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- Management plan for Purvis Lake-Ob



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Management plan for Purvis Lake-Ob

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Management Plan
for
Purvis Lake-Ober Foundation
Scientific and Natural Area

NW $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 33
W $\frac{1}{2}$ SW $\frac{1}{4}$ of Section 28
and the SW $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 28
Township 62 North Range 13 West
St. Louis 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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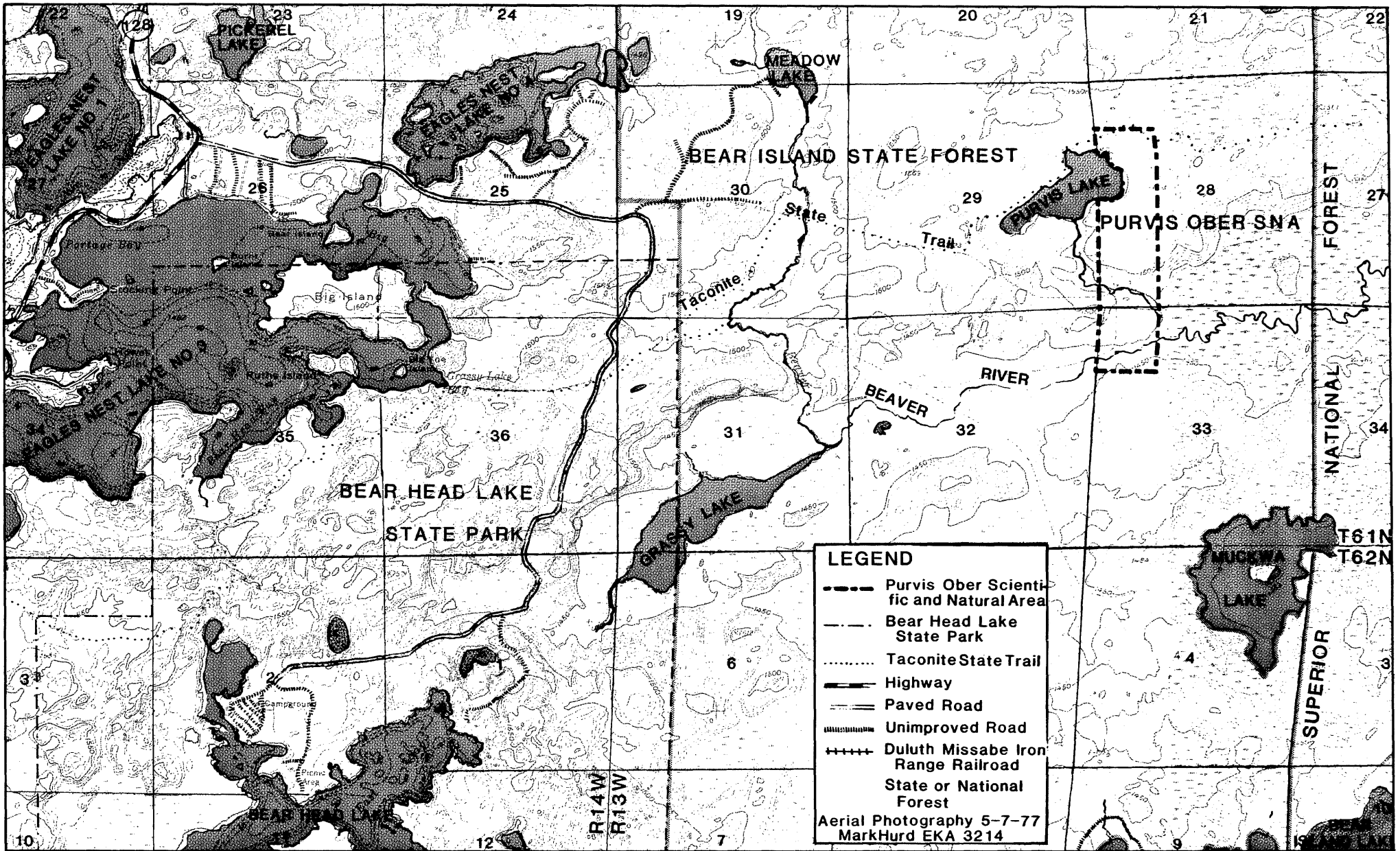
This SCIENTIFIC and NATURAL AREA was established to protect and perpetuate Minnesota's rare and unique natural resources for nature observation, education and research purposes.

