

insectivore C.V.'s are generally low (Long, 1968; 1969). None of these values in the current study greatly exceed the ranges of these previous works; thereby, these characters are considered to have acceptable amounts of individual variation.

Results of the analyses of sexual dimorphism in cranial characters (Table 2) agree with previous investigations in that most features are larger in males (Guilday, 1957; Dapson, 1968; Ellis et al., 1978; Kirkland, 1978; Kirkland and Hench, 1980) with only mandible height being significantly greater (Choate, 1972). For the nine postcranial characters, males were larger in eight instances, of which, only two characters (25, 26) displayed significant difference (Table 2).

CONCLUSION

Age, individual, and sexual variation in the cranial characters examined agreed with most previous studies. Young adults and adults formed the largest nonsignificant age subset; individual character variation was low; and while males are generally larger than females there is little such statistical difference. Postcranial characters, all previously unreported for *Blarina* sp., exhibit trends similar to the cranial characters. While their individual variation is somewhat higher and they exhibit slightly more age and sexual variation they, nonetheless, appear acceptable for use in morphometric investigations.

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OCCURRENCE OF THE ROTIFER *TROCHOSPHAERA SOLSTITIALIS* (THORPE 1893) IN REELFOOT LAKE, TENNESSEE.

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ABSTRACT

Trochosphaera solstitialis was collected from two sites on eutrophic Reelfoot Lake in western Tennessee, during June, 1982. These collections mark the first report of this rotifer species in Tennessee. Both sites were relatively shallow and were characterized by low dissolved oxygen concentrations, and high values for orthophosphate, ammonium-nitrogen, and apparent color. Large standing crops of aquatic vegetation, much of it decomposing, were found at both sites. Reduced water quality, apparently

resulting from decomposing vegetation, probably favored the occurrence of the rotifer species.

INTRODUCTION

Trochosphaera solstitialis is a rotifer (Order Flosculariacea) first reported in China (Thorpe 1893, 1895). It has been reported three times in the United States by Kofoid (1896) in Illinois, Jennings (1898) in Ohio, and McCullough and Lee (1980) in Texas. Other collections include those by Valkanov (1936) in Bulgaria, and Rahm (1956) in Africa. Rousset (1899) described the anatomy

of the female of this species, but his specimens were from Jennings's (1898) collection. The other species of the genus, *T. aequitorialis* appears to be equally as rare, with collections from the Philippines (Semper 1872), Australia (Thorpe 1891, Colledge 1922), the United States (Eddy 1934), South America (Leentvaar 1975, Koste 1976) and Ceylon (Koste 1976).

Several specimens of the rotifer were collected by the authors from Reelfoot Lake, Obion County, Tennessee in June, 1982. This collection marks the fourth report of *T. solstitialis* in the United States and extends its range into the southeastern portion of this country.

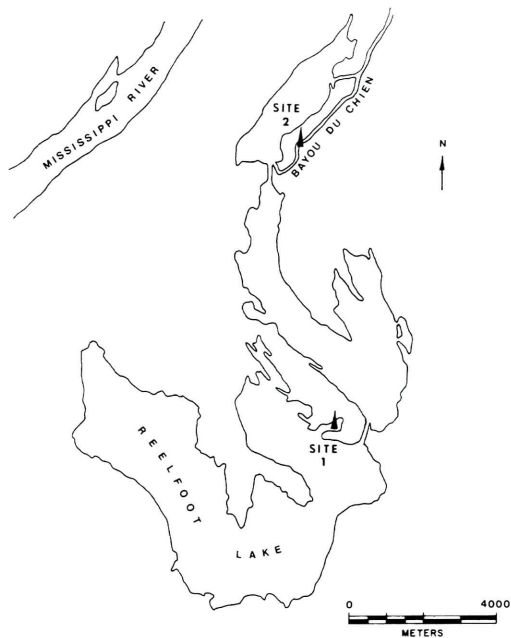


FIG. 1. Reelfoot Lake and location of collecting sites.

COLLECTION METHODS AND ECOLOGICAL OBSERVATIONS

The rotifers were collected by a vertical tow with a No. 20 plankton net at two locations on the lake. Site 1 was located in what is known locally as First Pocket, and is approximately 2 KM northwest of Samburg, Tennessee (Fig. 1). Site 2 was located in a marsh area adjacent to Bayou DuChien, approximately 0.5 KM northwest of Brewer's Bar. Reelfoot Lake, formed by a series of severe earthquakes during the winter of 1811-1812, has a surface area of 1,375 hectares (3,400 acres) and is very shallow, rarely exceeding a depth of 2 M (U.S. Fish and Wildlife Service, 1979). Hypereutrophic conditions exist throughout the lake, probably because of agricultural run-off and domestic effluent from development along the shoreline. Eutrophic conditions were reflected during our visit by phytoplankton chlorophyll *a* concentrations of 36 and 78 $\mu\text{g/L}$, and orthophosphate values of 0.12 and 0.69 mg/L near Sites 1 and 2, respectively.

