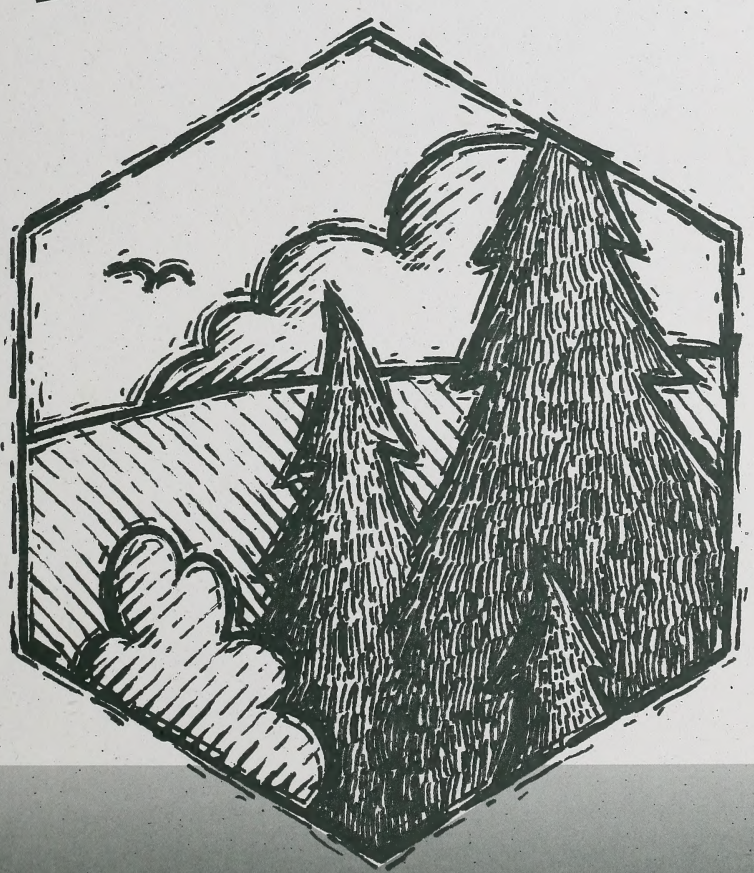
WAGNER

NATURAL AREA

Management Plan



Alberta
ENVIRONMENT
Natural Resources Service

WAGNER NATURAL AREA

MANAGEMENT PLAN

Prepared by:
Wagner Natural Area Society
and
Natural Resources Service,
Alberta Environment

Based on a Master's Thesis by:
Catherine M. Mowat
University of Calgary

June 1999

Pub. No.: I/533
ISBN: 0-7732-1310-4

For copies of this report, contact:

Information Centre
Alberta Environment
Main Floor, Great West Life Building,
9920 – 108 Street
Edmonton, Alberta, Canada T5K 2M4

Telephone: (780) 422-2079

Table of Contents

LIST OF FIGURES

APPROVAL STATEMENT

Recognizing the value of the Wagner Natural Area for conservation, education and research, the Wagner Natural Area Management Plan is approved and will define the general policy and management intent for the site.

President Wagner Natural Area Society _____ Date December 3rd 1999

Director Recreation and Protected Areas Division, Alberta Environment _____ Date Dec 20, 1999

Director Public Lands Branch, Alberta Agriculture, Food and Rural Development _____ Date Sept 20, 1999

Assistant Deputy Minister Natural Resources Service Alberta Environment _____ Date Jan. 4/2000

1.0 INTRODUCTION

The Wagner Natural Area currently comprises more than 130 ha (legal description = N7-53-26-W4M) of Crown land located 7 km west of Edmonton (Figure 1). Although the site contains a number of significant biophysical features, its dominant feature is a mineral-rich fen made up of wet meadows, marl ponds and black spruce/tamarack forest. Rich fens are unusual in the Edmonton area, and it is mainly because of this fen that the land has been designated to be preserved as a Conservation Natural Area. The site received legal Natural Area status (under the *Wilderness Areas, Ecological Reserves and Natural Areas Act*) in February 1987. The site has been confirmed as an EMAN (Ecological Monitoring and Assessment Network) site, and will be considered as a UNESCO Index Site.

The site is jointly administered by the Wagner Natural Area Society (WNAS) and Natural Resources Service of Alberta Environment. It was leased to WNAS in 1983 for a 21-year period.

1.1 WHAT ARE NATURAL AREAS?

Natural Areas are portions of public land protected under the authority of the *Wilderness Areas, Ecological Reserves and Natural Areas Act*. They are designated with the main objective of maintaining their natural features. Their management emphasizes public appreciation, education, research and/or recreation when these uses are compatible with the main objective. The legislation for Natural Areas is included in the Appendix. Natural Areas are by policy divided into three categories: Education, Conservation and Recreation. In many cases, a site may fit into one or more of these categories. In recognition of its exceptional natural values, Wagner has been designated by policy as a Conservation Natural Area.

1.2 WHAT IS THIS MANAGEMENT PLAN ALL ABOUT?

There are a number of reasons why this plan was prepared by Alberta Environment and WNAS. First, the possibility that increasing use will result in more pressure on the features of the Natural Area, both in impacts on the site itself and in reduced and perhaps conflicting opportunities for users. Second, managers and citizens have become increasingly concerned about such impacts and changes. Third, both the society and Natural Resources Service staff are concerned about the consistency and continuity of their planning, management and decision-making. Fourth, Natural Area legislation provides general protection status but does not address site-specific needs. Consequently, a site-specific management plan is required.

This plan is directed at managing users of the Natural Area. Adherence to this plan will reduce or prevent unacceptable resource and social conditions and rehabilitate certain undesirable conditions in the Natural Area. This plan also establishes a process for managing the Natural Area cooperatively between government and public users.

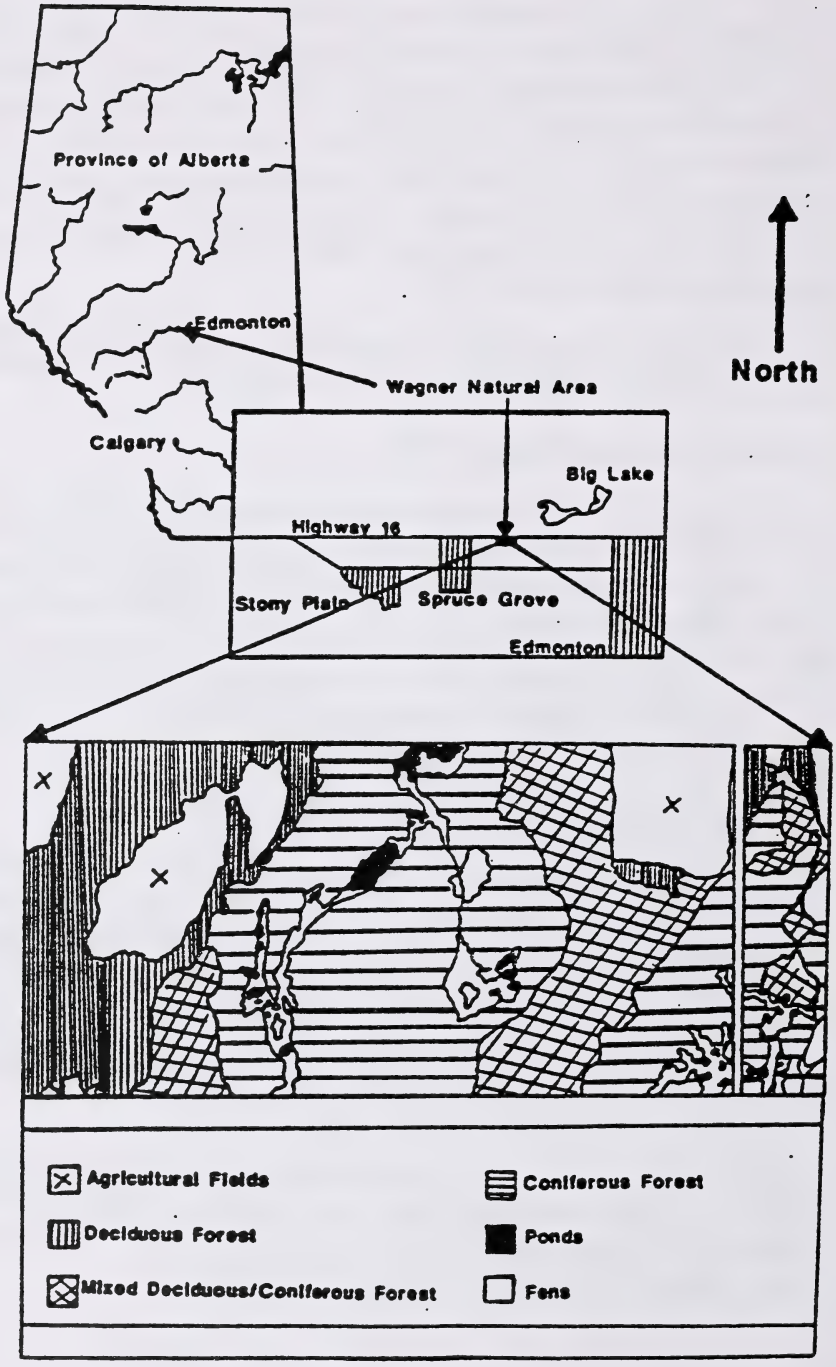


Figure 1: Location and General Features of the Wagner Natural Area

1.3 PLAN LIMITATIONS

This management plan has been formulated on and is limited by the completeness and quality of the existing information that is available for the site. Additional information and issues regarding the site will still be forthcoming and may alter the management approach resulting in new or altered strategies.