Principal activities which are UNLAWFUL in the use of this area are listed below: Further information is available at Department of Natural Resources Offices.

- *Collecting plants, animals, rocks or fossils.*
- *Camping, picnicking and swimming.*
- *Horses, dogs and other pets.*
- *Snowmobiles and other motorized vehicles.*
- *Hunting, trapping, fishing and boating.*
- *Entry into restricted areas and sanctuaries.*

WALK GENTLY

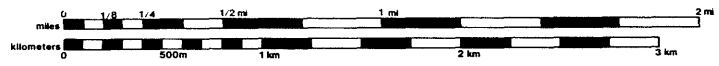
MINNESOTA DEPARTMENT OF NATURAL RESOURCES



LEGEND

- Purvis Ober Scientific and Natural Area
- Bear Head Lake State Park
- Taconite State Trail
- Highway
- Paved Road
- Unimproved Road
- +++++ Duluth Missabe Iron Range Railroad
- State or National Forest

Aerial Photography 5-7-77
MarkHurd EKA 3214



VICINITY MAP

PURVIS OBER 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 Purvis-Ober SNA will be low. Management will be coordinated through the Region III Non-Game Specialist in Grand Rapids. Bear Head Lake State Park is the closest DNR facility to the SNA. Both state park staff and a work crew for the Taconite Trail are in the park. The SNA is relatively inaccessible and all local DNR personnel will be solicited to pay particular attention to visitor activity and problems when working in the area.

Fire was once the major environmental agent controlling the vegetation at Purvis-Ober SNA. Present day fire policy is to suppress all fires. Reintroduction of fire is not possible. Wildfire control will emphasize techniques which minimize physical disruption to the SNA whenever possible. These special considerations will be incorporated into the DNR-Orr area fire planning document.

Access to the SNA is provided by the Taconite Trail. No further improvements are necessary. The deed conveying the Purvis property to the DNR required that the land be designated as an SNA; and no hunting, trapping, commercial activities, or motorized vehicles would be allowed.

Structures and Facilities

Boundary signing is urgently needed. In addition, rules and regulation signs, and information signs will be posted. An entrance sign is already in place. Fencing will be necessary across the trail entering the south half of the SNA to discourage snowmobiles and other motorized vehicles. A registration box will be placed along this trail to record visitor use and comments. There are several trails on the SNA. These will be permanently marked for future reference, but no trail maintenance is planned.

There are several buildings around the former homesite. These will be cleaned out and signed warning visitors not to enter.

Vegetation Management

A system of permanent plots or transects will be established and maintained. The primary goal will be to investigate long-term patterns of natural forest succession following fire suppression. The boundaries of man-created clearings will be permanently marked for future reference. No rare plants have been recorded on the SNA. Several may potentially occur here and researchers visiting the site will be solicited to search for these.

Other Resource Management

Several deer/hare exclosures will be constructed. These will be located in a variety of vegetation types and will complement the permanent plots. Annual maintenance will be necessary.

Adjacent Lands

Purvis-Ober SNA is surrounded entirely by state and county forest lands. No conflicts are anticipated between logging activities on these lands and SNA management or protection. The location of the SNA will be described in future county and state timber sale announcements and contracts for stands adjacent the SNA. The purpose of this notification is to assure extra care and precaution is taken during harvest operations along the SNA boundary.

