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BRIEF NOTE

A NEW OHIO RECORD FOR THE IOWA DARTER
(*ETHEOSTOMA EXILE*), AN ENDANGERED SPECIES¹LOWELL P. ORR, JOSEPH HOLOMUZKI² and VICKI HOLOMUZKI,³ Department of Biological Sciences, Kent State University, Kent, OH 44242

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In the spring of 1976, students in a Kent State University limnology class seined a female darter from West Twin Lake in Portage County, Ohio, and returned it to the senior author for identification. The fish was identified as an Iowa darter, *Etheostoma exile*, a species now considered endangered in Ohio. This identification was verified by Dr. Ted Cavender, Curator of Fishes at the Ohio State University Museum of Zoology where the fish is now cataloged. In the spring of 1978, we attempted to determine the status of the *E. exile* population in West Twin Lake and to determine if the species is found in East Twin Lake, a nearly identical glacial lake that is connected to West Twin by a stream approximately 100 m long.

West Twin Lake is a kettle-type eutrophic glacial lake with an area of 34.02 ha, a maximum depth of 11.5 m, and an average depth of 4.34 m (Cooke et al. 1977). Our first visit to the lake

was on 2 May 1978. Twenty-eight short hauls of a 10 ft, ¼ in mesh nylon seine along the south shore of the lake produced 31 Iowa darters including 19 gravid females and 12 males in breeding color. The average depth of the water in this area was 0.65 m (range: 0.57-0.76 m). The bottom consisted primarily of detritus and sand, and the vegetation included *Chara* sp. and *Potamogeton crispus* with *Chara* sp. being the dominant species. Seining along the eastern and northeastern shore of the lake failed to yield Iowa darters. However, on 18 May, we seined the north shore in the area immediately surrounding the single boat dock and seined 14 darters in 15 hauls; 6 of the darters were gravid females and 8 were males in breeding color. The bottom in this area was very soft, consisting primarily of detritus. The vegetation consisted primarily of *Elodea* sp. and *Nuphar* sp. The northwest shore was either too deep for seining or the lake bottom was too soft to support us. The area, however, did not appear to be an optimum habitat for spawning beds. The south shore was revisited on 4, 18, 24 May and 1 June; Iowa darters were found on each date except 1 June. We assume the fish ceased

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spawning between 24 May and 1 June. The water temperature on 2 May was 12C and was 28C on 1 June. Data were recorded on 45 individuals, 20 males and 25 females. Females averaged 49.88 mm in total length (range: 40-52 mm). These adult size ranges agree in general with the 1.8-2.5 in (46-64 mm) range given by Trautman (1957) for Ohio Iowa darters and the 51-58 mm range given by Scott and Crossman (1973) for Iowa darters from Canadian waters.

East Twin Lake was visited and seined on 8, 18, and 24 May. No Iowa darters were found. Although several shore line areas in East Twin Lake seem to have the combination of physical and biotic features that characterized optimum darter habitats in West Twin Lake, most of the lake edge habitats were either too deep or were devoid of vegetation. From our limited experience in West Twin, the optimum habitats for *E. exile* spawning were in water between 0.6 and 0.7 m deep. The bottom material of the beds was relatively firm and consisted of detritus and sand. The beds were densely populated with *Chara* and to a lesser degree, *Potamogeton crispus*. Where the Iowa darters were spawning, they were by far the most abundant species in the areas. Other species collected over the darter spawning beds were warmouth (*Lepomis gulosus*) pumpkinseed (*L. gibbosus*) and bluegill (*L. macrochirus*).

At this time, there appears to be a high probability that the darter population will continue to thrive in West Twin Lake. Like most darters, *E. exile* is intolerant of turbid, muddy waters which eliminate its food supply of insect larvae and amphipods (Scott and Crossman 1973). West Twin Lake receives no agricultural drainage. Septic tank discharge, which was intensive for 10-15 years before 1972, has now been minimized through sewage diversion (Cooke et al. 1977). Eutrophication in West Twin Lake was further slowed in 1975 by the addition of 100 tons of aluminum sulfate (Cooke and Kennedy 1978). East Twin Lake did not receive this treatment.

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