The management guidelines that are stated in this plan are policy only and are not enforceable under any regulation that is specific to Natural Areas. However, activities such as tree cutting, littering, soil extraction, hunting and trapping are either prohibited or controlled by legislation that is applicable to public land in general. The philosophy applied to managing the public use of Natural Areas is more one of education than of regulation.

1.4 WHAT PROCESS WAS USED TO DEVELOP THIS PLAN?

This plan was initially developed by Catherine M. Mowat in partial fulfilment of the requirements for the degree of Master of Environmental Design from the University of Calgary, in consultation with WNAS and Natural Areas Program staff of the former department of Alberta Forestry, Lands and Wildlife. The Recreation and Protected Areas Division, in the Natural Resources Service of Alberta Environment, coordinated the plan's completion. The process followed these steps:

1. review of goals of WNAS and policies of the Natural Areas Program;
2. analysis of site history, legislation, government policy, county and regional planning, site use and the site's biophysical resources:
3. identification of relevant issues, problems and opportunities;
4. definition of priorities;
5. collection and analysis of programs and facilities of similar outdoor organizations;
6. restatement of objectives;
7. circulation of draft approaches to WNAS, Natural Areas Program staff and others in Alberta Environment; and
8. approval of plan by WNAS, Recreation and Protected Areas Division, Natural Resources Service and the Public Lands Branch of Alberta Agriculture, Food and Rural Development.

1.5 INTENT FOR THE WAGNER NATURAL AREA

The Wagner Natural Area is designated by policy as a Conservation Natural Area. The intent for the site is as follows:
(a) maintain natural ecological diversity, ecological processes, native species and habitats;
(b) protect rare and significant natural features;
(c) support environmental education use; and
(d) permit a limited range of other activities, especially research and some recreation where compatible with the intents of protection and educational use.

1.6 SUMMARY OF OBJECTIVES

1.6.1 Conservation

1. To ensure an adequate supply of unpolluted groundwater to the Natural Area in order to maintain the fen meadow/marl pond complex and the associated black spruce/tamarack forest as a healthy and significant feature on the site.
2. To minimize negative environmental effects of on-site human activity in light of the site's carrying capacity.
3. To provide to the fen community the highest possible degree of protection against the effects of on-site activity.
4. To permit ecological processes to prevail with minimal interference.
5. To ensure substantial support in the local community for the following:

(a) the priorities that have been established for the site;
(b) the objectives and policies of the WNAS and the Recreation and Protected Areas Division, Alberta Environment; and
(c) the preservation of the site as a Conservation Natural Area.

1.6.2 Education

1. To support educational opportunities on the site that make local and regional communities aware of its special nature.
2. To ensure that any educational program that focuses on the area is consistent with the conservation objective of minimizing the effects of on-site activity and protecting the fens to the highest degree.
3. To ensure that future development of educational programs is consistent with the site's carrying capacity.
4. To provide the public with information on topics that are important to (and will facilitate) the management of the site as a Conservation Natural Area.

1.6.3 Research

1. To ensure that the site inventory continues.
2. To ensure that monitoring of the following occurs:

(a) effect of activity in the surrounding area on the condition and supply of groundwater to the site;
(b) effect of education, research and recreation use on the physical condition and the biota of the site; and
(c) general condition of the areas not subjected to intensive use, for baseline comparisons.

3. To ensure that all research activity is conducted in a manner that minimizes impacts on the site.
4. To ensure that data collected from research projects are integrated into the management of the site.

1.6.4 Recreation

1. To ensure that high-impact, high-intensity recreation does not occur on the Natural Area.
2. To direct the recreation that takes place to areas that can best withstand the impact of such activity.
3. To ensure that future recreation programming is consistent with the sensitive nature of the site and enhances its conservation focus.

2.0 OVERVIEW

2.1 BIOPHYSICAL RESOURCES

2.1.1 Physiography and Hydrology

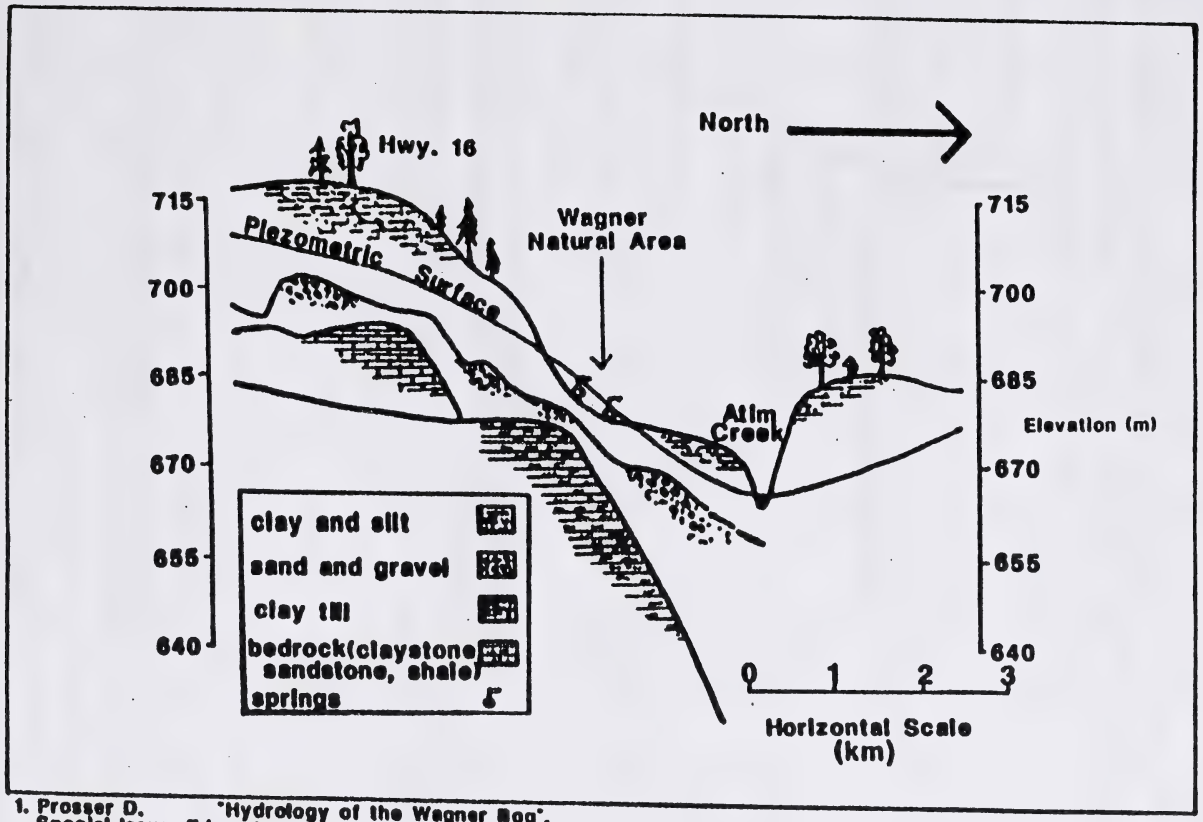
The topography and geology of the region act together to produce the Natural Area's springs and fens. As shown in Figure 2, the sand and gravel deposits serve as the major aquifer and carry water from the south to the north, downslope toward the Natural Area. Two localized characteristics produce the springs and seepage areas: a small dip in the area's land surface creates an area slightly lower than land to either uphill side: and the sand and gravel aquifer "pinches out" and becomes much thinner beneath the site, forcing the water out of the aquifer under pressure. A possible surface drainage basin that is the "recharge" supplying water which eventually appears in springs at Wagner, is shown in Figure 3. This recharge area extends about 6.4 km to the south.

The major springs are located both on the site and around the perimeter of the Natural Area. The east portions are particularly dependent on water discharged to the surface outside of existing property boundaries. In addition to springs, there is substantial, general water seepage across most of the site. Consequently, almost the entire Natural Area can be considered a discharge area. The springs and general seepage are accompanied by a series of intermittent streams. The marl deposits occur around the springs. The spring water may come from more than one source (i.e., from both glacial gravel and deeper bedrock areas).

The hydrologic characteristics affect the site in four major ways:
1. the continuous influx of water creates high levels of soil moisture and freestanding water;
2. the calcium-rich springs create alkaline conditions resulting in diverse habitats;
3. some of the springs supply a continuous source of heat, the water being a constant 4°C, as it flows onto the surface; and
4. the springs provide a continuous supply of nutrients.