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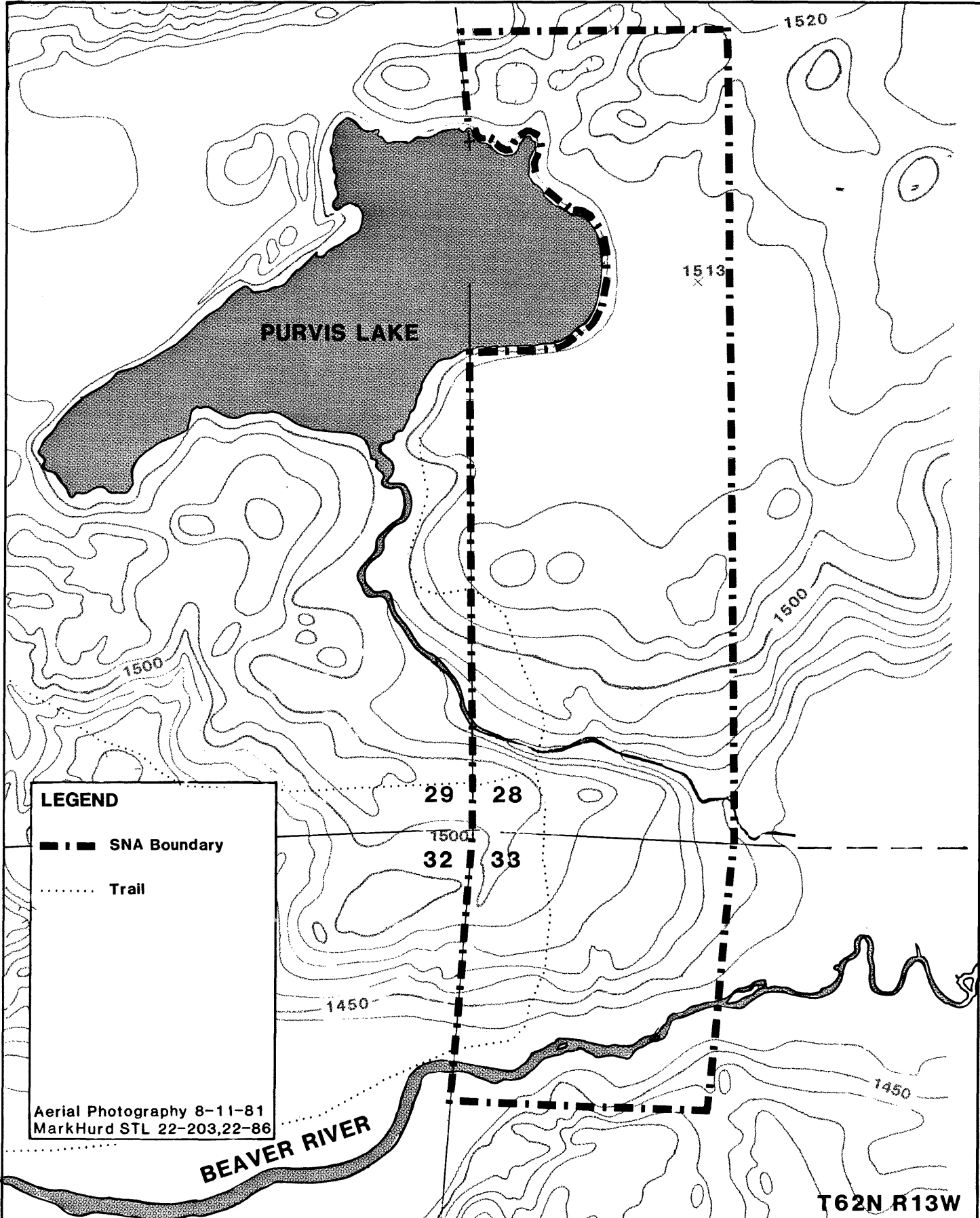
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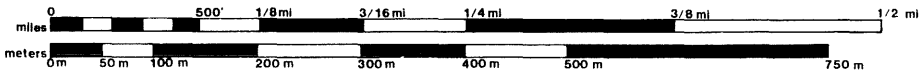


