

1994

First Record of the Channel Shiner, *Notropis wickliffi* Trautman, in Arkansas and Comments on the Current River Populations of *Notropis volucellus* (Cope)

Henry W. Robison
Southern Arkansas University

Thomas M. Buchanan
University of Arkansas – Fort Smith

Follow this and additional works at: <https://scholarworks.uark.edu/jaas>



Part of the [Terrestrial and Aquatic Ecology Commons](#)

Recommended Citation

Robison, Henry W. and Buchanan, Thomas M. (1994) "First Record of the Channel Shiner, *Notropis wickliffi* Trautman, in Arkansas and Comments on the Current River Populations of *Notropis volucellus* (Cope)," *Journal of the Arkansas Academy of Science*: Vol. 48, Article 58.

Available at: <https://scholarworks.uark.edu/jaas/vol48/iss1/58>

This article is available for use under the Creative Commons license: Attribution-NoDerivatives 4.0 International (CC BY-ND 4.0). Users are able to read, download, copy, print, distribute, search, link to the full texts of these articles, or use them for any other lawful purpose, without asking prior permission from the publisher or the author.

This General Note is brought to you for free and open access by ScholarWorks@UARK. It has been accepted for inclusion in *Journal of the Arkansas Academy of Science* by an authorized editor of ScholarWorks@UARK. For more information, please contact scholar@uark.edu, uarepos@uark.edu.

First Record of the Channel Shiner, *Notropis wickliffi* Trautman, in Arkansas and Comments on the Current River Population of *Notropis volucellus* (Cope)

Henry W. Robison
Department of Biological Sciences
Southern Arkansas University
Magnolia, AR 71753

Thomas M. Buchanan
Department of Biology
Westark Community College
Fort Smith, AR 72901

The channel shiner, *Notropis wickliffi* Trautman, is a poorly known inhabitant of the Ohio, Tennessee, and the Mississippi river drainages. Although originally considered a subspecies of *Notropis volucellus* by Trautman (1931), this form has been regarded more recently as a full species (Robins et al., 1991). Earlier, Robison and Buchanan (1988) had not specifically cited *N. wickliffi* as occurring in Arkansas, but did mention two forms of the unresolved *N. volucellus* complex inhabiting the state. Mayden and Kuhajda (1989) presented evidence from patterns of allozyme variation which corroborated observed patterns of morphological variation and supported a polytypic *N. volucellus* complex rather than a single, panmictic population as implied by earlier taxonomy. In this paper we document and report officially the first records of the occurrence of *N. wickliffi* Trautman in Arkansas.

Originally, Black (1940) reported a single specimen of *Notropis volucellus wickliffi* from the Mississippi River between Barfield and Hickman, Mississippi County, Arkansas collected on 8 August 1939. Recent examination of fishes collected during field trips to the Mississippi River over a decade ago revealed five specimens of the channel shiner, *Notropis wickliffi* Trautman, in two collections from the Mississippi River. The first collection of two specimens of *N. wickliffi* was taken on 14 August 1974 by H. W. Robison and P. H. Robison from the Mississippi River at Barfield Landing, approximately eight miles east of Blytheville, Mississippi County, Arkansas. The second series of three specimens was collected on 11 July 1975 by H. W. Robison and SAU students from the Mississippi River eight miles north of the U.S. Hwy. 82 Greenville Bridge (Sec. 30, R1E, T15S), Chicot County, Arkansas. All five specimens have a large eye and mouth, a pointed dorsal fin, eight anal rays, elevated anterior lateral line scales, a weak predorsal dark streak and a definite postdorsal streak.

Notropis volucellus and *N. wickliffi* are easily confused; however, they may be distinguished from one another on the basis of meristic, morphometric, coloration, and allozyme characters as well as characteristics of the lateralis system and tuberculation (Mayden and Kuhajda,

1989). For workers in Arkansas, the following differentiating characters are provided. Adult *N. wickliffi* differ from sympatric *N. volucellus* in possessing a large eye, bigger mouth, deeper caudal peduncle, and less deepened body (Trautman, 1931). Etnier and Starnes (1994) noted *N. wickliffi* has a less-arched back, a very weak or wanting predorsal blotch (conspicuous in *N. volucellus*), a continuous postdorsal dark streak (absent or not continuous in sympatric *N. volucellus*), and melanophores more evenly distributed over the dorsolateral scales (concentrated near margins in *N. volucellus*). Nuptial tuberculation also differs in the two forms.

B. A. Thompson first called our attention to specimens of a *Notropis volucellus* form in the Current River in the early 1970s. This Current River form in Arkansas is mentioned by Robison and Buchanan (1988) and has remained problematical. J. S. Ramsey in answer to a 1975 HWR inquiry about the Current River form stated that "the large stream form is *Notropis wickliffi* which I feel includes the fish in the Current River" (J. S. Ramsey, pers. comm.). Ramsey further stated "there is no strong evidence suggesting the Current River population is remotely disjunct from the Ohio and upper Mississippi River populations." However, later in 1987 on advice from Ramsey, Robison and Buchanan (1988) referred to all populations of *N. volucellus* in Arkansas as the nominal form.

