

THE MACROPHYTIC COMMUNITY OF AN ACIDIC LAKE IN ADIRONDACK (NEW YORK, U.S.A.): A NEW DEPTH RECORD FOR AQUATIC ANGIOSPERMS

Authors: ROBERT SINGER, DEBORAH A. ROBERTS, AND CHARLES W. BOYLEN

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Abstract: The submerged vegetation of Silver Lake (Herkimer County, NY, U.S.A.) was extensively surveyed to help to determine the effects of low pH on aquatic biota. This extraordinarily clear lake (Secchi disk > 18 m, the maximum depth of the lake), was low in conductivity ($27 \mu\text{S cm}^{-1}$), pH (4.8) chlorophylla ($0.11 \mu\text{g l}^{-1}$), and total phosphorus ($<1 \mu\text{g l}^{-1}$). The vegetation was dominated, in terms of percentage of the total plant community, by *Utriculariaspp.* (47%), *Sphagnum spp.* (23%), and *Eriocaulon septangulare* With. (17%). Distinct depth zonation was evident, with *U. geminiscapa* Benj. extending to the deepest part of the lake (18 m). This represents a new maximum depth penetration for aquatic angiosperms. The mechanisms by which angiosperms are limited in depth-distribution are discussed. It is concluded that single factor theories, those which ascribe the maximum depth of penetration to a single variable (e.g., light, temperature, hydrostatic pressure), are all deficient, and that the actual limitation is brought about by a combination of factors.

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