LEGEND
 - - - - - SNA Boundary
 Trail

Aerial Photography 8-11-81
 MarkHurd STL 22-203,22-86

BEAVER RIVER

T62N R13W



PURVIS OBER SNA



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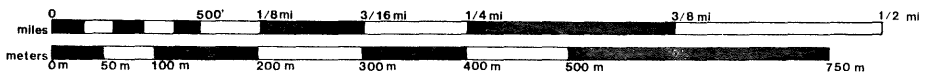
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Aerial Photography 8-11-81
MarkHurd STL 22-203,22-86

BEAVER RIVER

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PURVIS OBER SNA

OVERVIEW

Introduction

The Purvis Lake-Ober Foundation Scientific and Natural Area (Purvis-Ober SNA) is located within the Bear Island State Forest, approximately 10 miles southwest of Ely and only a few miles northeast of Bearhead Lake State Park. The flora and fauna of this SNA are typical of the mixed upland forest and bog environments of northeastern Minnesota. Numerous glacial advances produced a pattern of alternating lakes, bogs and rocky ridges in the region. These features are illustrated within the 140 acre Purvis-Ober SNA.

While most of the surrounding land has been logged, forests of the Purvis-Ober SNA have remained largely untouched. On the uplands, aspen, birch, red pine and jack pine dominate. More poorly drained areas are characterized by sedges, labrador tea, black ash and black spruce.

The SNA is surrounded by state and county forest. Purvis Lake forms the unit's northwestern boundary. The lake is drained by a small, unnamed stream that crosses the SNA.

The property was homestead at the turn of the century by Sumner Purvis, an enterprising individualist who lived on the site for 60 years. It is largely to his credit that the tract still remains in its natural state.

Preservation Value

This section lists features considered to be important components of Minnesota's natural diversity which qualify the site for SNA designation. Criteria for SNA evaluation are enumerated in "Minnesota Department of Natural Resources Policy for Scientific and Natural Areas", dated July 6, 1979.

Purvis-Ober SNA is notable as a tract of native vegetation providing habitat for a diverse assemblage of plant species. It demonstrates features of the old-growth forest type that existed in the region prior to large scale logging. Before logging and settlement, fire was the major environmental agent controlling the composition, age structure, and general appearance of northern Minnesota vegetation. The presettlement fire regime of upland areas in the SNA probably consisted of frequent, light surface fires; and severe, surface-crown fires which occurred much less frequently. These crown fires killed portions of stands which allowed new age classes to become established in the burned over, open areas. Lowland areas were probably burned by infrequent crown fires during extremely dry years.

The General Land Office Survey records (1880) report that a fire swept over the area in the 1870s. Tree cores from the SNA corroborate that account. Lumber companies entered the region in the 1870s and probably were active near the SNA around 1890. Because of the recent fire, there was probably little merchantable timber on the SNA at that time. This combination of historical events and field observations suggest that little or no commercial logging took place. Purvis himself only cut a small amount of wood for fuel, his buildings, and fences.

There are no known occurrences of rare plants on the SNA; however, the site has not been adequately inventoried.

ORA Classification

The Purvis Lake-Ober Foundation SNA fully meets the designation criteria for a scientific and natural area as outlined in the Outdoor Recreation Act (86A.05 Subd. 5). The preserve includes: (1) natural features which significantly illustrate an undisturbed plant community, and (2) an area large enough to permit effective research and educational functions and to preserve the inherent natural values of the area.

Management Philosophy

Natural forest development in northeastern Minnesota was strongly dependent on large, infrequent, catastrophic fires. Fire control, logging, land clearing, and the development of roads, utility corridors and urban areas has greatly lengthened and modified the natural fire cycles making them irrelevant.

The size of these former fires far exceeds the size of the SNA. Selective reintroduction of surface or crown fires to simulate natural conditions would be highly artificial, if even controllable. The primary management goal for this SNA will be to document long-term changes in the forested communities and clearings. The general management philosophy for this unit will be a "hands-off" policy. Any manipulation of the area will be discouraged.