A recent examination of specimens of *N. volucellus* housed in the Tulane University museum (TU 59687 and TU 65590) and collected in 1969-1970 by B. A. Thompson and R. C. Cashner from the Current River in Randolph County, Arkansas and recent HWR collections revealed two *volucellus*-type morphs in the Current River system. One morph is a small-eyed, slender form while the other is a big-eyed, more robust form. It seems likely that these two morphs are likely referable to *N. volucellus* and *N. wickliffi*, respectively (B. A. Thompson and R. C. Cashner, pers. comm.). Further study of Current River specimens revealed the big-eyed form to have a well-defined postdorsal streak, no conspicuous predorsal blotch and melanophores more evenly distributed over the dorsolateral scales whereas specimens of the smaller

eyed *N. volucellus* in the nearby Black River at Pocahontas, Arkansas (TU 59819) have melanophores more concentrated near the margins of the dorsolateral scales, a rather conspicuous predorsal blotch, and the postdorsal streak is almost absent. On the basis of these morphological and pigmentary differences, we conclude that the large-eyed Current River specimens are *N. wickliffi*, thus establishing this species in the Current River as well as the Mississippi River in Arkansas.

Much work remains to be done on the *Notropis volucellus* complex in Arkansas. The question of whether the Current River specimens actually represent *N. wickliffi* or an undescribed sibling species of the *N. volucellus* complex will require allozyme work in addition to meristic, morphometric, and coloration data if a solution is to be finally forthcoming.

Presently, B. R. Kuhajda, a University of Alabama graduate student, is studying the systematics of the *Notropis volucellus* complex and will have further clarification of the several forms involved in the complex throughout its range.

Thus, in Arkansas the present known distribution of *Notropis wickliffi* is limited to three sites in the mainstem Mississippi River, several sites in the Current River, and a site on the White River just below U.S. Hwy. 167 at Batesville, Independence County, Arkansas where Mr. Kuhajda (pers. comm.) collected 40 specimens. Until other collections of *N. volucellus* have been analyzed using the characters previously presented, the true distribution of the channel shiner in Arkansas waters will remain ambiguous. In their treatment of Tennessee fishes Etnier and Starnes (1994) report three collections of *N. wickliffi* from the mainstream Mississippi River, all from the Tennessee side of the river.

The addition of the channel shiner to the state ichthyofauna, plus the description this year of the Little River system *Notropis rubellus* form as *Notropis sutthusi* (Humphries and Cashner, 1994), brings to 199 the number of native fish species inhabiting Arkansas waters and 218 the total number of fish species living in Arkansas.

Thanks are extended to B. A. Thompson (Louisiana State University) and R. C. Cashner (University of New Orleans) for discussions on the Current River form throughout the years, W. C. Starnes (Smithsonian Institution) for supplying unpublished information relating to *Notropis volucellus* and *N. wickliffi* in Tennessee, B. C. Kuhajda (University of Alabama) for kindly allowing the use of distributional data and information concerning his study of the *N. volucellus* complex and H. L. Bart, Jr. (Tulane University) for loaning specimens of *N. volucellus* collected from the Current and White Rivers in Arkansas.

Literature Cited

- Black, John D.** 1940. The distribution of the fishes of Arkansas. Ph.D. Dissertation Univ. Michigan, Ann Arbor. 243 pp.
- Etnier, D.A. and W.C. Starnes.** 1994. Fishes of Tennessee. Univ. Tennessee. Press. Knoxville. 681 p.
- Humphries, J.M. and R.C. Cashner.** 1994. *Notropis sutthusi*, a new cyprinid from the Ouachita Uplands of Oklahoma and Arkansas, with comments on the status of Ozarkian populations of *N. rubellus*. Copeia 1994 (1) : 82-90.
- Mayden, R.L. and B.R. Kuhajda.** 1989. Systematics of *Notropis cahabae*, a new cyprinid fish endemic to the Cahaba River of the Mobile basin. Bull. Alabama Mus. Nat. Hist. No. 9: 16 p.
- Robins, C. Richard et. al. (eds.)** 1990. A list of common and scientific names of fishes from the United States and Canada. Am. Fish. Soc. Spec. Publ. 20. 183 p.
- Robison, H.W. and T.M. Buchanan.** 1988. Fishes of Arkansas. Univ. Arkansas Press. Fayetteville. 536 p.
- Trautman, M.B.** 1931. *Notropis volucellus wickliffi*, a new subspecies of cyprinid fish from the Ohio and upper Mississippi rivers. Ohio J. Sci. 31 (6) :468-474.