

Final Project Report:
A search for two rare, endemic Minnesota mushroom species
June 30, 1999

David J. McLaughlin, Dept. of Plant Biology, 220 Biological Sciences
Center, 1445 Gortner Ave., University of Minnesota, St. Paul, MN 55108

ABSTRACT

A search was made in May through June for two mushroom species, endemic to Minnesota, that before last August, had not been reported since about 1970. The search was focused on Nerstrand Woods State Park where the two mushrooms were found last August. Neither *Psathyrella rhodospora* or *Psathyrella cystidiosa* were found this spring. A search for these species during the summer is needed to determine their fruiting patterns.

INTRODUCTION

Two endemic mushroom species, that were found last summer, were looked for this spring. They are listed on the Minnesota List of Endangered, Threatened and Special Concern Species, 1996. Before last summer, they had not been reported since about 1970. The search was conducted in order to determine how early in the year these mushrooms would reappear, if at all, since last year they were found only in August and September. The two mushrooms sought are *Psathyrella cystidiosa* and *P. rhodospora*.

MATERIALS AND METHODS

Searches focused on Nerstrand Woods State Park; single trips were also made to Belwyn Outdoor Educational Center and Minnesota Valley National Wildlife Refuge. Nerstrand Woods was the main focus of the study since the two mushrooms were found there last year. Belwyn and the MN Valley Refuge have a variety of habitats that are appropriate for *Psathyrella* species.

David McLaughlin along with Mahajabeen Padamsee organized the field trips and identifications. Day trips were made to Nerstrand Woods State Park, Belwyn Outdoor Educational Center, and Minnesota Valley National Wildlife Refuge. Anna Gerenday, Judy Kenney, Beth Frieders, Tami McDonald, Holly Swanson, and Peter Avis also participated in several trips.

Specimens were documented with descriptions, color photographs, and spore prints, and preserved by drying. Certain specimens were cultured in the laboratory to learn more about their growth patterns. Specimens and their documentation will be deposited in the University Herbarium. Identified specimens will be added to the Herbarium computerized fungal database.

RESULTS

The following trips have been made: Nerstrand Woods State Park, May 23, 30, June 11, 17, 22, and 23, Belwyn Educational Center, June 10, and MN Valley Refuge, June 18.

Psathyrella cystidiosa and *P. rhodospora* were not found on these field trips. The tree where *P. rhodospora* was found originally had fallen over. Twelve collections of other species of *Psathyrella* have been obtained and are being analyzed. Two species of *Psathyrella* were cultured successfully in the laboratory.

DISCUSSION

The two species of *Psathyrella* that we sought were not found. This may be due to any number of factors: *P. cystidiosa* and *P. rhodospora* may not fruit until later in the year, the unusual quantity of rain that we received in May and June may have delayed fruiting, they may not fruit every year, the unseasonably cold weather may also have delayed fruiting, or some combination of these factors may be responsible. For the number of field trips conducted, the number of *Psathyrellas* collected was rather low. *Psathyrellas* may require slightly drier conditions in order to fruit, or they may fruit later in the year when it is warmer.

Besides the field trips, identifications of specimens found last summer continued. All of those specimens have been studied although certain *Psathyrellas* have not keyed to the specific level with complete satisfaction. Further analysis of these *Psathyrellas* will be required. One new county record has been obtained for *Psathyrella larga*. The finding of *Psathyrella* cf. *frustulenta* may represent a new state record; this also appears to be a significant extension of its range in North America (Smith, 1972).

A question has arisen about the *P. cystidiosa* collection that we made last summer. Another species *P. olympiana* is remarkably similar to *P. cystidiosa*, differing only in the width of the wall of the cystidia as well as the total height of the cystidia (Kits van Waverin, 1985; Smith, 1972). The height of cystidia of our *P. cystidiosa* matches the wall heights as reported for *P. olympiana* but the thickness of the wall of the cystidia matches the description of the width recorded for *P. cystidiosa*. We are attempting to determine if these are distinct species with further analysis of our *P. cystidiosa* collection as well as several collections of *P. olympiana*. Reanalysis of type material of *P. cystidiosa* will be necessary.

In conclusion, further searches made later in the summer should be carried out to determine the phenology of the two rare *Psathyrellas* species.

Acknowledgment.

Supported by a grant from the Minnesota Dept. of Natural Resources' Natural Heritage and Nongame Research Program.

References.

Kits van Waverin, E. The Dutch, French and British species of Psathyrella.
Persoonia Suppl. 2: 1-300.

Smith, A.H. The North American species of Psathyrella. Mem. N.Y. Bot. Gard.
24: 1-623.

David J. McLaughlin, Professor
Dept. of Plant Biology, University of Minnesota
St. Paul, MN 55108-1095, USA
Phone: 612-625-5736; Fax: 612-625-1738
NEW ADDRESS:e-mail: davem@tc.umn.edu

Curator of Fungi, University of Minnesota Herbarium
Bell Museum of Natural History
1445 Gortner Ave.
St. Paul, MN 55108-1095 USA