I. GENERAL MANAGEMENT CONSIDERATIONS

A. Level of Management Activity

The amount of management activity that takes place in an SNA is dependent on need and practicality of implementation. The level of management activity at Purvis-Ober SNA will be low. Frequent monitoring or inventory is not practical. Research conducted on the site will primarily be long term studies with infrequent sampling intervals. Several reasons for this decision are described below.

1. Distance from St. Paul and Regional Offices

Purvis-Ober SNA is approximately 240 miles from the St. Paul based SNA staff. It is 100 miles from DNR Region II headquarters in Bemidji. The closest DNR facility is Bear Head Lake State Park, 2 miles west of the SNA. The work crew for the DNR Taconite Trail, which crosses the north edge of Purvis-Ober, is stationed in the park.

2. Proximity to University Campuses and Research Facilities

No research activity has been focused on this SNA to date. The site is 100 miles from the University of Minnesota-Duluth campus. The University also has a forestry field station near Cloquet. In addition there are community colleges in Hibbing (50 mi), Virginia (30 mi) and Ely (20 mi). The SNA program may be able to solicit some research attention to Purvis-Ober SNA from these and other educational institutions.

B. 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.

Enforcement is the responsibility of the DNR Conservation Officer (in Tower), SNA staff, and local law authorities (St. Louis County Sheriff). The regional Nongame Specialist in Grand Rapids is the regional DNR contact for this SNA. The two violations most commonly reported for this SNA are hunting and snowmobiling. Neither is allowed under SNA rules and regulations (NR 300) and both are prohibited in the deed.

DNR personnel working on the Taconite Trail or in Bear Head Lake State Park will be encouraged to pay particular attention to visitor activity in the vicinity of, or within the SNA. This will assist the SNA Program in assessing visitation levels and to respond quickly to problems.

Action #1 Inform local enforcement authorities and appropriate DNR staff about the SNA Program and specific use restrictions that apply to Purvis Ober SNA. Contact every 2 years or as necessary.

C. Fire Protection and Control

Fire was once the major environmental agent controlling the composition, age structure and general appearance of northern Minnesota vegetation. Present day fire policy in the Purvis Lake area is to suppress all fires. DNR Forestry is responsible for fire suppression. Wildlife occurrence in the vicinity is low.

Action #2 Incorporate special considerations regarding wildfire control on the SNA into the DNR-Orr area fire planning document.

Considerations:

Protection strategy - In the case of a wildfire, choose those control techniques that will minimize physical disruption of the SNA whenever possible.

Firebreaks - If necessary, firebreaks should be constructed along existing trails or boundaries (see Land Use History Map, Resource Inventory, pg).

D. Access

Access to the SNA is by foot only. Vehicles can be parked on the gravel road off CSAH 128, just north of Bear Head Lake State Park. This road joins the Taconite Trail in the east half of section 30 (3/4 mi). The Taconite Trail passes the north boundary of the SNA. In the middle of section 29 a spur trail off the Taconite Trail leads to the southern half of the SNA. No improvements for access are necessary.

E. Deed Restrictions

The deed conveying the Purvis property to the Department of Natural Resources requires:

- 1) the land be permanently designated as a scientific and natural area.
- 2) the land be marked or posted with signs stating:

-no hunting	-no operation of any type or
-no trapping	nature of motorized propelled
-no commercial	vehicle, including but not
activity of any	limited to snowmobiles,
kind or nature	minibikes, and all terrain
	vehicles

II. STRUCTURES AND FACILITIES

A. Signing

The purposes of signing are to identify the area and provide basic visitor information. A wood routed entrance sign is already in place. Additional signing needs include: boundary posting, rules and regulations, and visitor information.

Action #3 Post SNA boundaries.

Action #4 Post rules and regulations signs.

Considerations:

Location - Post next to the entrance sign.

Action #5 Post two information signs.

Considerations:

Location - Post one information sign next to the registration box (see Action). Post another at the Taconite Trail adirondack shelter adjacent the northwest boundary of the SNA.

B. Fencing

Snowmobiles and three-wheeled vehicles occasionally trespass on the SNA. The primary access point for these vehicles is from the trail entering the southern half of the unit. A fence should be constructed across this trail to obstruct access. Motorized vehicles are prohibited both in the deed for the property and SNA rules and regulations.

