

Distribution and Habitat Preference of *Etheostoma histrio* in Kentucky

MORGAN E. SISK AND DAVID H. WEBB

Hunter Hancock Biological Station, Department of Biological Sciences,
Murray State University, Murray, Kentucky 42071

ABSTRACT

Etheostoma histrio has been taken from 5 locations in Kentucky, all within coastal plain streams. The species preferred deep riffle-detritus habitats in 3 of those streams and may soon be extirpated from those waters.

INTRODUCTION

A recent paper by Tsai (1968) discussed the distribution and habitat of the harlequin darter *Etheostoma histrio* throughout its range. Subsequent comments by Hubbs and Pigg (1972) indicated a difference in the habitat preference of Texas and Oklahoma populations of the species when compared with those east of the Mississippi River, as mentioned by Tsai (1968). Here-with, we submit additional information on habitat preference and distribution of the species based on collections from Kentucky.

RESULTS

The first collection of *E. histrio* from Kentucky was reported by Woolman (1892) who took 2 specimens from "Rough Creek" (= Rough River) near Hartford, Kentucky. The validity of this record is questionable since no other extant specimens exist from Rough River and recent attempts at collecting the species from the stream have failed. In 1954, Dr. William Clay (pers. comm.) collected 2 specimens from Blood River, near Murray, Kentucky. More recently, *E. histrio* has been taken from Obion Creek (Smith and Sisk 1969), Bayou de Chien (Webb and Sisk 1975), and Mayfield Creek (Sisk, unpublished). These 3 streams are tributaries to the Mississippi River and present 2 distinct habitat types, upland portions whose bottom materials are mostly sand and gravel, and lowland areas where detritus, muck, logs, and sticks overlie sandy and/or clay bottoms.

We have collected *E. histrio* from both

habitats, but upland areas produced only an occasional single specimen from beneath undercut banks choked with fine, matted roots where strong currents prevailed. All but 4 of our collections of the species were from lowland stream courses where log jams had created strong midstream riffles. Within these obstructions, decaying leaves, silt, and brush had collected forming the detritus microhabitat described by Hubbs and Pigg (1972) from which they collected the species in Texas and Oklahoma. On one occasion, we found 17 specimens in 2 such riffles about 90 m apart. Pflieger (1971) referred to a similar habitat for *E. histrio* in Missouri but from quiet water. Smith (1968) reported that the Embarras River population in Illinois was found in deep sand-bottomed riffles containing logs or stumps. The species was found inhabiting riffles created by rocks, gravel, or vegetational material in Louisiana by Douglas (1974) who also reported the darter in impounded waters. Dickinson (1973, unpublished master's thesis, University of Tennessee, Knoxville, Tennessee) stated "The habitat of the harlequin darter is apparently rather swift riffles over fine gravel substrate."

We regard the deep riffle-detritus habitat, with or without sandy bottoms, as being preferred by *E. histrio* in western Kentucky, and can predict with some accuracy the occurrence of individuals in such areas. We suspect that individuals collected in upland areas represent isolates that seek available habitat approximating the preferred lowland type. In all instances, the

