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- Management plan for Rush Lake Isla



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Management Plan
for
Rush Lake Island
Scientific and Natural Area
Chisago County, Minnesota

An island in the west arm of
Rush Lake, Sections 21 and 28
Township 37 North, Range 22 West
Nessel Township
Chisago County, Minnesota

Prepared by
The Scientific and Natural Areas Program
Section of Fish and Wildlife
Minnesota Department of Natural Resources

May, 1983

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LEGEND

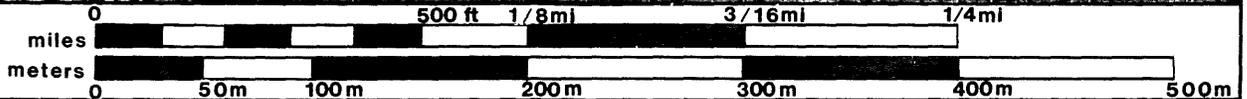
----- SNA Boundary

Aerial Photography 10-5-73
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RUSH LAKE

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RUSH LAKE SNA

PREFACE

Scientific and Natural Areas are established to protect and perpetuate natural features which possess exceptional scientific or educational value. Nominated areas must substantially satisfy a set of rigorously drawn criteria to qualify for designation. Scientific and Natural Areas serve many purposes. They are places for the quiet appreciation and study of nature. They serve as outdoor classrooms for teachers. They are areas against which the effectiveness of resources management techniques employed elsewhere can be evaluated. They also serve as control areas for scientists engaged in furthering our knowledge of natural processes.

However, acquisition alone does not assure long term preservation of natural areas and their endangered species. Many natural areas are declining in quality because they are not properly managed. Management of vegetation, control of foreign species, and management of visitors are important concerns.

Comprehensive planning is the key to effective and successful management. In 1975 the Minnesota legislature passed into law the Outdoor Recreation Act (86A), establishing the Outdoor Recreation System. This act directed managing agencies to prepare master plans for units of the system. This document is part of a planning effort to satisfy the mandates of that act. The goal of this plan is to coordinate a strategy for stewardship that addresses biological management, obligations of ownership, and visitor management.

This plan was prepared by the Department of Natural Resources, Scientific and Natural Areas Program with the assistance of the Commissioner's Advisory Committee on Scientific and Natural Areas. It was based on a resource inventory prepared in 1981. Funding was provided by the Legislative Commission on Minnesota Resources.

SUMMARY OF MANAGEMENT PROGRAMS

General Management Considerations

The level of management activity at Rush Lake Island SNA will be low. Management will be coordinated through the DNR Region III Nongame Specialist in Brainerd, and the SNA staff in St. Paul. The DNR Area Wildlife Manager in Cambridge is approximately 15 miles from the SNA.

Because of the sensitivity of resting herons to disturbance, visitation to the island will be prohibited between April 15 and July 15. The best observation area during this time is from the water southwest of the island.

A local resident will be solicited to serve as an SNA volunteer steward. Rush Lake is a moderately well developed recreational lake. As an island, promoting community support and recognition for this SNA is particularly important.

Annual clean-up of debris washed ashore will be necessary. Remains of an old car should also be removed from the island.

Structures and Facilities

Access to the island is by boat only during the ice-off season. An entrance and interpretive sign will be erected on the southeast side of the island. Visitors will be advised to land their boats here. No major improvements will be required for the landing.

The island will be posted as a wildlife sanctuary to facilitate recognition and compliance with the restricted use period (April 15-July 15).

Rookery Management

An understanding of both the regional importance and stresses influencing a colony are necessary before initiating any major management activity. The DNR Section of Wildlife is updating its data base on colonial nesting birds to function as a baseline for analysis of population trends. In addition it is redesigning its survey and monitoring program to provide efficient, continuous and useful information for management and acquisition. Future management decisions pertaining to the rookery on Rush Lake SNA will consider regional or statewide strategies for colonial nesters identified by this improved DNR data base and monitoring program. Management decisions will favor the most conservative alternative.

In the interim, the colony will be annually checked for rookery activity and the presence of great egrets or other colonial nesters. Every 5 years the rookery will be census to establish long term trends.

