



***Cottus immaculatus*, a new species of sculpin (Cottidae) from the Ozark Highlands of Arkansas and Missouri, USA**

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Abstract

Cottus immaculatus, new species, is described from the Current, Eleven Point, Spring and White river systems of the White River drainage, in the Ozark Highlands of Arkansas and Missouri, USA. *Cottus immaculatus* is a member of the Uranidea clade and distinguishable from all members of the genus *Cottus* using genetic and morphological characters. *Cottus immaculatus* possesses a previously unreported but possibly widespread character in the genus *Cottus*, enlargement of the tips of the dorsal-fin spines of males. The description of *Cottus immaculatus* brings the total number of species recognized within the genus *Cottus* to 68.

Key words: sculpin, Cottidae, *Cottus*, *Cottus immaculatus*, *Cottus hypselurus*, *Cottus bairdii*, Missouri, Arkansas, Ozark Highlands, fin knobs

Introduction

Cottus hypselurus, the Ozark Sculpin, is a relatively small (< 80 mm SL) freshwater sculpin endemic to cool to cold streams of the Ozark Highlands in Missouri and Arkansas (Robins & Robison, 1985; Pflieger, 1997). Molecular phylogenetic analyses of the genus *Cottus* have resolved *C. hypselurus* as a member of the Uranidea clade (Kinziger *et al.*, 2005). Intraspecific molecular phylogenetic studies have revealed that *C. hypselurus* is a polytypic species composed of two monophyletic groups, one from the Osage, Gasconade and Black river drainages (Osage-Black clade), and another from the Current, Eleven Point and White River drainages (Current-White clade, Kinziger & Wood 2003). Counts of dorsal-fin rays are consistent with the recognition of two clades, the Osage-Black clade usually with 5–7 dorsal-fin rays and the Current-White clade usually with 8–9 dorsal-fin rays (Robins & Robison, 1985; Kinziger & Wood, 2003). These data indicate that *C. hypselurus* is composed of two species (Kinziger & Wood, 2003). Because *C. hypselurus* was originally described from Bennett Springs, Missouri (Osage drainage), the Osage-Black clade is properly named *C. hypselurus*, and the Current-White clade is in need of a formal name. Herein we describe the Current-White clade as a new species.

Methods

Institutional abbreviations are as in Leviton *et al.* (1985) and Leviton and Gibbs (1988). Type material of the *Cottus* species described herein are deposited in the National Museum of Natural History (USNM). Morphological data were collected directly from specimens, and color data were taken from live specimens in the field. Photographs of type materials were taken in the field. Trait data were recorded as described by Robins and Miller (1957), and traits not described by these authors follow Jenkins and Burkhead (1994). Morphometrics follow Freyhof *et al.* (2005). The condition of the caudal base band was scored as in Kinziger