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OCCURRENCE OF A NYMPHAL DRAGONFLY, *PROGOMPHUS OBSCURUS* RAMBUR (ODONATA: GOMPHIDAE), IN A DEEP-LAKE HABITAT

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ABSTRACT—A latter-instar nymph, *Progomphus obscurus* Rambur (Odonata: Gomphidae), was collected at a depth 6.7 m in McKellar Lake, Shelby County, Tennessee. Collections of this species from other lake habitats have been limited to shallow littoral zones. The deep benthic region of this lake, which experiences an extended period of low dissolved-oxygen concentration in summer, constitutes an unusual habitat for the occurrence of this dragonfly nymph.

McKellar Lake is a 460-ha slackwater lake connected by barge channel to the Mississippi River in southwest Shelby County, Tennessee. The lake, which was formed in 1950 by closure of the upper end of Tennessee Chute by a causeway, serves as an industrial harbor for the city of Memphis. McKellar Lake is deep (8 m average annual depth) and trough-like in structure, with organic silt substrata in the interior portion of the lake and silty-sand in the barge channel. Flow patterns are lentic in nature with multidirectional, low-velocity water movement occurring throughout the lake.

To assess benthic composition, triplicate 232-cm^2 Ekman dredge samples were collected monthly at seven sites throughout McKellar Lake from April 1996 to February 1997. On 15 November 1996 a dragonfly nymph, *Progomphus obscurus* Rambur (Odonata: Gomphidae) was collected in the barge channel at a depth of 6.7 m, over 2 km from the river outlet and 300 m from the shoreline. The nymph was 24 mm in length with moderately developed wingpads, suggesting it probably had hatched several months earlier and undergone approximately 6–7 molts. Water quality measurements taken immediately above the substratum at collection showed water temperature to be 10.6°C, pH 7.72, and conductivity 370 μmho. Dissolved oxygen concentration was 10.95 mg/l at collection, but measurements for the preceding four months (July through October) were 2.07, 0.45, 2.93, and 4.03 mg/l, respectively.

The occurrence of *P. obscurus* in profundal sediments constitutes habitat not previously described for this organism. This species has been reported for moving-sand habitats in large rivers (Barton and Smith, 1984), sandbars in small streams, and shallow littoral zones of wide lakes (Needham and Westfall, 1955), none of which applies to the trough-like structure of this lake. The relative age of the nymph and low dissolved oxygen concentrations prior to collection indicates, as Corbet (1962) suggested, that odonate nymphs are extremely adaptable in meeting respiratory demands. While the possibility exists that this individual may have moved into McKellar Lake from the river, the considerable distance from the river where it was collected and the low velocity and multidirectional nature of lake currents make this scenario unlikely.

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