Vegetation Management

No manipulation of the vegetation is presently recommended. A system of permanent plots or transects will be established to generate baseline data suitable for future analysis of vegetation change, particularly as it relates to the heron colony.

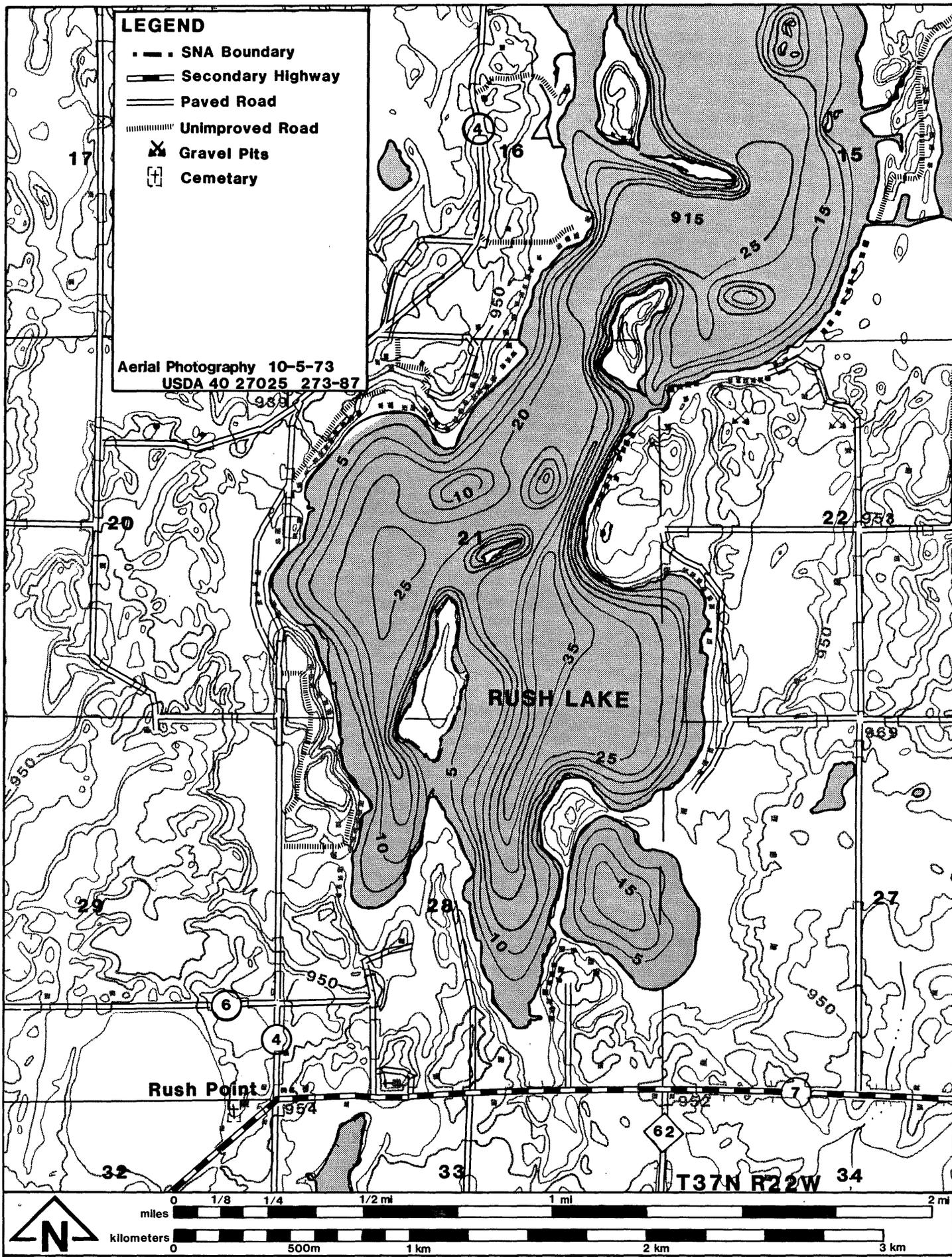
TABLE OF CONTENTS

PREFACE.....	1
SUMMARY OF MANAGEMENT PROGRAMS.....	ii
OVERVIEW.....	3
I. GENERAL MANAGEMENT CONSIDERATIONS	
A. Level of Management Activity.....	5
B. Visitor Use.....	5
C. Surveillance and Enforcement.....	6
D. Clean-up.....	7
II. STRUCTURES AND FACILITIES	
A. Access.....	8
B. Signing.....	8
III. ROOKERY MANAGEMENT.....	10
IV. VEGETATION MANAGEMENT.....	12
V. MANAGEMENT COSTS AND IMPLEMENTATION.....	13

