

The 1979 Resource Inventory  
for  
Agassiz Dunes  
Polk and Norman Counties  
Minnesota

Section 31, 32  
Township 147 North, Range 44 West  
and  
Section 5, 6  
Township 146 North, Range 44 West  
Flaming and Fertile Quadrangles

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## INTRODUCTION

### Scope and Organization

This report documents the information collected during a 1979 inventory of Agassiz Dunes. The inventory recorded information on climate, geology, soils, hydrology, plant communities, flora, birds, mammals, reptiles, amphibians, butterflies, 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 Agassiz Dunes was part of a larger 1979 effort in which eighteen natural areas in east central, northwest, and south-east 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

Agassiz Dunes is a 417 acre unit on the Polk-Norman County line in northwestern Minnesota, approximately 52 miles northeast of Moorhead. The area's climate is mid-continental, relatively cool and moist, with warm summers and cold winters. Agassiz Dunes is an area of large, undulating sand dunes. Most dunes have been stabilized by vegetation, although some active blowouts exist. The tract's topography is steep to nearly level. Soils of Agassiz Dunes are poorly developed and easily eroded in sand dune areas. Better soil development is found in wooded areas occupying pockets between dunes. The area's present vegetation includes oak savanna, aspen woods, prairie, and sand blowout communities.

The flora and fauna of Agassiz Dunes represent a diverse assortment of native communities. Species observed on the tract include 154 vascular plants, 31 non-vascular plants, 30 butterflies, 69 birds, 14 mammals, 1 amphibian, and 3 reptiles.

Agassiz Dunes lies in a heavily cultivated area of small grain, potato, sunflower, hay, and legume seed production. The natural area was lightly grazed for many years, but was never mowed or plowed. Human use has been mainly recreational on this well-known local landmark.

### Preliminary Assessment of Significance

This section lists features identified by the Minnesota Natural Heritage Program (MNHP) as potential elements<sup>1</sup>, 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.

Agassiz Dunes is notable as an area of wind-formed sand dunes supporting a variety of native plant and animal species. Six species of state significance were identified on the site during the 1979 inventory. The Minnesota Natural Heritage Program lists the Lesser Spiked Sedge (Carex obtusata), Bent Grass (Agrostis hyemalis), Indian Rice Grass (Oryzopsis hymenoides), Rush Pink (Lygodesmia rostrata), Baird's Sparrow (Ammodramus bairdii), and the White-tailed Jack Rabbit (Lepus townsendi) as potential elements of state significance. The tract is the only known site for Indian Rice Grass and Rush Pink in the state (University of Minnesota herbarium collection).

The natural area is significant geologically because it is in the only dune field in Minnesota associated with Glacial Lake Agassiz features (Elson, 1967; Upham, 1896). Many sand dunes are found on the site. Although most dunes have been stabilized by vegetation, some

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

active blowouts exist. A noteworthy successional plant community with characteristic sandbinding pioneer plants is found in blowout areas. Agassiz Dunes supports a mosaic of the following four vegetation types: oak savanna, dominated by Bur Oak (Quercus macrocarpa) in the over-story; prairie, including Lead Plant (Amorpha canescens) and Big and Little Bluestem (Andropogon gerardi and Andropogon scoparius); aspen woods, with a Trembling Aspen (Populus tremuloides) and Bur Oak over-story; and sand blowouts, with Creeping Juniper (Juniperus horizontalis), Sand Reed Grass (Calamovilfa longifolia), and Silky Prairie Clover (Petalostemum villosum).

A number of species found at Agassiz Dunes are at the edge of or beyond their known ranges of distribution. Silky Prairie Clover is disjunct from its main range to the west; in Minnesota it is more commonly found on the Anoka Sandplain (McGregor & Barkley, 1977). Indian Rice Grass is disjunct by at least 150 miles from the eastern edge of its range near the Missouri River, and Hairy Grama Grass (Bouteloua hirsuta) is at the northwesternmost extent of its range (McGregor & Barkley). Bigtooth Aspen (Populus grandidentata) at Agassiz Dunes is at the westernmost edge of its North American range (Fowells, 1965). Several unusual lichen species occur on the tract (Esslinger, 1979). The Reindeer Lichens Cladina mitis and Cladina rangiferina are at their southwesternmost extent in eastern North America; they are more typical of boreal habitats. Irish Moss (Cetraria arenaria), a lichen, is uncommon because of a preference for sandy soils, and Dog Lichen (Peltigera lepidophera) is typically found further

west. The Swainson's Hawk (Buteo Swainsoni) is listed as very scarce in this part of its range (Green & Janssen, 1975). The Western Hognose Snake (Heterodon nasicus) is on the eastern edge of its range at Agassiz Dunes (Breckenridge, 1944).