

2000

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### Recommended Citation

Robison, Henry W. and Holsinger, John R. (2000) "First Record of the Subterranean Amphipod Crustacean *Allocrangonyx hubrichti* (Allocragonyctidae) in Arkansas," *Journal of the Arkansas Academy of Science*: Vol. 54, Article 29.

Available at: <https://scholarworks.uark.edu/jaas/vol54/iss1/29>

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# First Record of the Subterranean Amphipod Crustacean *Allocrangonyx hubrichti* (Allocrangonyctidae) in Arkansas

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On 6 November 1996, Mary Longley of Romance, White County, AR collected a single specimen of the subterranean amphipod, *Allocrangonyx hubrichti* Holsinger, from a water well on her property. The specimen was a mature male, measuring 16.5 mm in length (front of head to base of telson); lengths of the first antenna and third uropod were 10.0 mm and 15.0 mm, respectively. The specimen was shipped to HWR, who recognized the uniqueness of the material and forwarded it to JRH for positive determination. The specimen was originally deposited in the collection of JRH (H-3658) but has since been utilized in a DNA analysis. *Allocrangonyx* is unique among gammaridean amphipods because the first segment of the outer ramus of the third uropod of the mature male becomes secondarily segmented and greatly elongate in older specimens, sometimes becoming as long as the body and longer than the first antenna (Holsinger, 1989).

Schram and Robison (1987) provided a list of the amphipods of Arkansas but did not list the genus *Allocrangonyx* for the state. The specimen from Romance represents the first Arkansas record for this genus and brings to 12 the number of amphipod species recorded for the state. The geographic distribution of *Allocrangonyx hubrichti* is restricted to subterranean groundwater habitats in the central interior of North America. It was originally described by Holsinger (1971) from two caves in Phelps and Pulaski counties in east-central Missouri. Subsequently, Holsinger (1989) reported additional material from four caves, a natural bridge, and a spring in Phelps, Pulaski, and Washington counties, MO. Prior to its discovery in White County, AR, *A. hubrichti* was believed to be endemic to a relatively small part of east-central Missouri. However, discovery of the specimen from Romance extends the range of the species south for approximately 283 km (175 mi) and is a significant range extension for a subterranean amphipod.

In Missouri *A. hubrichti* is known from subterranean groundwater aquifers in Ordovician limestones and dolomites of the Ozark Plateaus physiographic province, specifically the Salem Plateau section. The well in Romance, AR is situated south of the Boston Mountains section. This section of the Ozark Plateaus extends east to Batesville, which lies about 64 km (40 mi) northeast of Romance. The well in Romance is drilled in the Middle Atoka Sandstone Formation of Pennsylvanian age just inside the Arkansas Valley section of the Ouachita physiographic province. The

depth of the well is 9.8 m (32 ft) and the pH is basic. The water level in the well is approximately 4.5 m (15 ft) below the surface of the ground.

The specimen from Arkansas is morphologically identical with specimens of *A. hubrichti* from Missouri. However, considering the relatively great distance (283 km) and significant changes in geomorphology between the localities in central Missouri and the one in central Arkansas, it is questionable as to whether or not these disparate populations share a common gene pool. If there is a contiguous distribution of populations between Missouri and Arkansas, diligent investigation of subterranean groundwater habitats (accessible in caves, wells and springs) should ultimately reveal new localities for this species in the intervening area and shed new light on its geographic distribution.

The only other species in the genus *Allocrangonyx* is *A. pellucidus*, which is recorded from subterranean groundwater habitats in a relatively small area of south-central Oklahoma (Holsinger, 1971; 1989). Although closely similar to *A. hubrichti* in a number of characters, this species is morphologically distinct.

ACKNOWLEDGMENTS.—Thanks are extended to Mary Longley of Romance, AR for sending the specimen originally to HWR for identification. Also, appreciation is expressed to Tom Foti, AR Natural Heritage Commission, for providing information on the exact physiographic location of Romance, AR. A part of this study was assisted by a PEET grant (DEB-9521752) from the National Science Foundation to JRH.

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