

Nitella capillata A. Br. in North Carolina

Fay Kenoyer Daily

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Butler University
Botanical Studies
(1929-1964)

Edited by

Ray C. Friesner

The *Butler University Botanical Studies* journal was published by the Botany Department of Butler University, Indianapolis, Indiana, from 1929 to 1964. The scientific journal featured original papers primarily on plant ecology, taxonomy, and microbiology. The papers contain valuable historical studies, especially floristic surveys that document Indiana's vegetation in past decades. Authors were Butler faculty, current and former master's degree students and undergraduates, and other Indiana botanists. The journal was started by Stanley Cain, noted conservation biologist, and edited through most of its years of production by Ray C. Friesner, Butler's first botanist and founder of the department in 1919. The journal was distributed to learned societies and libraries through exchange.

During the years of the journal's publication, the Butler University Botany Department had an active program of research and student training. 201 bachelor's degrees and 75 master's degrees in Botany were conferred during this period. Thirty-five of these graduates went on to earn doctorates at other institutions.

The Botany Department attracted many notable faculty members and students. Distinguished faculty, in addition to Cain and Friesner, included John E. Potzger, a forest ecologist and palynologist, Willard Nelson Clute, co-founder of the American Fern Society, Marion T. Hall, former director of the Morton Arboretum, C. Mervin Palmer, Rex Webster, and John Pelton. Some of the former undergraduate and master's students who made active contributions to the fields of botany and ecology include Dwight W. Billings, Fay Kenoyer Daily, William A. Daily, Rexford Daudenmire, Francis Hueber, Frank McCormick, Scott McCoy, Robert Petty, Potzger, Helene Starcs, and Theodore Sperry. Cain, Daudenmire, Potzger, and Billings served as Presidents of the Ecological Society of America.

Requests for use of materials, especially figures and tables for use in ecology text books, from the *Butler University Botanical Studies* continue to be granted. For more information, visit www.butler.edu/herbarium.

NITELLA CAPILLATA A. BR. IN NORTH CAROLINA

By FAY KENOYER DAILY

Apparently until its collection by Dr. L. A. Whitford of the University of North Carolina at Raleigh, the species, *Nitella capillata* A. Br., was known only from the type. Furthermore, the type collection has not been found by the author. Probably, it was lodged in the herbarium of Dr. A. Braun in Berlin where it may have been destroyed during World War II.

Thanks are extended to Dr. Ray C. Friesner, Dr. Francis Drouet, Dr. Richard D. Wood, Mr. Sidney Esten, and Mr. W. A. Daily for their assistance in this study.

Specimens will be found at Butler University, the Cryptogamic Herbarium of the Chicago Natural History Museum, the Farlow Herbarium at Harvard, the Missouri Botanical Garden, the New York Botanical Garden, the United States National Herbarium, and the personal herbarium of the author. Dr. Whitford is to be commended for collecting a copious amount of material some of which arrived in a fresh condition for detailed study.

The following description agrees essentially with that given by Dr. A. Braun except where indicated:

NITELLA CAPILLATA A. Br. Die Characeen Afrikas, Monatsb. Akad. Wiss. Berlin for 1867, pp. 797 and 893. 1868.

Braun, A. and Otto Nordstedt. Fragmente einer Monographie der Characeen. Berlin. 1882.

Nordstedt, Otto. Die Algis et Characeis 3-6, Aftryck af Lunds Universitets Årsskrift XXV:14. Lund. 1889.

HABIT: lax sterile verticels at which fertile gelatinous heads arise, not greatly branched, about 25 cm high. MONOECIOUS. STEM: usually about 0.5-0.7 mm in diameter. STERILE BRANCHLET: up to about 30-40 mm long; 6-8 in a verticel (mostly 6); 3-4 furcations; number of rays arising at succeeding furcations are 6 or 7 at the first, 5 at the second, 4 at the third, and 3 at the fourth; measurements of a typical branchlet—primary ray 0.4 mm in diameter and 14.5 mm long, secondary ray 0.27 mm in diameter and 7.9 mm long, tertiary

ray 0.16 mm in diameter and 2 mm long, quaternary ray 0.05 mm in diameter and 1.6 mm long, quinary ray 0.025 mm in diameter and 3.7 mm long; ultimate ray 3-4 celled; ultimate cell variable from pointed to blunt (in Braun's description these are blunt). FERTILE VERTICEL: of 6-8 branchlets (mostly 6); about 5 verticels produced one above the other forming a head enclosed in a gelatinous sheath interrupted at the base. FERTILE BRANCHLET: 1-2 mm long; 2-4 furcations (mostly 3); number of rays arising at succeeding furcations are 5-7 at first, 4 or 5 at second, 4 or 5 at third, 3 at fourth; 2 or 3 celled (mostly 3); ultimate cell variable from blunt to pointed (Braun's description—tip rounded, blunt). OOGONIUM: produced singly in all furcations; cells of coronula about 0.016 mm broad, upper series 0.021 mm long, lower series about 0.011 mm long. OOSPORE: dark brown, about 0.221 mm long and 0.198 mm broad, 8 or 9 inconspicuous ridges, outer colored membrane irregularly reticulate, size of reticulations about 0.01 mm across or larger, thick, opaque. (Only immature oospores seen in specimen described by Braun and Nordstedt.) ANTHERIDIUM: long stalked, up to 0.318 mm broad. Specimen seen: North Carolina: Wake co.; most abundant in the spring and autumn in the swift outflow from Partin's Mill Pond, water soft, about pH 5.5, clay bottom, 20 miles south of Raleigh, L. A. Whitford 3, May 24, 1941, April 19, 1946.

