

## First Record of the Osage Burrowing Crayfish, *Procambarus liberorum* Fitzpatrick (Decapoda: Cambaridae), in Oklahoma

**Henry W. Robison**

Department of Biological Sciences, Southern Arkansas University, Magnolia, AR 71754-9354

**Chris T. McAllister**

Department of Physical and Life Sciences, Chadron State College, Chadron, NE 69337

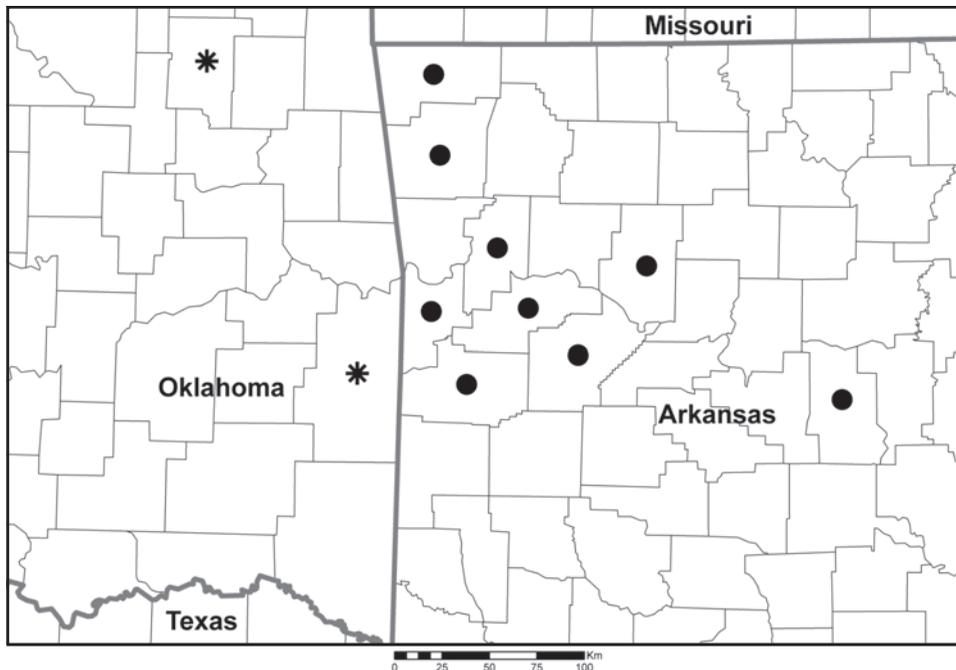
Renewed interest in and collections of Oklahoma crayfish taxa has resulted in several recent papers documenting the state's crayfish fauna. Taylor et al (2004) summarized the crayfishes of Oklahoma and provided a checklist of 28 crayfish species inhabiting the state. More recently, Graening and Fenolio (2005) provided a status update on the rare Delaware County cave crayfish, *Cambarus subterraneus*. Jones et al (2005) revised the state list by adding one species, *Procambarus dupratzi*, subtracting another (*C. setosus*), and listing earlier records of *Orconectes deanae* and *O. macrus*, while keeping the state number of crayfish species at 28.

On 24 April 2006, three specimens of *Procambarus liberorum* Fitzpatrick (all Form I males, one adult female, and one Form II male) were collected by H. W. Robison from a roadside seepage along St. Hwy. 128 in LeFlore County, 3.2 km (2 mi) west of the Oklahoma-Arkansas State line near Forrester (lat 34°53.2'N, long 94°27.2'W). Morphology of the gonopod of the first form male conformed to the original description of *P. liberorum* by Fitzpatrick (1978). These specimens represent the first state record of *P. liberorum* in Oklahoma. Previously, this crayfish was considered an endemic species of Arkansas (Hobbs and Robison 1988, Robison and Allen 1995) where it inhabits the mountainous regions of the Boston Mountains, Ouachita Mountains, and Arkansas Valley (=Arkoma Basin) physiographic regions extending eastward to Lonoke County (Fig. 1). This crayfish has an Arkansas state ranking of CS (Currently Stable) (Taylor et al

1996), and the Nature Conservancy considers *P. liberorum* to be apparently secure (rank of G4; NatureServe 2006).

*Procambarus liberorum* is a member of the subgenus *Girardiella*, a group of primary burrowing species. All specimens were dug from simple burrows which descended approximately 46-66 cm (18-26 in) deep. Soils were a mixture of sand and clay with various grasses surrounding the burrows. The species is always restricted to burrows. It does not have a distinctive coloration, but basically has a reddish-brown dorsum and cream to buff ventrolateral section of the carapace.

Interestingly, information was exchanged with one of us (HWR) from J. Buhay (pers comm 2006) who visited the Smithsonian and retrieved all of the *P. liberorum* records for an ongoing project. It appears that a collection in the Smithsonian Institution (USNM 118643) of previous specimens of *P. liberorum* from Oklahoma has not been noted before this paper. The specimens (four Form I males and two females) were originally collected by the late W. Frank Blair on 21 July 1935, from an unspecified locality in Rogers County and initially identified as *P. gracilis*. However, on 25 July 1990, in a handwritten note left inside this jar of *P. gracilis*, H. H. Hobbs, Jr., re-identified the six specimens as *P. liberorum*, and both a handwritten note and a typed label were placed in the container at that time. Our collection site in LeFlore County (Fig. 1) is approximately 217 km (135 mi.) SE of Rogers County (the northwesternmost



**Figure 1.** County records of *Procamburus liberorum*. Previous records from nine Arkansas counties (dots); new records from LeFlore and Rogers Counties, Oklahoma (asterisks).

extent of the range of the species to date). Therefore, it appears that our specimens actually represent the second collection of *P. liberorum* in the state but the first actual documentation of the species in Oklahoma. With the addition of *P. liberorum*, it brings to 29 the number of crayfish species inhabiting Oklahoma. Voucher specimens are deposited in the Brigham Young University (BYU JC 2553-2555) crayfish collection.

## ACKNOWLEDGMENTS

We thank Keith A. Crandall (BYU) for verifying our preliminary identifications and especially Jen Buhay (BYU) for informing us of her discovery while visiting the Smithsonian Institution and graciously allowing it to be included in this note. We also thank Mike Leite (CSC Geoscience) for assistance with the figure and the Oklahoma Department of Wildlife Conservation for scientific collecting permit No. 3904 issued to C. T. McAllister.

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