# AN APPARENT EXTENSION OF THE RANGE OF THE EASTERN BANDED KILLIFISH, *FUNDULUS DIAPHANUS DIAPHANUS* (LESUEUR), INTO SOUTHWESTERN OHIO.[1]

The Eastern Banded Killifish is native to the St. Lawrence and Lake Ontario basins and to the river systems along the Atlantic coast (Hubbs and Lagler, 1941:67). It is reported by Raney (1939:276) to have been introduced about 1938 into the upper Ohio River drainage in western Pennsylvania. It has since been collected from the Ohio River in Beaver County, Pennsylvania, in 1942 (Trautman, 1957:450), in 1957, and in 1959 (Krumholz and Minckley, 1964). In 1944 and in 1950, considerable numbers of specimens were collected from the Little Yellow and Big Yellow Creek systems, tributaries of the Ohio River in Columbiana and Jefferson counties, Ohio (Trautman, 1957:451). All of these collections were made within about twenty miles down the Ohio River from where they were originally introduced near Newcastle, Pennsylvania.

The presence of the Eastern Banded Killifish 420 miles down the Ohio River in the vicinity of Cincinnati, Ohio, first came to our attention on September 12, 1963, when an adult female of this species was collected near the mouth of Cluff Creek (spelled Clough Creek in earlier topography maps), a tributary of the Little Miami River about four miles upstream from where the Little Miami empties into the Ohio River. Sixteen additional specimens, all adults, were subsequently collected from the same lower half mile of Cluff Creek during the fall of 1963, eight of which have been kept alive at the University of Cincinnati. The subspecies identification has been verified by Milton B. Trautman, and eight specimens have been donated to the Ohio State Museum permanent collection (O.S.M. Cat. No. 13865).

Cluff Creek is a small stream in eastern Hamilton County averaging approximately 10 ft in width and 6 inches to 2 ft in depth. It has a moderate gradient of 6 to 10 ft per mile consisting of alternate riffle areas and small pools. The bottom is of silt, sand, and gravel with rocks predominant in the riffles. A fair amount of filamentous algae grows in it and willows extend roots and branches into the water in many places. The lower portion of the stream is normally covered at least once a year by 10 or more feet of water backed up into the Little Miami River valley when the Ohio River is high. A moderately large amount of domestic pollution occurs and the numbers of most of the associated species tend to decrease during the summer months.

All attempts during 1963 to seine this species from either the Little Miami or small streams entering it in the immediate vicinity of Cluff Creek failed. During January of 1964, however, 3 adult specimens were taken from the Little Miami about 4 miles upstream from the mouth of Cluff Creek near Newtown, Ohio.

Young and subadults were not collected until the summer of 1964. On July 10, 14 fish under 1 inch in total length, assumed to be young of the year, were seined from Cluff Creek. On the same date three fish about 1.5 inches in length and two large adults were taken. One of the adults, a fat female which appeared to be carrying eggs, was within 1 or 2 mm of being as long as the largest Ohio specimen (3.3 inches) listed by Trautman (1957:449). Many more young and subadults have subsequently been seen or captured and released in Cluff Creek. The findings of at least three age classes, as judged by size (Trautman, 1957:449), indicates that the species is well established here.

Thinking that perhaps the Ohio River had been the original source of the fish, the authors seined the mouths and lower portions of several small streams entering the Ohio River in Hamilton and Clermont counties east of the mouth of the Little Miami River. Ten Mile Creek, about seven miles east of the city limits of Cincinnati in Clermont County, yielded two adult killifish on July 11, 1964. Another

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adult fish was collected there on July 18, and one young about ¾ inch in length was seen but not captured. Ten Mile is similar to Cluff Creek except that it is slightly smaller, has fewer rocks and lacks the filamentous algae found in Cluff.

It is our opinion that the Eastern Banded Killifish is established in some southwestern Ohio streams. It may have entered these streams from the Ohio River or it may have been introduced by man. If killifish did enter Cluff Creek from the Ohio, they might also be found in the lower portions of other streams entering the Ohio which have not been investigated recently.

We wish to thank Dr. Milton B. Trautman for confirming our identification and for his helpful suggestions.—JOHN G. EATON AND PETER T. FRAME, *Department of Biological Sciences, University of Cincinnati, Cincinnati, Ohio.*

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