LEGEND

- - • SNA Boundary
- ▬ Secondary Highway
- ▬ Paved Road
- ▬ Unimproved Road
- ⊗ Gravel Pits
- ⊞ Cemetary

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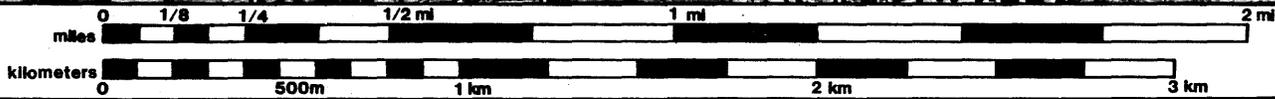
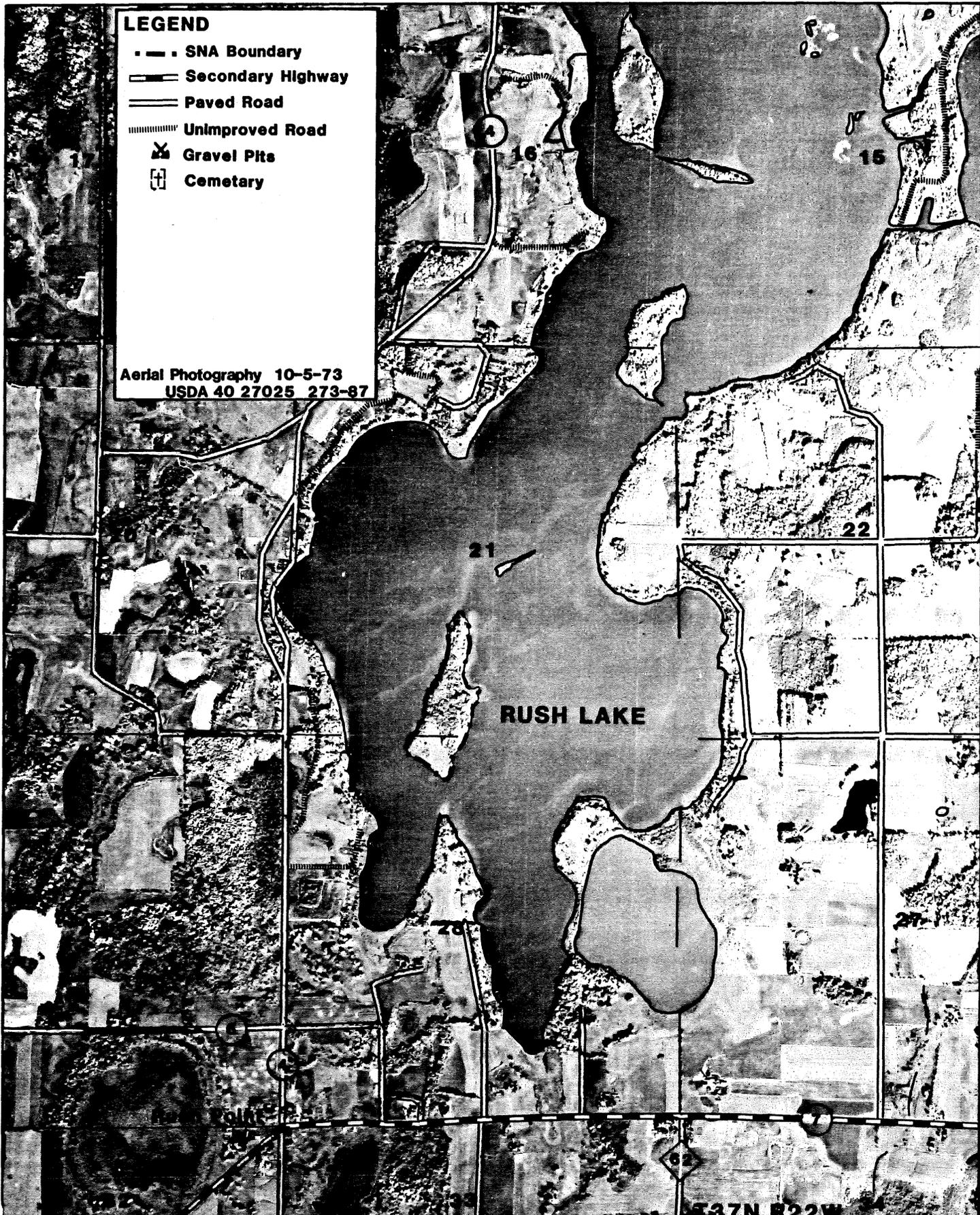