Both collection sites were characterized by an abundance of decaying aquatic vegetation, large biochemical oxygen

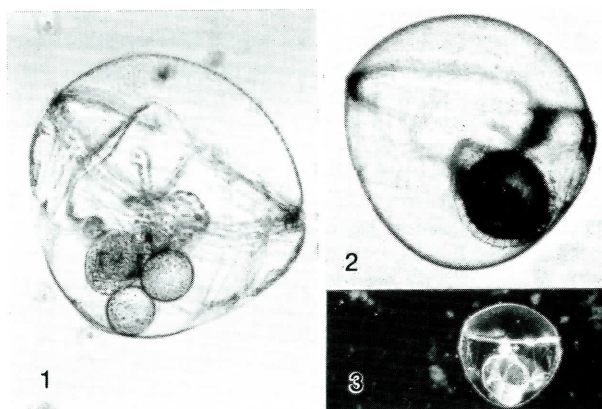


FIG. 2. *Trochosphaera solstitialis* females showing specimen with amictic eggs (1 and 3) and a mictic or resting egg (2).

demand and color values, and relatively low dissolved oxygen concentrations. These conditions are not unlike those observed at other sites around the world where *Trochosphaera solstitialis* has been collected. Thorpe (1893, 1895), and McCullough and Lee (1980) found the species in a eutrophic pond, while Kofoid (1896), Jennings (1898), Valkanov (1936) and Rahm (1956) made collections in marsh and swamp environments. Leentvaar (1975) collected *T. aequitorialis* from Lake Brokopondo, an impoundment of the Suriname River in South America. The lake was characterized by acid, turbid-brown water, large concentrations of ferrous-iron, much recently inundated

	Depth (m)	Secchi Disc (m)	T.ALK. (mg/L)	P.ALK. (mg/L)	CO ₂ mg/L
Site 1	1.5	0.3	194	24	0
Site 2	1.8	0.3	298	0	5.0

	Phytoplankton Chlorophyll <i>a</i> ($\mu\text{g/L}$)	-3 PO ₄ (mg/L)	+1 NH ₄ -N (mg/L)	-1 NO ₃ -N ($\mu\text{g/L}$)	TKN (mg/L)
Site 1	36	0.12	1.84	15	9.12
Site 2	78	0.69	0.15	6	8.68

	Apparent Color (Color Units)	Turbidity (NTU)	Total Phosphorus (mg/L)	+2 Fe (mg/L)	-2 SO ₄ (mg/L)
Site 1	70	18	0.21	0.02	13.6
Site 2	94	21	0.70	0.10	11.9

	-1 CL (mg/L)	+2 Ca (mg/L)	+1 Na (mg/L)	pH	Total Solids (mg/L)
Site 1	6	30	2.4	9.1	180
Site 2	8	35	5.6	8.3	248

	COD (mg/L)	BOD (mg/L)	O ₂ (mg/L)	Conductivity (micromho)	Temperature (°C)
Site 1	102	8.0	4.4	188	27
Site 2	140	6.8	3.3	269	28

TABLE 1. Physical-chemical characteristics of water from collecting sites on Reelfoot Lake Tennessee, June 11-12, 1982.

vegetation, and relatively low dissolved oxygen concentrations. Koste (1976) points out that *Trochosphaera* often appears with organisms which are indicators of the beta-saprobic zone such as *Microcystis* and *Melosira*. The diatom *Melosira* and the blue-green alga *Microcystis* were very abundant members of the phytoplankton at Reelfoot Lake on the date when collections of the rotifer were made. Koste (1976) further explained that *Trochosphaera* has been found at depths between 0 and 10 M, and repeatedly between 0 and 3 M, with water temperatures between 20-32°C, conductivity between 35-110 micromhos and a pH of 5.9-7.5. McCullough and Lee (1980) found statistically significant positive correlations between numbers of *T. solstitialis* and total iron, true color, CO₂, ammonia-nitrogen, BOD, and a negative correlation with pH. In their study, an average temperature of 16.8°C was recorded, along with an average dissolved oxygen concentration of 1.8 mg/L, the latter caused by large amounts of decaying leaf litter.

Trochosphaera solstitialis seems to be an organism of shallow, environmentally stressed bodies of water that experience rapid and dramatic variations in physical and chemical parameters, and that possess considerable amounts of decomposing vegetation. These physico-chemical characteristics, which prevail at Reelfoot Lake, either represent the optimum conditions for this species, or act adversely to exclude various predators or competitors that might ordinarily prevent the occurrence of this rotifer.

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PURIFICATION AND CHARACTERIZATION OF THE B-PROTEIN-BINDING PROTEIN COMPLEX

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ABSTRACT

The B-Protein-binding protein complex was purified 78.7-fold from a reaction mixture by trichloroacetic acid precipitation followed by selective resolubilization and chromatography on DEAE-Sephadex, Wheat Germ Lectin-Sepharose, ConA-Sepharose and Affi-Gel Blue followed by preparative polyacrylamide gel electrophoresis. The B-Protein-binding protein complex is rather stable. It is not dissociated by 8M urea 6M guanidine-HCl or 2-mercaptoethanol, but can be dissociated by 1% SDS. The sites of interaction on B-Protein (100,000 to 120,000 M.W.) and binding protein (10,000 to 15,000 M.W.) have not been elucidated, however, the SH-group of the 4'-phosphopan-

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tethine prosthetic group of the binding protein is not the primary site of interaction with B-protein in the formation of the complex. Furthermore, the B-Protein-binding protein complex has an approximate molecular weight of 65,000 which is 53,000 less than the sum of the two reacting components. SDS-PAGE indicates that B-Protein is composed of two subunits of approximately 53,000 each. It would appear that formation of the B-Protein-binding protein complex involves the displacement of one subunit of B-Protein.

INTRODUCTION

A protein with unique properties, present in the serum