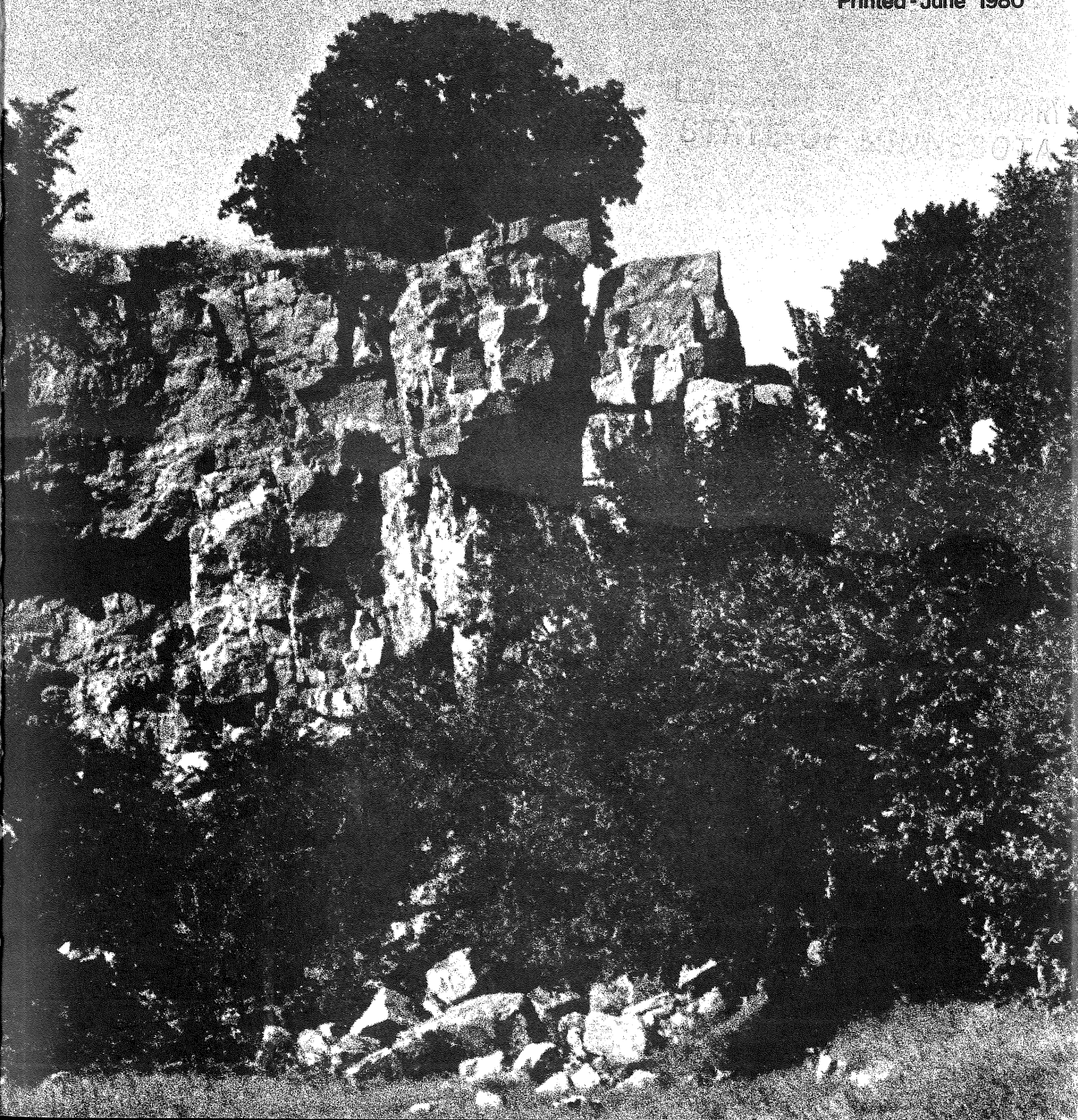
A Management Plan for Blue Mounds State Park

Minnesota Department of Natural Resources

A Management Plan for
Blue Mounds State Park

Prepared by the Minnesota Department of Natural Resources

Approved - May 1979
Printed - June 1980



CREDITS

Department of Natural Resources, St. Paul Staff:

Thomas J. Polasik, Park Planner
Harry R. Roberts, Assistant Park Planner
Otto Christensen, Park Planning Supervisor
Milt Krona, Recreation System Supervisor
Wayland Porter, Park System Supervisor
John Winter, Park Specialist
Merle DeBoer, Operations Specialist
John Strohkirch, DNR, Bureau of Engineering
Linda Magozzi, Editor, Graphic Designer
Gail Tracy, Word Processor Technician
Lori Anthonsen, Secretary, Back Up Word Processor
Norm Holmberg, Graphic Specialist
Greg Rosenow, Graphic Specialist
Ted Troolin, Graphics Para-Professional
Doug Benson, Graphics Para-Professional
Melanie Patton, Graphics Para-Professional

DNR, Field Staff:

Maynard Nelson, Region IV Administrator
Charles Mitchell, Region IV Parks Supervisor
Wallace Bartel, Park Manager
David Dirks, Assistant Park Manager
Ron Miles, Region IV Naturalist
Bryce Anderson, Park Naturalist
Bob Johnson, Area Fisheries Manager
Bob Nelson, District Forester
Earl Johnson, Area Wildlife Manager

Other Individuals, Agencies, or Divisions of DNR That Contributed Through Review or Other Means:

DNR, In-House Review Team
DNR, Bureau of Engineering
Minnesota Historical Society
Christy A. H. Caine, State Archaeologist
Fred Worden, Rock County Highway Engineer
Mike Soboda, Southwest Regional Development Commission
Greg Pettiecord, Southwest Regional Development Commission
USDA, Soil Conservation Service
Minnesota State Planning Agency

TABLE OF CONTENTS

LIST OF MAPS

LIST OF ABBREVIATIONS

ORA '75 - Outdoor Recreation Act of 1975
DNR - Minnesota Department of Natural Resources
MHS - Minnesota Historical Society
MPD - Management Plan Details
GPMP - General Park Management Plan
CETA - Comprehensive Employment Training Act
SNA - Scientific and Natural Area
CSAH - County State Aid Highway
TH - Trunk Highway
I - Interstate
mi - mile
km - kilometer
sq mi - square mile
sq km - square kilometer
ft - foot/feet
m - meter
in. - inch
cm - centimeter
kg - kilogram
cfs - cubic feet per second
cms - cubic centimeters per second
ppm - parts per million
F - Farenheit
C - Centigrade
p - page
pp - pages

PREFACE

The primary concern in the development of the park management plan format for the 1978-79 biennium was the identification of the "audience." For whom are these plans to be written? Eight different audiences were identified.

1. DNR reviewers of the whole planning process
2. DNR reviewers whose main concern is one specific part to the plan
3. DNR regional administrators, supervisors, and park managers
4. SPA reviewers
5. The general public
6. Special interest groups
7. Reviewers of the environmental impacts of proposed actions
8. Legislators

The requirements of each of the audiences are different. All audiences require a document which includes some technical data, but the degree of detail as well as the manner of presentation varies. Some audiences require that specific topics be discussed in detail in all phases from inventory through recommended management. Other groups require a short, non-technical, yet comprehensive and logical management plan. A plan, obviously, cannot be both technical and non-technical nor can it be both long and short. It seemed logical then to produce two documents: 1) a short, comprehensive, non-technical document for the general public ("General Park Management Plan" GPMP), and 2) a detailed, technical document for specialists ("Management Plan Detail" MPD).

This document is the General Park Management Plan. All recommendations, both resource management and physical development, are included in this document. Detailed inventory data and specific instructions necessary for implementation of the plan are not included. This information has been compiled into technical appendices, which are available upon request from:

Park Planning
Department of Natural Resources
444 Lafayette
St. Paul, Minnesota 55101

Introduction

SUMMARY

Classification

Blue Mounds State Park is being recommended for classification as a natural state park. This classification directs that park development and resource management be aimed at protecting, perpetuating, and where necessary, reestablishing the natural resources to a pre-European settlement condition.

Resource Management

The major emphasis of vegetation management in the park will be to reestablish the prairie vegetation communities that once existed throughout southwestern Minnesota. Although large tracts of prairie will never be reestablished to the extent which would allow park visitors to experience the prairie as the first European settlers did, it is possible to restore a remnant prairie and create the illusion of what it was once like.

Wildlife management will maintain and reestablish, where feasible, those wildlife species present in the park before European settlement. The natural wildlife habitat will be enhanced when the prairie is restored to its natural condition. Some waterfowl habitat work will also be done to increase species diversity. The only specific wildlife management project involves managing the buffalo herd as an integral part of the prairie ecosystem.

Proposed Development

Recreational development includes redesigning and expanding the trail system, redesigning the campground, and intensively managing the vegetation in high use areas. Major changes being proposed to existing park facilities are:

1. Construction of a new access road around the east side of the mound following an abandoned railroad grade.
2. Conversion of North Mounds Springs Lake into a marsh environment to purify water flowing into South Mounds Springs Lake.

THE PLANNING PROCESS

The variety of outstanding natural, cultural, and historical resources of Minnesota provide abundant opportunities for outdoor recreation and education. In order to ensure that present and future generations will have the opportunity to enjoy these resources, we must plan now to protect, perpetuate, and provide access to these resources. For this reason, the Minnesota Legislature passed the Outdoor Recreation Act of 1975 (ORA '75).

This act mandated that a comprehensive management plan be completed for each of the major units in the state recreation system. In the course of this planning process, each park will be classified in recognition of its resources and its role in the statewide system.

This plan sets the long range goals and objectives for resource management and recreational development which are appropriate for the park's classification. The actions that should be taken to move toward fulfilling these goals and objectives are then stated and scheduled.

The planning process consists of five steps:

1. Compilation of an inventory of natural resources and existing facilities. Task forces of specialists from other DNR divisions and sections are mobilized to assist in collecting pertinent data. At this point the first public workshop is held.

2. Identification of alternatives for park management and development. A second public workshop is held to review these alternatives and invite further public comment. These alternatives are then reviewed by the Division of Parks and Recreation.

3. Classification of park, development of park goal, and writing draft plan. This step culminates in the first interdepartmental review, followed by a 30 day public review. Within this 30 day period, the third public workshop is held.

4. Revision of the draft plan according to information received from public and interdepartmental reviews. Plan is then sent to the State Planning Agency for a 60 day reviewal period.

5. Implementation of development plan by the Division of Parks and Recreation.

AN OVERVIEW OF BLUE MOUNDS STATE PARK

In 1937 the Minnesota State Legislature authorized the establishment of a 195 acre (79 hectare) park, 4 mi (6.4 km) north of Luverne in Rock County. Subsequent expansions have increased the acreage to 1,995 acres (807 hectares) and has brought the boundary to within 2 mi (3.2 km) of Luverne.

Blue Mounds State Park is located in the Coteau des Prairie Biocultural Region, an extensive upland plateau which separates the watersheds of the Missouri and Mississippi rivers.

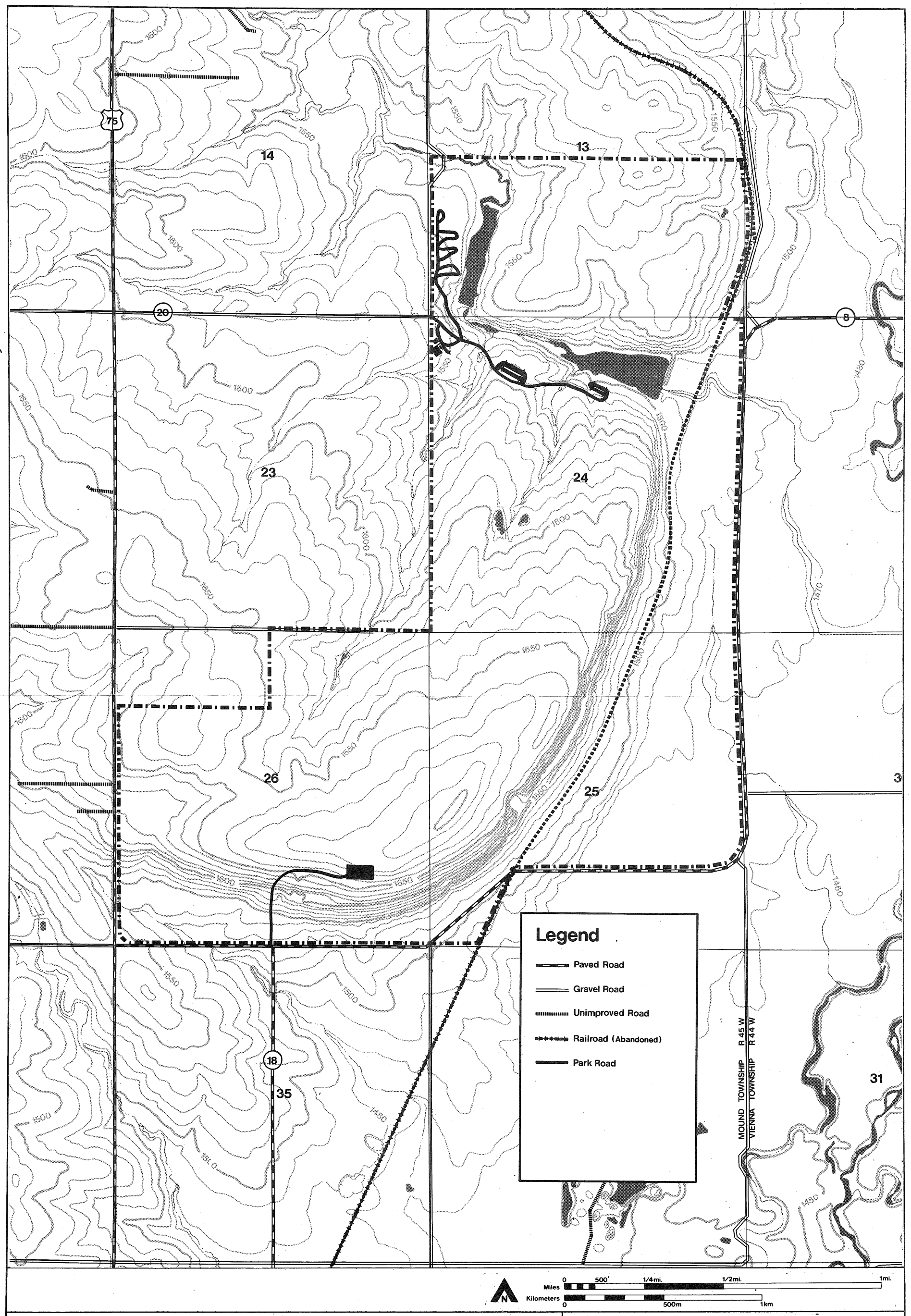
The park is named after a large outcrop of Sioux Quartzite, a hard red rock, which is covered with blue lichen. The highest point of this outcrop is 1,700 ft (581 m) above sea level. The mound is nearly 2 mi (3.2 km) long and up to 100 ft (30 m) high. The top of the ridge consists of 800 acres (324 hectares) of uninterrupted native prairie. Glacial striations and ripple marks evidence the ancient epi-continental sea which once covered the area.

A herd of bison inhabits the park, helping visitors imagine what the prairie once was. The only two lakes in Rock County, North and South Mound Springs, are in the park. These lakes were formed by two dams on Mound Creek.

Present facilities include 73 campsites; a group campground; a picnic area; a swimming beach; an interpretive center; and hiking, skiing, and snowmobiling trails.

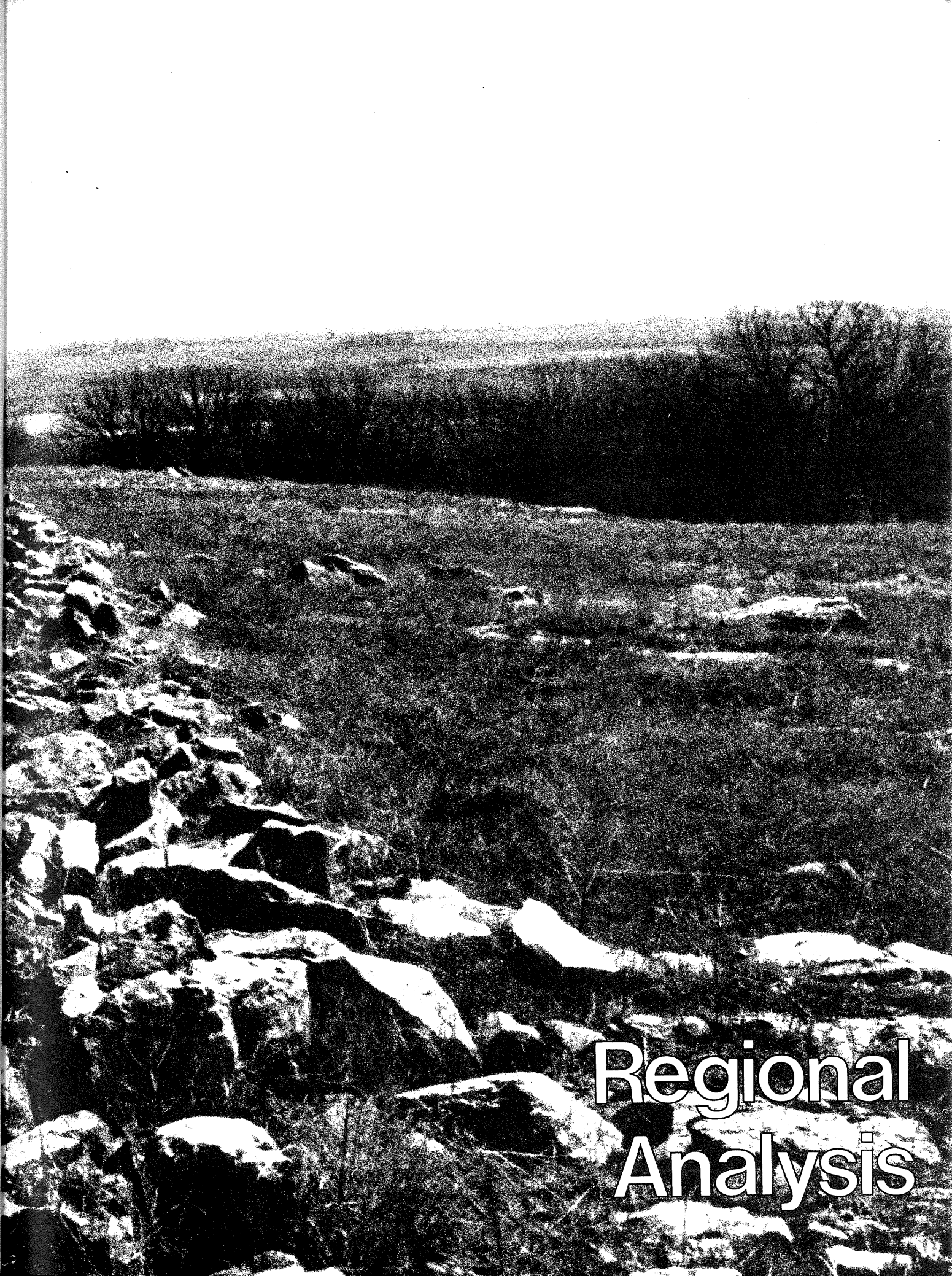
Park use has been growing steadily since the completion of Interstate 90 (I-90) just south of Luverne. Over 134,000 people visited the park during the 1978 season.

9



Blue Mounds State Park

Base Map



Regional Analysis

INTRODUCTION

In order to determine a park's role in protecting and perpetuating natural resources and fulfilling recreational needs, a state park analysis process has been initiated. The analysis is designed to look at a given park's interrelationship with:

the state park system

the biocultural region system

state park use patterns

regional influence/impact factors

Recognition of a state park's interrelationship with these components helps to ensure that park development will be planned to protect natural resources, meet appropriate recreational demands, and avoid undue competition with other recreation providers.

The State Park System

Minnesotans traditionally have a great appreciation for nature. The variety and everchanging beauty of our 65 state parks testify to the vast natural and historic wealth of our state. The goal of Minnesota's state park system is to protect and perpetuate these natural resources while offering the public a variety of recreational opportunities.

There is a delicate balance which must be maintained when recreational facilities are provided for large numbers of people in areas of outstanding, often sensitive resources. Generally, certain resources are best suited for particular types of recreation. To help ensure this recreation/resource balance, the Minnesota legislature outlined in the ORA '75 the components which comprise all state recreational lands. These components are: historic sites, state forests, water access sites, rest areas, state trails, wildlife management areas, scientific and natural areas, wild, scenic and

recreational rivers, wilderness areas, and state parks. Also included in this legislation is a classification system which identifies general criteria for planning and management direction. The two primary classifications for state parks are natural or recreational.