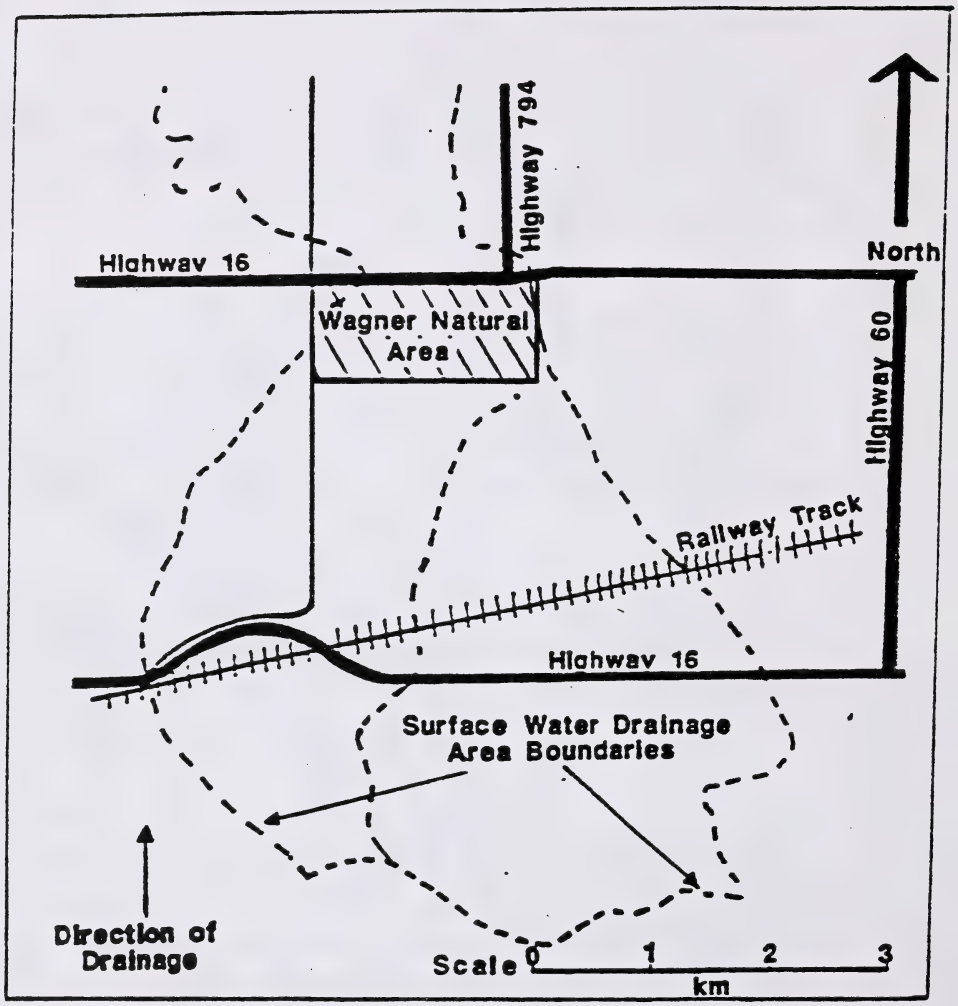
2.1.2 Vegetation and Flora

Five major plant communities exist: the fen/meadow marl pond complex; coniferous forest; mixed coniferous-deciduous forest; deciduous forest; and agricultural fields (Figure 1). Although the fen/meadow marl pond complex covers the smallest area, it and the coniferous forest are the two peatland habitats for which the Natural Area was primarily protected. The Wagner site is one of the few rich peatlands in Alberta east of the Rocky Mountains and south of Fort McMurray. These fens contain a distinct association of species including several rare plant species.



1. Prosser D. "Hydrology of the Wagner Bog", Special issue, Edmonton Naturalist, December, 1982

Figure 2: Geological Cross-sectional View showing Piezometric Surface[1] of the Region surrounding the Wagner Natural Area



1. Alberta Environment, Technical Services Division, Hydrology Branch. Location Map and Drainage Boundary of N1/2 7-53-26-W4 1981

Figure 3: Surface Water Drainage Areas in the Region Affecting the Wagner Natural Area

According to recent summaries, the site also has a large diversity of fungi and flora comprising at least 73 fungi, 320 vascular plants, 63 mosses, 11 liverworts and 75 lichen species.

2.1.3 Wildlife

Three fish, 6 herptile, 138 bird (including 96 breeding birds), and 41 mammal species have been recorded for the site, although some no longer occur on site. The mixed coniferous-deciduous habitats provide both reproductive and feeding habitat for many of these vertebrate species. Recent insect studies have found more than 2000 species, which represent only about a quarter of all species likely to be present. The insect diversity, which largely consists of boreal forest and aspen parkland elements, is exceptionally high for an Alberta site.

2.2 LAND USE HISTORY

2.2.1 Agriculture

Since about 1926, the site has been used for agricultural purposes. Three fields totalling about 16 ha (40 ac.) were cleared and originally used as pasture, later for haying. The west quarter was used for grazing and a dugout was constructed near the Atim Lake road.

2.2.2 Forestry

Timber removal mostly occurred on the east half of the site. Some large timber was apparently removed around the turn of the century.

2.2.3 Petroleum and Natural Gas

A seismic line was cut in the southwest corner and 23 bore holes were drilled along the road allowance and the northeast corner of the site to test for the presence of petroleum and natural gas.

2.2.4 Heritage Appreciation and Outdoor Recreation Activities

The Edmonton Bird Club was the first naturalist club to use the site for field trip purposes and other local naturalists have visited the site since the 1950s. Since the site was purchased in 1971 by the government of Alberta, it has received increasing visitation by naturalists. Local residents used a varying portion of the area for snowmobiling during the late 1970s/early 1980s.

2.3 ADMINISTRATIVE HISTORY

The majority of the site (N7-53-26-W4) was deeded to the Canadian Pacific Railway by the Government of Canada in 1901, which held it until 1926, when it was purchased by Frederick Wagner. It remained in the Wagner family until December 1971, when it was purchased by the Land Assembly Division of Alberta Environment for environmental education purposes through Order in Council 2118/71. Funds for that purpose came from the Nature Conservancy of Canada, faculty and graduate students of the University of Alberta, an anonymous foundation and the Government of Alberta. The site was transferred to the administration of the Natural Areas Program, Public Lands Division in 1975. From 1975 to February 1987, the site was administered under the authority of the *Public Lands Act*, at the end of which time it was designated a Natural Area by Order in Council 80/87, under the authority of the *Wilderness Areas, Ecological*

Reserves and Natural Areas Act. In 1983, the site was leased (i.e., Recreational Lease) to the Wagner Natural Area Society.

This society was organized in 1982 in response to road construction on the perimeter of the site and the potential threat of future road construction to the integrity of the site. Corporate membership comprised the following organizations: Federation of Alberta Naturalists, Edmonton Bird Club, Edmonton Natural History Club, Friends of the Devonian Botanic Garden and Parkland Residents Association (see Appendix for society objectives). In addition, individuals could become direct members in the Wagner Natural Area Society (WNAS), under the terms of the bylaws. In 1998, Wagner Natural Area Society revised its bylaws substantially to remove the corporate membership structure and became a society made up of individual members who support the objectives of the Wagner Natural Area.

2.4 PHYSICAL DEVELOPMENTS AND ADMINISTRATION

The WNAS has been extremely active since its inception and has received support from the Natural Areas Program, from a number of granting agencies and grant programs, and from direct donations for a number of projects (see Figure 4 for existing structures and facilities):

1. The WNAS has obtained a lease for the site from the provincial government under the *Public Lands Act*;
2. Collection of a significant amount of data and reference material on the site;
3. Several research projects have been undertaken:
    - -installation of three water level wells by Alberta Environment;
    - -mapping of the location of major springs;
    - -peat and tree cores extracted and analyzed;
    - -a regular May species count undertaken for plants;
    - -approval of research projects by other agencies;
    - -mammal study;
    - -insect study;
    - -moth and lichen study and
    - -bird inventories.
4. Development of a number of site facilities, including interpretive trail, staging area, toilet facilities, signage, fencing and gates, registration boxes and picnic shelter;
5. Regular site maintenance and inspection program;
6. Regular administrative program (i.e., monthly meetings);
7. Receipt of funding from granting agencies for a variety of projects;
8. Employment through government employment programs (PEP, SEED, STEP) obtained for several individuals as career development;
9. Organized two major publicity events and produced several publications;

