

New Distributional Records for the Rosyside Dace in Kentucky

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ABSTRACT

The distribution of the rosyside dace *Clinostomus funduloides* includes the Tennessee River drainage of Kentucky. In view of collection records, the Blood River drainage of eastern Calloway County, Kentucky, appears to mark the farthest downstream distribution of the rosyside dace in the Tennessee River system. Information pertaining to ecology and associated species is also presented.

Branson (1977) and Clay (1975) reported the rosyside dace *Clinostomus funduloides* as being restricted, in Kentucky, to the Big Sandy and Little Sandy rivers and Tygart's and Kinniconick creeks.

Collection records indicate *Clinostomus funduloides* occurs widely in the Tennessee River system except in the extreme lower section in Kentucky (Bauer pers. comm.; Evermann 1918; Ross and Carico 1963; Jones 1974, unpublished master's thesis, Murray State University, Murray, Kentucky). Sisk (pers. comm.) collected *Clinostomus funduloides* from Billie Branch, a tributary to Cypress Creek on the Kentucky-Tennessee state line.

This paper presents information on the distribution of *Clinostomus funduloides* in the Tennessee River drainage of Kentucky along with information on its ecology and associated species.

Of the 13 sites sampled, 10 were within the Blood River drainage (Fig. 1). Blood River heads in north-central Henry County, Tennessee, and flows approximately 21.4 km north-northeast to empty into Blood River Embayment on the western side of Kentucky Lake (Tennessee River). The streams sampled in eastern Calloway County flow through an area known as the Breaks and are underlain by Cretaceous deposits of the Tuscaloosa, Eutaw, and Ripely series. Bedrock consists of Fort Payne, Warsaw, and St. Louis limestones. Streams west of the Breaks area of the

Jackson Purchase are generally sluggish, turbid, underlain by Tertiary deposits, and are typical of Gulf Coastal Plain streams.

Streams were sampled from June through August 1977 with a habitat seine faced with mosquito mesh netting. Fishes were preserved in 10 percent formalin. Specimens are deposited in the Murray State University Vertebrate Museum.

Measurements of alkalinity, total hardness, and turbidity were made with a Hach

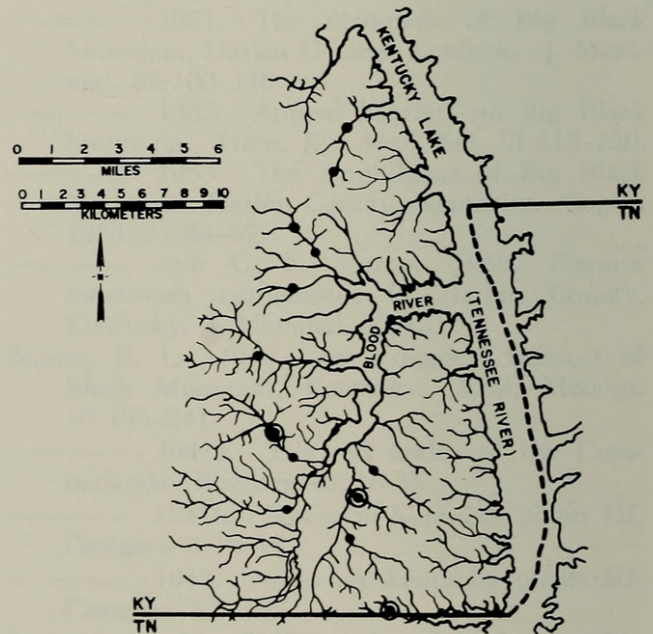


FIG. 1. Map of the western tributaries of the ascending arm of the Tennessee River in Calloway County, Kentucky, showing collection localities (dots). Localities from which *Clinostomus funduloides* was taken are circled.

TABLE 1.—PHYSICOCHEMICAL MEASUREMENTS OF STREAMS FROM WHICH ROSYSIDE DACE WERE COLLECTED

Station	Dissolved oxygen	pH	Methyl red-bromocresol green alkalinity	Total hardness	Specific conductivity $\mu\text{mhos/cm}$	Turbidity (JTU)	Water temp (C)
Panther Creek	7.0	6.3	10.0	10.0	38	38	19.0
Knight Branch	6.9	6.6	15.0	5.0	31	8	25.5
Billie Branch	6.3	6.3	15.0	10.0	30	42	23.0

chemistry kit. Measurements of dissolved oxygen and water temperature were taken with a Yellow Springs oxygen meter; pH was determined with a Hellige pH colorimeter; conductivity was registered using a Hach conductivity meter. All chemistry parameters were measured in the field.