The Herbarium
Butler University

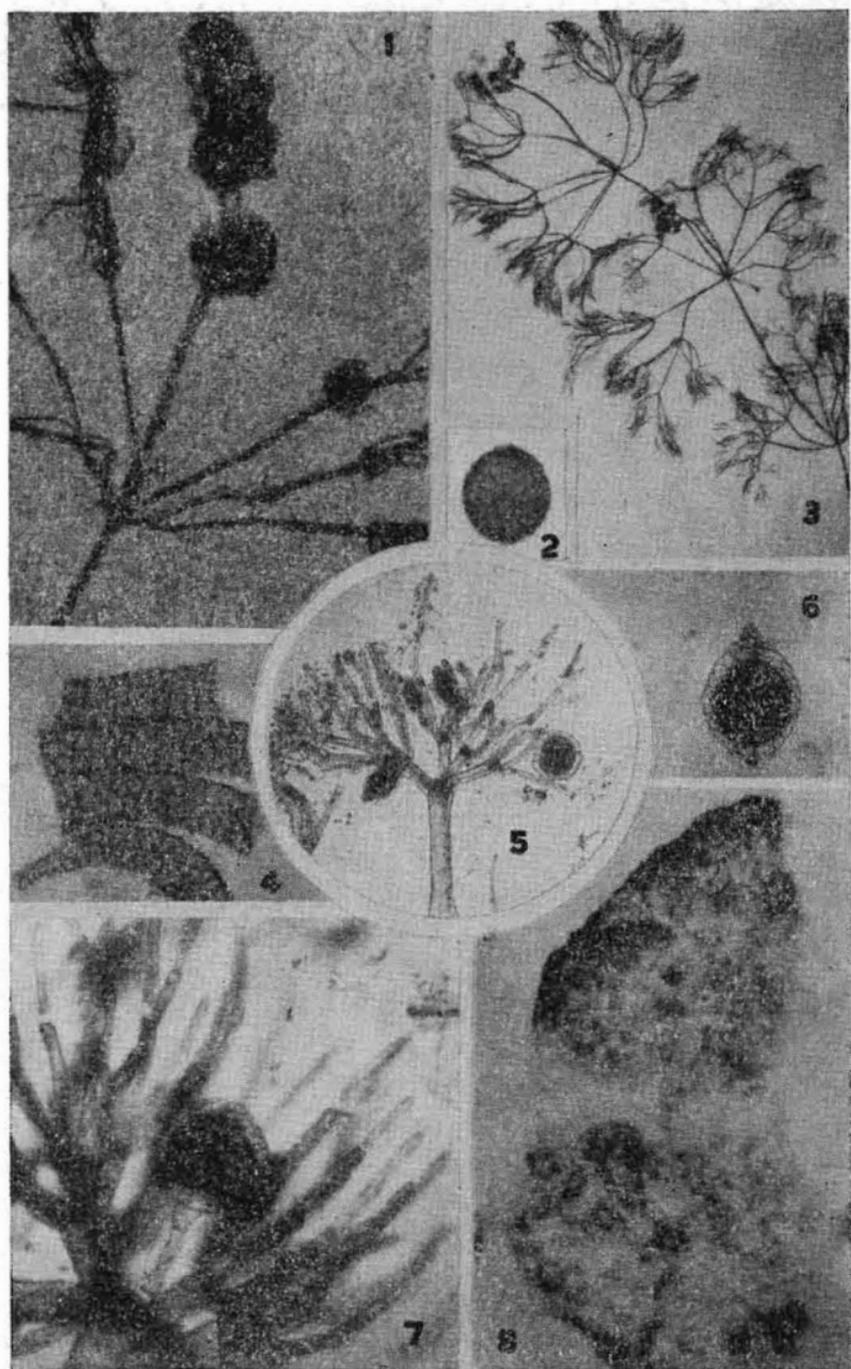


Plate I. *NITELLA CAPILLATA* A. Br. 1. Fruiting head. 2. Oospore. 3. Portion of plant. 4. Outer colored membrane of oospore. 5. Fertile branchlet. 6. Oogonium. 7. Portion of fertile branchlet greatly enlarged to show antheridium and ultimate rays. 8. Young fruiting head showing some internal structure. Figs. 1 and 8 photographed from dried material remoistened with water. Fig. 3 is of a dried herbarium specimen. Figs. 2 and 4-7 are from formalin preserved material.