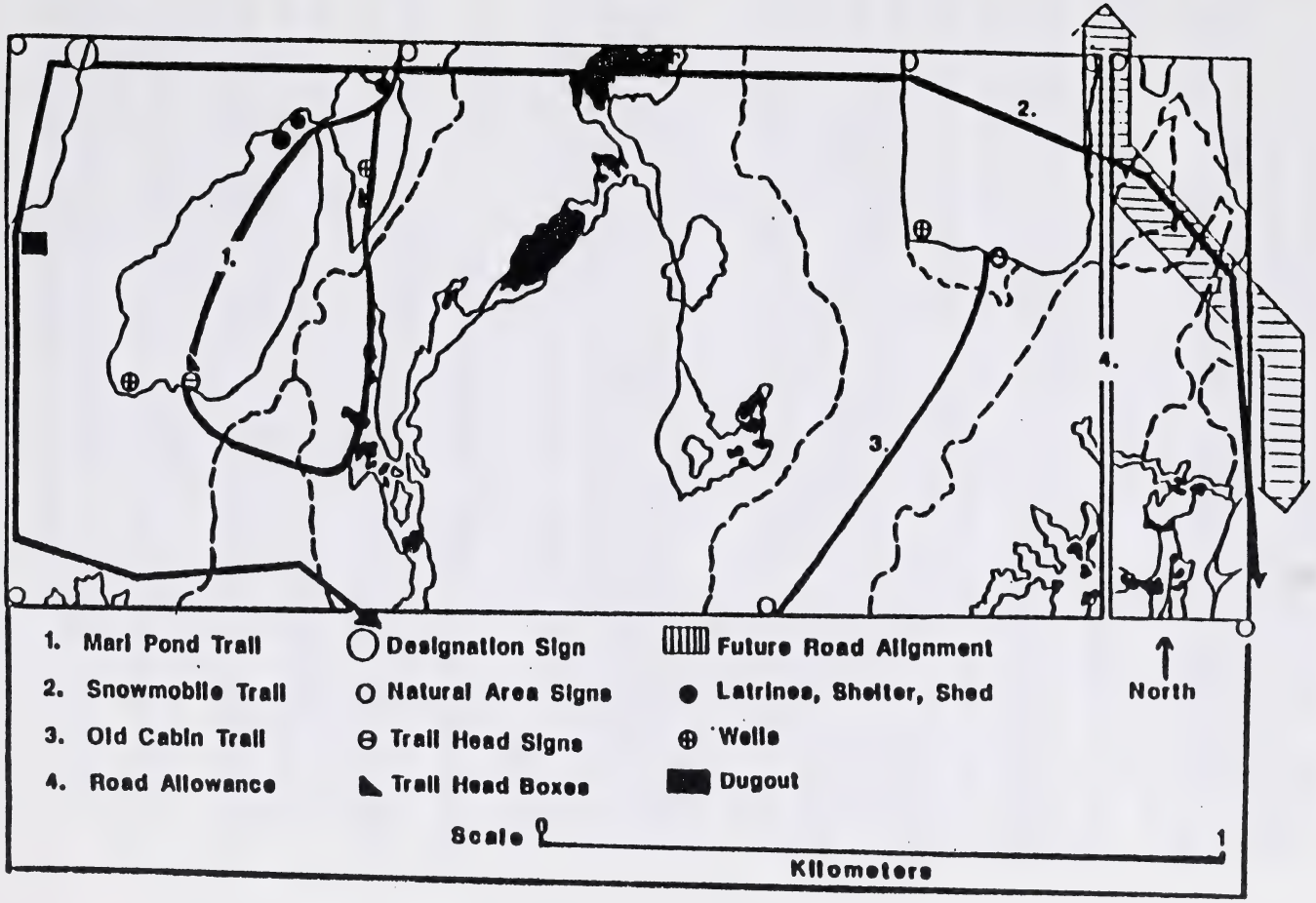


Figure 4: Structures and Facilities of the Site

10. Information letters have been sent out to local residents and users of the site;
11. Development of educational materials;
12. Obtained a conservation water licence from Alberta Environment;
13. Leased the road allowance from the County of Parkland;
14. Entered into an agreement for the haying of the agricultural fields;
15. Entered into an agreement with the Wild Orchid Recreation Society (society has since folded) for their continued but controlled used of the site for snowmobiling; and
16. Regular public distribution of a newsletter.

2.5 MAJOR PAST AND PRESENT ISSUES IN THE MANAGEMENT OF THE SITE

The major site management issues that have confronted the WNAS and the Natural Areas Program are as follows:
1. Highway construction on the perimeter of the area;
2. Control of access to the site--especially off-highway vehicles and random public use resulting in trampling and vandalism;
3. Closure of the undeveloped road allowance immediately south of secondary highway #794;
4. An agreement with the Wild Orchid Recreation Society for snowmobiling (since folded);
5. The acquisition of additional land;
6. Water resource conservation and the acquisition of Alberta's first conservation water licence;
7. Control of beaver activity;
8. Acquisition of funding;
9. Interpretive/educational programming;
10. Development of public awareness and support;
11. Preparation of this management plan; and
12. Clarification of the designation of land already committed to the Wagner Natural Area, such designation is presently mired in a wide spectrum of leasing and other administrative devices for land tenure.

2.6 NATURAL AREA VALUES AND RATIONALE

The values of the Natural Area are significant and include the following:
1. Fragile rich fen habitats and associated species;
2. The site is close to several population centres and 750 000 people;
3. Unusual diversity of flora and fauna for an area its size;
4. A significant portion remains in a relatively undisturbed state; and
5. High suitability for conducting research of various ecological topics.

3.0 MANAGEMENT ISSUES AND STRATEGIES

The following guidelines offer management direction for preservation of the natural values as well as a variety of uses, issues and activities. Maintaining the natural features is the underlying premise on which each management strategy has been developed. The management guidelines under each objective for the Conservation, Education, Research and Recreation sections are listed in order of priority.

3.1 CONSERVATION

3.1.1 Groundwater

Objective. To ensure an adequate supply of unpolluted groundwater to the Natural Area in order to maintain the fen meadow/marl pond complex and the associated black spruce/tamarack forest as healthy and significant features of the site.

Current Situation. The fens are the most important biophysical feature of the Natural Area and are very unusual in the Edmonton region. The site was designated as a Natural Area primarily to ensure the preservation of these fens. The ecology of the fens is dependent on the upwelling of groundwater that occurs throughout the site. Most of the groundwater reservoir lies outside of the Natural Area and, as a result, supply to the fens can be altered by developments in the surrounding area. Groundwater monitoring wells have been installed to check the site's water levels.

Assumptions. It is likely that additional regional development will occur around the Natural Area. The groundwater supply may be affected. Involvement in the local development process may enable potential water supply problems to be identified and addressed.

Management Guidelines

1. The groundwater levels and quality in the Natural Area will be monitored and records maintained.
    -The well that is equipped with a recording device will be inspected and data collected periodically. Water quality samples will be taken periodically—perhaps during high flows and during low flows.
    -The volume of the groundwater flow entering the site should be determined.
    -The boundaries of the groundwater reservoir should be determined.
2. Sources of information on proposed development in the surrounding area and on groundwater use, including drainage, will be identified and reviewed.
3. The WNAS and the protected areas program of Environment should become involved in the public and agency participation aspect of the planning process (where relevant) at the county, regional and provincial levels.
    -Efforts to enhance the terms of the water licence will be pursued, particularly in regard to the groundwater discharge area that lies to the south of the Natural Area.

3.1.2 On-Site Human Activity

Objective. To minimize negative environmental effects of on-site human activity in light of the site's carrying capacity.

Current Situation. The vegetation and ground surface over much of the site are extremely vulnerable to physical damage because of wet, soft soil conditions. Some areas of the site have been damaged by inappropriate use, such as all-terrain vehicle activity, including snowmobile use. In addition, human use has an effect upon wildlife. A mammalian species of special concern—long-tailed weasel—has been reported to occur on the site, but has not been seen recently. There are rare plant species and other significant biological species. No estimate of the carrying capacity of the site is currently available.

Assumptions. Education, research and recreation use will require some management to avoid excessive changes to the Natural Area. An estimate of the appropriate carrying capacity will substantially assist in the site's management.

Management Guidelines.

1. In principle, all human activity that consumes resources or that damages the physical condition, flora and fauna will be discouraged.
- No collecting of biological species will be permitted in connection with education or research activities except for those collections that are specifically authorized by WNAS according to a research and collection permit modeled after the established policy of Recreation and Parks Division.
- Off-highway vehicle use is not permitted, except for maintenance activities, haying and other management purposes.

2. The effects of education, research and recreation on the site will be formally monitored and the current condition of the site assessed for comparison with future conditions (see Section 3.3.2).
3. The development of any facilities and programs for the site will minimize human change and damage to the Natural Area.

-All facility development will be preceded by an assessment of the possible effects of the development on the physical condition, flora and fauna of the site.

-The development of additional facilities will not be permitted and all non-research programs will be restricted to a size and content that can be accommodated with the existing facilities until such time as:
- an estimate of the carrying capacity of the site has been developed, and
- the effects of the programs that are initially implemented in the Natural Area on the physical condition and biota of the site have been assessed.

4. A zoning system (see Figure 5) is established to do the following:
(a) confine human activity to the smallest possible total area;
(b) confine human activity to areas that are already developed, most heavily impacted and/or are less sensitive to physical damage;
(c) protect the areas of the site that contain rare, unusual, or notable floral and faunal species, the fens and key habitats such as ecotones, edges and riparian areas;