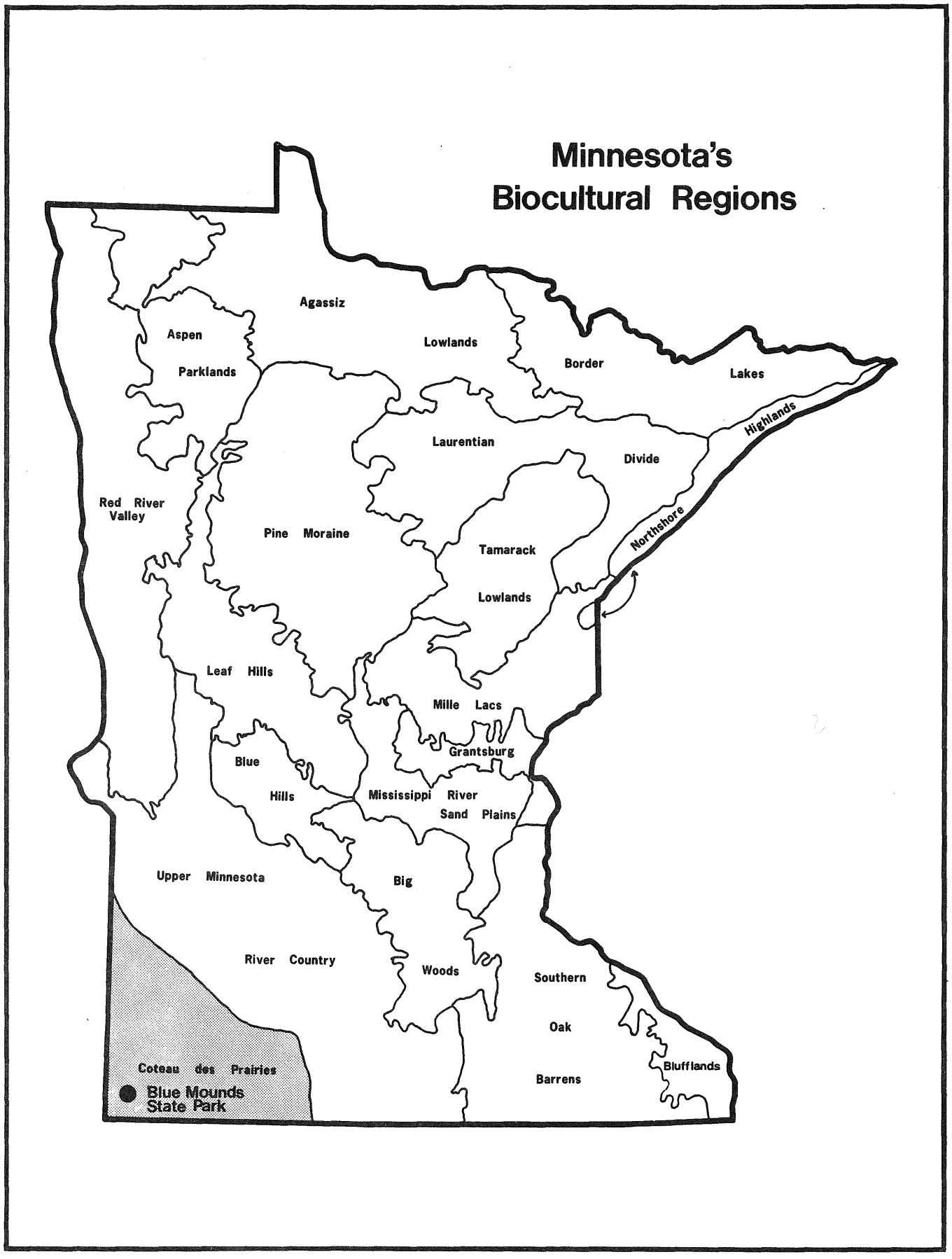
A natural state park classification places primary emphasis on perpetuation of the natural resources. Recreational state park classification, while not allowing major disruption of the natural resources, focuses on providing a variety of recreational facilities for large numbers of people. This classification determines each park's role as a unit in the statewide park system. (See Classification Section, p 21 for further discussion.)

Although Blue Mounds is located in a part of Minnesota which does not draw large numbers of statewide and out-of-state tourists, it has resources which are of statewide significance.

It is the intent of the state park system to protect and perpetuate not only those resources which attract large numbers of users, but all representative examples of the varied resources of Minnesota.

Biocultural Region System (Formerly Landscape Region System)

The ORA '75 defines a landscape region as "an identifiable geographic region with generally homogeneous natural characteristics which exemplify the natural processes which formed the geography, geology, topography, and biology of the state." Since 1975, it has become apparent that human impact on the landscape has not been included to a sufficient extent in this system. As a result, several studies have been directed toward amending the system to include the interrelationship of cultural, biological, and geological impacts on the environment. The system has been renamed the biocultural region system. This system divides the state into 18 regions which are differentiated according to the characteristic plant life, animal life, and landforms of presettlement times and the cultural impacts which have altered the landforms since settlement.


Minnesota's
Biocultural Regions
Agassiz
Lowlands
Aspen
Parklands
Border
Lakes
Highlands
Laurentian
Divide
Red River
Valley
Pine Moraine
Tamarack
Lowlands
Northshore
Leaf Hills
Mille Lacs
Grantsburg
Blue
Hills
Mississippi River
Sand Plains
Upper Minnesota
Big
River Country
Woods
Southern
Oak
Barrens
Blufflands
Coteau des Prairies
Blue Mounds
State Park

Blue Mounds is located in the Coteau des Prairies Biocultural Region. This region is characterized by dry and wet prairie species. To accommodate row crop agricultural, native vegetation was removed from virtually all of this region. Most of the park was at one time under plow. The native prairie on park land that was not cultivated was massively altered by grass fires, heavy grazing, and invasion of non-native plant species. The Blue Mounds State Park management plan will propose reestablishing and perpetuating native prairie species in the park.

State Park Use Patterns

State park users are often classified into two types -- destination and non-destination users. A comparison of the differences and similarities of these users groups will help to clarify the park's role in providing resource and recreation opportunities.

Destination Users

Choose a particular park as a principle destination point

Day Users are local in origin (generally within 50 mi (80 km) of the park). The park provides one of few locations for recreational activities in natural setting within local area.

Example - July/weekday-90% of the picnickers in Blue Mounds State Park are destination users (80% of all park users are swimmers).

Overnight Users are local in origin (generally within 50 mi (80 km) of the park). The park provides camping opportunities in natural setting and a variety of recreational activities

Example - July/10% weekday and 40% weekend/overnight users in Blue Mounds State Park are destination campers.

Non-Destination Users

Will us the park as a stop over point en route to principle destination

Day Users' origins are generally outside a 50 mi (80 km) radius of the park. The park is used for short stop over period to rest and/or picnic.

Example - July/weekday and weekend-25% picnickers of Blue Mounds State Park are non-destination travelers.

Overnight Users' origins are generally outside 50 mi (80 km) radius of the park. The park provides one night stop over for users en route to principle destination.

Example - July/90% weekday and 60% weekend overnight visitors in Blue Mounds State Park are non-destination campers.

The Blue Mounds park manager estimates that the majority of Blue Mounds day users come to the park to swim and 90% of these swimmers come from within 50 mi (80 km) of the park. This clearly demonstrates the park's resource and recreational attraction to local residents. The manager also estimates that the majority of overnight visitors in Blue Mounds come from outside a 50 mi (80 km) radius and use the park as a stop over point en route to a principle destination. Its close proximity to Interstate 90 (I-90) establishes the park as a convenient and desirable camping facility for travelers. In addition, the park is a key stop for people entering Minnesota on I-90 from South Dakota. The park's clean, safe, well-maintained facilities and diversified resource and recreational offerings create a positive impression of Minnesota's state park system.

Because of its historic, archaeologic, and geologic value, students and professional geologists are attracted to the park for resource research and analysis. In addition, the park fills a need for organized group activities. Bus tours for senior citizens and foreign visitors are examples of travel groups which stop at the park because of its aesthetic and resource value. Among the special events in the park are weekly church services during the tourist season and a local fishing derby.

Regional Influence/Impact Factors

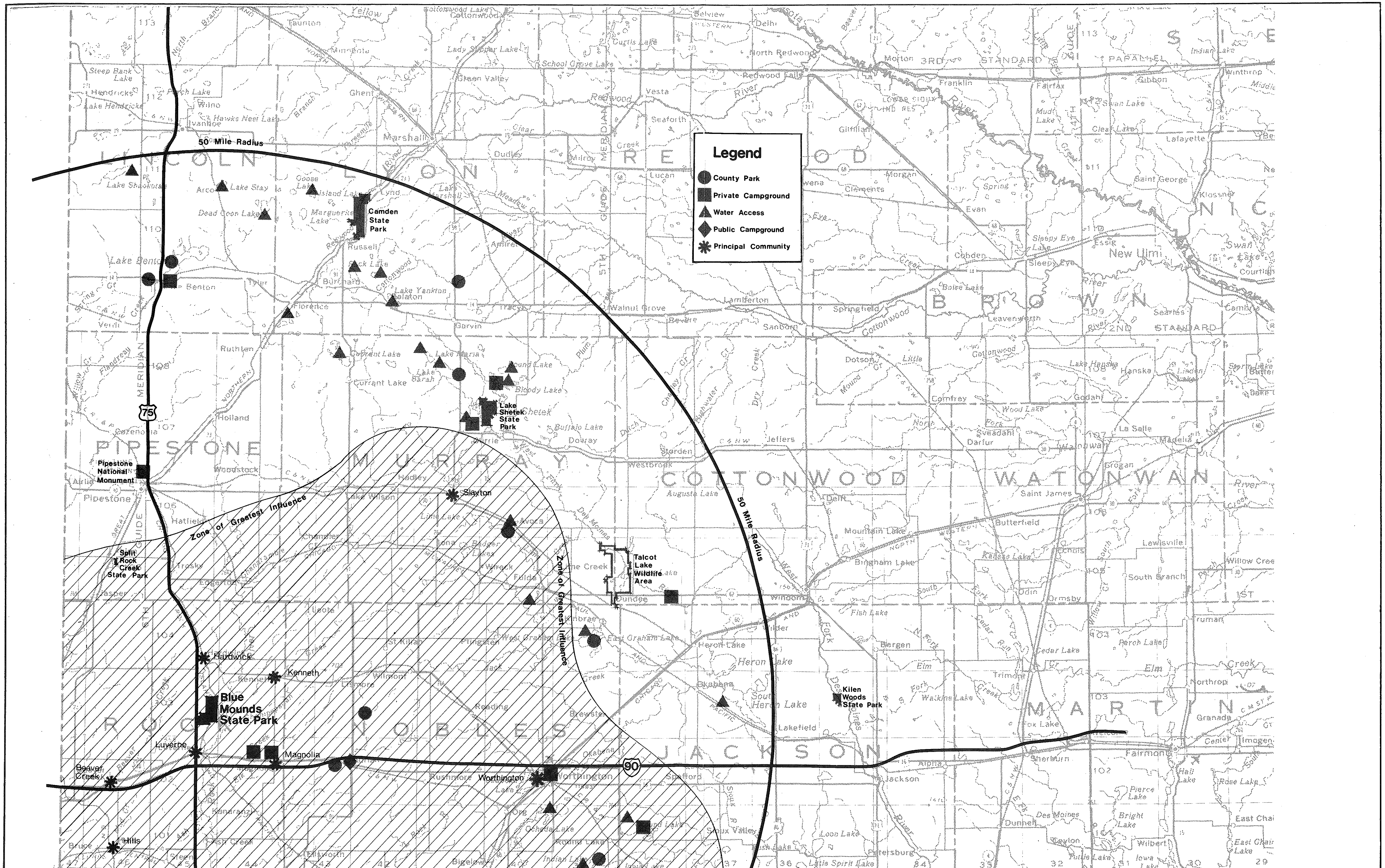
Recreation patterns in the region surrounding a state park must be analyzed in order to adequately plan a park. The basis of this analysis is the relationship between a particular facility and the expectation of the user. The user will visit a state park because of: natural resources, location, facilities, and the experience sought.

The manager estimated that the influence zone shown on the Regional Analysis Map, p 15, best illustrates communities whose residents are most likely to frequent Blue Mounds on a regular basis. In addition, the influence zone highlights area recreational facilities which may complement and/or benefit from park facilities and services.

Activity/Facility Analysis

Recreational facilities within a park's zone may duplicate services, however, some people will consistently choose to frequent one area over another in the pursuit of a particular experience. For example, camping is a recreational activity which state parks provide. Municipal and county parks located within the vicinity of a state park may also have campsites, however, some people will consistently travel to the state park because of the type of experience it offers, namely, camping in a natural setting augmented by other recreational opportunities such as hiking and wildlife observation. Camping facilities may be duplicated elsewhere, but the total activity experience is not.

This interrelationship of desired activity and existing facility supply to experience is an integral part of the regional analysis process. The connection can best be analyzed according to the recreational activities available in a park, the experiences people seek by participating in these activities, and the identification of complementing facilities in the park's influence zone.



Blue Mounds State Park | **Regional Analysis**

On the following chart, Blue Mounds' activities and experiences are analyzed on the left and influence zone complementing facilities are analyzed on the right.

Activity/Experience	Complementing Facilities
Camping	Camping
Blue Mounds' close proximity to I-90 establishes the park as a convenient and desirable area for camping for non-destination campers. The park has 73 semi-modern campsites. Destination campers have indicated their preference to camp at Blue Mounds because of the cleanliness of the facility, the beauty and diversity of the resources, and its convenient location.	Approximately 211 modern campsites are available in private, county, and municipal camping facilities in the Blue Mounds influence zone. Although there are many campsites available in the park's influence zone, the unique camping/activity experience is not duplicated. Split Rock Creek State Recreation Area has 17 campsites in neighboring Pipestone County. Blue Mounds and Split Rock each have a particular attraction and complement one another in function.
Picnicking	Picnicking
Eighty seven percent of the state's population picnics at least once a year. A sizeable portion of Blue Mounds' weekend day use visitors are picnickers. According to a Blue Mounds park use pattern study, people enjoy picnicking at the park because of the scenic environment and opportunities for nature and wildlife observation, swimming, and hiking. The park has 40 picnic sites.	There are approximately 184 picnic sites in the park's influence zone. Split Rock Creek State Recreation Area in Pipestone County also has picnicking facilities (28 picnic tables). The park and the recreation area do not duplicate facilities-each affords a picnicking experience unique to its localized area.

Hiking

Park visitors, many of whom are birders, enjoy experiencing its variety of prairie vegetational types, geologic landforms, and wildlife. According to ornithologists, Blue Mounds is the best birding spot within 100 mi (160 km). To date, 212 species of birds have been identified there. The prairie wildflowers and the park's buffalo herd are also popular attractions for hikers.

Hiking

Other than the Casey Jones Trail in Pipestone and Murray counties and a trail at Split Rock Recreation Area, opportunities for hiking in the influence zone are limited.

Snowmobiling

Currently, 30% of Blue Mounds' winter day use is snowmobiling. The park snowmobile trail offers snowmobilers a scenic ride.

Snowmobiling

There are few other designated snowmobile trail areas in the park's influence zone. For this reason, additional snowmobile trails will be developed in the park. (See Trails, p 63 for further details.)

Ski Touring

The popularity of ski touring has grown rapidly in recent years. People come to Blue Mounds to ski because of the varied and scenic terrain and the lack of better skiing areas.

Ski Touring

No other area within 30 mi (48 km) has ski touring trails at this time. Because of the increased demand and lack of a regional ski touring trail system, development of ski trails has been singled out as a development priority in Blue Mounds State Park.

Interpretation

The function of the interpretive program is to orient visitors to park facilities and resources and to display interpretive exhibits. A variety of slide shows, interpretive talks, and hikes on the natural and cultural history of the park and the Coteau des Prairies Biocultural Region are provided.

Interpretation

Blue Mounds has the only interpretive center and program in the park influence zone. Split Rock Creek Recreation Area does not have interpretive facilities.

Swimming

According to the park manager, approximately 80% of the summer (June - August) day use visitors in Blue Mounds State Park are swimmers. The swimming experience is also enhanced by the opportunity to participate in other park activities such as picnicking and hiking.

Swimming

Blue Mounds has the only lake swimming facility in Rock County. Split Rock Creek Recreation Area in neighboring Pipestone County has the only other swimming beach in the influence zone.

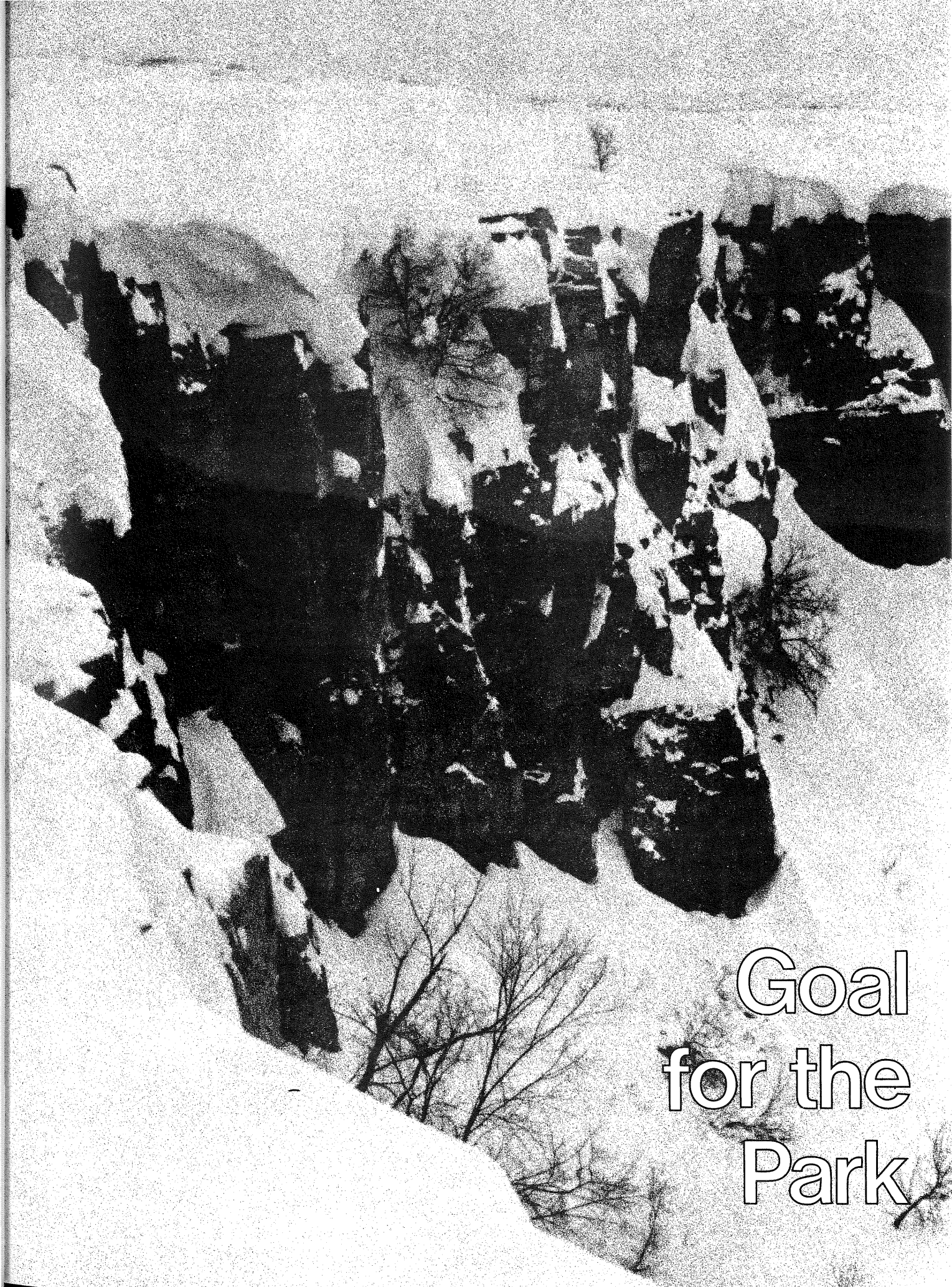
Surrounding Land Use

How land surrounding a park is used may have positive or negative impacts on the natural quality of the park. Understanding land use helps to direct development and landscape management. Land surrounding Blue Mounds is agricultural with the exception of several private residences and a family restaurant.

The park is bordered on the west by TH 75, on the south and east by county roads, and in several places by township roads. At times the park is impacted by traffic noise and dust, but these roads are excellent enforcable park boundaries.

At present, the surrounding agricultural land is compatible with the prairie vegetation of the park. However, certain aspects of farm production have a negative impact near the northeast corner of the park and on private lands within the park.

Some internal land use problems that exist are associated with internal private land holdings. The private land is impacted by functions of the park, but these privately owned parcels also have a major impact on the operation and maintenance of the park. As long as this land remains in private ownership, the plan can only be partially implemented, and the full restoration and management of the prairie cannot be completed. (See Ownership Map, p 80 for further discussion.)



