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Biological Science

THE FISH OF GILMORE CREEK, WINONA COUNTY

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ABSTRACT

Gilmore Creek of Winona County is a short spring-fed stream which arises in one of the typically narrow valleys of southeastern Minnesota. After a distance of two miles from its source, the stream meanders across the wide Mississippi valley to empty into Lake Winona. The latter has an outlet that finds its way into the Mississippi River.

Over a period of five years the author has made periodic seinings of the stream. It is from the specimens thus collected that the report was made. Most of these collections were made during the summer months of the years 1941, 1944, and 1945.

Data on classification, distribution, abundance, and ecological factors of the twenty-five specimens included in the survey were given in this preliminary report.

1 1 1

A VARIETY OF WESTERN *POLEMONIUM* IN MINNESOTA*

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ABSTRACT

Since *Polemonium reptans* L. occurring in southeastern Minnesota is the sole representative of the genus growing natively in the state, the discovery of another species in Sturgeon Lake, St. Louis Co., about twenty miles north of Hibbing was not altogether without surprise. It came to the writer's attention in the winter of 1944 while viewing a colored film on Minnesota wild flowers taken by Mr. W. F. Kohagen of Hibbing. A tall species of *Polemonium* in swamp habitat in association with native flowers was worthy of study.

By request, Mr. Kohagen on the following June 28, sent flowering specimens from the colony. Only inflorescences were collected, but it was obvious that the plants were different from the eastern

* Published in full in *Rhodora*, 49: 118-119, 1947.

species from Lake Pepin and Winona areas, and from the one growing locally in Duluth as a probable garden escape which was reported by the writer as *P. occidentale* Greene.¹

For adequate study material the writer made a collecting trip on July 2, and another a month later for fruiting specimens. The collections were referred to *P. occidentale* Greene, but differed from the typical material by larger upper cauline leaves and eglandulose pubescence. It was recalled that in 1935 Dr. E. T. Wherry requested the writer to look for species of *Polemonium* in swamp habitats. Specimens were submitted to him who after a careful study described a new subspecies under the following epithet: *Polemonium occidentale lacustre* Wherry,² basing the subspecies on the writer's collection No. 5575 from a colony in an arborvitae swamp, 3½ mi. n. of Sturgeon Lake Observation Tower (47-50, 93-00) St. Louis Co., Minn. Type in the herbarium Academy Natural Sciences, Philadelphia; replicates in the herbaria of the University of Minnesota and Duluth State Teachers College.

The Sturgeon Lake colony, about an acre in extent, is the only known one in the state. It appears to be an isolated eastward extension of a western species of wide distribution from the Rocky Mountains to the Pacific coast.

7 7 7

ALKALI TOLERANCE OF DROUGHT-HARDY TREES AND SHRUBS IN THE SEED AND SEEDLING STAGE¹

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In extensive travel in the Great Plains, the writer has observed that there appears to be a considerable difference in the ability of various species of trees and shrubs to tolerate alkalinity in the soil. To act as a check on field observations, it was believed that the relative tolerance of various species might be arrived at by laboratory methods involving the placing of seed or recently germinated seedlings in alkali solutions of several types and concentrations. The technique used was similar to that of Breazeale (1926).²

It was hoped that a scale of relative alkali tolerance could be devised which would be of use to nurserymen and tree planters. Alkali tolerance is known to vary by age of plant—the older plants

¹ Lakela, Olga. *Rhodora* 40(475): 280. 1938.

² Wherry, E. T. *Am. Midl. Nat.* 34(2): 376-377. 1 fig. 1945.

¹ This paper is a condensed version of a report on a project performed as a special graduate problem under the direction of the late Dr. R. B. Harvey, Professor of Plant Physiology, University of Minnesota.

² Breazeale, H. F. Alkali tolerance of plants considered as a phenomenon of adaptation. *University of Arizona Tech. Bul.* 11, Nov. 1, 1926.