RUSH LAKE SNA

LEGEND

- - · SNA Boundary
- == Secondary Highway
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Aerial Photography 10-5-73
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RUSH LAKE SNA

OVERVIEW

Introduction

Rush Lake Island Scientific and Natural Area (SNA) is a 23 acre island in the west arm of Rush Lake, near Rush City in northwestern Chisago County. The primary interest in the site centers on the large rookery of great blue herons which have nested on the site for nearly 50 years. From its small beginnings in the 1930s, when 25-50 pairs occupied the island, the colony has steadily grown to become one of the largest colonial nest sites in Minnesota.

The rookery is near the center of the island, in a canopy of American elm with some basswood and green ash. Other canopy species found in varying proportions on the island include red oak, sugar maple, silver maple and rock elm. The majority of the elms, even healthy looking ones are suspected of being infected with Dutch elm disease.

Rush Lake is approximately 3000 acres and consists of two arms, roughly equal in size. The SNA is in the west arm which is the deeper of the two at an average depth of 15 feet. More than half the lake's shoreline is occupied by homesites or resorts. The rest includes woodlands, pasture and marsh.

Preservation Value

Rush Lake Island is one of approximately 180 great blue heron colonies believed to be active in Minnesota in 1982. Distributed throughout the forested regions in the state, the colonies range in size from less than ten pairs to over one thousand pairs. The large majority of colonies, however, number fewer than 50 nesting pairs.

Great Blue Herons

Surveys in recent years of Rush Lake Island have reported the rookery to contain more than 400 nests. This places it among the top 10 largest colonies in the state. However, since colony sizes fluctuate annually, this is a dynamic status.

Great Egrets

Great egrets are only known in Minnesota to nest in large great blue heron rookeries. Among the 180 great blue heron colonies in the state, 17 have nesting great egrets. In the mid 1970s local residents reported great egrets in the Rush Lake area. Four nesting pairs were confirmed on the island in 1979 and 1980. In 1981 ten active egret nests were discovered and at least 10 nests were reported in 1982.

Of the 17 known nesting sites for great egrets only a few have more than 50 breeding pairs. Most, like Rush Lake Island, support considerably less than 50. Minnesota is the northwesternmost range extension for this species.

Vulnerability

Despite widespread distribution in Minnesota, colonial waterbirds herons are concentrate their nesting activities into relatively few areas. Whole populations are vulnerable to single disturbances. Human induced stresses on a colony include: direct colony disturbance, colony destruction (through logging or development), destruction or degradation of feeding areas, and bioaccumulation of environmental contaminants in aquatic ecosystems that cause reproduction declines. It is not predictable whether a colony will move following a major disturbance, and the movement of a colony from one site to another following disturbance is no indication the move will be successful.

Rush Lake is a moderately developed, recreational lake. SNA aquisition of Rush Lake Island was initiated because of concerns over development plans for the island.

ORA Classification

The Rush Lake Island SNA fully meets the designation criteria for a scientific and natural area as outlined in the Outdoor Recreation Act of 1975 (86A.05 Subd. 5). The preserve includes: (1) a seasonal haven for concentrations of great blue herons (Ardea herodias) and great egrets (Casmerodius albus), and (2) embraces an area large enough to permit effective research or educational functions and to preserve the inherent natural values of the area. Rush Lake Island SNA will be administered as a public use unit (86a.05 subd.5.d.)