Goal for the Park

CLASSIFICATION

Purpose

The purpose of the classification process as stated in ORA '75 is to establish "an outdoor recreation system which will (1) preserve an accurate representation of Minnesota's natural and historical heritage for public understanding and enjoyment and (2) provide an adequate supply of scenic, accessible, and usable lands and waters to accommodate the outdoor recreational needs of Minnesota's citizens."

Process

In accordance with the ORA '75, the park planning staff has reviewed the classification of each park under study this biennium. After the park resource inventory was completed for each unit, the planning staff determined:

A. Which of the 11 classifications from ORA '75 was most appropriate for the unit.
B. Whether sub-units should be considered to deal with special areas within the unit (scientific and natural areas or other sub-units authorized in ORA '75).
C. Whether administration of the unit should be reassigned to other governmental bodies (other state agencies, county or local governments).

Each park has been recommended for classification according to its resources and will be managed and developed according to the nature of those resources and their ability to tolerate visitor use.

Evaluation of Alternatives

Blue Mounds has the potential to be classified into any one of three units as designated by ORA '75 -- scientific and natural area, natural state park, or recreational state park.

Classification as a scientific and natural area would adequately preserve the resources of the park, but it would eliminate certain recreational activities in the park.

Recreational state park classification emphasizes a wide range of recreational activities, but not to the exclusion of interpretive activities or to the point where the natural resources of the unit are damaged.

Natural state park classification does not necessarily exclude recreational activities from a unit. However, this classification places management and development emphasis on the perpetuation and interpretation of the natural resources of the unit rather than on the development of recreational facilities.

Recommended Classification

Blue Mounds State Park has been recommended for classification as a natural state park because it substantially fullfills the following criteria as required by the ORA '75:

ORA Criterion #1

> "Exemplifies the natural characteristics of a major landscape region of the state, as shown by accepted classifications, in an essentially unspoiled or restored condition or in a condition that will permit restoration in the foreseeable future; or contains essentially unspoiled natural resources of sufficient extent and importance to meaningfully contribute to the broad illustration of the state's natural phenomena."

The park contains the largest example of coteau des prairies (prairie highlands) in the state park system. Over 800 acres (324 hectares) remains undisturbed and another 1,000 acres (405 hectares) can be restored after it is purchased from private landowners.

ORA Criterion #2

> "Contains natural resources sufficiently diverse to attract people from throughout the state."

Most park visitors to Blue Mounds use the park as a stop over on the way to another destination. However, the rare plant communities, the geologic and archaeologic features, and the wide variety of wildlife attract visitors from throughout the state. The park is receiving increased use from school groups, individual students, bird watchers, and naturalists from throughout Minnesota, Iowa, and South Dakota.

ORA Criterion #3

> "Is sufficiently large to permit protection of the plant and animal life and other natural resources which give the park its qualities and provide for a broad range of opportunities for human enjoyment of the qualities. "

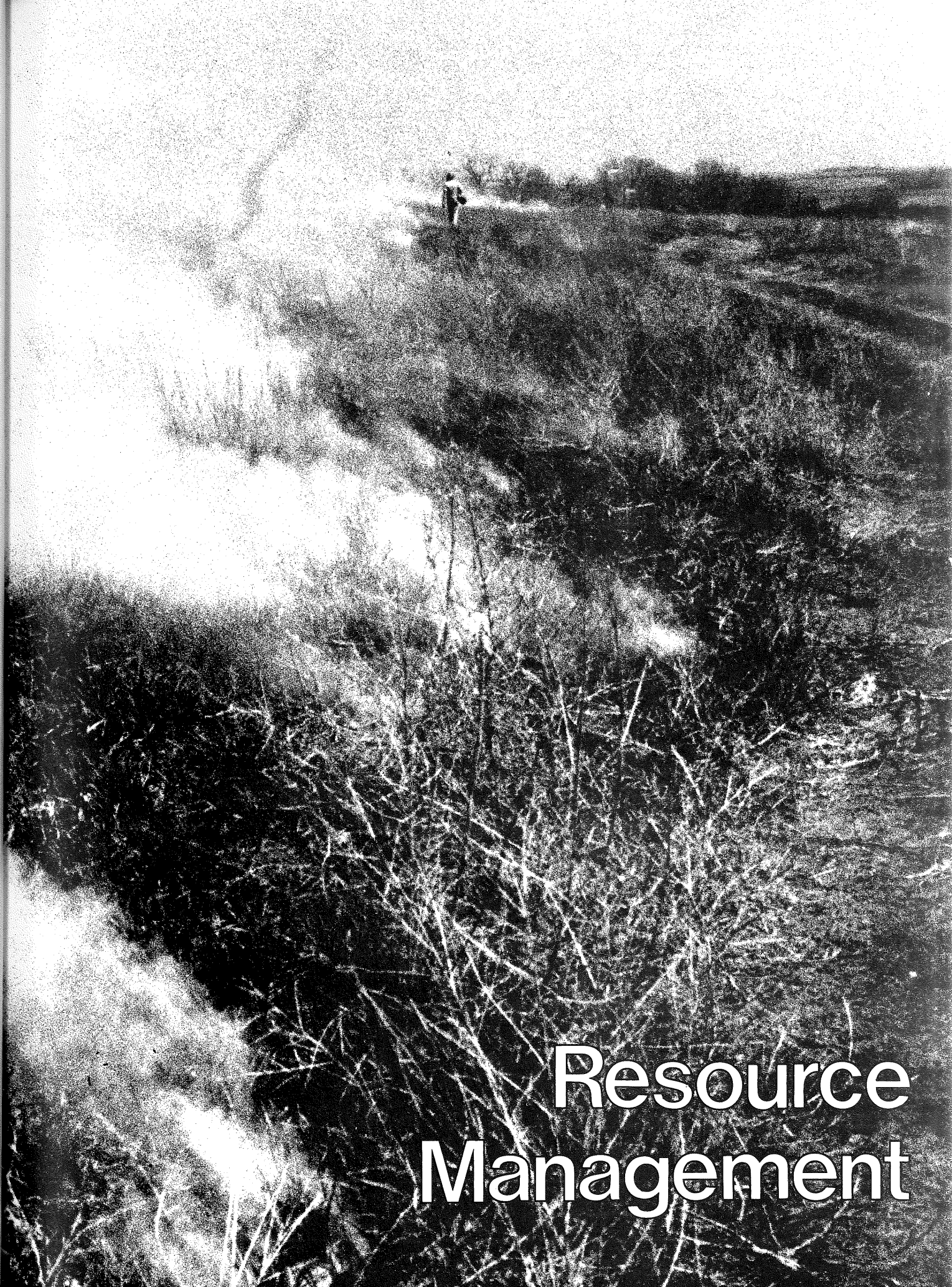
The 1,995 acres (807 hectares) is a large enough area to protect the plant and animal communities while still providing sufficient area for a wide variety of recreational activities.

THE GOAL OF BLUE MOUNDS STATE PARK

After completing an inventory and analysis of the park's resources, looking at park user needs, evaluating the alternative classifications, and applying the goal for all natural state parks, specific management strategies were developed.

The goal for Blue Mounds State Park can be found in the stated goal for all natural parks in the statewide system.

> "The goal for all natural state parks is to protect and perpetuate, as components of the outdoor recreation system, extensive areas of the state possessing those resources which illustrate and exemplify Minnesota's natural phenomena and to provide, without resource impairment, for the use, enjoyment, and understanding of such resources by all citizens of Minnesota now and in the future."



Resource Management

RESOURCE MANAGEMENT OBJECTIVES

The following general objectives are designed to give direction to the management of all the park's resources. In order to ensure consistent management throughout the state park system, comprehensive objectives have been formulated for all natural state parks.

To maintain or reestablish plant and animal life which represent pre-European settlement biotic communities

To utilize resource management techniques that will harmonize with the park's natural systems

CLIMATE

The Coteau des Prairie is within the prairie climatic region of Minnesota. The yearly average temperature over most of the region is 44°F (6.6°C). Extremes may reach 100°F (38°C) and -40°F (-40°C) in winter. Precipitation varies throughout the area, but is generally low compared to other areas of the midwest. Annual precipitation averages 24-28 in. (60-70 cm). Snowfall depth averages 40 in. (100 cm), but has, in record years, reached 68 in. (170 cm). An important influence on the area is a dynamic low pressure trough which often forms over eastern South Dakota. This pressure center causes frequent strong southerly winds to blow across the region. Occasional serious droughts occur. This is typical of all prairie areas of the midwest. (Rowan, 1976)

SOILS

Inventory

The soils of Blue Mounds State Park generally tend to be well-drained, silty-clay-loams with very fine textures. They lie in thin layers over the bedrock. Most of the soils have moderate limitations for recreational development and severe limitations for both sewage lagoons and septic tank filter fields.

Management

Objectives:

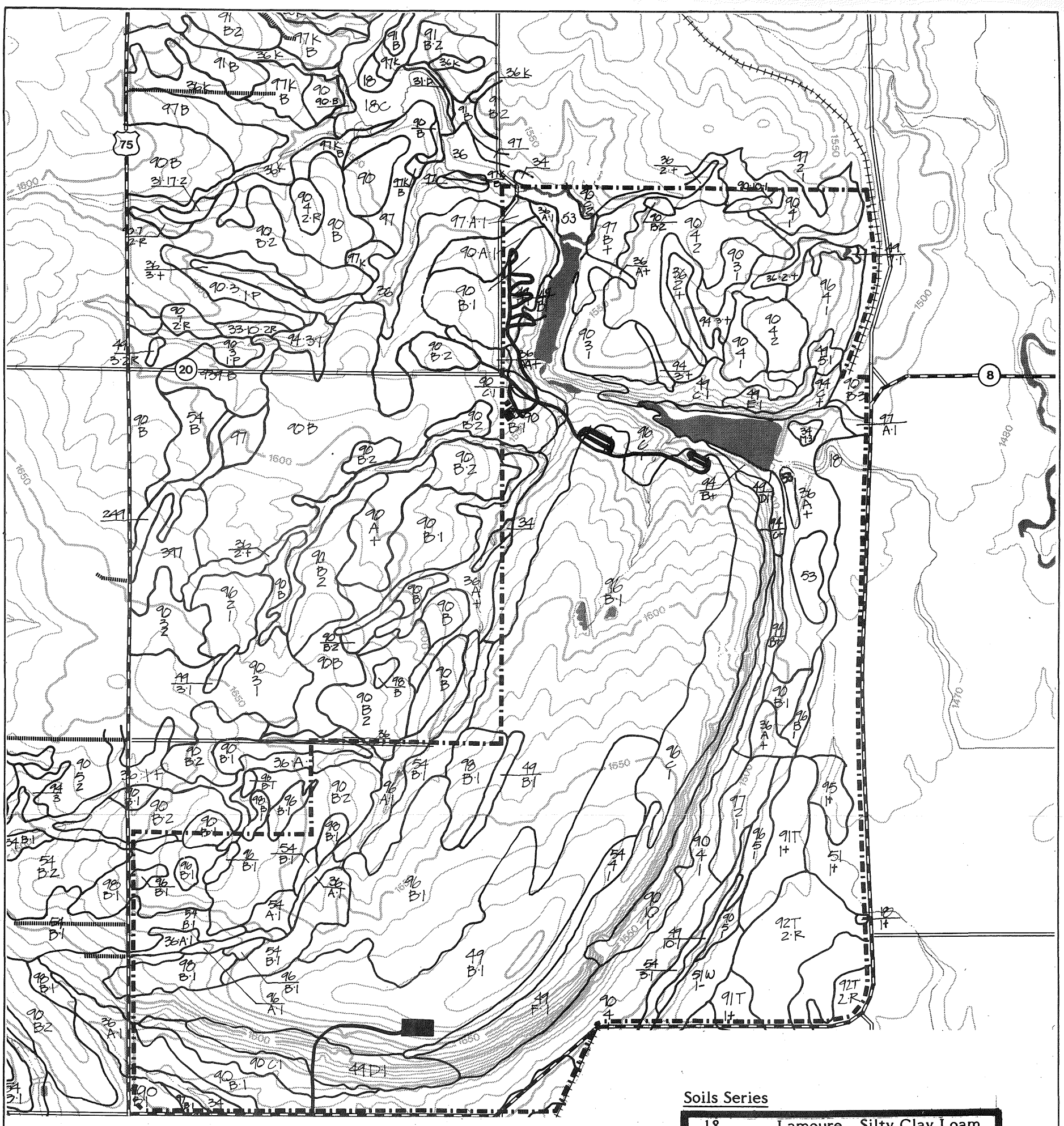
To alleviate or avoid compaction and erosion problems in use areas

To avoid areas, when possible, which require severe limitations to development

- Detailed Recommendations

Existing development is already located on the best soils available. The only major development proposed for this plan is the access road to the interpretive center (see Action # 1, p 68). Soil conditions will be monitored for compaction and erosion, making corrections as they are required.

The Soils Map code consist of a series of numbers and a letter. The first 2 digits refer to the soils series. The third letter or digit refers to the degree of slope. The last digit or the plus sign refers to the degree the soil is eroded.



Erosion

+	Soil is being added to the series
–	No erosion
1	Slightly eroded
2	Moderately eroded
3	Severely eroded

Degree of Slope

A	0-2%
B	2-6
C	6-12
D	12-18
E	18-35
F	35-60

If the code shows a number rather than a letter, it refers to the exact percentage rather than to the range listed above.

Soils Series

18	Lamoure - Silty Clay Loam
34	Afton - Silty Clay Loam
36	Marcus - Silty Clay Loam
49	Rock Outcrop
51	LaPrairie-Silty Loam
53	Marsh
54	Ihlen - Silty Loam
90	Moody - Silty Clay
91 & 92	Estelline - Silty Clay Loam
94	Alcester - Silty Loam
95	Volin - Silty Loam
96	Ihlen - Rock Outcrop
97	Primghar - Silty Clay Loam
98	Ihlen - Shallow Silty Loam

N

Miles: 0, 500', 1/4mi., 1/2mi., 1mi.

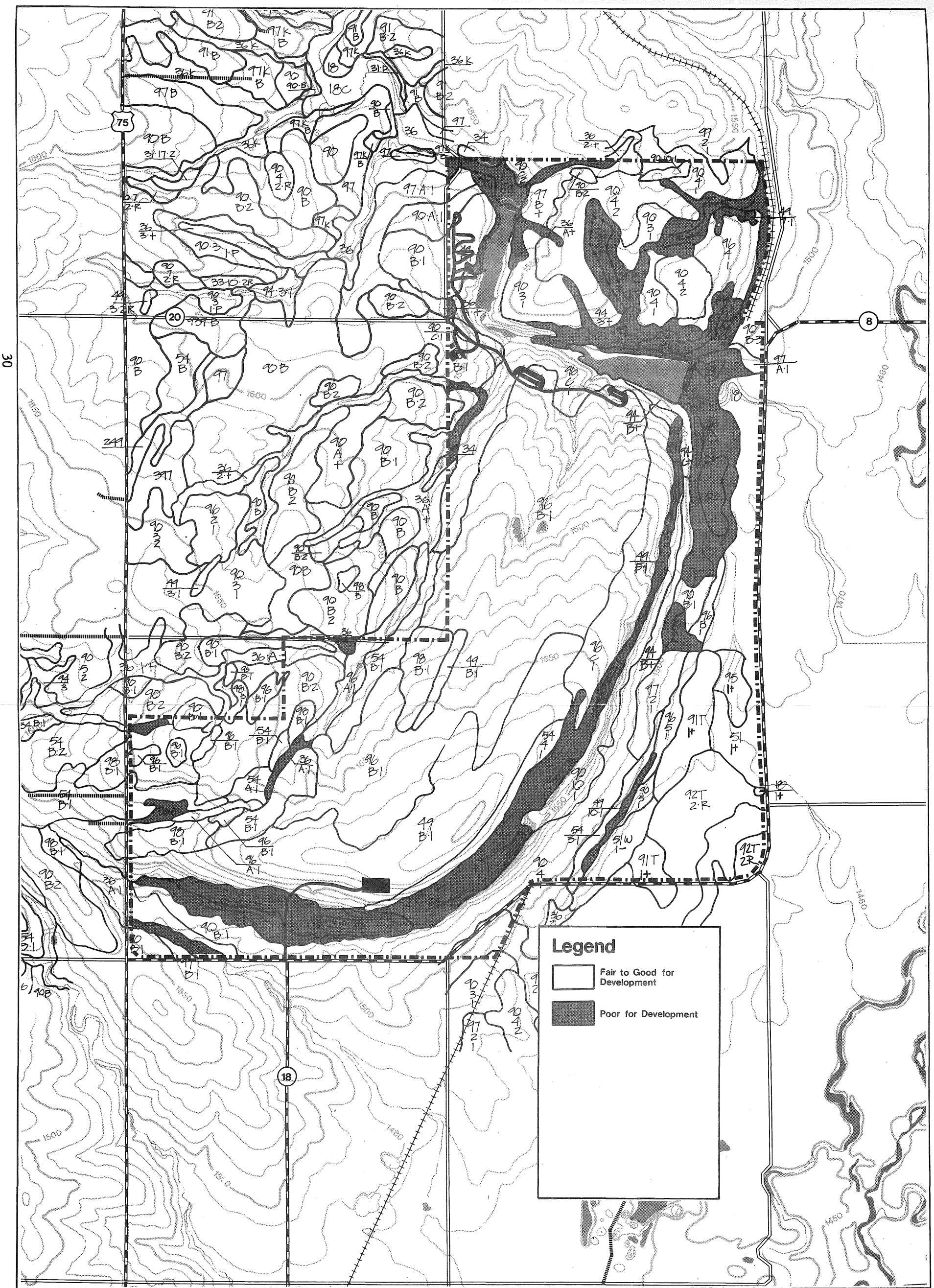
Kilometers: 0, 500m, 1km

Blue Mounds State Park

Soils

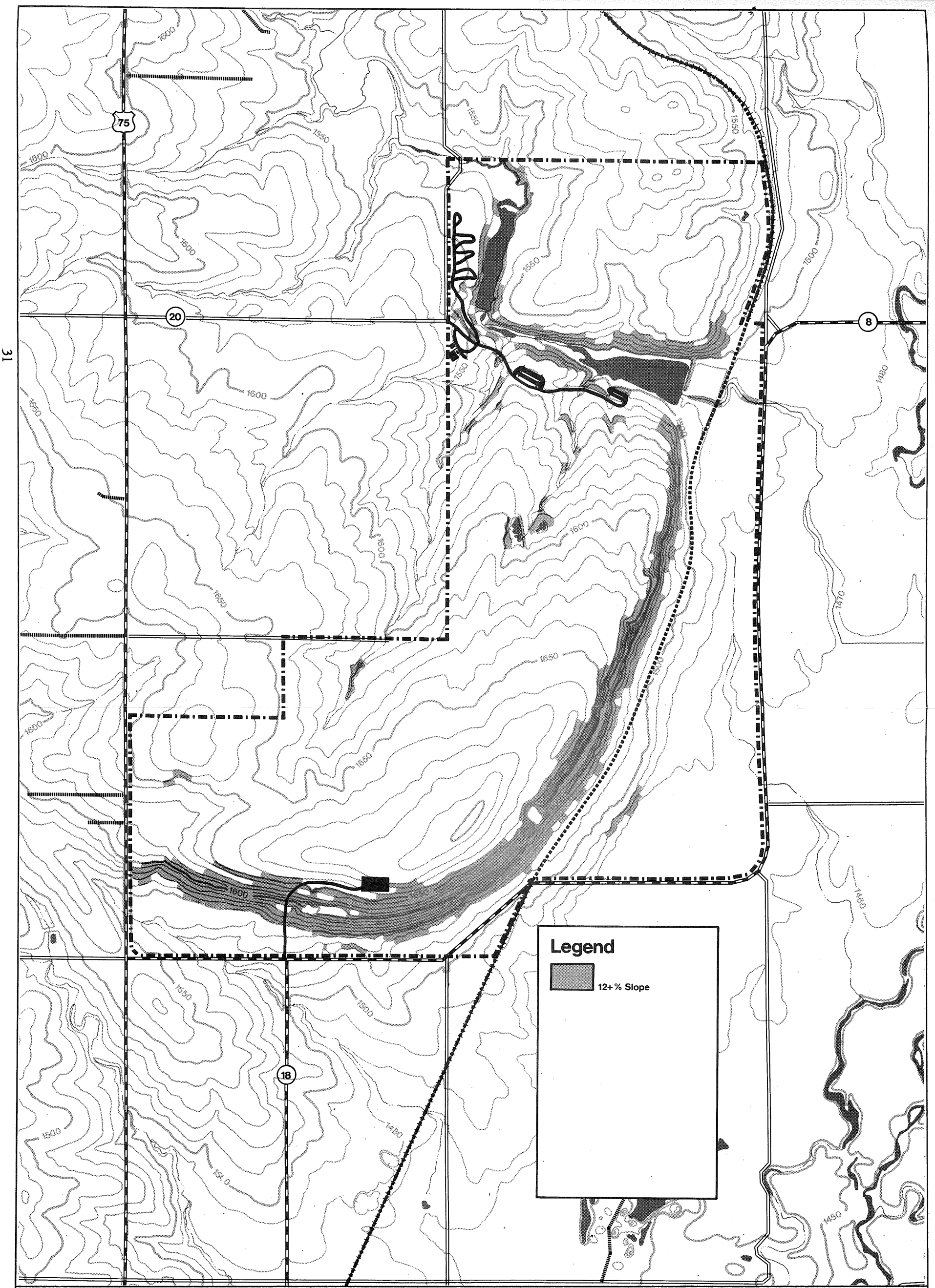
Erosion Hazard	Potential Frost Action	Intensive		Paths and Trails	Recreation Buildings	Sewage Lagoons	Septic Tank Filter Fields
		Picnic Areas	Camp Areas				
Afton	High	VERY POOR severe limitations wetness	VERY POOR severe limitations wetness	VERY POOR wetness	VERY POOR wetness shrink-swell and floods	VERY POOR wetness excess humus	VERY POOR percs slow wetness
Marcus	High	"	"	"	VERY POOR low strength wetness, shrink-swell	"	"
Alcester	High	GOOD slight limitations	GOOD slight limitations	GOOD slight limitations	FAIR moderate limitations low strength shrink-swell	FAIR moderate limitations slope seepage	FAIR moderate limitations percs slow
Estelline	Low	FAIR moderate limitations too clayey	FAIR moderate limitations too clayey	FAIR moderate limitations too clayey	FAIR moderate limitations shrink-swell	POOR severe limitations seepage	GOOD slight limitations
Brookings	High	FAIR moderate limitations too clayey	FAIR moderate limitations percs slow too clayey	FAIR moderate limitations too clayey	FAIR moderate limitations shrink-swell low strength	POOR severe limitations wetness	POOR severe limitations percs slow wetness
Lamoure	No data	POOR severe limitations poorly drained	POOR severe limitations poorly drained	POOR severe limitations poorly drained	POOR severe limitations water table	FAIR-POOR slight to severe limitations water table	POOR severe limitations high water table pollution
Ihlen	High	FAIR moderate limitations too clayey	FAIR moderate limitations too clayey	FAIR moderate limitations too clayey	FAIR moderate limitations depth to rock, shrink swell, above 8% slope is a factor	POOR severe limitations depth to bedrock above 7% slope is a factor	POOR severe limitations depth to bedrock
Ihlen	High	FAIR moderate limitations too clayey	FAIR moderate limitations too clayey	FAIR moderate limitations too clayey	FAIR moderate limitations depth to rock, shrink swell, above 8% slope is a factor	POOR severe limitations depth to bedrock, above 7% slope is a factor	POOR severe limitations depth to bedrock
Moody	High	FAIR moderate limitations too clayey above 8% is a factor	FAIR moderate limitations too clayey above 8% is a factor	FAIR moderate limitations too clayey	POOR severe limitations frost action	FAIR moderate limitations seepage POOR severe limitations slope	FAIR moderate limitations percs slow POOR severe limitations slope

Generally rock is not suitable for development. However, if the area is flat and no excavation is required it may actually be excellent for some uses.