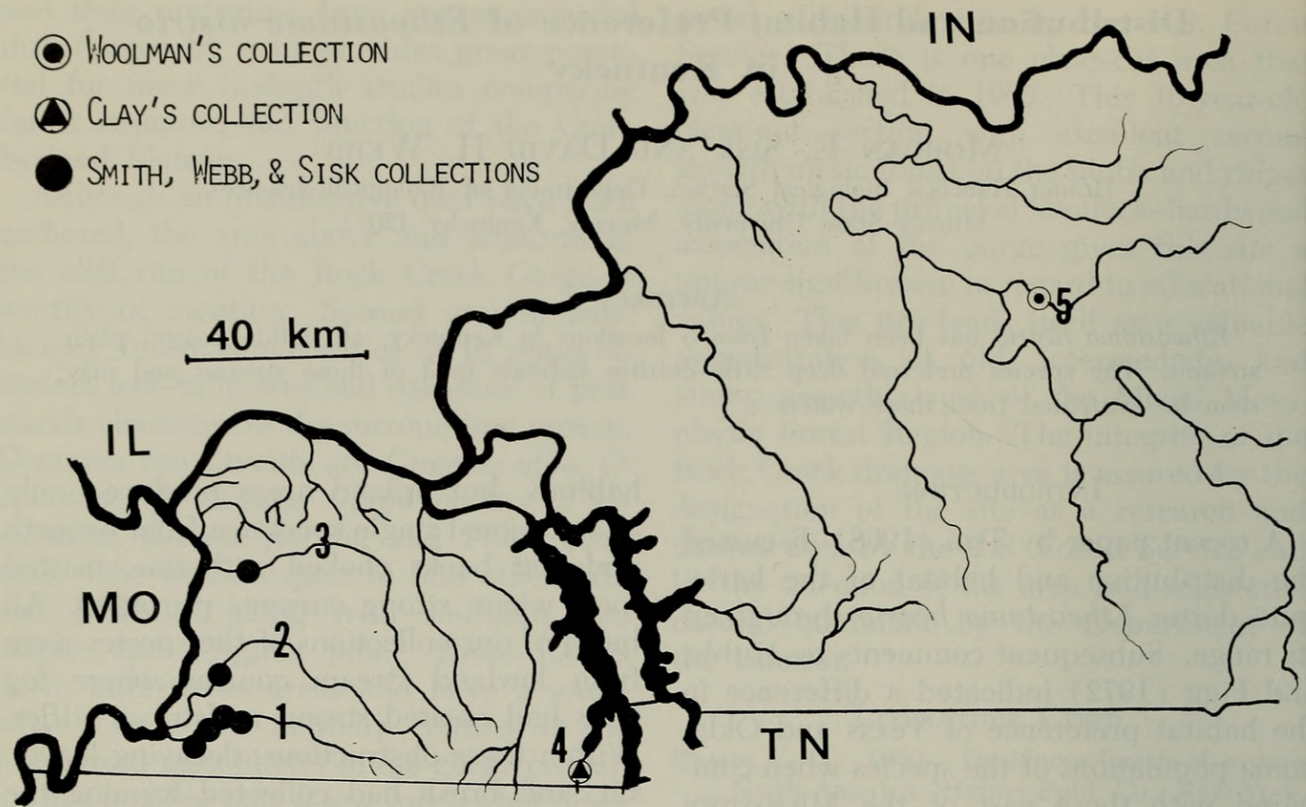


FIG. 1. Kentucky collections in which *Etheostoma histrio* has been taken. 1—Bayou de Chien; 2—Obion Crk.; 3—Mayfield Crk.; 4—Blood R.; 5—Rough R.

darter appears to require deep flowing waters.

Tsai (1968) has shown *E. histrio* to be largely confined to the Gulf Coastal Plain where it is nowhere common. With the exception of Woolman's (1892) collection, reports of this species from Kentucky are from the coastal plain region in the extreme western part of the state (Fig. 1). It appears that *E. histrio* is in danger of extirpation in the northern limits of its range, for the species is on the rare and endangered species list of Illinois, Kentucky, and Missouri (Miller 1972). Recent proposals by state, federal, and private interests to channelize and/or dredge parts of Bayou de Chien, Obion, and Mayfield creeks portends elimination of extant populations of *E. histrio* in those Kentucky streams.

LITERATURE CITED

DOUGLAS, N. H. 1974. Freshwater fishes of Louisiana. La. Wildl. Fish. Comm., Clator's Pub. Div., Baton Rouge, La. 366 pp.

HUBBS, C. AND J. PIGG. 1972. Habitat preferences of the harlequin darter, *Etheostoma histrio*, in Texas and Oklahoma. *Copeia* 1972: 193-194

MILLER, R. R. 1972. Threatened freshwater fishes of the United States. *Trans. Amer. Fish. Soc.* 101(2):239-252

PFLIEGER, W. L. 1971. A distributional study of Missouri fishes. *Mus. Nat. Hist., U. Kan. Publ.* 20(3):225-570

SMITH, P. W. 1968. An assessment of changes in the fish fauna of two Illinois rivers and its bearing on their future. *Trans. Ill. St. Acad. Sci.* 61(1):31-45

SMITH, P. L., AND M. E. SISK. 1969. The fishes of west Kentucky. II. The fishes of Obion Creek. *Trans. Ky. Acad. Sci.* 30(3-4):60-68

TSAI, CHU-FA. 1968. Distribution of the harlequin darter, *Etheostoma histrio*. *Copeia* 1968:178-180

WEBB, D. H., AND M. E. SISK. 1975. The fishes of west Kentucky. III. The fishes of Bayou de Chien. *Trans. Ky. Acad. Sci.* 36(3-4): 63-70

WOOLMAN, A. J. 1892. Report of an examination of rivers of Kentucky with lists of the fishes obtained. *Bull. U.S. Fish. Comm.* 10: 249-288



Sisk, M E and Webb, David H . 1976. "Distribution and habitat preference of *Etheostoma histrio* in Kentucky." *Transactions of the Kentucky Academy of Science* 37(1-2), 33-34.

View This Item Online: <https://www.biodiversitylibrary.org/item/107531>

Permalink: <https://www.biodiversitylibrary.org/partpdf/337008>

Holding Institution

Smithsonian Libraries and Archives

Sponsored by

Biodiversity Heritage Library

Copyright & Reuse

Copyright Status: Permission_to_digitize_granted_by_rights_holder

Rights Holder: Kentucky Academy of Science

Rights: <https://www.biodiversitylibrary.org/permissions/>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.