Action #6 Fence the trail entering the south half of the SNA to obstruct vehicle use.

Considerations:

Location - The fences should be constructed at the western SNA boundary where the trail enters the SNA.

Style - A log structure of sufficient length across the trail to discourage vehicle use.

C. Registration Box

A registration box serves the purpose of recording visitor use and provides a convenient opportunity for visitors to record their observations. A registration system is most effective where access to the site is along a single, confined corridor. Location of the box up the trail a short distance from the unit boundary increases compliance and reduces vandalism.

Action #7 Erect a visitor registration box.

Considerations:

Location - At a point just east of the westernmost old field; along the trail that enters the southern half of the SNA. The box should be located together with the informational sign (Action #5)

Maintenance - Initially the box should be checked 3 times per year; spring, midsummer and fall. A well maintained station is essential for compliance.

Visitor information - Maps and other visitor information will be provided in the registration box.

D. Trails

There are several trails on the SNA that remain from the time Purvis owned the property. These will not be maintained. For reference in future studies, however, they should be permanently marked.

Action #8 Permanently mark the alignment of trails in the SNA.

E. Buildings

Purvis' homestead included several buildings (see Resource Inventory - Land Use History). Those still standing are in moderate to poor condition. These buildings generate considerable visitor interest. They represent an important period in the history of the SNA. They do not, however, have statewide or national historic significance and the SNA Program is not equipped to maintain them.

Action #9 Clean up the buildings and surrounding grounds.

Considerations:

Standing Buildings - Leave the basic shell and structure but

remove all items that later become strewn around and detract from the site (i.e. broken doors, windows, sinks etc)

Grounds - Remove all debris that can be carried off the tract or burned.

Safety - Any safety hazards (i.e. the ladder into the barn loft) should be eliminated.

Action #10 Post building safety signs.

Considerations:

Need - The buildings are not maintained and are not safe to enter. A small sign should be conspicuously placed at each building entrance warning visitors not to enter.

III. VEGETATION MANAGEMENT

A. Communities

The forested areas within the SNA were apparently established following natural disturbances. Natural disturbances, such as fire and windthrow kill trees but often may not consume much of the wood. Several ecological attributes such as the number of snags, logs, and surviving live trees that provide a seed source strongly link the destroyed forest to the regenerating one. This contrasts with a managed forest where, after cutting, major efforts are made to dispose of residue, and seed sources may have been eliminated.

Reintroduction of the fire regime that existed at Purvis Ober SNA prior to European settlement is not possible. No active manipulation of the vegetation is recommended. Because of its permanent protection, the SNA can play a useful role in research on long term patterns of natural forest succession following fire suppression.

Action #11 Establish and maintain a set of permanent plots or transects.

Considerations:

Objective - To generate and maintain data suitable for ecologically oriented successional research.

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 releve plots established by the 1980 inventory team.

Action #12 Permanently mark boundaries of man-created clearings.

Considerations:

Objective - To establish reference points for future research activity.

Clearings - Three: one around the homestead, one southwest of the homestead used as a garden, and one southeast of the homestead formerly used as a pasture. The total area of the clearings is 2 hectares.

B. Rare Plants

No rare plants have been recorded from this SNA; however, the resource inventory (1981) identified several rare species that should be searched for during future field work. Many of those species are recommended by the Endangered Species Technical Advisory Committee as endangered, threatened, or special concern, and are listed below.

Endangered

Sparganium glomeratum
Subularia aquatica

Threatened

none

Special Concern

Agrostis geminata
Allium schoenoprasum var sibiricum
Claytonia caroliniana
Deschampsia flexuosa
Geocaulon lividum
Platanthera clavellata
Ranunculus laponicus
Waldsteinia fragaroides

Action #13 Solicit researchers visiting the SNA to search for rare plants.