Management Philosophy

The primary factor governing management activity in Rush Lake Island SNA is the importance of this rookery to the population stability of the species in question. Because herons can be highly concentrated, a single rookery may influence a significant portion of a local population. Information that could define that relationship is not fully available. At present, the most appropriate and conservative management philosophy for this unit is a hands-off policy. Any human disturbance or manipulation of the area will be discouraged. As better data becomes available, management will consider priorities and strategies for protection and management of rookeries on a statewide or other regional basis.

I. GENERAL MANAGEMENT CONSIDERATIONS

A. Level of Management Activity

The amount of management that takes place in an SNA is dependent on need and practicality of implementation. The level of management activity at Rush Lake Island SNA will, at present, be low. It does however have the geographical potential of receiving a moderate or high level of activity if appropriate (see discussion under "Rookery Management"). Some of the geographical considerations are discussed below.

a. Distance from St. Paul and Regional Offices

Rush Lake Island is approximately 50 miles from the St. Paul based SNA staff. It is 75 miles from the DNR Region III Nongame Specialist in Brainerd, and roughly 15 miles from the DNR Area Wildlife Manager's Office in Cambridge. Collectively, a considerable amount of management activity could be generated from these offices.

b. Proximity to University Campuses and Research Facilities

The main University of Minnesota campus is located in the Twin Cities (approx. 50 miles). In addition there are several private colleges, universities, and community colleges in the Metropolitan area.

c. Proximity to Similar Areas

Half-way to Rush Lake from the Twin Cities is another large heron rookery located in the Lamprey Pass Wildlife Management Area. Some coordination of management effort may be possible between these two units.

B. Visitor Use

Any visitor use results in some disturbance to nesting birds. Visits just before or during egg laying can provoke abandonment of newly constructed nests and either predation of eggs or abandonment of eggs followed by predation. Later disturbance can cause direct mortality of young through predation, exposure or other causes. Frequent disturbance may also discourage settlement of late-nesting herons.

Action #1 Seasonally prohibit visitation on the island between April 15 and July 15.

Considerations:

Signing - Post the area as a DNR Wildlife Sanctuary with appropriate restriction dates (see Action 9).

Observation - Encourage observation of the herons during the nesting period to take place from the water, southwest of the island (best observation area).

C. Surveillance and Enforcement

Non-conforming uses can damage natural conditions and the aesthetic appearance of natural areas. Because of the value and fragility of nature preserves, their continuing protection and maintenance should be provided on a systematic, rather than haphazard basis. The custodial function can be separated into components. Surveillance can be accomplished by developing local support and understanding of the SNA. Local citizens would be encouraged to report any signs of non-conforming uses. A local volunteer should be assigned responsibility for answering questions as they arise locally, and preparing an annual status report. Enforcement is the responsibility of the local conservation officer and the SNA staff.

Action #2 Identify a local person to be an SNA volunteer steward.

Considerations:

Responsibilities - 1) keep annual records of whether the colony is active, 2) keep annual records of whether great egrets or other less common colonial waterbirds are nesting, and 3) report any catastrophic disturbances (e.g. windstorm damage, fire).

Action #3 Periodically release informational articles on Rush Lake Island SNA in the local newspaper.

Considerations:

Need - Rush Lake is a moderately well developed recreational lake. As an island, access is 'unlimited'. Broad-based local support is more critical here than for the typical, land based SNA with relatively few adjacent landowners.

D. Clean-up

There is a small amount of litter that annually accumulates on the island due to picnickers and debris washed ashore. In addition there is an old car on the island that should be removed.

Action #4 Annually clean-up litter on the island.

Considerations:

Timing - Clean-up should be scheduled for fall when it is easily visible and there is no conflict with heron nesting.

Local Involvement - This project would be a good candidate for an activity carried out by a local community organization such as the Boy Scouts.

Action #5 Remove car from the island.

II. STRUCTURES AND FACILITIES

A. Access

Access to the SNA is by boat only during the ice-off season. The only public access to Rush Lake is on the north end of the lake's east arm, approximately 2 miles from the SNA. A public water access site is currently being pursued on the west shore, of the west arm of Rush Lake, about $\frac{1}{2}$ mile north of the island.

Easy lake access to the SNA is available through the resorts on the west shore of Rush Lake. Rush Lake Haven Resort is directly across from the island, less than $\frac{1}{4}$ mile away. A small launching fee is generally charged by the resorts.

