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# A New Geographic Record and Reproduction of the Ouachita Mountain Crayfish, *Fallicambarus tenuis* (Decapoda: Cambaridae), from Southeastern Oklahoma

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**Abstract:** Little is known about the natural history and ecology of the Ouachita Mountain Crayfish, *Fallicambarus tenuis*. Here, we report a new geographic distribution record as well as some information on reproduction of this rare crayfish in Oklahoma.

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## Introduction

Crayfishes are important members of the invertebrate biodiversity of Oklahoma. Several new records and miscellaneous natural history information have been provided by the current authors or our research team over the last decade or more (Robison and McAllister 2006, 2008; Robison et al. 2009, 2018; McAllister et al. 2011a, b, 2016, 2019; McAllister and Robison 2014, 2016). We continue to provide new geographic records for crayfishes of the state, including here a new geographic record as well as novel reproductive data for a relatively uncommon species.

Crayfishes were collected by hand and aquatic dip net and preserved in 70% isopropyl alcohol. Voucher specimens were deposited in the Southern Arkansas University (SAU) Invertebrate Collection, Magnolia, Arkansas.

The collections are reported below in an annotated format as follows.

**Decapoda: Cambaridae (cambarid crayfishes)**

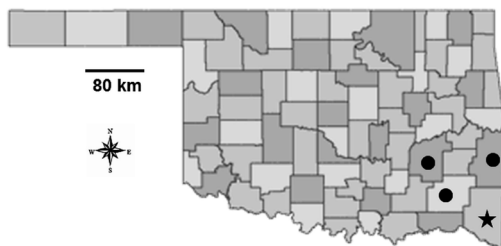
*Fallicambarus tenuis* (Hobbs, 1950) –

Ouachita Mountain Crayfish. Recently, the taxonomy of freshwater crayfishes was updated based on the last two decades of phylogenetic studies that have called into question family, subfamily, genus, and subgenus affiliations for various taxa (Crandall and De Grave 2017). The rare to uncommon Ouachita Mountain crayfish was moved taxonomically from the genus *Procambarus* into the genus *Fallicambarus*, thus becoming *Fallicambarus tenuis* (Ainscough et al. 2013; Robison et al. 2017).

Little is known about the biology of *F. tenuis*. Bergey et al. (2005) and Morehouse and Tobler (2013) reported this species is rare within its range. The species inhabits first and second order spring-fed streams and cool, clear perennial streams where it lives beneath rocks (Jones and Bergey 2007; Robison and McAllister 2008). Form I males are known from May and June; however, these authors reported no ovigerous females of the species. A single ovigerous female *F. tenuis* was captured on 24 March 2000 beneath rocks in a small first order tributary stream of the Kiamichi River, ca. 75 yards E of the Kiamichi River bridge at US 259, S of Big Cedar, Le Flore County (34° 38' 13.848" N 94° 39' 13.4892" W). This ovigerous female was carrying 34 eggs.

The entire range of *P. tenuis* includes the Arkansas, Ouachita, and Red River basins of eastern Oklahoma and western Arkansas (Hobbs 1989; Robison and McAllister 2008). In Oklahoma, *F. tenuis* has been previously reported from three counties, including Le Flore, Pittsburg, and Pushmataha (Robison and McAllister 2008) (Fig. 1). Morehouse and Tobler (2013) provided an ecological niche model for *F. tenuis* which indicated that suitable environmental conditions may be available in Atoka, Haskell, Latimer, and McCurtain counties. More recently, Dyer and Brewer (2018) reported that *P. tenuis* was a rare species that occurred exclusively in erosional channel units. *Procambarus tenuis* has been found burrowing adjacent to and within clear cool springs and streams, and also inhabits permanent flowing streams under rocks in exhibiting qualities of both a secondary and tertiary burrower (Hobbs 1989; Jones and Bergey 2007). We report a single form II male *F. tenuis* collected from McCurtain County, collected on 25 March 2000 beneath rocks in a ditch along St. Hwy. 4, ca. 2.9 km SW of Smithville (34° 27' 43.1136" N 94° 38' 7.7712" W). This finding documents the first report of this crayfish species from this county (Fig. 1), thus extending the Oklahoma range southward into northeastern McCurtain County.

Lastly, *P. tenuis* is currently listed by NatureServe (2020) as S1 (critically imperiled) in Oklahoma. It is unknown whether or not there are any major threats impacting *F. tenuis*. However, populations may perhaps be undergoing localized declines due to



**Figure 1. Distribution of *Fallicambarus tenuis* in Oklahoma. Dots = previous records; star = new record.**

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urbanization, alterations to the hydrological regime, and water pollution.

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