



## Conservation implications of a morphometric comparison between the Illinois Chorus Frog (*Pseudacris streckeri illinoensis*) and Strecker's Chorus Frog (*P. s. streckeri*) (Anura: Hylidae) from Arkansas, Illinois, Missouri, Oklahoma, and Texas

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### Abstract

Much uncertainty exists regarding the taxonomic status of the Illinois Chorus Frog (*Pseudacris streckeri illinoensis* Smith; ICF) relative to Strecker's Chorus Frog (*P. s. streckeri*, Wright & Wright; SCF) of the southcentral United States (US). Molecular analyses have been inconsistent in providing taxonomic insight, and no formal morphological comparisons have been previously performed. Each taxon possesses a wide range of background colors. We undertook morphometric analyses to help clarify their taxonomic relationship. Tibia length and mass were compared for live Arkansas (AR) specimens and snout-vent, head and tibia lengths were measured from preserved vouchered specimens. Tibia length and mass were significantly greater for living ICFs versus SCFs in AR. Among preserved specimens, tibia, snout-vent and head lengths were significantly greater for AR ICFs relative to most intraspecific groups, and Texas (TX) SCFs were significantly smaller than most other groups. Principal components analysis was largely consistent with univariate analyses, although Missouri (MO) ICFs also partitioned distinctly from other sample groups. These data provide morphological evidence of geographic (clinal) variation within a species, but do not provide support for the taxonomic elevation of the ICF to species status. Our data do provide evidence of distinct population segments of *P. streckeri*. As ICF habitat suitable for reproduction has dramatically declined in Arkansas as have population numbers, we recommend the listing of AR ICFs as a distinct population segment under the Endangered Species Act.

**Key words:** amphibian, coloration, conservation, morphometrics

### Introduction

Much uncertainty exists regarding the taxonomic status of the Illinois Chorus Frog (*Pseudacris streckeri illinoensis* Smith 1951; ICF). For instance, some authors (Conant & Collins 1998; Johnson 2000; Phillips *et al.* 1999; Trauth *et al.* 2004; Lannoo 2005) currently classify the ICF and the nominate race of the species (*P. s. streckeri* Wright & Wright 1933; SCF) as separate subspecies, whereas others (Collins 1997; Collins & Taggart 2002; Hedges 1986; Moriarity & Cannatella 2004) have proposed that the ICF should be classified as a distinct species. Although both taxa exhibit very similar morphologies, Smith (1951) used subtle color differences and a slightly larger body size in the ICF as primary features by which to differentiate the two taxa.

The ranges of the ICF and SCF are currently discrete with SCF being common and broad-ranging throughout much of Oklahoma (OK) and eastern TX (Fig. 1; see also Lannoo 2005). In AR, SCF is restricted to the western half of the AR Valley (Conant & Collins 1998; Trauth *et al.* 2004; Lannoo 2005) from just west of Little Rock westward to the Fort Smith area. The ICF, however, inhabits a very small and fragmented