There is no designated landing on the island.

Action #6 Designate a primitive boat landing.

Considerations:

Location - Sited together with entrance and interpretive signs (see Actions 7, 8). The landing should be clearly posted for restricted use periods (See Action 1, 9).

Improvements - No improvements should be made except if absolutely necessary for safety considerations. The site should naturally facilitate landing, but not be developed such that boaters on the lake are "invited" to the island.

B. Signing

The purposes of signing are to a) identify the area, and b) provide basic visitor information. SNA boundary signs have already been posted. The following types of signs are still needed: entrance, interpretive, and restricted use periods (Std. DNR Wildlife Sanctuary sign).

Action #7 Post entrance sign.

Considerations:

Location - Visible from the lake and in an area that naturally facilitates boat landing but does not disturb the herons. The southeast side of the island has a suitable site (see Action 6).

Style - Wood routed.

Action #8 Post interpretive sign.

Considerations:

Location - Near the entrance sign

Content - Explain the significance of the SNA and the sensitivity of herons to disturbance.

Action #9 Post the island as a Wildlife Sanctuary.

Considerations:

Restricted Period - Closed to visitor use April 15 through July 15 (see discussion of Visitor Use).

Location - To be posted with SNA boundary signs.

Area - Because the island is small, it does not seem to be practical to post only a portion of the island as a sanctuary. The whole island will be posted.

III. ROOKERY MANAGEMENT

Before management monies or energy are expended on management of sites, accurate information is needed on the significance of a particular site for the population stability of the species in question. It is important to know how a particular colony relates to its geographic region in order to justify proposed activities.

Fluctuations in yearly breeding success are common in colonial birds. This presents some difficulties in analyzing survey information. For example:

- 1) Can it be determined whether a long-term decline in productivity is occurring?
- 2) Are human-induced stresses responsible for observed changes in breeding success?
- 3) What are the specific stresses on the colony and what are their relative importance?

Analyzing the cost-effectiveness and biological appropriateness of major management programs (e.g. nest tree silviculture, artificial nest-structures) will require an understanding of both the colony's regional importance and stresses influencing that colony.

Action #10 Consult the DNR Wildlife data base and monitoring program on colonial nest birds to formulate future management decisions.

Considerations:

Data Base - The DNR data base is presently being updated to serve as a baseline for analysis of population trends (scheduled completion date: Feb 1984).

Monitoring - A survey and monitoring program is being designed by the DNR that will provide efficient, continuous, and useful information for establishing priorities for management and acquisition (scheduled completion date: Feb 1984).

Scope - Management activities should consider Rush Lake Island's role in regional or statewide strategies for colonial nesters. Management decisions should favor the most conservative alternative. Significant manipulation of the rookery or vegetation would require strong justification in terms of regional importance or species stability.

Action #11 Annually verify if the colony is active and if great egrets are present.

Considerations:

See also Action 2, SNA Volunteer Steward responsibilities.

Action #12 Census the rookery every 5 years.

Considerations:

Objective - To show long-term colony trends.

Methods - Methods will be consistent with standard DNR survey and monitoring procedures (see Action 10).

IV. VEGETATION MANAGEMENT

The relationship between herons and vegetation is a primary management concern on Rush Lake Island. The issue revolves around the continued availability of nesting habitat for herons on the island. There are several factors to consider:

1. Dutch elm disease is killing elms on the island. Elms support roughly three-quarters of the nests in the colony.
2. In the absence of elm, will the tree canopy provide adequate nesting habitat?
3. Heron excrement may have a negative effect on survival and regeneration of trees.
4. What are the rates of nesting habitat loss on the island compared to habitat gains (i.e. tree regeneration)?

There is little data on the longevity of heron colonies in North America. In addition, the utilization of dead trees by nesting herons has been well documented. Any decisions regarding habitat manipulation should be based both on considerations discussed under 'Rookery Management' and adequate site habitat information.

Action #13 Establish a system of permanent plots or transects.

Considerations:

Objective - to generate baseline data suitable for the future analysis of vegetation change, particularly as it relates to the heron colony.

