The 1979 Resource Inventory for Twin Valley Prairie Norman County, Minnesota

NW¼ and E½ of SW¼, Section 23
Township 143 North, Range 45 West
Syre Quadrangle

Prepared by
The Scientific and Natural Areas Section
Division of Parks and Recreation
Minnesota Department of Natural Resources

December 1979 Draft

TABLE OF CONTENTS

INTRODUCTION

Scope and Organization

This report documents the information collected during a 1979 inventory of Twin Valley Prairie. The inventory recorded information on climate, geology, soils, hydrology, plant communities, flora, butterflies, 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 Twin Valley 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

Twin Valley Prairie is a 240 acre unit in southern Norman County, approximately 29 miles northeast of Moorhead, Minnesota. The area's climate is mid-continental, relatively cool and moist, with warm summers and cold winters. A prominent glacial Lake Agassiz beach ridge and associated marsh are found on the site. The beach ridge is visible as a broad,linear swell of wave deposited sands and gravels. Poorly to excessively drained soils formed on Twin Valley Prairie in coarse beach ridge and outwash material under tall prairie grasses and wetland vegetation. Present vegetation includes native prairie, sedge meadow, and marsh communities.

The flora and fauna of Twin Valley Prairie are mostly typical of native Minnesota grassland. Species observed on the tract include: 170 vascular plants, 27 butterflies, 39 birds, 6 mammals and 4 amphibians. Sixteen plants not native to Minnesota occurred on the tract.

Twin Valley Prairie is in a small grain, potato, sunflower, legume seed, and hay production area. A small portion of the natural area has been plowed, and larger areas were hayed prior to preservation. No evidence of domestic grazing was found.

Preliminary Assessment of Significance

This section lists features identified by the Minnesota Natural Heritage Program (MNHP) as potential elements[1], 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.

Twin Valley Prairie is notable as a tract of native prairie on and adjacent to a Glacial Lake Agassiz beach ridge. Six species of national and/or state significance were identified on the site during the 1979 inventory. The White Lady-Slipper (Cypripedium candidum), restricted to wet prairie-calcareous soil habitats (Gleason & Cronquist, 1963), has been proposed for federally threatened status by the Smithsonian Institute (Ayense & DeFilipps, 1978). The Dakota Skipper butterfly (Hesperia dacotae), apparently confined to undisturbed prairie (Howe, 1975), has been proposed as a federally threatened species by the U.S. Fish & Wildlife Service. The Minnesota Natural Heritage Program lists the White Lady-Slipper, the Greater Prairie Chicken (Tympanuchus cupido), the Sandhill Crane (Grus canadensis), the Marbled Godwit (Limosa fedoa), the Prairie Vole (Microtus ochrogaster), and the Dakota Skipper as potential elements of state significance. Greater Prairie Chickens were observed booming on cultivated fields adjacent to the site in 1979. In addition, a positive nesting record was obtained for this species on Twin Valley Prairie.

---

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

A well developed Lake Agassiz beach ridge crosses the site. The ridge has restricted drainage flow, causing a marsh to form adjacent to it. Although Lake Agassiz beach ridges and associated marshes are a common topographic feature in the Red River Valley, many have been cultivated or destroyed by graveling operations. Twin Valley Prairie's beach ridge and marsh are significant as topographically undisturbed landforms supporting native vegetation. The natural area supports one wetland and three prairie vegetation types representative of varying moisture conditions. Cat-tails (Typha latifolia and T. angustifolia), American Great Bulrush (Scirpus validus), and Buxbaum's Sedge (Carex buxbaumii) dominate in wetland areas. Sedges and Cord Grass (Spartina pectinata) dominate in seasonally wet areas, Big Bluestem (Andropogon gerardi), Cord Grass, and Mat Muhly (Muhlenbergia richardsonis) are found on mesic sites, and Big Bluestem, Tall Meadow Rue (Thalictrum dasycarpum), and Wolfberry (Symphoricarpos occidentalis) are found in the driest areas.