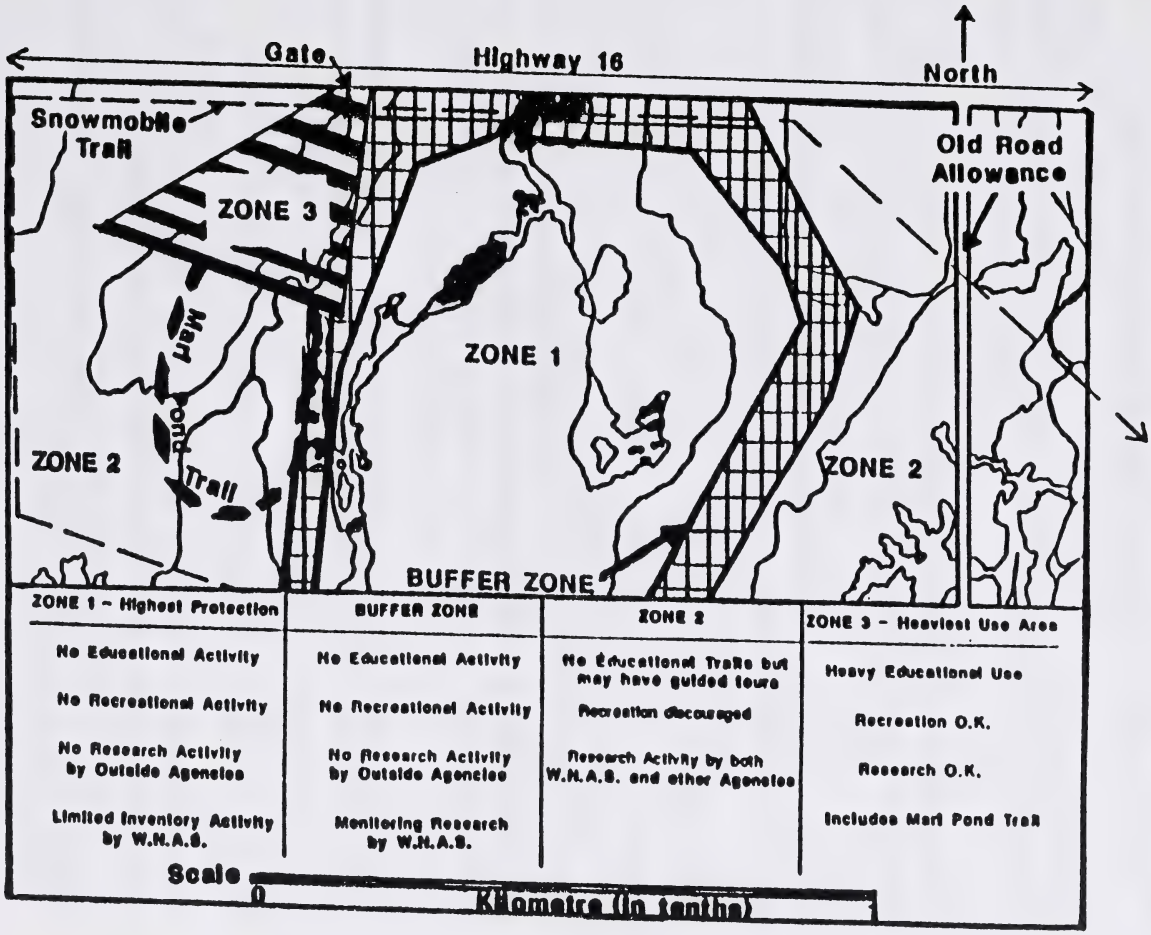


Figure 5: Zoning

(d) restrict unguided public access to designated areas and trails; and
(e) allow guided tours to other areas of the site on an occasional basis with the approval of the Society, which will approve or provide guides.
5. The fencing of the site will be undertaken as deemed necessary, and additional signage should be placed on the perimeter indicating the nature of the area.
6. An estimate of carrying capacity will be established based on the observed effects of site use (see Section 3.3.2).
- This estimate will be re-examined periodically and revised if necessary.

3.1.3 Fen Protection

Objective. To provide to the fen community the highest possible degree of protection against the effects of on-site activity.

Current Situation. The fens are a valuable conservation feature and have been used for both education and research purposes. The fens are, however, the most vulnerable areas of the site. One trail is currently developed and provides substantial contact with the fen community.

Assumptions. No additional trails are required in the fens for education or recreation purposes. Adequate research opportunities can be provided without access to all fen areas.

Management Guidelines.

1. The central fen area will be set aside as the core area in which no educational or recreational activity will be permitted (see Figure 5).
2. Research in this core area will be limited to the following:
(a) activities associated with the completion of the initial site inventory;
(b) monitoring site conditions on the periphery of the core area (i.e., in the buffer zone); and
(c) a second thorough inventory of the core area, to occur before the termination of the current lease.

Other types of research related to the ecology of fen communities will be directed to Zone 2 on Figure 5, an area better suited to this type of research.

3.1.4 "Nature Takes Its Course" Policy

Objective. To permit ecological processes to prevail with minimal interference.

Current Situation. The ecology and character of the site will be affected by natural processes such as succession, fire, beaver activity, disease and infestation, and climate.

Assumptions. As a result of the above factors, there may be changes in the ecology and character of the site over the term of the lease.

Management Guidelines.

1. The site will generally be permitted to change under the influence of natural processes.
- Succession will generally be permitted to occur across the site with the possible exception of the currently cultivated fields (see 3.5.2 Haying). As plant communities mature, some natural biological populations may be threatened due to changes in habitat suitability. If WNAS and the Recreation and Protected Areas Division of Alberta Environment regard these changes as negative, or if they are resulting in reduced habitat for certain species, limited habitat manipulation may be considered.

2. A few exceptions to this policy are foreseen:
- Forest fires should be suppressed to protect the adjacent human residents and their properties (see Wildfire Management Plan in Appendix).
- Beaver removal may be necessary if these animals become a nuisance to adjacent landowners or disturb/threaten other important biophysical features on the site. Other manipulations of species may be considered under similar circumstances. Government fish and wildlife specialists will be consulted in such matters.
- Should exotic species, pests or diseases seriously threaten the vegetation of the Natural Area or if the Natural Area is acting as a reservoir for pests that are affecting adjacent lands, control measures may be taken. Mechanical or biological methods of control are the preferred options. Chemical pesticides or herbicides should be used as a last resort. Any pesticide/herbicide use should be undertaken only with the consent of WNAS and the appropriate provincial government agencies.

3.1.5 Development of Local Support

Objective. To ensure substantial support in the local community for the following:
(a) the priorities that have been established for the site;
(b) the objectives and policies of the WNAS and the Recreation and Protected Areas Division, Alberta Environment; and
(c) the preservation of the site as a Conservation Natural Area.

Current Situation. The views and interests of people in the local and regional community have affected the development leading to the current site, as follows:
1. Activity on the part of the regional community led to the acquisition, conservation and designation of the site as a Natural Area; and
2. Interests common to the WNAS and the local community led to the modification of local transportation plans to the benefit of the Natural Area.

Assumptions. Local and regional support will continue to be important to the conservation and use of the Natural Area. There will be a need for good communication between provincial, regional and local entities in order to avoid conflicting initiatives associated with land use and planning.

Management Guidelines.

1. A pattern of regular contact with the local and regional community, outside of the educational programming, will be established.
- The WNAS will conduct a membership campaign in the local and regional community.
- The County of Parkland will continue to be made aware of the nature and value of the site.
- The WNAS will publish a newsletter on a regular basis.

2. Attempts will be made to increase public knowledge of the special nature of the Natural Area and of the factors that must be considered in its development, use and conservation.
3. Signage will maintain an atmosphere of open access to the area for appropriate purposes and, wherever possible, will use a low key and positive tone (e.g., Use Respect rather than No Trespassing).

3.2 EDUCATION

Two types of educational programs may be developed on the site: an interpretive program for the general program and site study programs for the schools. The intent of this section is to ensure that any development of educational programs is compatible with the conservation of the area and its features.

3.2.1 Special Site Characteristics

Objective. To support educational opportunities on the site that make local and regional communities aware of its special nature.

Current Situation. The diversity of habitat, flora and fauna on the site provide a wealth of educational opportunities.

Assumptions. Educational programs for certain topics can be accommodated better than for other topics (see page 29). There is a demand for these types of programs—based on experiences at other sites.

Management Guidelines.

1. Educational programs will be supported that are highly focused on the unusual features and unique value of the site and the main issues/influences affecting the conservation of the area, as follows:
(a) the fens and the other unusual characteristics of the site;
(b) the groundwater regime;
(c) the sensitive/vulnerable nature of the ground surface on the site and the implications of this sensitivity on the use of the area;
(d) groundwater management in the province; and
(e) the role of a Conservation Natural Area.
2. Support will be given to educational programs that will provide opportunities that differ from those at other sites.

3. Encourage educational programs that address ecological topics, in particular the concept of "ecological reserves" in relation to "core" conservation zones.

3.2.2 Consistency With Conservation Objective

Objective. To ensure that any educational program that focuses on the area is consistent with the conservation objective of minimizing the effects of on-site activity and protecting the fens to the highest degree.

Current Situation. Occasional contact is made with educators that use the site.

Assumptions. Educational programs can be an important use of the site. Student use of the site will be managed by school-associated adult supervisors according to the following guidelines.

Management Guidelines.

1. Educational programs that are designed to minimize the effect of human activity upon the site will be supported.
2. Data on the effects of educational use of the site will be collected and reviewed on a regular basis.
3. Educational activity will be restricted to Zones 2 and 3 (see Figure 5).
4. No development of additional trails for educational purposes will take place in the fens.
5. Very limited resource-consuming educational activity will be permitted on site (e.g., specimen collecting).
6. School use of the site should meet the following standards:
(a) pre-booking of school visits through WNAS, by phone, mail or direct contact with a Director of WNAS;
(b) a minimum of one adult supervisor for every 15 children;
(c) whenever possible, groups should be formally accompanied or guided by WNAS members;
(d) supervisors provided by the school system must be with their groups at all times;
(e) school use of the site restricted to the designated educational trail system; and
(f) school use of the site limited to preferably one class at a time.

3.2.3 Carrying Capacity

Objective. To ensure that future development of educational programs is consistent with the site's carrying capacity.

Current Situation. An estimate of the carrying capacity has not yet been established for the site.

Assumption. It is possible that additional educational use will occur on the site. It is not possible to supervise all educational activity that takes place on the site. The site fencing and signs on the perimeter should encourage more appropriate use.