Blue Mounds State Park

Soil Limitations



Blue Mounds State Park

Slope

VEGETATION

Original Vegetation

When the first Europeans arrived in southwestern Minnesota, the whole area, now known as the Coteau des Prairie Biocultural Region, was treeless prairie. Virtually all of this native prairie has been plowed under for farming. Even those tracts which have not been plowed have been either heavily grazed or protected from natural grass fires. These alternations have greatly changed the vegetative character of the coteau. This is clearly demonstrated in a 1977 species survey of an unplowed tract of prairie in the park. (Seasonal report by Bryce W. Anderson, park naturalist). A total of 181 species were inventoried, and 55 of these were non-native species.

In recent years, knowledge of the vegetational components of wet and dry prairies has greatly increased. It is believed that a soil analysis (Grigal, awaiting publication) will provide even more information on the coteau's native vegetation. This survey will greatly assist resource planners and managers in the restoration of the coteau's native prairie vegetation.

Inventory

The vegetation which currently exists within the natural areas of the park can be generally categorized into eight types.

Map
Code, p 36

A Dry Prairie Community - Essentially undisturbed areas with high diversity of native wildflowers and grasses. Few non-native species.

B Wet-Mesic Tall-Grass Community - Essentially undisturbed areas dominated by dense stands of native grasses. Moderate prairie wildflower diversity. Very few non-native species.

C Overgrazed Dry Prairie Community - Areas disturbed by overgrazing, but responding well. Good diversity of native forbs and grasses. Many non-native species present.

D Open and Shaded Cliff Communities - Little disturbance, very unique plant communities. Good diversity. Some portions invaded by non-native forbs, mainly thistles (Carduus acanthoides and Cirsium sp.).

E Poor Prairie Communities - Dominated by brome (Bromus inermis), bluegrass (Poa sp.), foxtail (Setaria sp.), and timothy (Phleum sp.). Poor diversity.

F Prairie Restoration Areas - Reseeded with native grass species.

G Emergent Aquatic Community - Disturbed aquatic areas dominated by cattail (Typha sp.), bulrushes (Scirpus sp.), and several aquatic grasses.

H Cultivated Lands

Areas designated A, B, C, and D are largely undisturbed areas vegetated with native species. Areas E, F, G, and H are in need of specific management to restore their native character.

Management

- Natural Areas

Objective:

To protect, perpetuate, and restore prairie ecological communities

- Detailed Recommendations

Map
Code, p 36

A Dry Prairie - Very little management is required other than prescribed burning and protection from visitor overuse. These

areas need not be included in any bison grazing program as they are located, for the most part, on sloped land with numerous outcrops. It was probably an undesirable grazing area for bison in presettlement times.

The burning plan for these areas should favor prairie wildflowers over grasses (very early spring burning). These areas were probably dominated by forbs rather than bunch grasses due to the shallow soil and rock outcroppings.

Plant species of special concern are two native species of prickly pear cactus (Opuntia humifusa and Opuntia fragilis). Fire will kill or inhibit the growth of prickly pear. However, prickly pear is native and has survived prairie fires for centuries. This is one reason why it is generally found near the shelter of a rock outcroppings. If a decrease in the prickly pear population is evident after several consecutive years of prescribed burning, the interval between burns should be lengthened. This should maintain a prickly pear population which closely approximates presettlement conditions.

B Wet-Mesic Tall-Grass - These areas, having deeper soils and more moisture than dry prairies areas, contain almost pure stands of needlegrasses (Stipa spartea and Stipa viridula) in the spring and early summer and big bluestem (Andropogon gerardii) from mid-summer on. Other native grass species and wildflowers are scattered throughout the area.

The prescribed burn plan for these areas should favor native tall grasses and inhibit shrubs and introduced grasses (mid-spring burning at frequent intervals). The bison herd can occasionally graze in this area to control woody shrubs.

Big bluestem and other selected species of seed should be harvested for use in other nearby parks where native seed sources do not exist. Harvesting could be done in these areas

providing it is done (1) no more than every other year and (2) no earlier than mid-September to avoid disruption of the aesthetic appearance of the park during the high use season to ensure a ripe seed source.

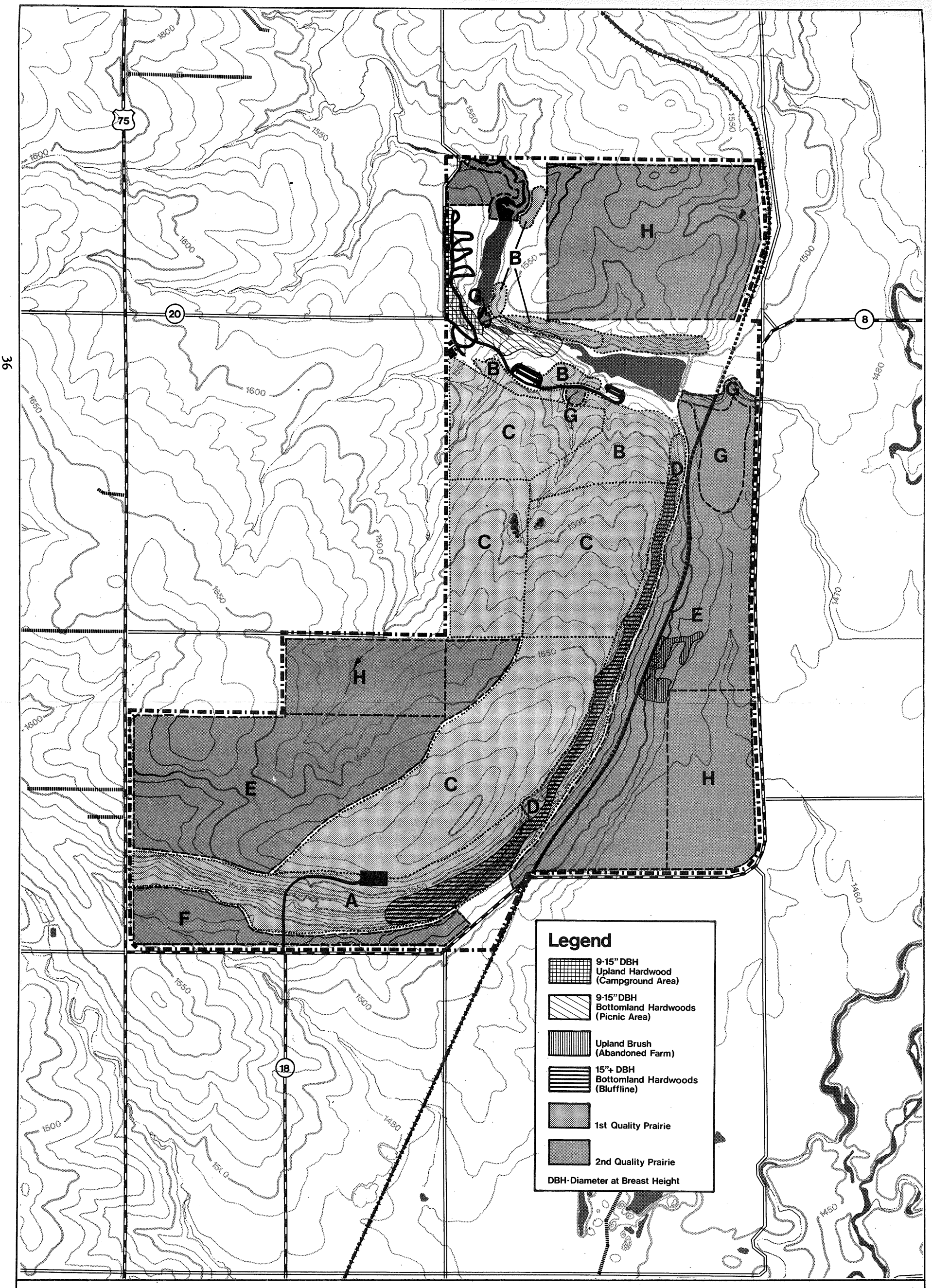
C Overgrazed Dry Prairie - These untilled, overgrazed areas have gone through dominant species changes annually for many years and will probably continue to do so. They have a good diversity of native wildflowers, but they lack abundance. Studies have shown that severely overgrazed prairies take from 200 to 100 years to fully recover.

These areas should be managed with early spring, prescribed burning and infrequent, light bison grazing to control woody shrubs beginning no earlier than 1982. (See Wildlife, Action #1, p 41.) Noxious weed control should begin immediately. This area is vulnerable to the spread of non-native, noxious weeds. Herbicide should be used to control only non-native, noxious weeds by hand spraying only. Non-selective spraying will destroy thestruggling native flora and increase the vulnerability of the area to noxious weeds the next year.

The prairie burn demonstration plot, located near the interpretive center, should be maintained for interpretive purposes and research as described in the 1978 prescribed burn proposal.

D Open and Shaded Cliff - These two communities contain unique plant life as well as some dense stands of both species of prickly pear. Generally this area needs no specific management. However, there is a noxious weed problem along the base of the cliff where seed tends to accumulate. The noxious weed control measures described for the overgrazed dry prairie should also be carried out here, except that some broad-spectrum herbicides may be used on solid stands of noxious, non-native weeds.

The trees along the cliff (bottomland hardwoods, 15"+ dbh, see Vegetation Map, p 37), present an interesting management problem. Their presence is aesthetically pleasing to most park



Blue Mounds State Park

Vegetation

visitors. However, in presettlement days there were very few trees growing along the cliffs. Frequent prairie fires inhibited the growth of woody species, exposing the lichen covered cliffs which are also aesthetically pleasing. Occasional burning should be done to keep seedling trees in check. Firewood permits may be issued as a management tool.

E Poor Prairie - These areas are typical "brome fields" (timothy and other non-native grasses dominate in some areas). Varied burning techniques should be carried out here. Broadcast seeding of local native wildflowers and grasses should be done when time permits. Plowing and reseeding is not recommended, as natural successional methods are less disruptive and more completely successful.

F Prairie Restoration Area - This area was seeded with non-local native grasses (Nebraska) in the spring of 1977. Response has been slow. The area should be left alone except for mowing once a year. If foxtail continues to predominate, periodic burning should be done. No further introduction of non-local seed should be permitted.

G Emergent Aquatic Areas - No management is needed in the areas near the lakes (including the small pothole next to the park road). Water level fluctuations which occur in these areas should not be altered. The area below the cliffs, south of Mound Creek, should be managed to restore the wetland which once existed. However, before removing the levy and tiles and increasing the water level, the county engineer should be contacted. Restoration should be done in cooperation with the area wildlife manager.

H Recently Cultivated Lands - Reseed area in harvestable, single species stands of native grasses and forbs, using the seed for plantings in other areas within the biocultural region.

Action #1. Conduct periodic prescribed burns according to the schedule designated for each management area.

Cost. Operational budget

Action #2. Control noxious weeds according to procedures outlined in each management area.

Cost. Operational budget

Action #3. Seed areas which have been cultivated with prairie seed taken from sources within the biocultural region.

Cost. Contingent on land acquisition

Action #4. Remove levy and drain tiles to restore wetlands.

Cost. See Surface Waters, Action #5, p 46.

Action #5. Remove the shelter belt around the abandoned farmstead by cutting for firewood or burning. The stumps should be left in place to avoid damaging sensitive prairie soils.

Cost. Operational budget

■ High Use Areas

Objectives:

To provide recreation, in a prairie setting, without damaging sensitive vegetation communities

To provide shade and shelter for park users

To screen high use areas from view

• Detailed Recommendations

Action #1. Native prairie plants should be used in landscaping high-use areas of the park, especially the campground and picnic area.

Cost. See Camping, Action #1, 3, and 4, pp 59-61 and Picnicking, Action #1, p 62.

Action #2. An experimental planting of buffalo grass (Buckloe dactaloides) should be started in the campground.

A small area should be seeded (soil preparation and planting should be done according to the best techniques now available) and another small area should be plugged (transplants) with buffalo grass. The areas will then be watched closely to determine: (1) if the buffalo grass will spread, maintain itself, or die out; (2) in which area it grows faster; (3) if it will be attractive and enhance to the visual appearance of the campground.

Buffalo grass needs no watering or mowing. However, during the period of establishment there will be other grasses mixed in with the buffalo grass. Mowing the area should continue as with non-seeded areas except the mowing height should be adjusted to cut just above the level of the buffalo grass. This will retard the growth of other grass species.

Cost. $600

Action #3. Buffalo grass from local sources should be seeded in the interpretive center lawn.

Cost. $600

WILDLIFE

Inventory

An abundance of wildlife inhabits or visits Blue Mounds State Park. Surveys show that 222 bird, 24 mammal, and 6 reptile and amphibian species have been observed in the park in the past four years. Another 15 bird, 8 mammal, and 2 reptile species are thought to be in the area, but have not been observed. Within this large, diversified group are a few species worthy of special note and management concern. The bobolink, upland sandpiper, and dickcissel species of birds, which are important in the prairie ecosystem, may need management consideration in the future to maintain their numbers. The blue grosbeak, although fairly common in some other areas of eastern North America, is very rare in Minnesota. Blue Mounds is one of the few areas in Minnesota where this beautiful bird can be observed. Special management for other wildlife species in the park may be considered in the future, especially where those species play a key role in recreating a portion of Minnesota prairie.

As in most of southwestern Minnesota, there is very little winter deer habitat left near Blue Mounds. Presently up to one half of the Rock County deer population winters in Blue Mounds. They come from an area of approximately 160 sq mi (414.4 sq km). The population of the park increases from approximately 20 deer during the summer to over 150 in the winter. If the herd increases much more, an artificial feeding program may be necessary.

The bison, eastern cougar, elk, pronghorn antelope, grizzly bear, blacktail prairie dog, and prairie chicken were all residents or visitors to the Minnesota prairies in presettlement times. Because of the park's small size, the lack of habitat, and human presence, none of these species could be reintroduced into this park to recreate the appearance of the former coteau. However, a bison herd has been reestablished in an enclosed area and is doing well. The only problem is overgrazing within the enclosure. A second enclosure adjacent to the first, has been built to help alleviate this problem. The DNR regularly auctions off some of the stock to maintain herd size.

Management

Objectives:

To increase reestablishment of native species and population diversity within the park

To protect sensitive species and their habitat

To increase wildlife visibility for park users

• Detailed Recommendations

Action #1. The bison herd should be retained as a part of the prairie management program and to exemplify wildlife originally found in the area.

Bison were a major factor responsible for maintaining the area as prairie. They will be used in experimental vegetation management programs to reestablish native prairie plant species. The results of these experiments will be carefully studied to more fully understand the effectiveness of using buffalo for prairie vegetation management.

If their use proves impractical, they may still be kept in the park in large enclosures. A pasture rotation system will then be initiated to prevent overgrazing. Since there is very little information available on management of buffalo, a considerable amount of research will have to be done to determine such things as herd size, size of pastures, stock breeding schedules, frequency of surplus auctions, the possibility of allowing interaction with the public, and other management information.

Cost. Operational budget

Action #2. Park staff should continually monitor the significant species mentioned in the inventory.

If this observation results in locating individual animals, nests, or dens, development will, in all cases, be halted, changed, or delayed in deference to the species or habitat.

Since Blue Mounds has been recommended for classification as a natural state park, protection and perpetuation of wildlife and habitat must take precedence over recreational development.

Cost. Operational budget

SURFACE WATERS

Inventory

The surface waters in Blue Mounds consist of Mound Creek, North and South Mound Springs lakes (two reservoirs on Mound Creek), three intermittent streams, a few scattered potholes, and numerous springs or seeps. The predominant bodies of water are the two lakes. These were surveyed by the DNR, Division of Game and Fish in 1947 and in 1948. A preliminary public waters survey was conducted recently.

There is a lack of aquatic vegetation in these lakes. This is probably caused by three factors: compaction, water turbidity, and inability to obtain rootholds in the soft, silty bottom.

Partially as a result of run-off from feedlots and poor agricultural practices in the Mound Creek watershed, North Mound Springs Lake has become a settling basin for Mound Creek. It is only 3 ft (1 m) deep and is rapidly silting in. At present, it has no value for fisheries or wildlife.

South Mound Springs Lake is currently managed for fisheries and has a swimming beach. However, both of these activities are being threatened by an overflow of silt from North Mound Springs Lake and agricultural run-off. If the problems are not corrected, the beach will have to be closed because it is becoming a health hazard.

There is an intermittent stream on the park's east side. This stream is usually dry, but did maintain water during 1978.

There are potholes throughout the park. Two of the potholes are artificial and have potential for wildlife management.

Management

Objectives:

To improve water quality in North and South Mound Springs lakes

To provide safe, clean swimming facilities in South Mound Springs Lake

To continue managing South Mound Springs Lake for fisheries

To manage the park's stream and potholes for wildlife

• Detailed Recommendations

Action #1. Conduct detailed water quality surveys of North and South Mound Springs lakes.

Existing surveys are 30 years old. It is essential to have accurate data if effective management decisions are to be made.

Cost. Operational budget

Action #2. Complete a structural analysis of the Mound Creek dams which form the two lakes and correct any existing structural problems.

The dams are 40 years old and are showing signs of age. Following this inspection, the dams should be checked regularly to ensure their safety.

Cost. DNR, Bureau of Engineering

Action #3. Construct a water level control device in the North Mound Springs Lake dam.

A spillway will make it possible to adjust the water level of the lake. This will make it possible to help control siltation and hopefully save the lake from total destruction.

Cost. $5,000

Action #4. Temporarily drain the water from North Mound Springs Lake.

North Mounds Springs Lake

South Mounds Springs Lake

Mound Creek

Drained marsh (to be restored)

Artificial watering ponds (to be naturalized)

B

75

20

8

18

Legend

See text, pp 44-46.

N

Miles 0 500' 1/4mi. 1/2mi. 1mi.