Standardization - Sampling design and data collection methods should, to the greatest extent possible, be standardized for similar habitat types on other SNAs.

Inventory Relevés - This system will complement the permanent plots established by the 1980 inventory team.

V. MANAGEMENT COSTS AND IMPLEMENTATION

Actions recommended in this plan have been separated into two categories: 1) administrative and 2) operational. The costs of administrative actions are difficult to itemize because they are included in an SNA staff member's salary. Collectively, increases in administrative responsibility recommended in this and other plans will exceed existing staff capacity. Adequate staffing must be provided to implement these plans as recommended.

Operational actions are on-site activities. These often have both capital and labor costs. Capital costs have been listed. Estimates of labor needs are provided where possible.

Administrative and operational actions are often funded out of different sources. This makes it difficult to present an implementation schedule that equates both types of actions. To accommodate budget planning separate implementation schedules are outlined for each category. It is important, however, to have a mechanism that does allow comparison between all actions in this plan, and between actions from different plans. The system outlined below distinguishes between a) actions needed to improve or maintain the integrity of a site's most important features, b) legal or moral obligations of ownership or land management by SNA, and c) all other actions important for reasons other than above.

Stewardship Group I Actions: These are actions that prevent or reduce the vulnerability of the element to destruction or serious degradation. That is, in the absence of these actions the preservation of the element is threatened on this site. Research, ecological survey and monitoring may be included here if, without such information, it is not known what actions are necessary to maintain the element.

Stewardship Group Ia Actions: These actions are the same as Group I except that they are actions needed by all or the majority of elements on the site.

Stewardship Group II Actions: Actions necessary because they constitute an obligation of land management/ownership by the SNA Program. In some cases, actions may qualify under both Group I and II. For instance, a plant listed on a state noxious weed law may grow on a preserve. Control of the plant may be necessary as an obligation of ownership. If no action is taken, the county agricultural inspector might go in and broadcast spray to control the weed, and this could seriously impact elements on the preserve. In this case, the action to control the weed to avoid the broadcast spraying should be listed under Group I actions. If the weed grew in a road ditch and whatever action taken to control it was unrelated to element protection, weed control would be included under Group II actions. Other examples of actions usually included here are maintenance of road shoulders and litter removal.

Stewardship Group III Actions: Actions taken for all other reasons. Once again, care should be taken to 'float' actions up to the highest group justified. In many cases, activities such as guided field trips will fall under Group III. If it can be truly said that in the absence of such education activities vandalism or other acts would ensue which would negatively impact element preservation, these stewardship actions could be listed under Group I. Such arguments should be well supported with background information. In general, actions taken to improve aesthetics, promote or enhance public use, develop trails, derive income and develop facilities will fall under Group III.

The following chart illustrates the scheduling of actions described in the text, and the immediate and on-going capital costs of implementation. The scope of this plan covers a ten year period. The plan should be reviewed every five years to evaluate progress, reassess priorities and refine management techniques. Actions listed under the category "Begin Immediately" need immediate attention. "Phase I" is the first five year period. "Phase II" is the second five year period. Implementation of many actions is dependent on availability of materials, equipment and labor. An action may be initiated sooner than scheduled if circumstances so dictate and earlier scheduled actions will not suffer as a result.

ADMINISTRATIVE ACTIONS

Action		Stewardship Group	Begin Immediately	Phase I	Phase II	Comments
Action #1	Prohibit visitation April 15-July 15	I	X			
Action #10	Consult DNR data base on monitoring program on colonial nesting birds.	I				
Action #2	Solicit a SNA volunteer steward	II		X		
Action #3	Release articles in local newspaper	III		X		on going

OPERATIONAL ACTIONS

		Stewardship Group	Begin Immediately	Phase I	Phase II	Comments
Action #9	Post the island as a wildlife sanctuary	I	\$100			signs and posts
Action #11	Annually verify colony activity	I	nc (no cost)			on going
Action #12	Census the colony every 5 years	I		nc		on going
Action #13	Establish a system of permanent plots or transects	I		cost?		
Action #6	Designate a boat landing	II		nc		
Action #7	Post entrance sign	II		50		
Action #8	Post interpretive sign	II		100		
Action #4	Clean up litter annually	III	nc			
Action #5	Remove car	III		cost?		