Management Guidelines.

1. Educational programs will be restricted to a size that can be accommodated with the existing facilities.
2. The effects of educational use on the site will be monitored and may lead to a periodic redefinition of site capacity that will guide how visitation is managed.

3.2.4 The Management Message

Objective. To provide the public with information on topics that are important to (and will facilitate) the management of the site as a Conservation Natural Area.

Current Situation. The public is not sufficiently familiar with the purpose of Natural Areas or with the opportunities the Wagner site provides as a protected area.

Assumption. This lack of knowledge may create some conflict over the use and management of the site. Information that establishes a better understanding of the site as a Conservation Natural Area, and the reasons for the policies that are in effect on the site, will enhance the achievement of the objectives and provide an additional measure of control over activities in the Natural Area.

Management Guidelines.

1. Educational programs should promote an understanding of Conservation Natural Areas and environmental issues.
2. A general brochure/letter documenting the facilities and programs will be available to the public and to the various school systems (public/private, college, university), in order to respond to requests for information.

3.3 RESEARCH

The intent of this section is to ensure that a consistent, reliable and objective source of information is available on the condition of the Wagner Natural Area in order to provide a solid foundation for management decisions. In addition, the benefits and value of more general research are also recognized.

3.3.1 Site Inventory

Objective. To ensure that the site inventory continues.

Current Situation. The inventory of the site is ongoing but is inconsistent in its treatment of the area. The eastern portion of the site has received the greatest attention recently.

Assumptions. Good management decisions are best made with solid information based on research.

Management Guidelines.

1. The following types of management-oriented research will be conducted on the site to fill gaps in the existing inventory:

(a) a more detailed survey of the flora in western and central portions of the site;

(b) a bird survey of the site;

(c) a study of small mammals; and

(d) a study of winter wildlife and other aspects of winter ecology.

2. The areas of the site most likely to be affected by site use will receive greatest attention.

3.3.2 Site Monitoring

Objective. To ensure that monitoring of the following occurs:

(a) effect of activity in the surrounding area on the condition and supply of groundwater to the site;

(b) effect of education, research and recreation use on the physical condition and the biota of the site; and

(c) general condition of the areas not subjected to intensive use, for baseline comparisons.

Current Situation. The ongoing site-monitoring program at this time involves regular inspections of general conditions and occasional monitoring of groundwater level. The site is being affected by activity on and around it in a number of ways.

Assumptions. It is necessary to document the existing conditions of the site and to ensure the ability to detect changes in this condition so that the site can be managed appropriately.

Management Guidelines.

1. The methods for monitoring must be well-documented, simple, sufficiently frequent and consistent.

2. Continue to monitor the effects of activity in the surrounding area on the condition and supply of groundwater to the site. This monitoring will address both groundwater levels and quality.

3. Plant community plot studies, photograph records and bird surveys should be performed at least once every three years.

- Both used and unused portions of the site will be monitored.

4. The following procedures will be followed during the monthly site surveys:

(a) all informal observations of the condition and significant flora and fauna will be logged; and

(b) a standard route and checklist will be used for inspections.

5. Any public use of the site can provide additional information for monitoring purposes.

3.3.3 Research Impacts

Objective. To ensure that all research activity is conducted in a manner that minimizes impacts on the site.

Current Situation. The site is of value for research purposes because of its features, which have regional, national and international significance, and because of its accessibility. Some past research has affected the site. A core conservation zone has been established on the site.

Assumptions. There will continue to be a demand for research in the area.

Management Guidelines.

1. Research in the core area will generally be limited to the completion of the existing inventory requirements.
2. All research must mitigate impacts.
    - No resource-consuming research will be permitted except under exceptional circumstances.
3. Researchers will be requested to present a research proposal with methodology including an impact assessment.
4. The WNAS and the government land managers will work toward reviewing all research projects in a fair and consistent approval process. Permits given for research will be modeled after the established research and collection policy of Recreation and Parks Division.
5. A copy of all results and resulting publications must be forwarded to WNAS.

3.3.4 Research and Management

Objective. To ensure that data collected from research projects are integrated into the management of the site.

Current Situation. Results from research have been incorporated into management decisions to date.

Assumptions. Research data will be deliberately integrated into site management policies and practices.

Management Guidelines.

1. An outline should be developed of research needed to fill management information needs.
2. The data collected for research and monitoring purposes will be reviewed at regular intervals for their value to site management.
3. The data collected will be reviewed to identify the most important habitat for fauna and the distribution of unusual species of any type.
4. Preference will be given to research that enhances basic knowledge of the site in a significant way, has a long-term element to it, or both.

3.4 RECREATION

Managing for recreational use in the Natural Area is a low priority. This priority reflects a combination of factors including the conservation focus, the site's vulnerable soil and water conditions, the established history of the site as a conservation area and the fact that limited funding is available to mitigate the effects of and manage for intensive recreational activity on the site.

There is a possibility, however, that there will be an increased demand for recreational use of the site at some future date. The potential level and type of recreational activity may not be compatible with the long-term conservation of the site. The intent of this section, therefore, is to provide guidelines for the management of casual, unsolicited recreation now and in the future.

Recreation can be defined in many ways. For the purpose of this plan, recreation is defined as an activity that involves an outdoor sporting or physical pursuit but is not primarily educational in intent.

3.4.1 Recreation Intensity

Objective. To ensure that high-impact, high-intensity recreation does not occur on the Natural Area.

Current Situation. Natural Areas are intended for low-impact, low-intensity nature-oriented activities. Certain types of activities, such as horseback riding, trail bike and off-highway vehicle use can damage this site. Other types of activities such as firearms discharge are a safety concern. Hunting and snaring activities are incompatible with the frequent presence of the nature-viewing public. In addition, the conservation focus implicit in establishing a core area of fen protection precludes the viability of hunting and snaring activities. It is not possible to supervise all recreational activity that takes place on the site.

Assumptions. The fencing of the site, when completed, will provide some deterrent to some of the activities that have caused some damage. Signs on the perimeter should encourage more appropriate uses.

Management Guidelines.

1. Direction will be provided to the public on the activities that are/are not appropriate.
    - Signs will be posted at strategic locations on the perimeter indicating the types of activities that are not suitable: horseback riding, firearms discharge, snaring, off-highway vehicle use. In particular, signs will be maintained that indicate access for hunting is not allowed.
    - Information on the effects of recreational activity on the Natural Area will be provided to the local and regional communities.

2. High-impact, high-intensity recreational activity will be discouraged.
    - High-impact, high-intensity activities will be defined as those that concentrate large numbers of people in an area for a long period of time, consume or damage the site's facilities or natural values, have a high frequency of occurrence, and/or have requirements for additional facilities.

3. Efforts will be made to prevent hunting, including bow-hunting, snaring, trapping and firearms discharge on the site, starting with educational measures.

3.4.2 Concentration of Recreation

Objective. To direct the recreation that takes place to areas that can best withstand the impact of such activity.

Current Situation. Some areas of the site are very vulnerable to physical damage and/or are important for conservation purposes because of the species that are present. Some casual, unsolicited recreation, such as walking and cross-country skiing, currently takes place both on and off the trail. Some of this activity has caused visible damage to the site.

Assumptions. The casual, unsolicited recreation that currently takes place could conflict with the conservation objective.

Management Guidelines.

1. Any casual, unsolicited recreation will be directed toward the established trail.
    - Barriers and signs will be used to direct casual, unsolicited recreation to the educational trail.
2. In general, all recreational activity will be directed away from the most physically sensitive areas (including the fens) and from the important habitat areas.
3. No recreation will occur in the core area.
4. Recreational programs (when and if developed) may make occasional use of Zone 2, but should concentrate on the use of Zone 3.

3.4.3 Recreation Programming

Objective. To ensure that future recreation programming is consistent with the sensitive nature of the site and enhances its conservation focus.

Current Situation. Recreation programming does not currently take place.

Assumptions. Recreation programming will not be allowed to take place if it would have a significant negative impact.

Management Guidelines.

1. No programming will be undertaken purely for sport-oriented activities. Any recreation programming that takes place must have a strong interpretive/educational element.

2. Recreational programs will be confined to the area designated for education and will be subject to the policies established for education.
3. No recreation programming will take place until an estimate of the carrying capacity of the site has been developed, the effects of both the educational programs and casual, unsolicited recreation have been assessed, and an assessment has been made of the resources that are available to mitigate the impact of the program on the Natural Area.

3.5 RESOURCE EXTRACTION

For any resource-consuming activity, the onus is on the proponent of that activity to prove that it will not create a negative impact on the resource values of the site, on the educational, or recreational users, or on researchers.

3.5.1 Grazing

Grazing will not be permitted on the Natural Area due to potentially severe negative impacts on the site's biophysical features.

3.5.2 Haying

The three fields (NE corner, NW corner and west-central) will continue to be hayed, at the discretion of WNAS, in order to meet fire prevention requirements identified in the site's wildfire management plan (in Appendix), to provide some operating funds for the society, and to maintain an open field habitat on site.

3.5.3 Timber Removal

Since mature forests contribute greatly to aesthetic value and some wildlife values, no commercial tree cutting will be permitted. Some limited tree cutting may be required for trail upgrading and development or to reduce public safety hazards. Because snags and decaying trees are so valuable to bird species, their removal will be kept to a minimum.