Kilometers 0 500m 1km

Blue Mounds State Park

Water Resources

Lowering the water level will make conditions more favorable for the lake to become a marsh and will help establish emergent vegetation. Marsh vegetation acts like a giant sponge, drawing nutrients out of the water that flows through it. This will result in cleaner water flowing into South Mound Springs Lake. It will also improve wildlife habitat in North Mound Springs Lake. All of the water should be drained from the lake until only 3-4 in. (7-10 cm) remains. Once vegetation has been established, it may be possible to restore the original water level. The park manager and area wildlife manager should thereafter determine the optimum water level.

Cost. None

Action #5. Plug all old drain tiles and remove all unnatural ditches and dikes in the area south of Mound Creek near the east park boundary which is to be restored. (See Water Resources Map, p 45). Consult with county engineer to ensure that restoration of water levels will not impact existing county roads.

Because the park is being recommended for classification as a natural state park, all permanent development on the prime prairie areas should be eliminated. This action will assist in the restoration of the wet prairie communities which originally existed in the area.

Cost. $5,000 - Contingent on land acquisition

Action #6. Regrade the two artificial ponds in the southwest 1/4 of Section 24 to enhance aquatic vegetation growth and wildlife utilization.

The ponds are nearly sterile. They will appear much more natural with regrading and will eventually provide habitat for wildlife.

Cost. $2,000 - Contingent on land acquisition

GROUNDWATER

Inventory

Very little is known about the quality of the groundwater in the park, but the hydrologic investigations atlas and the well log for the park headquarters well do provide some data.

Unlike the surface water in the park, the groundwater flows predominantly in a southwesterly direction. Data indicate an ample supply of water. The headquarters and picnic area wells are drilled 138 ft (41.3 m) and 260 ft (78 m) into the Sioux Quartzite acquifers. Generally, this acquifer provides the best quality water in the area, if wells are over 300 ft (90 m) deep. However, there are some surface seepage problems for shallower wells. Annual tests by the Department of Health have shown the water to meet acceptable standards.

The geology and hydrology of the large mound of quartzite have created numerous springs throughout the park.

Management

Objective:

To maintain or improve groundwater quality

To maintain water quality in the park's springs

- Detailed Recommendations

There are no specific recommended actions for groundwater management. However, development within and adjacent to the park must be carried out so that groundwater contamination is avoided. Groundwater should be tested regularly to ensure safe drinking water.

The springs do not require any special management other than careful observation to make sure that they are not destroyed or contaminated.

Sources

Anderson, H. W. Jr., Broussard, W. L., Farrell, D. F., and Felsheim, F. E., "Water Resources of the Rock River Watershed, Southwestern Minnesota," Hydrological Investigations Atlas Ha-55, (St. Paul: Department of Natural Resources, Division of Soils and Minerals, 1976).

Minnesota Department of Natural Resources, Bureau of Engineering, Well Log # P034, 10.03.

FISHERIES

Inventory

The fish population of South Mound Springs Lake was surveyed in 1947. Species found were common sucker, German carp, orangespot and green sunfish, black crappie, black bullhead, Topeka shiner, and flathead minnow. The park naturalist collected fish species from Mound Creek just below South Mound Springs Lake in 1978. The species collected were largemouth bass, white crappie, green pumpkinseed, red ear sunfish, yellow perch, Johnny darter, tadpole madtom, black bullhead, white sucker, and bluntnose minnow. Species identified in the creek, but not collected were plains top minnow, brook stickleback, common shiner, stone roller, and carp. There is a good possibility that most of the species found in the stream could also be found in the lake, but this cannot be confirmed without test netting or trapping.

Management

Objective:

To provide fishing opportunities for park visitors and area residents

- Detailed Recommendations

Action #1. Continue existing panfish and limited northern (when available) put-and-take stocking program.

South Mound Springs Lake has a few scattered patches of coontail and sago pondweed, but will probably never have enough spawning habitat to ensure a natural fish population. If Mound Creek water quality is improved, it may be possible to stock a larger variety of species.

Cost. DNR, Section of Fisheries

Action #2. Provide an access for landing canoes and small boats on South Mound Springs Lake. (See Proposed Development Map, p 60.)

A small parking area should be provided at a point near the lower dam where people can carry boats to the water. The lake is so small that motorized boats must be prohibited. Currently canoes and small row boats are carried down to the lake from the picnic area parking lot. An authorized lake access should be provided for park users.

Cost. $1,500

HISTORY/ARCHAEOLOGY

Inventory

Projectile points and other tools found in the park and surrounding area indicate the former presence of prehistoric people. There is also a mysterious rock wall which may date back to prehistoric times.

There are no known historic sites within the park. Research needs will be determined if any sites are identified.

Management

Objectives:

To identify, protect, and eventually interpret all historical and archaeological features in the park

There is an immediate need to stimulate and implement research projects which will shed light on the specific location and time frame of prehistoric activity within the park.

These research projects should result in sufficient information to warrant focusing the park's interpretive program on prehistoric activity.

The following prehistoric research needs were identified by Christy A. H. Caine, state archaeologist.

> The Blue Mounds State Park contains a stone alignment which may be prehistoric and a possible bison drive site. Because of these unique features, this park could potentially be one of the most important in the state for public interpretation of prehistoric archaeology. However, the only way to assess this potential is to implement a plan for thoroughly examining the archaeology of the park.
>
> ### Archaeology of Blue Mounds State Park
>
> A number of small surveys were done in Blue Mounds State Park in 1968, 1969, and 1971. Two sites have been recorded within the statutory boundary of the park and a number of additional sites are located

immediately outside the park. These sites are summarized below. (See History/ Archaeology Map, p 54.)

Recorded Sites Within the Park

21-RK-8 Blue Mound Site
Located at the southern end of the park near the cliff. The major feature is a lengthy stone alignment which may be of prehistoric origin. The function of this feature has been variously interpreted as part of a bison drive structure and as an astronomical alignment. It is also possible that the structure is historic in origin. A bison kill site might be located at the base of the cliff.

21-RK-10 Campsite
Located on a hill east of the point where Mound Creek flows out of Upper Mound Lake (North Mound Springs Lake). Possibly a small camp or worksite. Similar to a number of other small sites immediately adjacent to the park.

Archaeological Surveys

G. J. Hudak, in his summary of work done in the park in 1971, also summarizes the previous archaeological work. Most survey work has focused on the cliff and stone alignment, investigating the possibility of a bison jump (Borass 1968; Dickenson 1969). The 1971 survey (Hudak) also focused on locating other archaeological sites in the area. The most recent work in the park was apparently done in 1978 (Strachan, state permit application) but no report on the nature of the work done or its results has been submitted.

Recommendations for Future Work

Based on a review of the survey report data and a discussion of the archaeology of the park with G. J. Hudak (Feb. 19, 1979), it is recommended that the following be incorporated into the management plan for Blue Mounds State Park:

Phase 1: Archaeological Research

Action #1. A thorough literature search regarding the use of the Blue Mounds area by early white settlers should be undertaken. This would help clarify the possibility that the wall alignment is of historic white origin and may also confirm or deny early reports of bison bone deposits at the cliff base.

Action #2. A systematic survey of the entire park should be undertaken. Previous surveys have been mainly concentrated on the cliff and stone alignment and there may be other unlocated sites within the park.

Action #3. Additional surveys should be undertaken along the Rock River. Hudak's work in 1971 demonstrated the presence of small encampments surrounding Blue Mounds. The location of all such sites may be of importance in interpreting the significance of Blue Mounds prehistorically.

Action #4. An accurate map of the Blue Mound area should be prepared locating the wall, mounds, giving azimuth readings of the known encampment sites and any new ones located by survey, and locating any other landmarks of possible significance.

Action #5. Deep testing of the base of the cliff should be undertaken. Such testing should consider the possibility that bone deposits might be as much as 15-20 ft (4.5-6 m) below the present surface.

Cost. $10,000

Phase 2: Archaeological Research

Action #1. Results of the survey and mapping project should be assessed, to test hypotheses regarding the astronomical significance and other possible functions of located features.

Action #2. A number of the small encampments should be intensively tested to determine their age, function, and relationship to the Blue Mounds area.

Action #3. If a bison jump kill site is located by deep testing, plans should be made to excavate portions of the site.

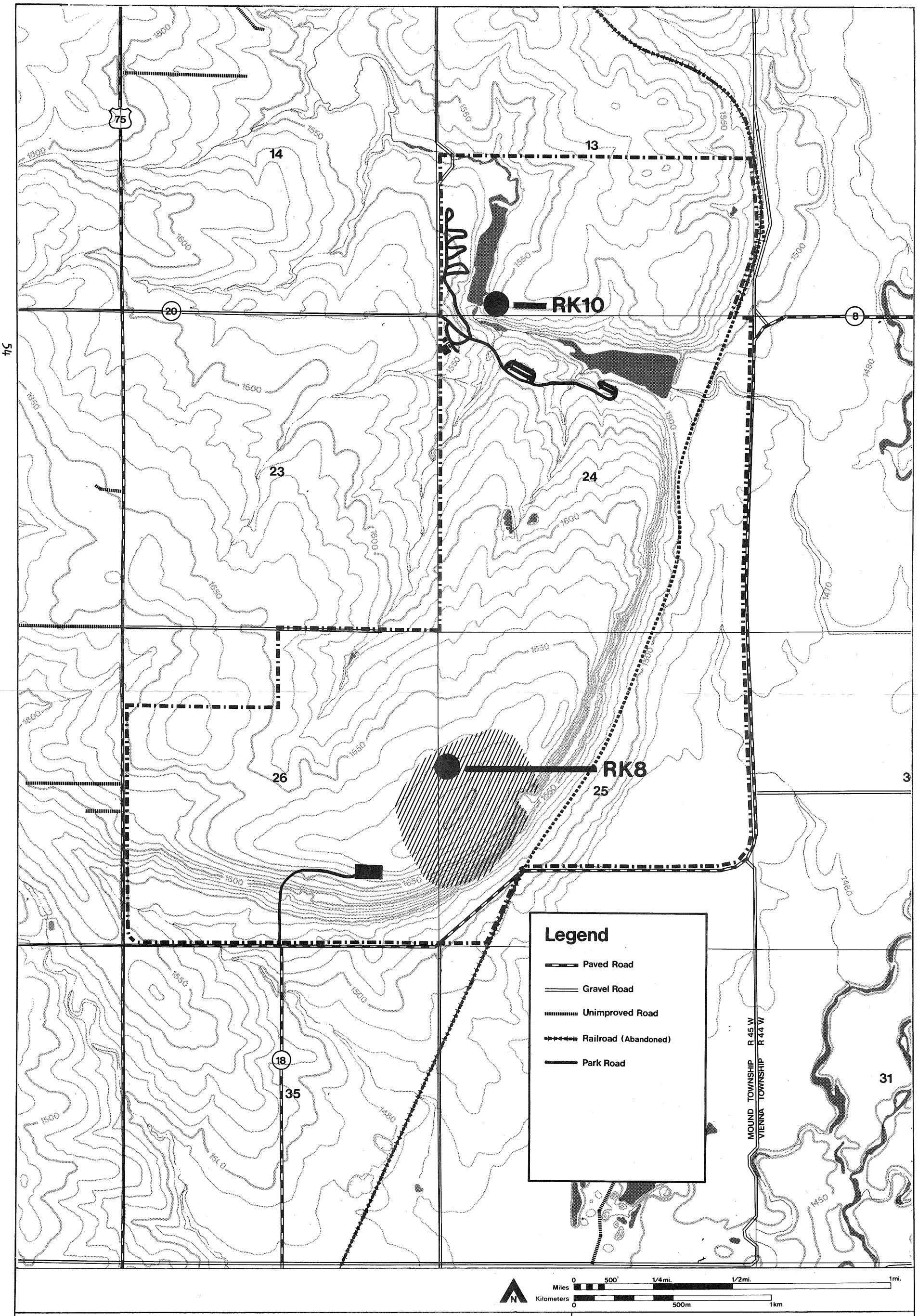
Following these archaeological phases, interpretation of the archaeological significance of Blue Mounds can be undertaken.

Cost. Contingent on Phase I findings

Implementation of Phase 1

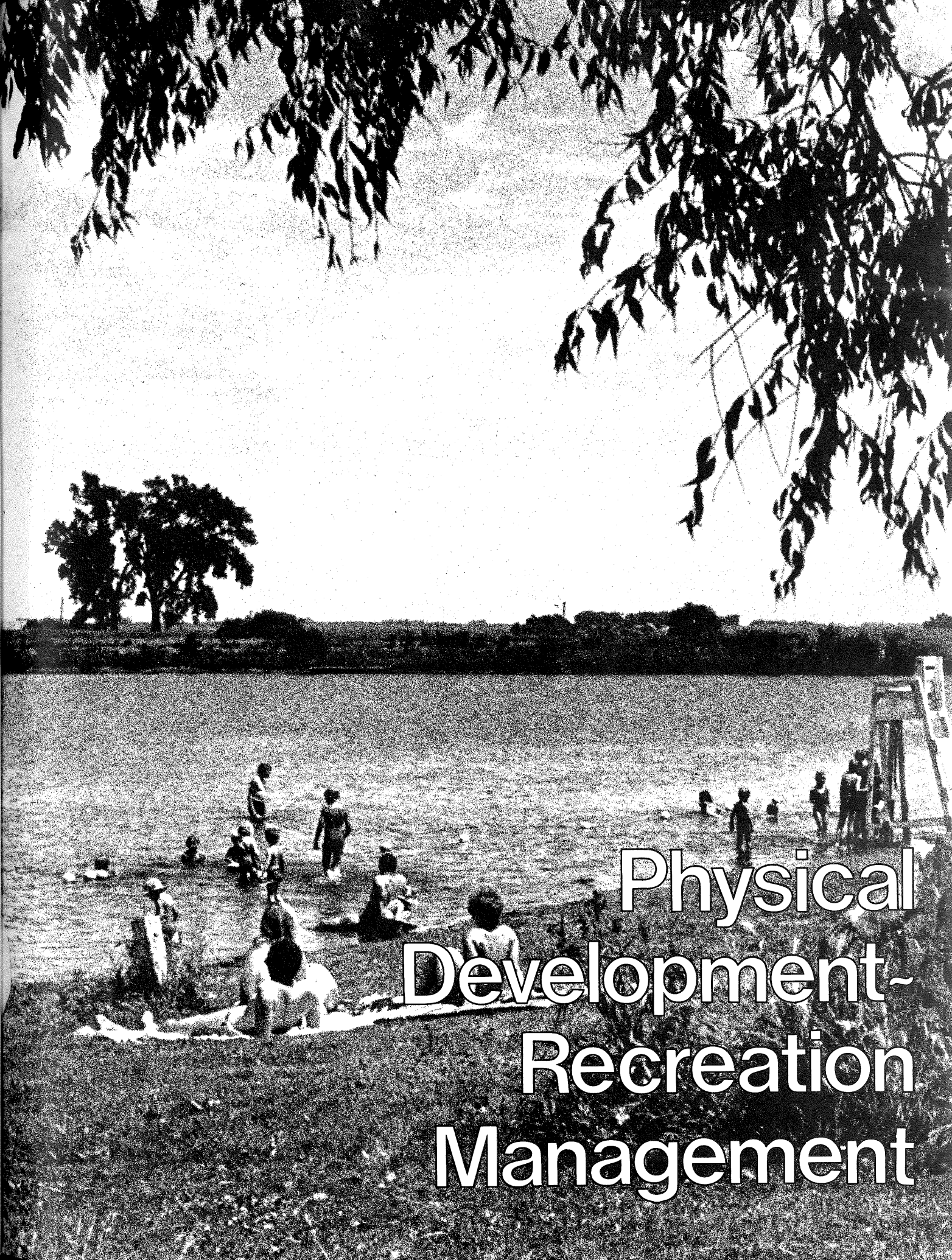
Proposals for the implementation of Phase 1 should be solicited. Bidders should be asked to submit both a business proposal which itemizes costs and a technical proposal which explicitly addresses each of the items outlined for this phase. The field portion of this phase would take up to 4 weeks to complete.

Since a state license for work in the park would be required, the State Archaeologist's Office should be consulted to review the technical proposal for the proposed work. All work should conform to Council for Minnesota Archaeology survey standards and guidelines issued by the State Archaeologist's Office.



Blue Mounds State Park

History/Archaeology



Physical Development~ Recreation Management

EXISTING DEVELOPMENT

The picnic area on South Mound Springs Lake contains 40 picnic sites with tables and fire places, a picnic shelter, an amphitheater, and a modern sanitation building.

The campground is located on North Mound Springs Lake. It has 73 campsites-17 with electrical hookups, two modern sanitation buildings with flush toilets and showers, and a trailer dump station.

Other recreational facilities include an interpretive center, a 100 person capacity primitive group camp, a swimming beach with bathhouse, and 7 mi (11.2 km) of hiking and snowmobiling trails.

PROPOSED DEVELOPMENT

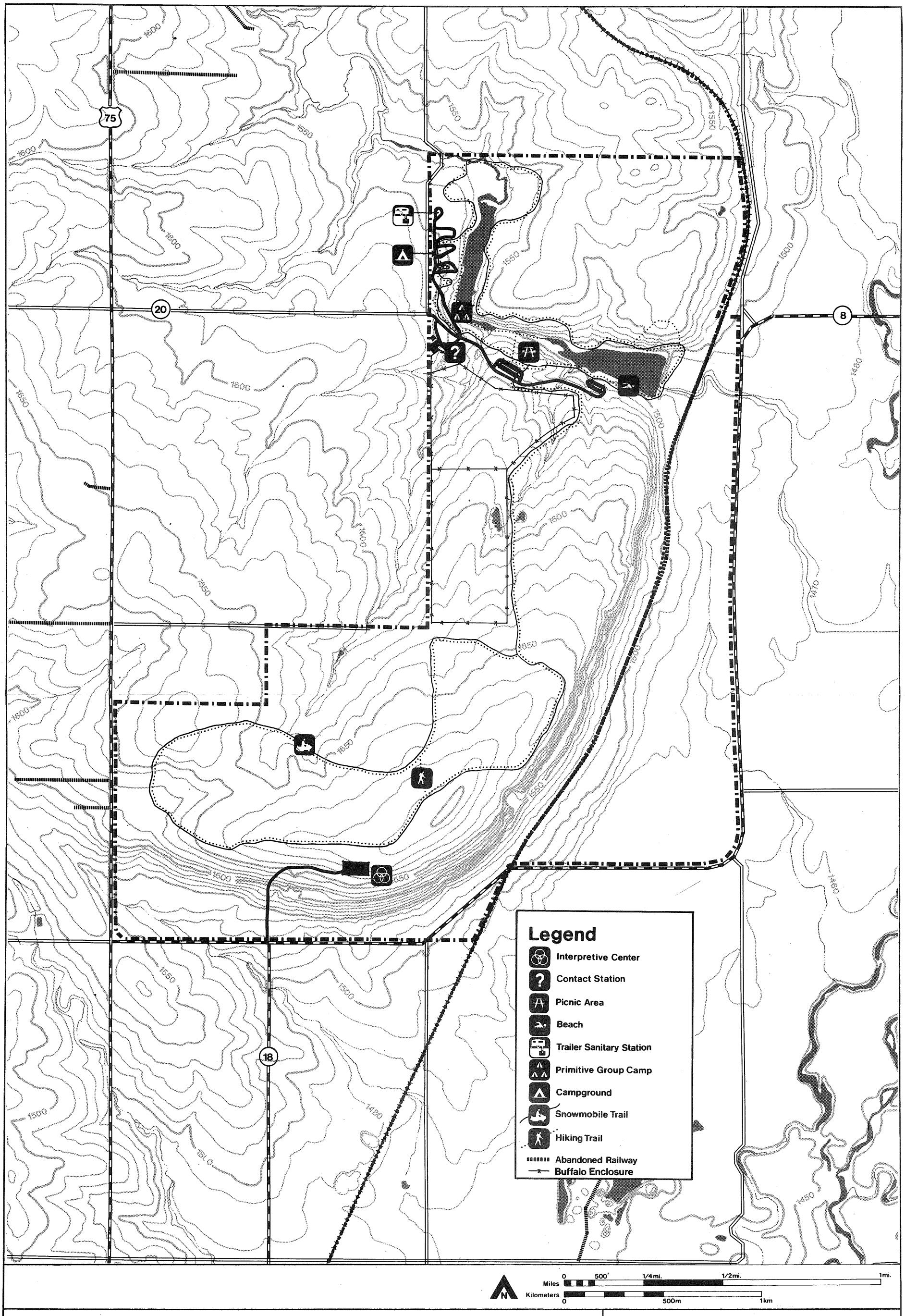
Overview

Since Blue Mounds State Park has already been developed close to its maximum potential, very little additional development is being proposed.

Physical development within Blue Mounds State Park will be limited to that which is necessary for appropriate park use and enjoyment and efficient management. Facilities should be provided only under carefully controlled guidelines against unregulated and indiscriminate use, ensuring the protection of park resources. To the highest practical degree, location, design, and materials for facilities should be consistent with the objectives of protecting and perpetuating the natural environment.

Administrative facilities, including roads and trails, are necessary for proper management. Public accommodations, such as campgrounds, are needed to provide the public with an opportunity to enjoy and use the unique environments set aside for them.

