Morgan 1990, *op cit.*; USFWS 1999, *op cit.*). However, we cannot rule out the possibility of the influence of one or multiple environmental contaminants for the *T. mesophaeus* tadpole, as it was collected in a drainage ditch. The remaining tadpoles were collected in relatively pristine habitats.

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