3.5.4 Petroleum and Natural Gas

Oil and gas exploration is incompatible with the values of the Natural Area and the sensitivity of Wagner to problems associated with increased access and surface disturbances. The security of the water quality and quantity that reaches Wagner Natural Area is of paramount importance to the biodiversity features for which the site is internationally recognized—external uses, such as neighbouring oil and gas exploration, that may impact those water needs will be monitored to identify their potential to have an effect. To protect the water licence that WNAS holds for the maintenance of natural flows, any potential conflict with other uses in the watershed will be scrutinized.

3.5.5 Aggregate Minerals

Aggregate mineral extraction will not be allowed because this activity destroys surface features.

3.5.6 Trapping

Trapping will not be allowed on the Natural Area since the mammals provide an educational value and natural history interpretation value. The only exception to this policy may be consideration for beaver removal, if these animals become a nuisance to adjoining landowners or disturb/threaten important biophysical features on site.

3.6 ZONING

A core zone (see Zone 1 - Figure 5), which has been established in the central part of the Natural Area, will not be used for education, research, recreation, resource extraction or any other activity. The educational benefit of such a zone would be to offer additional interpretive opportunities, by being an example of the concept of "ecological reserves," and the concept of preservation for its intrinsic value versus preservation for human use.

The only activities allowed in the core zone are the following:
(a) monitoring of the condition of the core's buffer zone; and
(b) occasional inspection to monitor vandalism and other inappropriate uses.

3.7 OTHER MANAGEMENT ISSUES

3.7.1 Group Use

The site is used by organized groups such as schools. A booking system has been implemented by WNAS.

3.7.2 Linear Developments

Linear developments such as bladed or graded road developments, pipelines and power lines will not be permitted because of surface disturbances and access problems. The only exception is further trail development, which may be considered in the future on the old cabin trail.

3.7.3 Dispositions

A disposition is a contract, between Alberta Environment and a nongovernment user of public land, that conveys a legal interest in the land and/or for its resources. The WNAS has a 21-year Recreational Lease, which expires in 2003. Other dispositions appear unnecessary, so will not be approved.

3.7.4 Surrounding Land Uses and Land Acquisition

Some of the lands surrounding the Natural Area have important biophysical features. As one of the objectives of WNAS is "to acquire lands by purchase, lease or otherwise . . . to further the objects of the society" (see Appendix), the society may attempt to acquire some property rights on those lands immediately adjacent the existing Natural Area, in cooperation with the appropriate government agencies, particularly Recreation and Protected Areas Division, Alberta Environment.

Control over other lands as buffer areas may also be considered. Proposals for resource extraction on adjacent property that could have effects upon Wagner Natural Area would be examined carefully and appropriate action taken to prevent any impacts.

The WNAS and Recreation and Protected Areas Division will continue to consult with provincial, regional and local authorities and publics regarding residential, commercial and transportation developments in the vicinity of the Natural Area.

In particular, any development in the groundwater recharge area (shown in Figure 3) that has the potential of affecting the groundwater is of special concern (see Section 3.1.1). Second, any developments, such as new roads, ditches or culverts, that affect surface water flows onto the Natural Area are also of concern. Third, any residential development close to the Natural Area that has the potential to increase inappropriate public use of the Natural Area is of concern.

3.7.5 Fire

Fires will be suppressed to protect the adjacent residents and their properties. Fire control for the site is the responsibility of the County of Parkland. A Fire Management Plan has been prepared as a companion to this management plan.

3.8 APPROVAL OF ACTIVITIES NOT DISCUSSED IN THIS PLAN

Specific activities may be identified that are not discussed in this plan. For these activities to be approved, they must be compatible with the objectives for the Natural Area and not damage endangered, threatened or rare species or their habitats.

An amendment of the WNAS lease will be considered in order to include the 14.2 ha parcel in N8-53-26-W4 and the parcel east of the Villeneuve road allowance.

4.0 PROGRAM SUPPORT

4.1 PHYSICAL STRUCTURES

4.1.1 Signage

A sign indicating the name of the site has been provided by the Natural Areas Program and placed at the entrance area. "Natural Area" boundary signs will be supplied by Recreation and Protected Areas Division and strategically placed around the perimeter of the area as needed. Directional or interpretive signs on the trails are appropriate and will be placed at the discretion of the WNAS.

4.1.2 Fencing

Fencing around the perimeter of the site may be constructed and maintained, as required by WNAS. The maintenance of fencing has been a significant concern of the Society and requires considerable ongoing effort. Fencing materials will be supplied by Recreation and Protected Areas Division.

4.1.3 Facilities

There are some existing facilities on the site. Any additional facilities proposed by WNAS will be planned in accordance with Section 3.1.2 and terms of the Recreational Lease.

4.2 REGULATIONS AND ENFORCEMENT

No new regulations are immediately required for the site. Enforcement of existing regulations will be provided by government agencies under their existing mandates. At the request of WNAS, regulations controlling abusive uses may be considered by Alberta Environment under the *Wilderness Areas, Ecological Reserves and Natural Areas Act*.

4.3 SITE MONITORING

Regular on-site monitoring will be the joint responsibility of staff of the Public Lands Branch of Agriculture, Food and Rural Development and members of WNAS. In particular, the following activities need monitoring:

- amount of random and organized public use (especially camping, off-highway vehicles and use of firearms);
- groundwater quality and quantity; and
- surrounding development proposals.

4.4 COMMUNICATIONS

The Recreation and Protected Areas Division has supplied general site signs and a general site brochure for the Natural Area. Specific program communications (i.e., educational packages, developments, etc.) will be the responsibility of WNAS, and developed at its discretion. The

Recreation and Protected Areas Division facilitates information exchange between WNAS, public users, government agencies and other interest groups and individuals.

4.5 EDUCATIONAL/INTERPRETIVE PROGRAMMING

The WNAS is responsible for developing any educational and interpretive programs that it wishes for the site. Such programming will depend on the society's available volunteer time and funding. The Recreation and Protected Areas Division will assist with some logistical support and technical advice, within existing staffing and budgets.

5.0 ADMINISTRATION

Administration and management are currently the joint responsibility of WNAS, Recreation and Protected Areas Division of Alberta Environment, and Public Lands Branch of Alberta Agriculture, Food and Rural Development. Other government agencies and local authorities will be consulted. However, a user-maintained site philosophy will prevail.

5.1 ROLE OF THE WAGNER NATURAL AREA SOCIETY

Volunteers from the public will be encouraged to participate in the management of this site. The WNAS is the major public sponsor for the Natural Area and other interested publics will be encouraged to volunteer through that society. Through the lease arrangement that the society has with Alberta Environment, the society has "exclusive possession" of the Natural Area and can legally control or restrict public access to the site at its discretion. The society is responsible for developing those facilities and programs that are of interest to it, so long as the terms of the Recreational Lease are met.

5.2 ROLE OF ALBERTA ENVIRONMENT AND ALBERTA AGRICULTURE, FOOD AND RURAL DEVELOPMENT

The Department of Environment recognizes WNAS as the major public sponsor of the site. The department assumes no short- or long-term responsibility for facility development.

As well as staff time allocated to working with WNAS, the Public Lands Branch of Alberta Agriculture, Food and Rural Development and the Recreation and Protected Areas Division currently supply administrative coordination, technical advice, some communications, some signage and reclamation funding for specific projects through existing budgets and coordinate amendments to this plan.

Staff of Alberta Environment and Alberta Agriculture, Food and Rural Development currently assist in monitoring the effects of various uses of the site.

Recreation and Protected Areas Division will encourage additional public sponsors such as industry or philanthropists who wish to donate funds for capital developments. It will also encourage researchers or others who want to provide inventory information.

5.3 PROCESS FOR PLAN AMENDMENTS

The management plan is based on existing knowledge of the site and consequently is currently valid. The guidelines will require regular monitoring and evaluation as well as possible amendment if conditions change or if new information becomes available.

Should changes to the management plan be required, the involved agencies/groups will be consulted for input. After approval, amendments will be noted on the covering sheet at the beginning of this document. Recreation and Protected Areas Division will coordinate all plan amendments in consultation with public users and interested agencies.

Major plan revisions will normally be reviewed and considered at five-year intervals. In exceptional cases, a review may be requested and initiated when substantial issues/concerns arise or as substantial new information becomes available.

6.0 CONCLUSIONS

6.1 WHERE TO FROM HERE?

This plan was developed to set out the management guidelines and intent for the Wagner Natural Area.

Staff of Recreation and Protected Areas Division will continue to work closely with WNAS in implementing this plan. As new issues arise, they will be resolved according to the intent for the site. Necessary amendments to the plan will be dealt with as outlined in Section 5.0.

6.2 FOR FURTHER INFORMATION

If you want more information on this plan or the Wagner Natural Area, or on how you can become involved in public sponsorship, or if you have any comments, please contact either:

Recreation and Protected Areas Division
Alberta Environment
2nd Floor, Oxbridge Place, 9820 - 106 St.,
Edmonton, Alberta
T5K 2J6

(780) 427-7009

OR

Public Lands Branch
Alberta Agriculture, Food and Rural Development
Centre Plaza
180 Chippewa Road
Sherwood Park, Alberta
T8A 4H5

(780) 464-7955

APPENDIX

NATURAL AREAS LEGISLATION

"WHEREAS the continuing expansion of industrial development and settlement in Alberta will leave progressively fewer areas in their natural state; and

WHEREAS it is in the public interest that certain areas of Alberta be protected and managed for the purposes of preserving their natural beauty and safeguarding them from impairment and industrial development; and

WHEREAS to carry out these purposes for the benefit and enjoyment of present and future generations it is desirable to establish certain kinds of areas and reserves and to provide varying degrees of protection to those areas and reserves; . . ."