IV. OTHER RESOURCE MANAGEMENT

A. Exclosures

Browsing of trees and shrubs by white tailed deer and snowshoe hare has been shown to have varying effects on forest species composition, establishment and density. A fenced exclosure can demonstrate and allow measurement of browsing effects on vegetation.

Deer increased dramatically in northeastern Minnesota in the early to mid 1900s following logging and other human alteration of the regional landscape. Northeastern Minnesota is now recognized as becoming progressively poorer deer habitat, largely because of forest maturation and succession.

Action 14 Construct 4 - 5 deer/hare exclosures.

Considerations:

Maintenance - Annual maintenance will be required. Fall checks are recommended.

Coordination - Exclosures should be located to complement the permanent plots (See Action 11)

V. ADJACENT LANDS

A. State and County Lands

Purvis Ober SNA is surrounded by state and county forest. The county land is part of the Vermillion County Memorial Forest (includes sections 29, 33, and parts of 32), and the state land is included in the Bear Island State Forest (includes sections 28 and parts of 32). Timber sales are planned for these state and county lands within the next 5 years. Harvest prescriptions include pine stand thinning, and clearcutting of the hardwoods. Upgrading or construction of logging roads may improve public access into Purvis Lake and surrounding uplands.

Action #15 Identify the location of the Purvis Ober SNA in forest timber sale announcements and contracts on county and state lands adjacent the SNA.

Considerations:

Purpose - To assure extra care and precaution is taken during harvest operations along the SNA boundary. This is not a restriction or regulation of harvest. It simply advertizes the special need in these sales to comply with existing laws and regulations governing timber harvest.

Procedure: State Forest - The DNR Area Wildlife Manager reviews timber cut plans for state forest lands and will recommend identification of SNA boundaries in timber sale announcements and contracts on sales adjacent the Purvis Ober SNA.

Procedure: County Forest - The County Assistance Program Forester reviews timber sales on county forest lands and will recommend identification of SNA boundaries in timber sale announcements and contracts on sales adjacent the Purvis Ober SNA.

B. Purvis Lake

The DNR has stocked Purvis Lake lightly several times over the last 50 years. On a few occasions small numbers of trout fingerlings were planted. Most recently the lake was stocked with walleye fry. A lake survey in 1966 did not report any trout in the lake. Access to Purvis lake is from the Taconite Trail along the north shore of the lake.

The outlet is a small stream which crosses the SNA. This stream was lightly stocked with trout on at least three occasions; however, it is not a designated trout stream. Stocking of both the lake and stream has been a low priority for DNR Fisheries because of limited public access.

Fishing is not permitted on SNAs. This applies to the outlet stream where it flows across the SNA, but does not affect fishing on the lake.

Purvis Lake is not within the SNA boundary. Present fishing pressure is light. If access is improved (See discussion of "State and County Forest") use is likely to increase.

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

	Stewardship Group	Begin Immediately	Phase I	Phase II	Comments
Action #15 Identify the location of SNA boundaries in timber sale announcements and contracts.	Ia	X			
Action #1 Contact enforcement officials and appropriate DNR staff every 2 years	II	X			Ongoing
Action #2 Include SNA wildfire control considerations into the DNR area fire planning document.	II	X			

OPERATIONAL ACTIONS

Action #3 Post SNA boundaries.	Ia		200		Approx. 30 signs and posts
Action #11 Establish and maintain a set of permanent plots or transects	Ia		Cost?		
Action #4 Post rules and regulations sign.	II		10		
Action #5 Post two information sigs.	II		122		\$100 preparation costs, \$8/sign \$3/post
Action #6 Fence trail.	II		200		\$100 per location, treated posts
Action # 9 Clean-up buildings and grounds	II		X		Labor: 2 workers @ 1 week
Action #10 Post safety warnings on buildings.	II		\$100		
Action #7 Erect visitor registration box.	III		50		Initially check box 3 times/year
Action #8 Permanently mark trail alignments.	III		100		
Action #12 Permanently mark clearing boundaries.	III		100		
Action #14 Erect 4-5 exclosures.	III		500/ex		Requires ongoing maintenance

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