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New County and State Records of Mosses From Arkansas

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Table. Order of abundance of zooplankton ranked from 1-20, 1-21, and 1-19 respectively, from the upper strata (0-5 m) in Pine Creek Lake, Oklahoma, and Gillham and Greeson Lakes, Arkansas, 1979.

Taxon	Pine Creek	Gillham	Greeson
Cladocera			
Bosmina longirostris (O.F. Muller)	9	5	4
Ceriodaphnia spp.	16	8	18
Chydorus sphaericus (O.F. Muller)	20	21	
Daphnia ambigua Scourfield	13	14	13
D. catawba Coker			14
D. galeata mendotae Birge			15
D. laevis Birgel	17	17	
D. parvula Fordyce	8	16	17
Diaphanosoma leuchtenbergianum Fisher	7	10	8
Holopedium amazonicum Stingelin	14	12	16
Copepoda			
Calanoida	+	+	+
Cyclopoida	+	+	+
Nauplii	+	+	+
Rotifera			
Asplanchna priodonta Gosse	10	13	6
Branchionus sp.	15	18	
Collotheca sp.	11	6	1
Conochilidae	1	1	2
Filinia longiseta Ehrenbera	18	20	
Gastropus stylifer Imhol	5	19	12
Hexarthra mira (Hudson)	6	4	9
Kellicottia bostoniensis Rousselet	2	2	11
Karatella spp.	3	3	4
Platyias quadricornis (Ehrenberg)		21	
Ploesoma sp.	20	11	19
Polyarthra euryptera (Wierzejski)	4	7	3
Trichocerca cylindriea (Imhof)	12	8	7
T. capucina (Wierzejski et Zach.)	18	15	10

[1]Not verified

+ = Abundant but not ranked

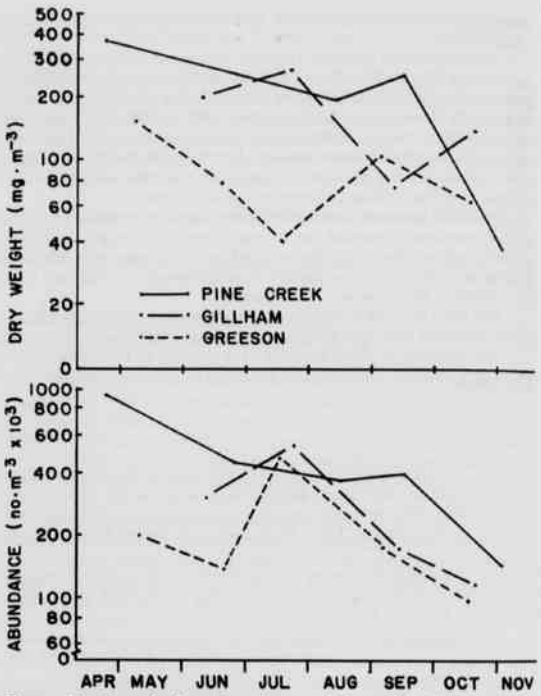

Figure. Total zooplankton abundance and dry weight biomass from the upper stratum (0-5 m) in Pine Creek Lake, Oklahoma, and Gillham and Greeson Lakes, Arkansas, 1979.

Food availability, as a function of particle size, appeared to regulate the zooplankton community structure in Pine Creek and Gillham Lakes. These reservoirs, from the western sections of the Ouachita Mountains, contain higher amounts of total organic carbon due to greater amounts of allochtonous materials, possibly from land use and soil types (J. Nix, Ouachita Baptist University, personal communication). Furthermore, zooplankton species composition was more closely related and population abundance and biomass estimates were higher in Pine Creek and Gillham Lakes than in Lake Greeson. However, fluctuations in zooplankton abundance were similar in Gillham and Greeson lakes, even though changes in the rotifer populations resulted in an inverse relationship of the biomass estimates between the two reservoirs (Figure). Lake Greeson, the least eutrophic of the three lakes, had cladoceran populations that were indicative of communities found at low nutrient concentrations, where according to Porter (Amer. Sci. 65:159-170, 1977), small species or species with high surface to volume ratios may be abundant.

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NEW COUNTY AND STATE RECORDS OF MOSSES FROM ARKANSAS

Bryophytes have been collected in Arkansas by only a few individuals. Although much is known about the distribution of bryophytes in the Ozark region of Arkansas (Wittlake, 1950b; Redfearn, 1964, 1966, 1968, 1970, 1972, 1979), little information is available for other regions of the state (Lowe, 1919; Scully, 1941; Moore, 1964). Wittlake (1950a) reviewed the early work concerning bryophytes of Arkansas. This paper reports new county and state records of bryophytes from Arkansas.

Most of the new county records are from collections stored at the University of Arkansas, Fayetteville, and were made by E. B. Wittlake between 1948 and 1951. These collections are currently being processed into modern storage facilities.

As a result of specimens processed thus far, 28 new county records are represented in Wittlake's (EBW) collection. Collections made by the second author (JEM) at Hot Springs National Park, Garland County represented five additional county records. Voucher specimens have been deposited at the University of Central Arkansas herbarium. Finally, three county records are from collections made by the senior author (SLT) and have been deposited at the University of Arkansas, Fayetteville herbarium.

