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The 1979 Resource Inventory
for
Malmberg Prairie
Polk County, Minnesota

West $\frac{1}{2}$, Northwest $\frac{1}{4}$, Section 16
Township 149 North, Range 48 West
Eldred Quadrangle

Prepared by
The Scientific and Natural Areas Section
Division of Parks and Recreation
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INTRODUCTION

Scope and Organization

This report documents the information collected during a 1979 inventory of Malmberg Prairie. The inventory recorded information on climate, geology, soils, hydrology, plant communities, flora, birds, mammals, amphibians, reptiles, and land use history of the natural area. Data supplied by this document will be used by the Minnesota Natural Heritage Program and other evaluators to assess the site as a potential Scientific and Natural Area (SNA). The document can also be used by scientists, educators, and others interested in the area. Should the site be designated an SNA, management plans can be written using this document as a reference.

This report is divided into five sections including: introduction, abiotic, vegetational, and zoological components, and land use history of the site. Methodologies and results are presented for each section.

The inventory of Malmberg Prairie was part of a larger 1979 effort in which eighteen natural areas in east central, northwest, and southeast Minnesota were surveyed. Inventory team members were: John Borowske, SNA Planning Coordinator; Cherry Keller, Karen Lustig, Deb Schowalter, and Jeff Weigel, Researcher/Writers; Kathy Bolin, Community Specialist; and Nancy Berlin, Tony Busche, Barbara Eikum, Peter Farrell, Joanne Herman, Laura Hill, Susan Ottoson, Deanna Schmidt, Marianne Severson, Angela Tornes, and James Ziegler, Researchers. Gerald Jensen, Coordinator,

Scientific and Natural Areas Program, and Mark Heitlinger, Coordinator of Preserve Management, The Nature Conservancy, Minnesota Chapter served as inventory advisors. Michael Rees, Project Editor, The Nature Conservancy, provided editorial assistance. Other individuals who assisted in the preparation of the inventory are mentioned in the appropriate sections. Their help is gratefully acknowledged.

Description of Study Area

Malmberg Prairie is an 80 acre unit in western Polk County, approximately 11 miles southwest of Crookston, Minnesota. The area's climate is mid-continental, relatively cool and moist, with warm summers and cold winters. Recent glacial activity and associated events have formed a wet, level lowland on the site, which lies in the former southern basin of Glacial Lake Agassiz. Lacustrine clays deposited from deep Lake Agassiz waters overlie glacial drift in the area. Poorly drained, nearly level soils formed in these clays under tall prairie grasses, reeds, and sedges. Present vegetation is predominantly native prairie interspersed with willow thickets and wet meadows.

The flora and fauna of Malmberg Prairie are mostly typical of native Minnesota grassland. Species observed on the tract include: 119 vascular plants, 22 birds, 7 mammals, and 4 amphibians. Fifteen plants not native to Minnesota occurred on the tract. Many mima mounds, formed as a result of mammalian fossorial activity, are present on the tract. Malmberg Prairie lies in an intensely cultivated area of grain, potato, sugar beet, sunflower, and hay production. It has never been plowed or grazed, but was hayed extensively prior to preservation.

Preliminary Assessment of Significance

This section lists features identified by the Minnesota Natural Heritage Program (MNHP) as potential elements¹, and identifies other aspects of the preserve believed by the authors to be important components of Minnesota's natural diversity, or which otherwise might qualify the site for SNA designation. Criteria for SNA evaluation are enumerated in "Minnesota Department of Natural Resources Policy Plan for Scientific and Natural Areas", dated July 6, 1979.

The unplowed, essentially native grassland at Malmberg Prairie is probably the only remaining tract of virgin prairie in the inner Red River Valley (Partch, 1968). A total of three species of national and/or state significance were identified on the site during the 1979 inventory. The White Lady-Slipper (Cypripedium candidum), specific to wet prairie-calcareous soil habitats, has been proposed for federally threatened status by the Smithsonian Institute (Ayense & De Philipps, 1978). The Minnesota Natural Heritage Program lists the White Lady-Slipper, the White-tailed Jack Rabbit (Lepus townsendi), and the Prairie Vole (Microtus ochrogaster) as potential elements of state significance. The occurrence at Malmberg Prairie of the Sharp-tailed Sparrow (Ammodramus caudacuta), listed as having a small Minnesota range, is also noteworthy (Green & Janssen, 1975).

Malmberg Prairie is significant geologically as part of the Glacial Lake Agassiz clay plain. An unusual microrelief condition of unknown origin found on this plain is considered in need of preservation by

1. An element is a natural feature of particular interest because it is exemplary, unique, threatened, or endangered on a national or statewide basis.

Dr. H.E. Wright, Jr. (Geology Department, University of Minnesota).

Dr. Wright believes Malmberg Prairie to be representative of this geologic formation, which is destroyed by cultivation (Partch, 1968). Prairie types on Malmberg Prairie are representative of varying moisture conditions. Low, wet areas are dominated by Cord Grass (Spartina pectinata), Wild Prairie Rose (Rosa suffulta), and Indian Hemp (Apocynum sibiricum); drier sites are dominated by Little Bluestem (Andropogon scoparius).