Such facilities have been wisely located, designed, and constructed at Blue Mounds. They serve to protect park values by focusing and directing the uses of the park. For example, roads and trails channel



Blue Mounds State Park

Existing Development

use within specifically designated locations, preventing indiscriminate use of a larger area which could damage or destroy some of the very resources the park has been set aside to protect.

The facilities are generally compatible with the natural environment. Those which are in discord with their surroundings will be modified.

It is policy to provide recreational opportunities for all people within the state. However, extreme topographic relief at times precludes extensive use by people with physical disabilities. (For instance, providing trails which are accessible to everyone in areas of rugged topography may require such an extensive system of "switch-backs" and hard surfacing that the natural "atmosphere" for which the park was established is destroyed.) Therefore, the DNR will concentrate efforts upon providing accessibility in those areas which have the most potential for utilization by people with physical disabilities. Keeping in mind the ideal of providing recreational opportunities for all individuals, a systematic approach will be followed to remove barriers and to provide for use and enjoyment by all park visitors.

The policy for establishing and maintaining a good outdoor recreation system is stated in ORA '75 as follows:

> "The Legislature finds that the unique natural, cultural, and historical resources of Minnesota provide abundant opportunities for outdoor recreation and education, and finds that these opportunities should be made available to all citizens of Minnesota now and in the future.
>
> ...preservation and proper utilization of Minnesota's outdoor recreational resources is becoming increasingly important to the health, welfare, and prosperity of the citizens of Minnesota due to the growing demand for outdoor recreational facilities and the spread of development and urbanization in the state."
>
> ...outdoor recreational needs of the people of Minnesota will be best served by the establishment of an outdoor recreation system which will (1) preserve an accurate representation of Minnesota's natural and historical heritage for public understanding and enjoyment and (2) provide an adequate supply of scenic, accessible, and usable lands and waters to accommodate the outdoor recreational needs of Minnesota's citizens. "

Camping

Objectives:

To continue providing park visitors with the opportunity to enjoy the park on a 24 hour basis

To minimize the contact between individual campsites while maximizing contact with the prairie environment

Action #1. Redesign and remodel the existing family campground and remodel the sanitation building.

The existing campsites are very close together and are similar in appearance. Privacy is non-existent. The sites are exposed to the sun and offer little contact with the prairie.

Campsite spacing will be increased to existing state park standards and native groundcover and inter-site screening will be planted. The actual area of the campground should be expanded to maintain the existing number of sites.

Cost. $45,000

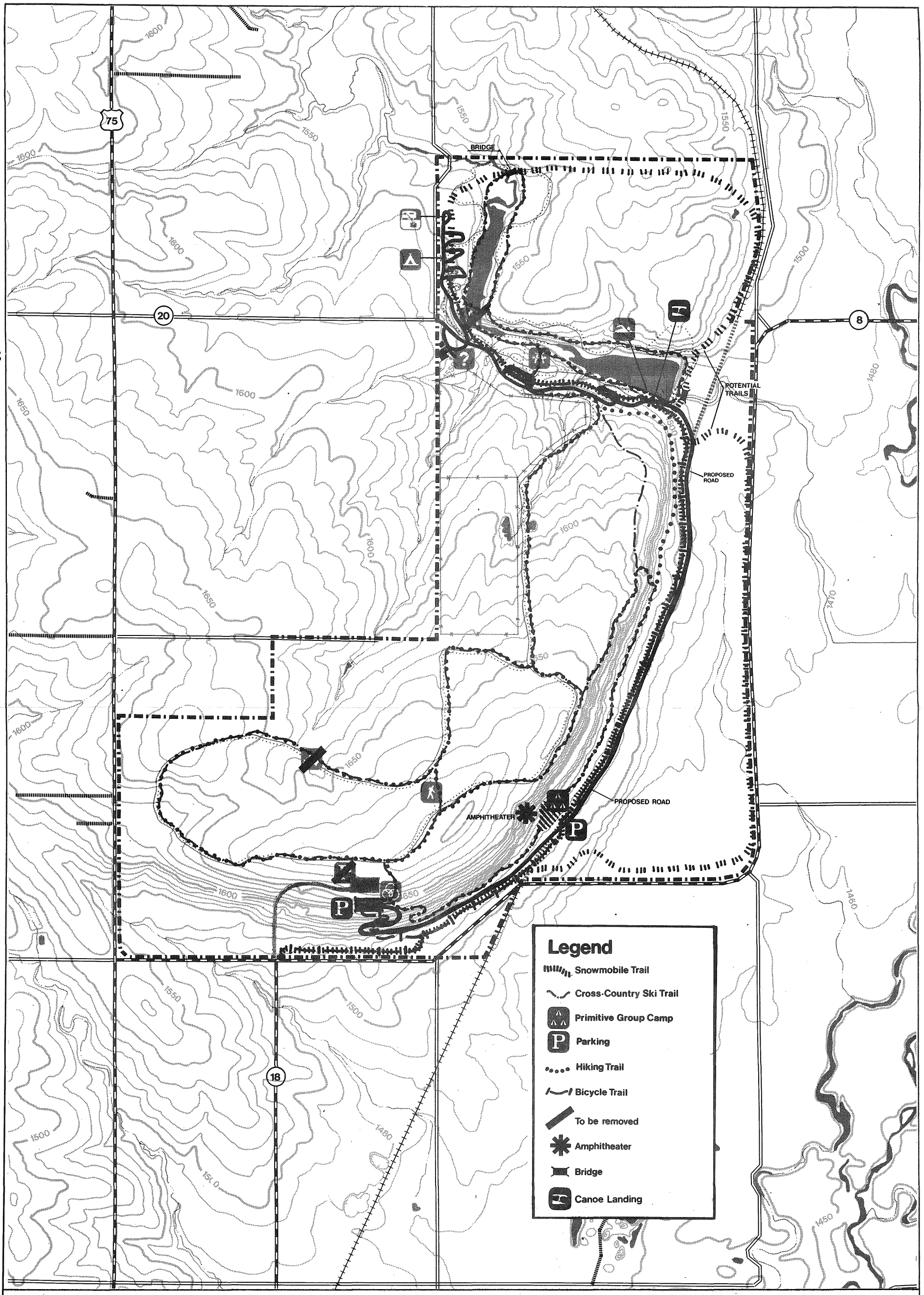
Action #2. Pave campground roads.

Paving the main campground roads will reduce dust. Asphalt or some other dust resistant materials should be used. Asphalt surfaced roads are not natural, but neither are dusty, gravel surfaced roads. The dust problem has such a detrimental effect on enjoyment of the park that paving is warranted.

Cost. $10,000

Action #3. Screen township road west of campground.

Plant a very dense vegetational buffer along the west side of the campground, using native prairie plant materials. The buffer is



Blue Mounds State Park

Proposed Development

intended to serve as a privacy screen, to block dust from the township road and to provide wildlife cover.

Cost. $15,000

Action #4. Screen farmsteads north of campground.

There are several farmsteads just north of the campground that detract from the illusion of camping in an undisturbed priaire area. A wood lot buffer will be planted north of the campground using native prairie trees and shrubs. Although wood lots were not very common to prairies, they did exist near rivers and wet areas.

Cost. $2,500

Action #5. Test sewage lagoon to ensure proper operation. Repair if necessary.

The regional engineer should test the lagoon to make sure it is not leaking. If it is not functioning properly, the DNR, Bureau of Engineering should develop a plan for repairing it. In the past few years, the lagoon has only had a minimal amount of water in it. Unless it is evaporating, it may be leaking. If it is leaking, it is probably adding to the pollution of North and South Mound Springs lakes.

Cost. $60,000

Action #6. Construct a new group camp in the southern portion of the park, in conjunction with the development of the amphitheater. (See Proposed Development Map, p 60.)

Camping needs for groups are considerably different than the needs for family camping. These two types of camping are not compatible and should be separated. The existing group camp is poorly located near the contact station and has little potential for modification. Three group campsites will be developed near the quarry amphitheater. This area is accessible to all park facilities. Each site should contain a tenting area, parking area, drinking water, several picnic tables, fire rings, and vault toilets.

Cost. $25,000 - Contingent on land acquisition

Picnicking

Objective:

To provide picnicking facilities for both large groups and individual parties

Action #1. Landscape picnic area and remodel picnic shelter.

The picnic area is very open with little privacy between sites. This increases the perceived density of use. Screening between picnic sites will be planted using native prairie trees and shrubs.

Cost. $11,000

Action #2. Pave picnic area parking lot.

Paving is necessary to eliminate dust during dry periods and to eliminate erosion problems during wet weather.

Cost. $15,000

Trails

Objective:

To provide access to a variety of areas within the park along alignments chosen for their slight gradient, scenic views, interesting study areas, avoidance of sensitive areas, and separation of conflicting use

Action #1. Redesign snowmobile system, removing trails from sensitive prairie areas. (See Proposed Winter Trails Map, p 64.)

The present trail alignments are concentrated on the prime prairie areas above the bluffs. As private land is purchased, these trails should be relocated to the area east of the bluff. The bluff top often

blows clear of snow or has poor snow conditions and the land east of the bluffs would provide a more scenic snowmobiling experience. Areas where bison will be used for experimental vegetation management must be avoided. The new trail should follow the proposed road to the interpretive center. All park trails should be tied into grants-in-aid trails wherever possible.

Cost. $4,000

Action #2. Redesign the existing hiking trail system to serve as a year-round hiking/skiing trail system. (See Proposed Summer and Winter Trails Maps, pp 64-65.)

The proposed trails should be designed to the same standards used on the existing trails. They should simply be mowed corridors with "you-are-here" signs for directions. The alignments should be moved periodically to prevent continuous use from causing any permanent damage to the prairie. Wet areas or sensitive areas should be crossed with boardwalks or very simple bridges.

Cost. $4,000

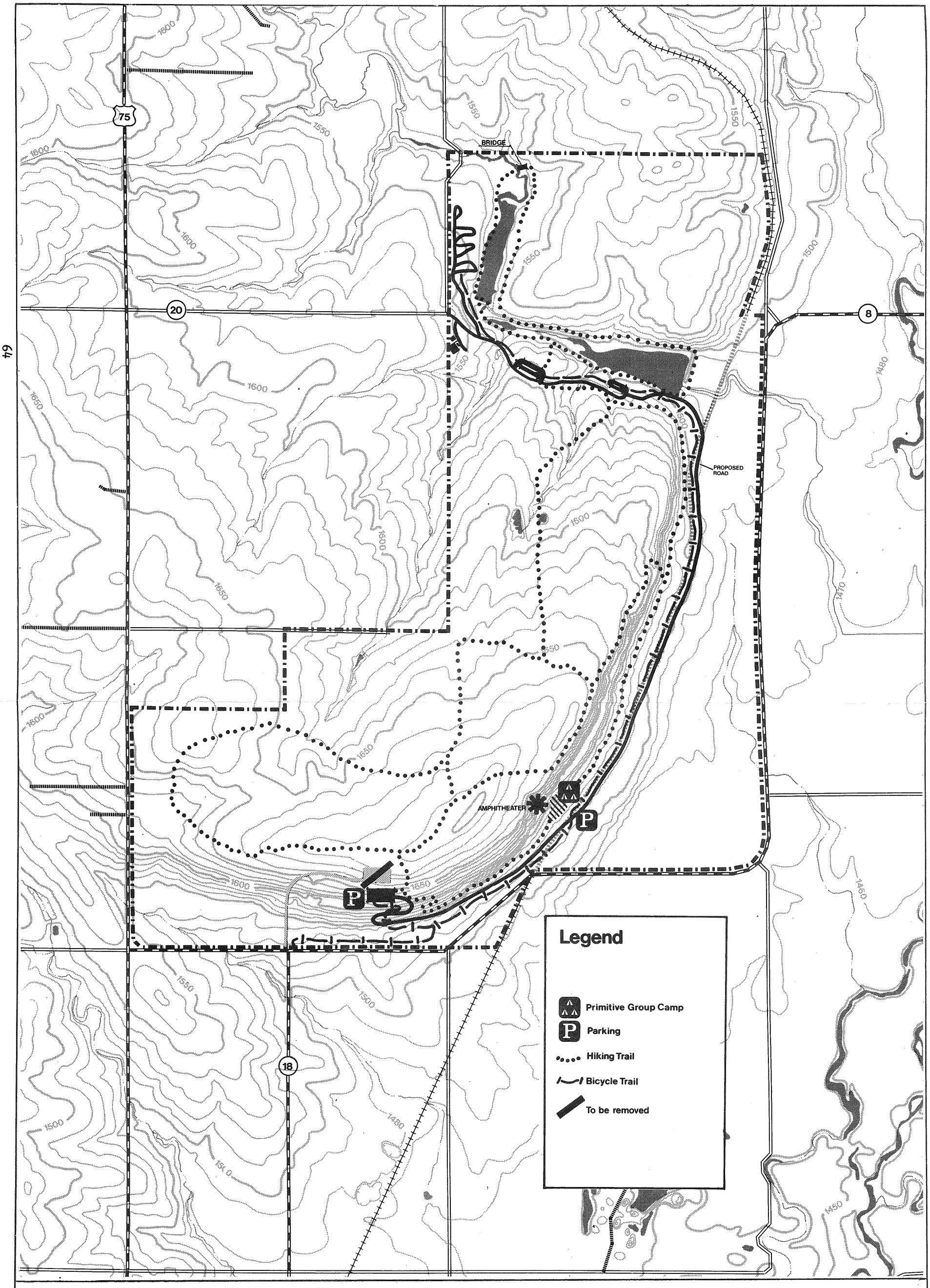
Action #3. Construct two trail bridges over Mound Creek.

Build low profile fire resistant bridges across Mound Creek; one above North Mound Springs Lake and one below South Mound Springs Lake. The bridges should be designed to accommodate all types of trail use that might be expected in the park.

Cost. $40,000

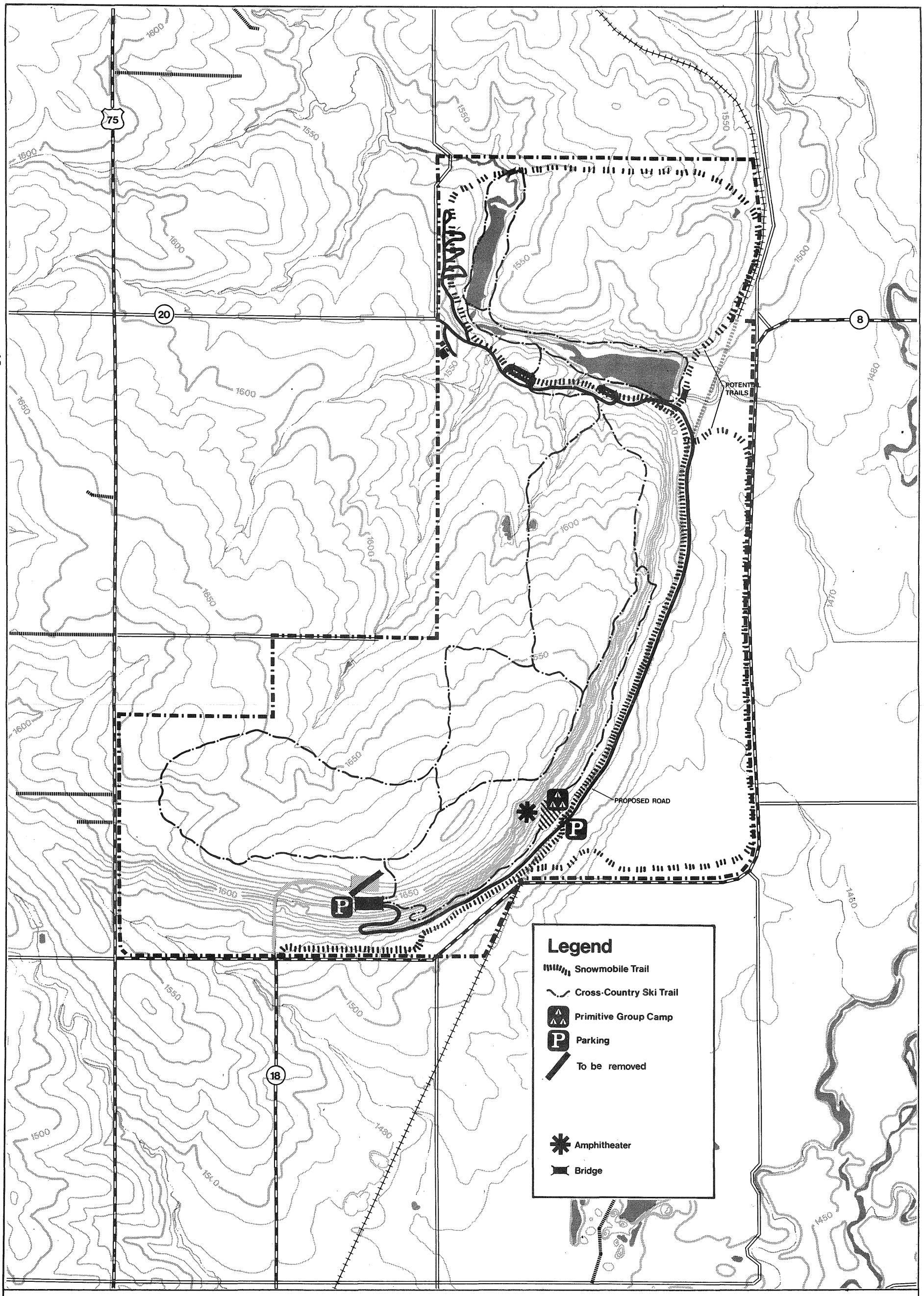
Action #4. Provide bike lanes connecting all park use areas, including a connection to Mound Avenue.

Provide bike lanes parallel to all park roads. Where this is not possible, direct bikers to walk bikes on adjacent hiking trails. Bicycles are presently a very popular mode of transportation in state parks.



Blue Mounds State Park

Proposed Summer Trails



Blue Mounds State Park

Proposed Winter Trails

Increased use is expected because the city of Luverne and Rock County are proposing a bike trail from Luverne to the park. Non-energy consuming forms of transportation should be encouraged whenever possible.

Cost. $60,000 - Contingent on land acquisition

Action #5. Remodel picnic shelter to serve as a trail shelter.

Construct temporary walls that can be seasonally installed to protect trail users from winter winds. A shelter is needed near the main parking area, but a new building is not needed. Remodeling is the most practical alternative.

Cost. $15,000

Water Activities

Objective:

To provide a swimming facility for park visitors

These actions are contingent on improvement in water quality of Mound Creek, otherwise it may have to be closed.

Action #1. Construct a new beach house.

It would be more expensive to remodel the existing structure than to build a new facility. The building should be located far enough from the lake to meet state minimum set back codes. It should include toilets, open air changing stalls, showers, and a beach equipment storage area.

Cost. $90,000 - Contingent on water quality testing

Action #2. Re-sand beach.

The entire swimming beach should be re-sanded with a minimum of 6 in. (15 cm) of washed sand. The soil in this area is a very silty clay and is not suitable for a swimming beach.

Cost. $10,000 - Contingent on water quality testing

Administrative/Support Facilities

Objective:

To ensure efficient, effective administration and maintenance of the park

Action #1. Rehabilitate contact station.

Cost. $8,000

Action #2. Develop orientation area adjacent to existing contact station.

The area should provide park visitors with a small parking area, displays, maps, and information relating to park activities. It would be an efficient method of informing park visitors of what the park has to offer.

Cost. $15,000

Action #3. Move the hay storage building from the southern portion of the park to the service area.

Cost. $5,000

Action #4. Screen service area.

Use a combination of fencing, berm, and very dense planting of native vegetation to screen the service area from public view. The design will be done by the landscape architect from the DNR, Bureau of

Engineering and the park manager. The administration area is in a very visible location and detracts from the prairie environment.

Cost. $10,000

Action #5. Pave the service area court yard with asphalt.

The soil is erodable and should be surfaced to avoid erosion and mud problems.

Cost. $20,000

Action #6. Remodel the interior of the residence.

Cost. $17,000

Interpretive Center Access Road

Objective:

To provide easy access to the interpretive center

Action #1. Construct a road to interpretive center from main use area of the park.

Build a 22 ft (6.7 m) wide, two-way, asphalt-surfaced road following the abandoned railroad grade on the east side of the bluffs. The interpretive center receives 11,000 visitors annually, but use is limited because of its inaccessibility. To get there from the main use area of the park, it is necessary to drive all the way around the west side of the park and then up a narrow, steep, rough road. The existing road does not meet the minimum standards for a park access road. It is an aesthetic blight on the landscape and is highly erodable.

Until private land is purchased to allow development of the entire road, only a portion can be built. This section leads up from the base of the slope to the interpretive center. It will include a temporary access off County Road 8. When the private land is purchased, the rest of the road linking the interpretive center to the main use area will be built.

A road along the east side of the bluffs will provide access into some of the more interesting areas of the park and will allow people who are unable to hike the park trails an opportunity to see some areas of the park that would otherwise be inaccessible.