General Notes

Nomenclature for the taxa reported below follow Crum and Anderson (1981). Collectors' initials are in parentheses following the county or counties the specimens were collected from.

Amblystegium riparium (Hedw.) BSG. Garland (JEM).
Anomodon minor (Hedw.) Furnr. Arkansas (EBW).
Aulacomnium heterostichum (Hedw.) BSG. Poinsett and St. Francis (EBW).
Bartramia pomiformis Hedw. Crittenden (EBW).
Bruchia flexuosa (Sw. ex Schwaegr.) C. M. Miller (EBW).
Bryum argenteum Hedw. Pulaski (EBW).
Bryum pseudotriquetrum (Hedw.) Gaertn., Meyer & Scherb. Hempstead (EBW).
Ceratodon purpureus (Hedw.) Brid. Stone and Washington (SLT).
Diphyscium foliosum (Hedw.) Mohr. Sharp (SLT).
Ditrichum pallidum (Hedw.) Hampe. Chicot, Clark, Crittenden, Howard, Marion, and Sevier (EBW).
Fissidens bushii (Card. & Ther.) Card & Ther. Garland (JEM).
Funaria hygrometrica Hedw. Chicot, Crittenden, Hempstead, Lincoln, Polk, and Sebastian (EBW).
Funaria flavicans Mx. Howard and Lincoln (EBW).
Leptobryum pyriforme (Hedw.) Wils. Garland (JEM).
Orthotrichum strangulatum P.-Beauv. Garland (JEM).
Pilonotis longiseta (Mx.) Britt. Pulaski (EBW).
Physcomitrium pyriforme (Hedw.) Hampe. Columbia, Howard, Lincoln, Logan, Mississippi, and Polk (EBW).
Plagiothecium cavifolium (Brid.) Iwats. Garland (JEM).

Two new state records are also represented. *Sphagnum macrophyllum* Bernh. ex Bird. was collected by Dr. P. L. Redfearn et al. in Hempstead County. In North America this species is found in aquatic habitats in Newfoundland, Nova Scotia, New York to Florida and west to Texas, including Tennessee. *Venturiella sinensis* (Vent. ex Rabh.) C. M. var. *angustaannulata* Griff. & Sharp was collected in Stone County by the senior author. The location represents the taxon's most eastern distribution in North America. The species has been recorded from only three other locations in North America, Texas (Bartram, 1934) and Oklahoma (Inkenberry, 1960; Redfearn, 1970).

LITERATURE CITED

BARTRAM, E. B. 1934. *Venturiella sinensis* (Vent.) C. M. in Texas. The Bryologist 34:46.

CRUM, H. A. and L. E. ANDERSON. 1981. Mosses of eastern North America. Columbia Univ. Press, New York, NY. 1328 pp.

INKENBERRY, G. J., C. D. BIRD, and W. F. MAHLER. 1960. The mosses of Payne County, Oklahoma. The Bryologist 63:112-113.

LOWE, R. L. 1919. Collecting in Arkansas. The Bryologist 22:14-15.

MOORE, J. E. 1965. A study of the vegetation of Petit Jean Mountain in central Arkansas. Castanea 30:1-37.

REDFEARN, P. L. JR. 1964. Bryophytes of Arkansas I. Species of "Lost" Valley and adjacent regions. The Bryologist 67:196-201.

REDFEARN, P. L. JR. 1966. Bryophytes of the Interior Highlands of North America XI. Additions to the flora. The Bryologist 69:504-508.

REDFEARN, P. L. JR. 1968. Bryophytes of the Interior Highlands XIII. Additions to the flora. The Bryologist 71:356-357.

REDFEARN, P. L. JR. 1970. Bryophytes of the Interior Highlands XV. Additions to the flora. The Bryologist 73:716-717.

REDFEARN, P. L. JR. 1972. Mosses of the Interior Highlands of North America. Ann. Missouri Bot. Garden 59:1-103.

REDFEARN, P. L. JR. 1979. Bryophytes of the Interior Highlands of North America XVIII. Species of the Ozark National Forest, Stone County, Arkansas. The Bryologist 82:483-486.

SCULLY, F. J. 1941. The mosses of Hot Springs National Park and vicinity. The Bryologist 44:125-128.

WITTLAKE, E. B. 1950(a). Preliminary report on Arkansas bryophytes. Proc. Arkansas Acad. Sci. 3:35-37.

WITTLAKE, E. B. 1950(b). Bryophytes of Spy Rock Hollow. Proc. Arkansas Acad. Sci. 3:39-40.

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MOSQUITOFISH PRODUCTION IN MONOCULTURE AND POLYCULTURE PONDS*

Mosquitofish (*Gambusia affinis*, Baird and Girard) are playing an increasingly important role in mosquito-control programs across the nation, due to increasing costs of insecticides, public pressure over environmental damage by insecticides, and the need for continuous mosquito control near populated areas. Among reports on the use of mosquitofish as predators of ricefield mosquitoes are those of Horsfall, 1942; Fowler, 1964; Craven and Steelman, 1968; and Meisch and Coombes, 1974. Large numbers of mosquitofish will be necessary to achieve adequate control over wide areas (Hoy and Reed, 1970; Hoy et al., 1971, 1972; Davey et al., 1974). The intensive culture of mosquitofish in California has been reported by Challet and Rohe, 1974; Challet et al., 1974; and Reynolds, 1975.