Physicochemical measurements for streams from which rosyside dace were collected were little different than for streams from which they were not. Stream pH was slightly acidic; the water was soft and not well buffered (Table 1). Phenolphthalein alkalinity was zero. Methyl red-bromocresol green alkalinity never exceeded 20 mg/l. Conductivity rarely exceeded 40 $\mu\text{mhos/cm}$. Stream turbidity usually was not above 40 Jackson turbidity units. Pools from which the rosyside dace was taken were clear and had a bluish cast.

Clinostomus funduloides appeared to select a well-defined habitat in pools varying from 1.2 to 2.1 m wide and from 0.8 to 1.0 m deep. The substrate was sand and gravel with little or no silt; current was moderate at each site.

On 3 June 1977, 8 specimens of rosyside dace were collected from Panther Creek, a tributary to Blood River, 1.6 km upstream from Kentucky Highway 280 and 0.6 km downstream from Culpepper Hollow. The site was 4.2 km northwest of New Concord, Kentucky, and just downstream from the Trumann Bean farm.

On 11 August 1977, 3 specimens of rosyside dace were collected from Knight Branch, a tributary to Blood River, at the Bizzel Road Bridge 0.5 km south of Kentucky Highway 444 and 3.4 km east of New Concord, Kentucky.

On 15 August 1977, several specimens of rosyside dace were collected (1 specimen preserved) from Billie Branch, a tributary to Cypress Creek 0.3 km upstream from the Kentucky-Tennessee state line and 1.6 km west of Kentucky Highway 121. The site was 4.2 km southeast of New Concord, Kentucky, on the Terry Shoemaker farm.

Headwater species frequently associated with *Clinostomus funduloides* were the creek chub *Semotilus atromaculatus*, fantail darter *Etheostoma flabellare lineolatum*, spottail darter *Etheostoma squamiceps*, and snubnose darter *Etheostoma (Ulocentra)* sp. (Table 2). *Rhinichthys atratulus*, the blacknose dace, was taken only in Billie Branch; Jones (pers. comm.) found the rosyside dace and blacknose dace associated in the headwaters of Lost Creek, Land Between the Lakes, Tennessee, where they were uncommon. The goldstripe darter *Etheostoma parvipinne* is listed provisionally with associated species from Billie Branch. Sisk (pers. comm.) collected 2 specimens from that stream; however, none was collected during this study. Sisk's collection of *Etheostoma parvipinne* marks the first record of that etheostomid from Kentucky waters. The goldstripe darter has been recorded from Cypress Creek, Tennessee (Bauer pers. comm.).

Clinostomus funduloides appears to have evolved in the eastern Appalachians (Trautman 1957). The subspecies *Clinostomus funduloides estor* (Deubler 1955, unpublished doctoral dissertation, Cornell University, Ithaca, New York) apparently migrated down the Tennessee River during the Pliocene much as did *Etheostoma*

TABLE 2.—SPECIES ASSOCIATED WITH *Clinostomus funduloides*. (LETTERS IN PARENTHESES INDICATE STREAM: P = PANTHER CREEK, K = KNIGHT BRANCH, B = BILLIE BRANCH; LETTERS FOLLOWING REFER TO OCCURRENCE: C = COMMON, SEVERAL SPECIMENS BEING TAKEN, P = PRESENT BUT NOT COMMON, R = RARE, ONLY 1 OR 2 SPECIMENS)

Cyprinidae

Semotilus atromaculatus (P, K, B) C

Rhinichthys atratulus (B) P

Cyprinodontidae

Fundulus olivaceus (P) R

Centrarchidae

Lepomis megalotis (K, B) P

Percidae

Etheostoma flabellare (P, K) C

E. parvipinne (B) R*

E. squamiceps (P, K, B) C

E. (Ulocentra) sp. (P, K, B) C

* Present but not collected during this study (Sisk pers. comm.).

blennioides newmanii; the Tennessee River is thought to have been in a downcutting stage at that time, and velocity, depth, and turbidity probably were much different than at present (Miller 1968).

In view of collection records for streams in the Tennessee River drainage and from records of adjacent states, the streams from which *Clinostomus funduloides* was taken during this study apparently represent its farthest downstream distribution in the system (Bauer pers. comm., Buchanan 1973, Forbes and Richardson 1920, Jones unpublished master's thesis, Pflieger 1975, Sisk 1969, Smith and Sisk 1969, Sliger pers. comm., and Webb and Sisk 1975).

Increased agrarian land use in the Breaks area of eastern Calloway County, with its accompanying siltation, presents a growing threat of habitat destruction to the few remaining populations of the rosy-side dace in the Tennessee River drainage of Kentucky.

Special thanks are due Bruce Bauer, Tennessee Wildlife Resources Agency, and Dr. Andrew Sliger, University of Tennessee, Martin, for providing collection records. Thanks are also due the late Dr. Morgan E. Sisk who generated my interest in fishes and who early stimulated this study. My thanks also go to Mike Freeze, Judy Harrer, and Rick Morin without whose assistance in the field this study would not have been possible.

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