Cost. $75,000

$50,000 - Contingent on land acquisition

VISITOR SERVICES

Introduction

Interpretation is "an educational activity which aims to reveal meanings and relationships through the use of original objects, but first-hand experience, and by illustrative media, rather than simply to communicate factual information" (Freeman Tilden). In this light, the interpretive services program fosters in the public an understanding of park resources and management by:

1. Revealing the kinship of park visitors to the park environment and, by association, their even broader involvement with ecosystems

2. Illuminating the historic and ongoing impacts of natural forces within the park and upon the people who use them

3. Assisting park visitors in the discovery of meaningful and satisfying ways in which to enjoy their visits without intruding on the experiences of others or impairing the quality of the park environment

4. Explaining the mission of the DNR, interdisciplinary park management practices, and the importance of public participation and support in the operation and maintenance of our state park system

Interpretive programs will be developed in recognition of the following:

1. All parks are fragile communities of life which can be perpetuated only through careful management

2. People are a natural and necessary element in park environments-- free to enjoy them in non-destructive ways

3. All natural resource units and the public they serve are tied to one another ecologically, economically, socially, and politically

It is hoped that the people who recreate and learn in the parks will, by experiencing the parks and related interpretive services, derive a better quality of life and gradually increase their environmental awareness. As people are encouraged to think and to feel more about park environments, they can be expected to do more on behalf of these environments. They can also be expected to strengthen their own ties with the land and with our state's cultural heritage.

Blue Mounds has been recommended for classification as a natural state park because it is an excellent example of the Coteau des Prairies Biocultural Region. Because of its excellent portrayal of the region, it is being considered as a nodal interpretive unit. Interpretive features include geology, biology, prehistory, history, and aesthetics.

Geological features that exist in the park include the large outcropping of Soiux Quartzite, and evidences of the forces of nature that shaped the park - glacial activity and erosion.

Biological features are varied and excellent for interpretation. They include several native prairie vegetation communities, wildlife, several species of native cactus, and the only buffalo herd in the state park system.

The park contains two possible prehistoric sites, a buffalo jump site, and a rock wall. Although an archaeological investigation (see History/Archaeology, pp 51-54) must be completed before the park's interpretive program is established.

Potential for historic interpretation in Blue Mounds is poor. There are no known historic sites. Native American culture and early European settlement of the area do have some potential for interpretive programs.

Aesthetics is an interpretable feature in Blue Mounds, with views of the coteau des prairie and the native prairie appearance providing the base.

The existing interpretive program is included in the management plan details. It includes a breakdown of the subject catagories, presentation format and the emphasis of each catagory in the program. A second chart illustrates the proposed changes that should be made as a result of program attendance and visitor response during the 1978 season.

Existing Interpretive Facilities

-Interpretive center with displays, offices, and audio-visual classroom.
-Amphitheater in picnic area.
-Interpretive trails leading from the interpretive center.

Proposed Interpretive Facilities

Action #1. Finish remodeling the interpretive center.

The conversion of the Manfred residence into an interpretive center was never completed. Displays, display cases, and shelving should be constructed. A humidity control system, a small outdoor amphitheater, outdoor displays, and interpretive trail signs should be developed.

Cost. $30,000

Action #2. Develop the old quarry into an interpretive area in conjunction with development of the group camp. (See Camping, Action #6, pp 61-62.)

The amphitheater should be simple. The only facilities provided should be a large fire ring, portable movie screen, bench seating, and electricity. Low level lighting may be necessary for late night programs. All other facilities, such as toilets, parking, and water, will be available in the adjacent group camp area.

Cost. $20,000 - Contingent on land acquisition

Action #3. Provide an area for campground programs (capacity 50 with overflow space for an additional 50).

Develop an area with benches, movie screen, fire ring, and electricity for movie projectors. Evening programs for campground users are very popular. By providing them in the campground, attendance at the programs will increase.

Cost. $500

Action #4. Provide at least one interpretive trail originating from the interpretive center. It should be accessible to all park visitors.

Sign a short segment of the trail system. In most cases, a mowed trail will be sufficient. However, in areas of rock outcrops or wet lands, specialized construction should be used. Most trails will be accessible to all users. Identification of those trails which have had barriers removed will encourage use by people with physical disabilities.

Cost. $1,000

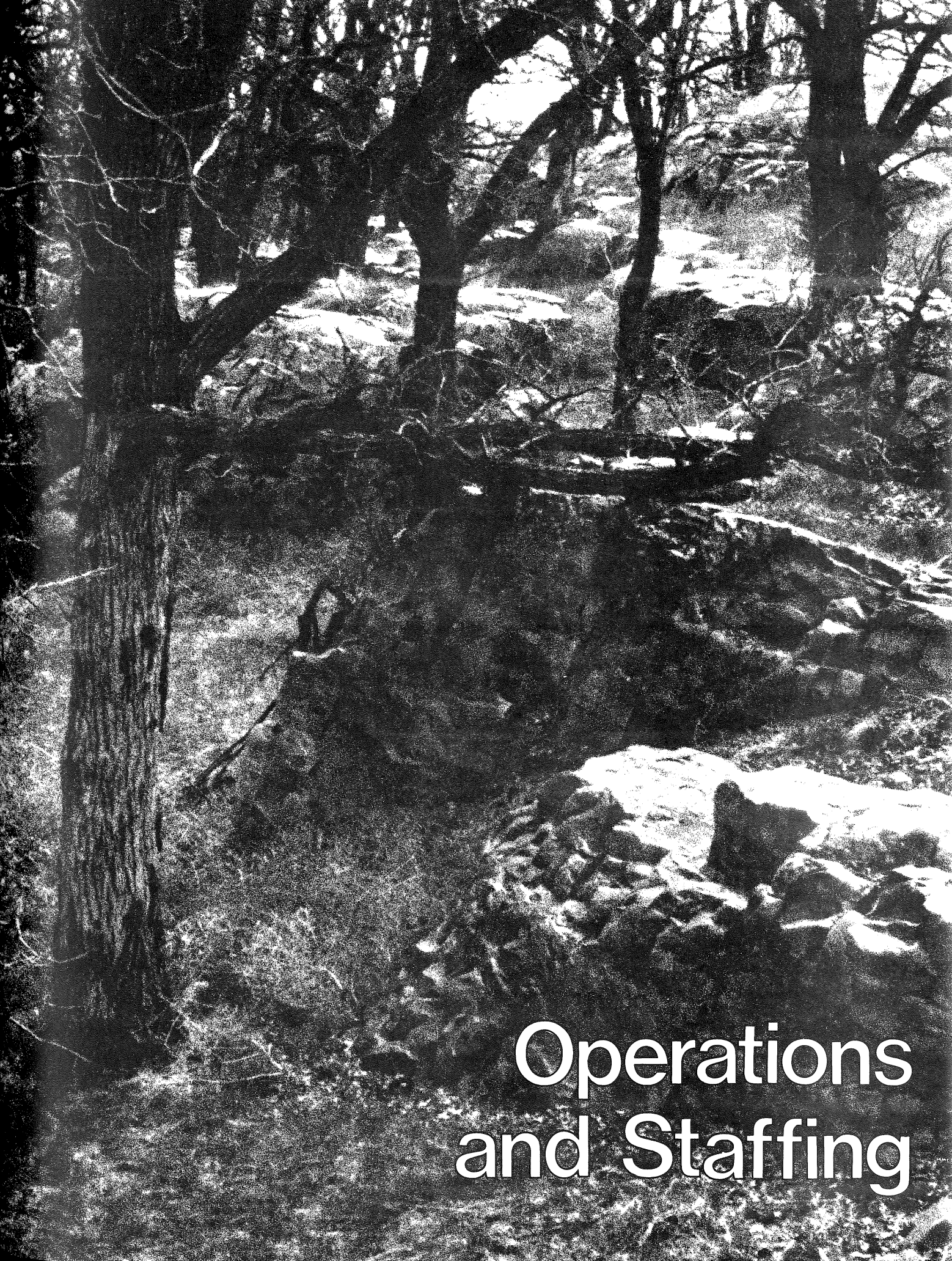
1978 Staff

-One 9 month naturalist, who will work 5 months on program presentation and 4 months on program development and associated programs.
-One 3 month, work study assistant.
-Two part-time 5 month CETA receptionists.
-Two CETA laborers.

Proposed Staff

-One 9 month naturalist.
-One 3 month assistant.
-Two part-time 5 month receptionists.

Ideally, the interpretive center should be kept open at least 5 months to accommodate school groups in the spring and fall.



Operations and Staffing

OPERATIONS

Maintenance is an essential responsibility of the DNR, Division of Parks and Recreation. It is responsibility that often goes unnoticed by the park visitor in comparison with new developments. Yet, the park and the DNR are continually judged by the appearance of the park and its facilities.

The task of providing services to the public and security for park facilities and resources 24 hours a day, 12 months of the year is monumental. During the busy season, full-time operation is necessary 98 hours per week (8:00 to 10:00 p.m., seven days a week). The remaining hours are covered by the resident manager. During other seasons, there is only part-time operation 98 hours per week, however, maintenance, repair, and park security accounts for many extra work-hours. If these responsibilities are to be met, competent trained personnel is essential.

There are four basic aspects to maintenance and operations:

1. Maintaining resources
2. Maintaining facilities
3. Providing services to the park visitors
4. Enforcing rules and regulations which protect park visitors, resources, and facilities

One of the major maintenance problems of parks is the heavy impact of large numbers of people concentrated in specific locations. These areas include: campsites, trails, lakeshores, river banks, areas around buildings, and scenic points of interest. This overuse affects the groundcover and frequently exposes tree roots to damage from foot traffic. The eventual result may be erosion, slides, disfigured sites, and even danger to park visitors. A regular maintenance program with adequate personnel, supplies, and equipment controls damage, thereby, avoiding future reconstruction expenditures.

STAFFING

One of the staffing problems in all state parks is the heavy reliance on federally funded work programs, such as the Comprehensive Employment and Training Act (CETA), the Neighborhood Youth Crops (NYC), and Green Thumb. The low cost personnel provided by these programs makes it possible for parks to offer programs and services which would otherwise be impossible. However, these employees are hired on a short-term basis, usually 8 to 10 weeks and often do not have the training and experience necessary to provide needed services without constant supervision in already understaffed parks. To avoid these problems, funding should be made available to hire trained personnel for major public service and maintenance programs. Temporary employees should only be hired for minor maintenance and special projects.

The following chart summarizes the existing staff in Blue Mounds State Park. Because of the seasonal nature of park operations, the positions in each staffing category have been grouped into total "staff years." Staff years is a common denominator which reflects the amount of time spent in each area of park maintenance and operations.

Existing Staff

	Staff Years (in months)
Management	21
One full time manager (park manager)	
One 9-month technician (assistant manager)	
Maintenance	35.5
One 9 month laborer	
One 6.5-month park worker	
Two 10-month Greenview workers*	
Contact Station	18.5
One 6.5-month park worker	
Three 4-month park worker	
Swimming Beach	7
Two 3.5-month lifeguards	
Interpretive Program (See Visitor Services, p 73 for interpretive staff)	

*Federally funded positions

Future Staffing Needs

Some actions proposed in the plan, when implemented, will require additional park staff. Other actions may allow for the reduction of staff, because staff time can be used more effectively. Some of the most significant potential staff changes are as follows:

Trail Maintenance

Trail length will approximately triple in the future and will require additional maintenance and grooming staff.

Group Camp

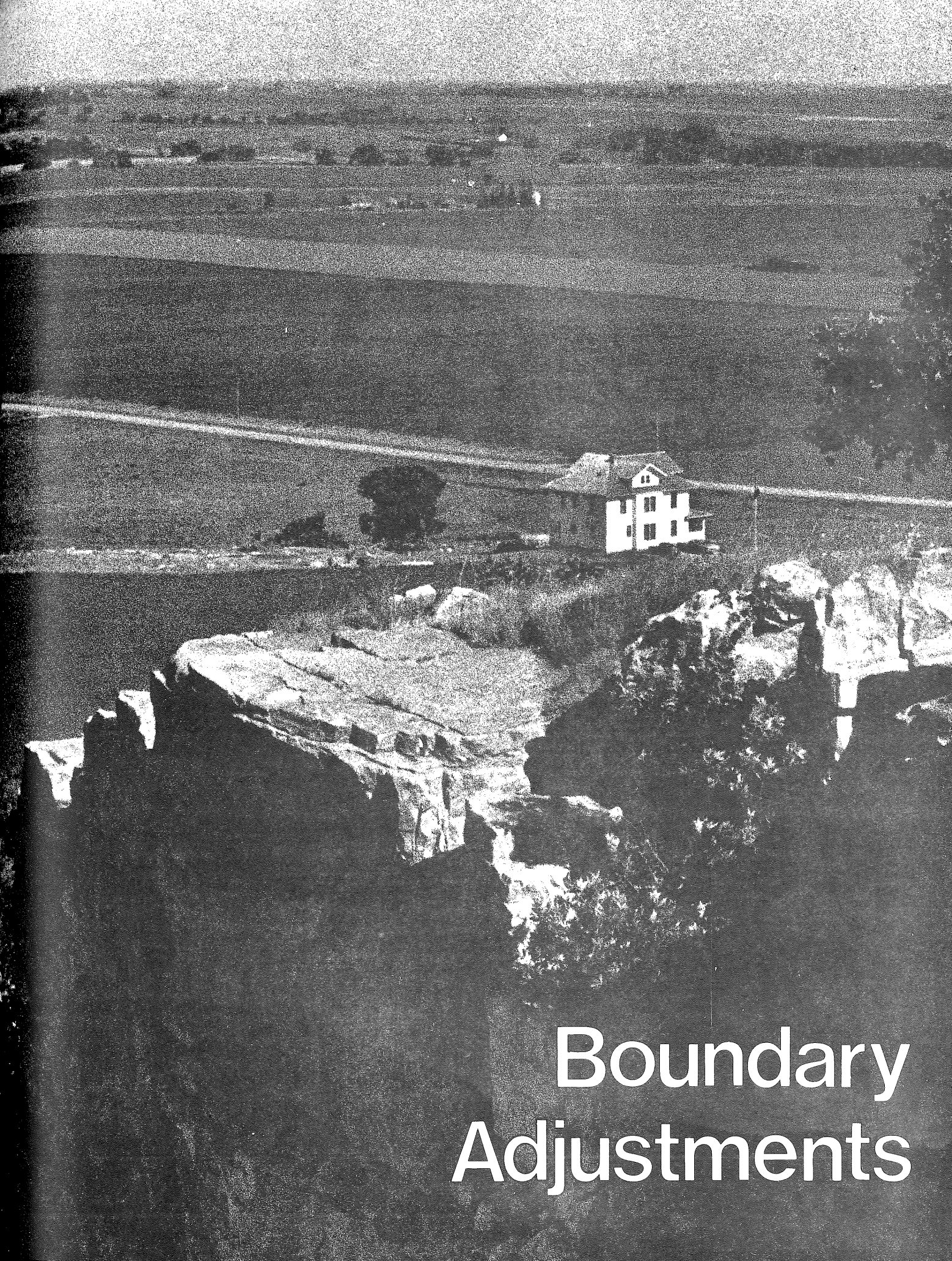
Development of a "primitive" type group camp will require additional maintenance work.

Interpretive Program

Expansion of the interpretive program will require additional staff (see Visitor Services, p 73).

Prairie and Buffalo Management

If resource management is implemented as outlined in this plan, additional large crews of laborers will be required for short periods of time.



Boundary Adjustments

BOUNDARY MODIFICATIONS

Objective:

To control all land within the statutory boundary, so that park rules and regulations can be properly enforced, and development can proceed without conflicts

Action #1. Purchase all remaining land within the statutory boundary.

All privately owned land within the statutory boundary should be purchased, on a willing seller basis.

Cost. Contingent on purchase negotiations.

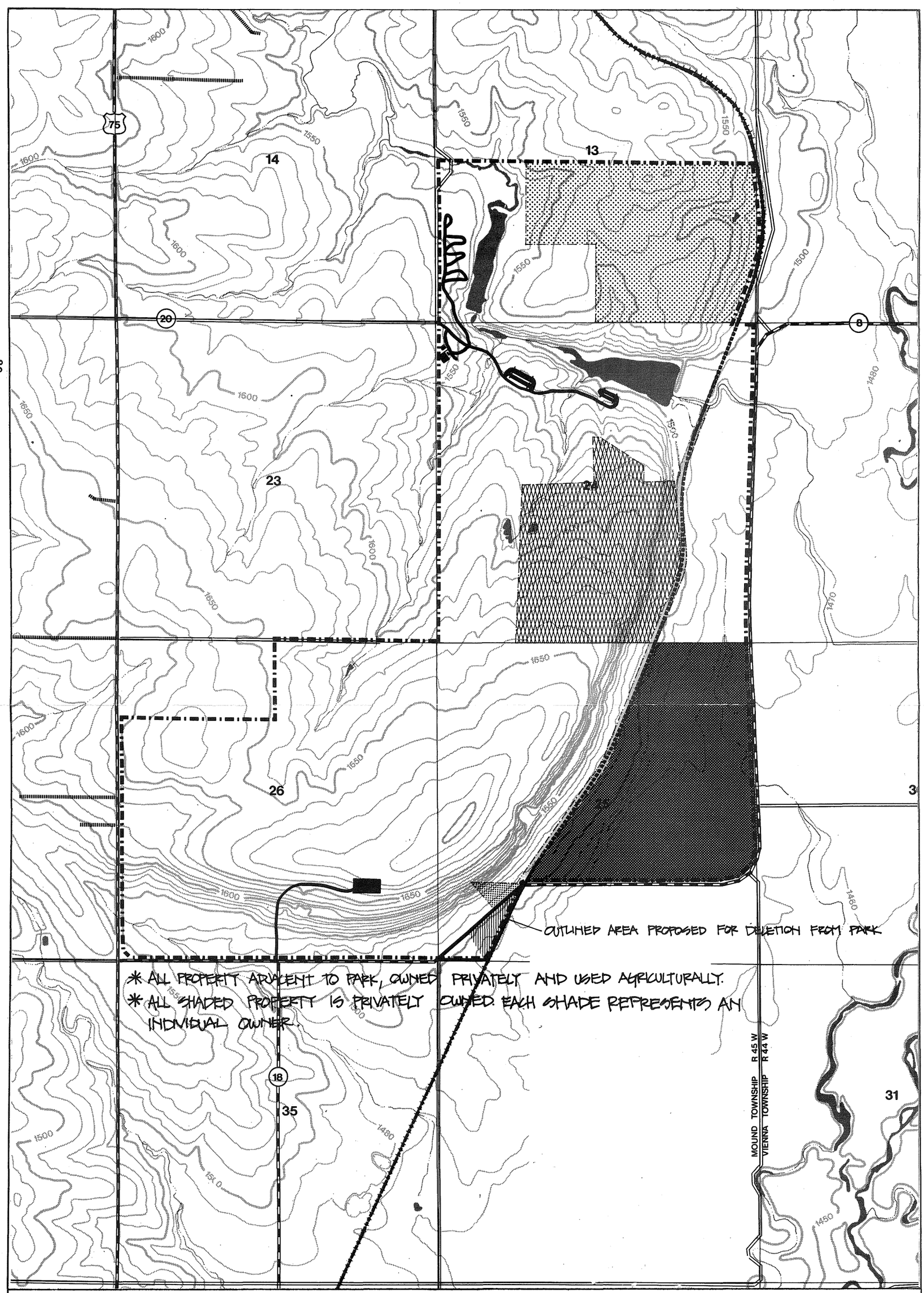
Action #2. Delete the small triangle of land south of CSAH 8 from the park. (See Ownership Map, p 80.)

The statutory boundary will be changed to follow CSAH 8. The deleted parcel was included in the statutory boundary as a result of an old boundary line that followed the railroad grade to the section line between Sections 25 and 36. The parcel of land has no value for park purposes and should be eliminated.

Cost. None

At a future date, when this plan is revised, the park boundary should again be reviewed. At the present time, the park acreage is sufficient. However, recreational facilities are already in short supply in the area and will be needed even more as the population of the area continues to grow. Expanding the park should be considered to ensure adequate recreational facilities for future generations to enjoy.

If attempts to clean up North and South Mound Springs lakes by actions proposed in this plan fail, expansion should also be considered for protection of the Mound Creek watershed.



Blue Mounds State Park

Ownership

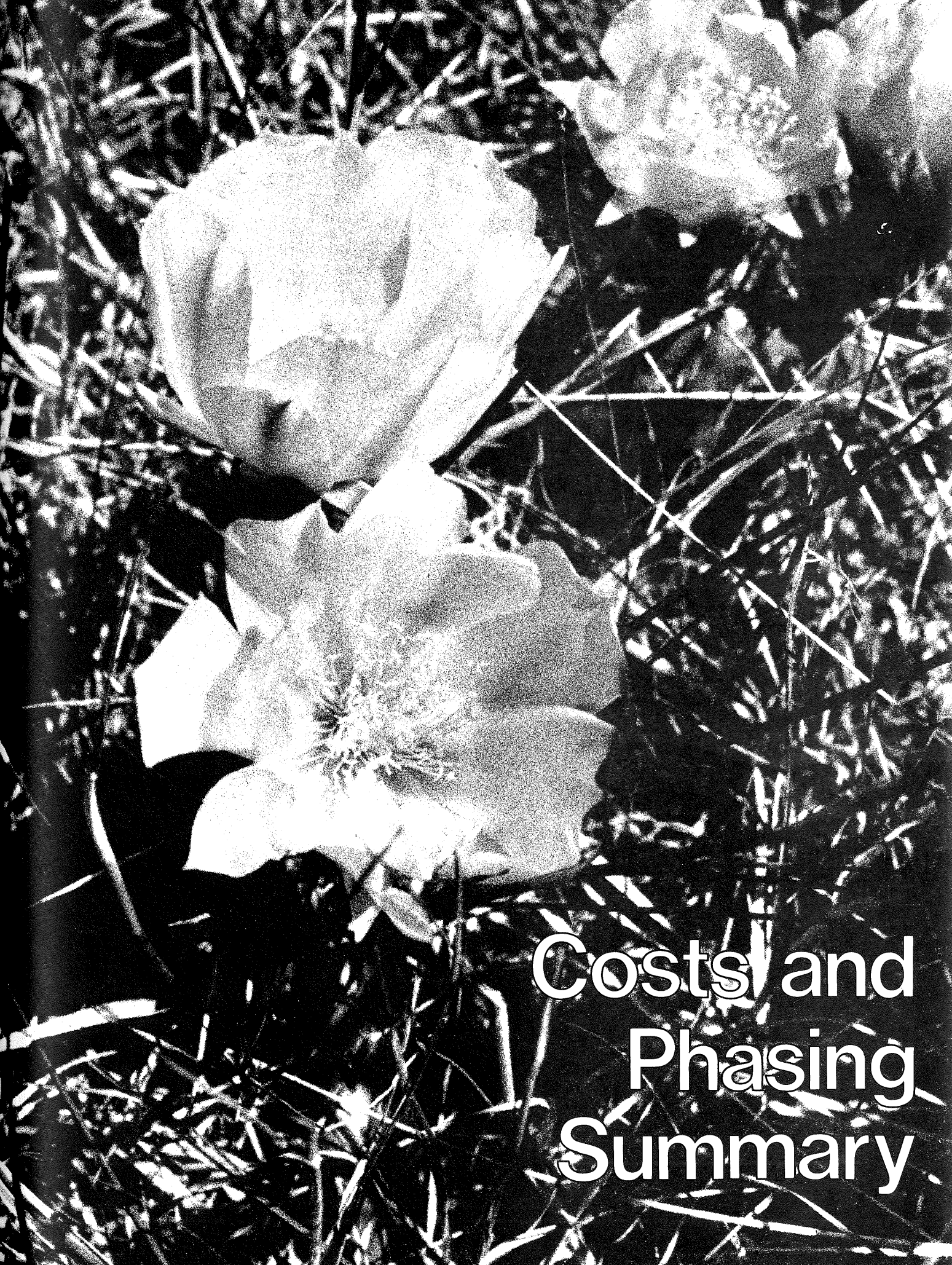
Sub-Units

Two scientific and natural areas (SNA) have been proposed in Blue Mounds by the advisory committee to the commissioner of natural resources on scientific and natural areas. One area has been described as "eighty acres east of the campground" and the other is described as "that area up the cliff from the railroad including some upland."

Since Blue Mounds is being recommended for classification as a natural state park and the main objective of management for natural areas is: to preserve and restore prairie ecological communities, it is felt that SNA designation would not provide any more protection than is already proposed in this plan.

Although these two areas must be protected, actual signing of the areas is considered unnecessary. Posting with the bright red and yellow sicentific and natural area signs every 300 ft (91.4 m) would have a visual impact on the prairie. It would also stimulate the curiosity of tourists, who might damage the resources.

An alternative to designation as an SNA would be to have the SNA advisory committee review the management for approximately five years. If management is not consistent with their objectives, at that time the areas should be designated.



Costs and Phasing Summary

The following cost estimates were generated in January, 1979. These cost estimates are based on current prices and available information. As new information is made available and as new or modified programs are initiated, revised cost estimates will be prepared to more realistically represent costs at that time. This plan is intended to be implemented in ten years. The phases noted suggest the level of funding to be requested each biennium. But there is no guarantee that this amount of funding would be received from the Legislature. Therefore, some change to these phases can be expected.

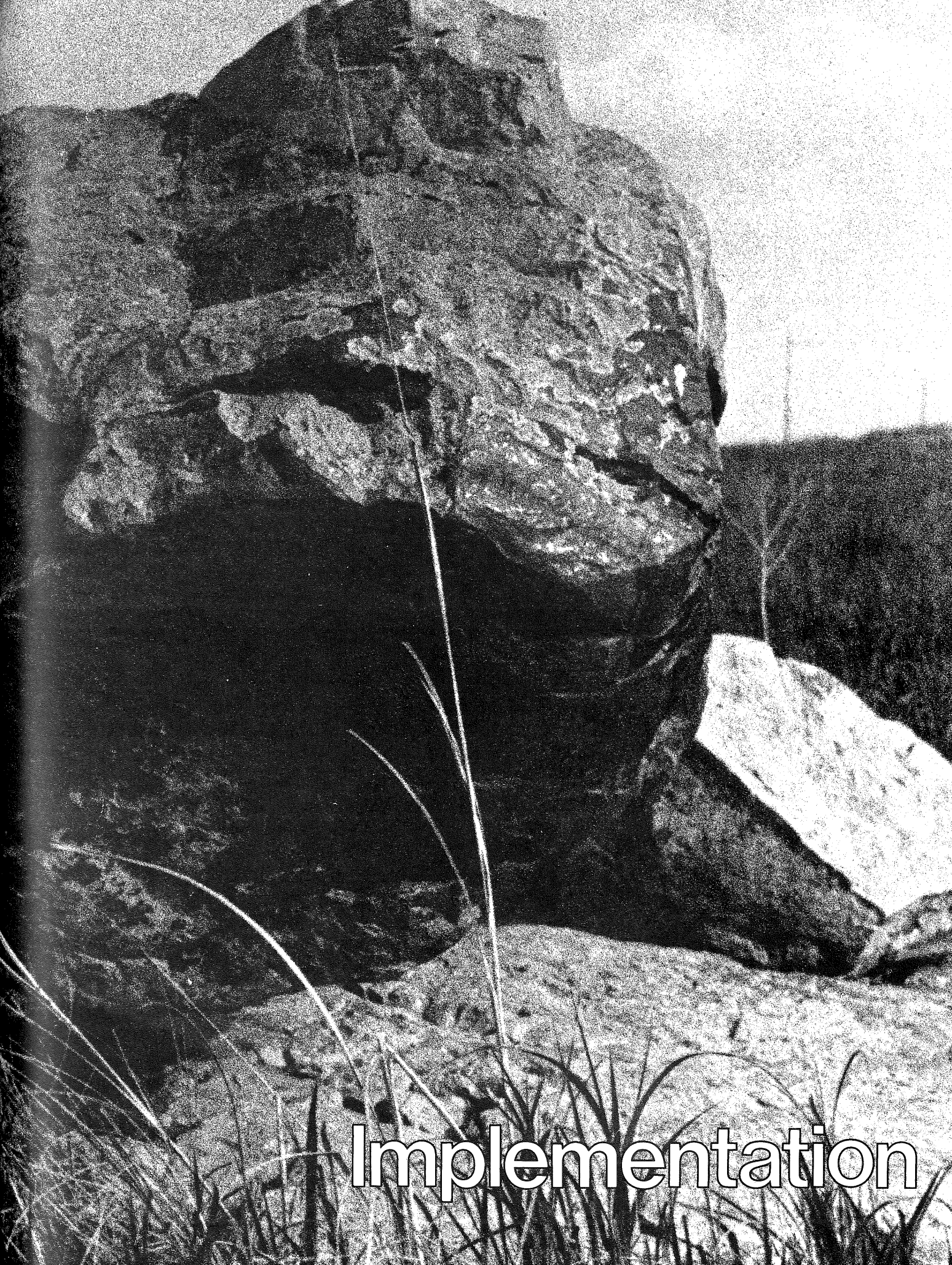
Action	Phase / Biennium	1 / 80-81	2 / 82-83	3 / 84-85	4 / 86-87	5 / 88-89	Total	Conditional
VEGETATION								
Natural Areas								
Action #1 Prescribed burning.			Operational Budget					
Action #2 Noxious weed control.			Operational Budget					
Action #3 Seeding recently cultivated areas.			Contingent on land acquisition					
Action #4 Restore aquatic areas.			See Surface Waters, Action #5					
Action #5 Remove shelter belt around abandoned farmstead.			Operational Budget					
High Use Areas								
Action #1 Landscape high use areas: campground, picnic area, service area.			Costs covered under specific development projects					
Action #2 Plant buffalo grass in the campground.			$ 600				$ 600	
Action #3 Plant buffalo grass around the interpretive center.			600				600	

	Phase	1	2	3	4	5		
	Biennium	80-81	82-83	84-85	86-87	88-89	Total	Conditional
WILDLIFE								
Action #1	Experiment with buffalo as a prairie management tool.		Operational Budget					
Action #2	Monitor changes in wildlife species.		None					
SURFACE WATERS								
Action #1	Conduct water quality surveys on North and South Mound Springs lakes.		DNR, Bureau of Engineering					
Action #2	Structural analysis of dams.		DNR, Bureau of Engineering					
Action #3	Construct water level control device in North Mound Springs Lake.		$ 5,000				$ 5,000	
Action #4	Establish emergent aquatic vegetation in North Mound Springs Lake.		No cost after water level control device is installed					
Action #5	Reestablish marsh on east side of park.		Contingent on land acquisition					$ 5,000
Action #6	Regrade artificial ponds.		Contingent on land acquisition					5,000

	Phase Biennium	1 80-81	2 82-83	3 84-85	4 86-87	5 88-89	Total	Conditional
FISHERIES								
Action #1	Continue stocking program.		DNR, Section of Fisheries					
Action #2	Develop small boat landing.				$ 1,500		$ 1,500	
HISTORY/ARCHAEOLOGY								
Action #1	Research archaeological features (Phase 1 Archaeology Research).							$ 10,000
Action #2	Phase 2 Archaeology Research.		Cost will be determined after Phase I					
PROPOSED DEVELOPMENT								
Camping								
Action #1	Redesign and remodel existing campground and rehabilitate sanitation building.	$ 25,000			$ 20,000		$ 45,000	
Action #2	Pave campground roads.	10,000					10,000	
Action #3	Screen township road.	10,000	$ 5,000				15,000	
Action #4	Screen farmsteads north of campground.		2,500				2,500	
Action #5	Test and repair sewage lagoon.	60,000					60,000	
Action #6	Construct new group camp.		Contingent on land acquisition					$ 25,000

	Phase Biennium	1 80-81	2 82-83	3 84-85	4 86-87	5 88-89	Total	Conditional
Picnicking								
Action #1	Landscape picnic area and rehabilitate shelter.	$ 6,000		$ 5,000			$ 11,000	
Action #2	Pave picnic area parking lot.				$ 15,000		15,000	
Trails								
Action #1	Redesign snowmobile system.		Contingent on land acquisition					$ 4,000
Action #2	Redesign hiking trail to serve year-round.		2,000		2,000		4,000	
Action #3	Construct trail bridges over Mound Creek.			40,000			40,000	
Action #4	Develop bike trails.		Contingent on land acquisition					60,000
Action #5	Remodel picnic shelter to serve as a combination picnic/trail center.			15,000			15,000	
Water Activities								
Action #1	Construct new beach house.		Contingent on water quality improvement					90,000
Action #2	Re-sand beach.		Contingent on water quality improvement					10,000
Administrative/Support Facilities								
Action #1	Rehabilitate contact station.		$ 8,000				$ 8,000	
Action #2	Develop orientation area adjacent to contact station.				$ 15,000		15,000	
Action #3	Move hay storage building.	$ 5,000					5,000	
Action #4	Screen service area.			$ 10,000			10,000	
Action #5	Pave service court with asphalt.			20,000			20,000	
Action #6	Remodel interior of manager's residence.	5,000	7,000	5,000			17,000	

	Phase Biennium	1 80-81	2 82-83	3 84-85	4 86-87	5 88-89	Total	Conditional
Interpretive Center Access Road								
Action #1 Build access road to interpretive center.			$ 75,000				$ 75,000	$ 50,000
VISITOR SERVICES								
Action #1 Finish remodeling interpretive center.		$ 10,000	$ 20,000				$ 30,000	
Action #2 Develop amphitheater in quarry.			Contingent on land acquisition					$ 20,000
Action #3 Develop interpretive area in campground.			500				500	
Action #4 Develop a handicapped accessible trail.				$ 1,000			1,000	
TOTAL		$ 131,000	$ 127,000	$ 97,200	$ 55,000		$ 668,700	$ 266,000



Implementation

AUTHORITY

Division of Parks and Recreation

Once a management plan has been completed and approved, it will become the responsibility of the director of the Division of Parks and Recreation (hereafter referred to as the director) to ensure proper implementation of the recommendations of the plan. As such, the director will act as the coordinator and liaison between the planning staff, regional staff, local officials, and the general public to ensure that the plan is implemented correctly.

In order to ensure the accomplishment of this cooperative planning and implementation effort, the following responsibilities have been established.

The director and staff will:

1) Coordinate and administer field operations as delegated by the deputy commissioner.
2) Develop and administer programs necessary to accomplish plan goals and objectives. Programs include those necessary to implement management plans and to maintain and operate parks and other programs assigned to the Division of Parks and Recreation (hereafter referred to as the division). Specific program responsibilities at this time are: acquisition, development, resource management, maintenance and service operations, interpretive services, and accessibility.
3) Prepare policies, guidelines, procedures, and standards necessary to implement programs established in this plan (e.g., responsibilities related to letting contracts and initiating force account projects).
4) Prepare legislation necessary to provide program funding, boundary changes, and operational authorities.
5) Review and approve all detailed plans, specifications, and project proposals prepared by the DNR, Bureau of Engineering (BOE) or field staff. Coordinate on–site field staking and site layouts with BOE and regional staff.

6) Coordinate divisional administrative functions with other DNR administrative offices.

7) Work with the DNR's federal grant specialists to obtain maximum federal funding (e.g., LAWCON) for all division programs.

8) Recommend modifications and provide information necessary to update the management plan. All major modifications to the recommendations of an approved plan will be processed through the Office of Planning. The director will submit requests for modifications in writing, stating justification for change and what impact the change would have on the overall management plan. If comments and rationale for opposing a proposed change are not received within 25 working days, agreement is implied. In the event that significant change in the direction of the plan is proposed (e.g., altering goals and/or objectives of the plan), it will be necessary to follow the same procedures established in developing the original plan. If the director and the Office of Planning cannot come to an agreement on the requested change, the director will then submit the request to the commissioner's Planning and Environmental Review Team (PERT) which will formulate the final recommendation to be submitted to the commissioner's executive council. If a recommended modification is minor and follows the intent of the plan, the director has the discretion to make the change without following these procedures, provided informal written agreement is reached with the Park Planning section.

9) Assign responsibilities and funding for implementation of the development program to BOE for letting contracts and to the regional staff for initiating force account projects. In addition, the director shall coordinate the implementation of resource management programs.

10) Make recommendations which will expedite the park planning process and evaluate progress toward the achievement of goals and objectives stated in the plan.

11) Forward BOE requisitions and field project proposals in summary form to the Office of Planning so that the progress of implementation can be monitored.

Regional Office

The regional park supervisor will supervise the physical implementation programs as recommended in this plan.

The regional park supervisor will:

1) Coordinate with the regional administrator and other discipline supervisors to obtain qualified staff to implement this management plan. The district forester, wildlife managers, and other specialists should be consulted on specific aspects of the resource management of the plan.
2) Supervise and direct the park manager to ensure that the management plan is implemented correctly.
3) Regularly field inspect all development in the park.
4) Submit written reports on the progress of development programs to the director with copies to the regional administrator.
5) Submit information to faciliate plan updates and changes. All recommendations for change will be submitted in writing to the director. Rationale and analyses of the impact a requested change might have on the plan must be included in this request.
6) Submit project proposals to the director for review and approval. The director and staff will review all project proposals verifying compliance with the intent of the plan.

The region may implement approved project proposals after detailed specifications have been prepared and funding has been provided.

Park Manager

It will be the responsibility of the park manager, under the direct supervision of the regional park supervisor, to coordinate the physical implementation of assigned sections of the management plan. The manager will inform the regional supervisor concerning the progress of the implementation through project proposals and written progress reports.

The park manager will:

1) Seek the assistance of the regional park supervisor in the resolution of any major implementation problems.
2) Consult with the regional park supervisor if there is uncertainity, concern, or opposition to a recommendation of this plan.
3) Assist and give direction to park field personnel.
4) Maintain records on the progress of development projects to ensure continuity and reference for future updating and revision.
5) Work with the regional park supervisor in initiating project proposals to be submitted to the director for review and approval.
6) Submit to the regional park supervisor information to aid in the updating and revision of the plan.

Office of Planning

The Office of Planning and Research will evaluate implementation of the management plan and make recommendations to the director if it appears revisions are necessary.

The Office of Planning will:

1) Review BOE requisitions.
2) Process all modifications to the approved management plan.
3) Provide additional information and justification for specific recommendations of this plan when requested by the division.
4) Maintain contact with the public, local officials, legislators, and DNR staff regarding the updating of the plan.

IMPLEMENTATION OF RESOURCE MANAGEMENT PROJECTS

There are two procedures for the division to follow in the implementation of resource management projects: contract and force account.

Contract

Director initiates a project by preparing the management program, in compliance with this plan.

Director distributes copies of the preliminary program and drawings to the regional staff for review.

Director approves project and initiates bidding process through the Department of Administration, Division of Procurement.

Director supervises and monitors the program.

Consultant or contractor, in coordination with divisional and regional staff, completes this project.

Director approves the completed project.

Force Account

Director initiates a project by preparing the management program, in compliance with this plan.

Director distributes copies of the preliminary program and drawings to regional staff for review.

Director assigns funds to the regional park supervisor.

Regional park supervisor and resource staff prepare a detailed resource management program.

Detailed resource management program is submitted to the director for approval.

Once approved, the regional park supervisor and resource manager may:

Assign the park manager and field personnel to implement the program

Prepare contracts to be let to local contractors or consultants

Regional staff supervises project.

Director and staff monitor the overall progress of the resource management program.

Regional park supervisor notifies the division that the project has been completed as planned.

IMPLEMENTATION OF DEVELOPMENT PROJECTS

There are two procedures for the division to follow in the implementation of development projects: contract and force accounts.

Contract

Director initiates project by preparing a development program which complies with this plan.

Director distributes copies of preliminary program and drawings to the regional staff for review.

Director requests BOE to prepare detailed drawings and specifications in accordance with the approved program.

BOE submits drawings and specifications to the director.

Director approves drawings and specifications, ensuring compliance with the objectives and goals of this plan.

Force Account

Director initiates a project by preparing a development program which complies with this management plan.

Director distributes copies of the preliminary program and drawings to regional staff for review.

Director assigns funds to the regional park supervisor.

Regional park supervisor may:

Request that BOE prepare detailed drawings and specifications for review by the director

BOE processes contract documents through the Department of Administration, Division of Procurement for bidding and contract award procedures.

BOE provides direction to the contractor and establishes site location and field staking.

BOE supervises construction and approves completed work according to contract documents.

Director and staff monitor the progress, funding, and necessary coordination between other state agencies and funding sources.

Assign the park manager to complete the project with field personnel

Assign park manager, in cooperation with the regional staff, to let bids to local contractors

Regional, divisional, or BOE staff will supervise the project depending on the complexity of the specific project.

Regional park supervisor will certify the director that the project has been completed as planned.

Director and staff will monitor the progress of the development program.

MAINTENANCE AND OPERATIONS

The division will provide the regional staff with necessary direction to maintain and operate state parks in a statewide system. Training courses and policy manuals will be prepared by the division on park operations, maintenance, enforcement, signing, and construction standards. If necessary, special operational orders will be prepared by the commissioner for specific problem areas.

General Procedures

The director, in cooperation with the deputy commissioner, will establish policies, guidelines, and statewide procedures for maintenance and operations of all state park facilities.

The regional park supervisors will follow the policies, guidelines, and statewide procedures of the division, as well as commissioner's orders.

The regional park supervisor will supervise and direct the park managers to ensure that park maintenance and operation policies, guidelines, and procedures are followed.

The park manager, under the supervision of the regional park supervisor, will maintain and operate all park facilities.

The director and staff will inspect and review operations of state parks on a regular basis to ensure that statewide procedures are being implemented and followed correctly.