"12.1(1) The Lieutenant Governor in Council may, in order to
(a) protect sensitive or scenic public land from disturbance, and
(b) ensure the availability of public land in a natural state for use by the public for recreation, education or any other purpose,

by regulation designate any area of public land as a natural area.

(2) Land that has been designated as a natural area under the *Public Lands Act*, the *Provincial Parks Act* or a predecessor of either of those Acts is deemed to have been designated under this Act, and the designation is continued under this Act.
(3) No disposition as defined in the *Public Lands Act* or timber dispositions as defined in the *Forests Act* shall be made by or on behalf of the Crown in relation to land in a natural area without the consent of the Minister.

(13) A person who is guilty of an offence under this Act or the regulations is liable
(a) for the first offence, to a fine of not less than $50 and not more than $1000 and in default of payment to imprisonment for a term of not more than 60 days,
(b) for a 2nd offence, to a fine of not less than $100 and not more than $5000 and in default of payment to imprisonment for a term of not more than 120 days, and
(c) for a 3rd or subsequent offence

(i) in the case of a natural person, to imprisonment for a term of not less than one month and not more than 6 months, or
(ii) in the case of a corporation, to a fine of not less than $10 000 and not more than $50 000.

(14)(1) The Lieutenant Governor in Council may make regulations respecting the administration, management, operation and utilization of natural areas.

(2) A regulation under subsection (1) may transfer to any Minister of the Crown powers and duties under this Act in relation to all or any part of a natural area.

From: Government of Province of Alberta, 1981. *Wilderness Areas, Ecological Reserves and Natural Areas Act*. Queen's Printer, Edmonton, Alberta.

OBJECTIVES OF THE WAGNER NATURAL AREA SOCIETY

- To protect the physical and biotic integrity of that area of land known as the Wagner fen and to prevent environmental damage to the area.
- To ensure the preservation of the character and biological diversity of the Wagner fen for educational, scientific and research purposes.
- To encourage and promote nature-oriented activities. For greater certainty, but not so as to restrict the generality of the foregoing, these activities shall involve pedestrian traffic only and shall not involve motorized, vehicular or equestrian traffic.
- Generally to encourage and foster and develop among its members and the public a recognition of the importance of environmental conservation and responsible management of natural areas with the least possible disruption by man.
- To acquire lands by purchase, lease or otherwise, and to implement management or
- other plans to further the objects of the society.

Wagner Natural Area Wildfire Management Plan

Date Prepared: June 1997 (revisions June 1999)

OUTLINE

I. Introduction
- Objective
- Values at risk
- Risk and hazard of Wildfire
- Description of area

II. Action Plan
- General description:
  - access
  - water
  - geography
- Contacts:
  - Emergency
  - Parkland County Fire Service
  - RCMP
  - Alberta Environment, Land and Forest Service
  - Alberta Environment, Natural Resources Service
  - Alberta Agriculture, Food and Rural Development, Public Lands
  - Wagner Natural Area Society
  - Parkland Ambulance Authority
- Map Summary:
  - Control Points
  - Fuel types
  - Problem areas

III. Recommendations
- Needs
- Maintenance
- Future requirements

IV. Map

I. Introduction

The Wagner Natural Area Wildfire Management Plan was prepared with input from all concerned Alberta Government Departments, Parkland County and the Wagner Natural Area Society.

Objectives

The wildfire suppression plan for the Wagner Natural Area has three main objectives:

1) Identify steps that can be taken to help prevent wildfire in the natural area.

2) Ensure wildfire suppression activities do not cause large-scale damage to the natural area.

3) Identify future steps that can be taken to reduce the risk and intensity of wildfires in the natural area.

Values at Risk

The Wagner Natural Area is valued for the 16 different species of orchids that originate on site. The natural area also has a unique set of marl ponds complete with the marshy habitat that surrounds these ponds. The Wagner Natural Area has been the site of numerous studies involving the associated birds, insects and plant life found in the area. Some of these studies have been international in stature.

Risk and Hazard of Wildfire

The main risk of wildfire in the natural area comes from human-caused fires. With the number of people visiting the natural area and the large number of people living in the surrounding vicinity, the threat of wildfire is high. The greatest fire hazard is during the cured grass stage, which occurs twice a year. The cured grass stage is that time of year when the grass is dead and brown, this occurs usually in the spring from the "snow-free" period to the end of May, and after the first good fall frost—end of Sept. to snow cover. Past history indicates that the potential for a severe fall grass hazard is rare. The hay fields and marshy grasslands around the marl ponds (access to these areas is available via foot paths) poses the greatest hazard during the spring.

Description of the Area

The Wagner Natural Area is located approximately 7-8 km west of Edmonton on highway 16. The Natural Area covers approximately 155 ha of boreal forest. The area is surrounded by farmland and residential acreage developments. The dominant tree species is aspen, with pockets of black spruce and tamarack in the transition zone between the aspen and marl ponds.

II. Action Plan

General Description

Under normal conditions a wildfire in the Wagner Natural Area would be a surface fire confined to the grass fuel types and the surface fuels of the aspen cover type. Under severe burning conditions, the black spruce would carry a crown fire; however, the areas of black spruce are not large enough to cause a great deal of control problems. Fuel types near the acreage developments are predominantly white spruce stands with only moderate surface fuels and low crown fire potential. Under normal burning conditions the County of Parkland fire suppression forces could use direct attack methods on a fire with water back packs, hand tools and fire pumps. This approach would cause minimal damage to the soils and surrounding vegetation. In cases where the fire could not be controlled by direct attack methods and ground forces, indirect methods could be employed from a number of different anchor points around the Natural Area.

The risk of a wildfire escaping the Natural Area or coming into the Natural Area is minimal. The site is bordered by roads on the north and west sides, grazing land to the south, and the overpass road in the northeast corner. A small strip remains in the southeast corner near Osborne acres where the fire fuel is not broken. However, a clear right of way is present with only light surface fuel on site.

To minimize the effect of fire suppression activities on the Natural Area, heavy equipment like dozers, nodwells and backhoes will not be used. Tank trucks and fire trucks will be confined to existing roads and hay fields within the Natural Area. ATVs used to support fire action will be kept to existing trails and fields.

Access

The Natural Area has good all-weather access to it from all directions. Highway 16 runs along the north edge, a gravel road running north/south up the west side. The east side can be accessed via Osborne Acres' road or the overpass road. The Natural Area has a gravel access road coming off the junction highway and the north/south gravel road. This access road goes to a small parking area on the north edge of the Natural Area. From this

parking area, access to the site can be gained though a wire gate. Once through the gate a short road leads into the Natural Area's picnic shelter. All of the above roads will support tank trucks and fire trucks.

The three small hay fields within the Natural Area provide good access for pick-ups and ATVs; however, the ground would be too soft for fire trucks. There are a number of small trails in the Natural Area that provide ATV access to support fire suppression efforts. Minimal access from the south can be gained across private pastureland.

Access via helicopter in and around the Natural Area is good. Natural openings in the forest cover, marshes around the marl ponds within the site, and human-made clearings and fields in and adjacent the Natural Area all make good landing sites

Water

There are a number of water source areas scattered within the Natural Area. The marl ponds provide a good water source for portable fire pumps and helicopter buckets. In the spring of the year, standing water can be found throughout the low areas. This water will provide a good source to refill backpacks, plus support a float pump or mini fire pump operation.

Big Lake and more marl ponds can also be found to the north of the Natural Area across highway 16.

The use of foam and/or fire retardant should not pose any problems in the Natural Area.

Geography

The gentle rolling topography found in the Natural Area will not have any major effect on fire behavior. There is no great change in elevation or any sustained slopes that would create a deterrent to suppression efforts and/or increase the intensity of a wildfire.

Contacts

The lead contact for fire is Parkland county

EMERGENCY CONTACTS

FIRE	**911**	or	963-9111
RCMP	**911**	or	963-7112
AMBULANCE	**911**		

Parkland Country	Jim Phelan	963-8474
RCMP	Stony Plain	963-7112

Department of Alberta Environment, Land and Forest Service

Athabasca District	Wes Nimco	Work	675-8168	home	675-2205

Provincial Forest Fire Centre 427-6807 or 427-FIRE (collect)

In the event of a wildfire the following people should be contacted for land management and environmental concerns.

Alberta Environment, Natural Resources Service, Parks

Andy McCracken	Work	892-2702	Home	892-4583
Tom Sutherland	Work	892-2702	Home	892-7852

Alberta Agriculture Food and Rural Development, Public Lands Section

Wayne Holland	Work	464-7855	Home	892-4583

Wagner Natural Area Society

Pat Clayton	Work	453-8629	Home	456-9046
Alice Hendry	Work		Home	962-4836
Derek Johnson	Work	435-7306	Home	436-8231
Irl Miller	Work		Home	455-3866

Map summary

Control Points

Under most wildfire situations in the Natural Area a direct attack method will be implemented. However, in cases where the fire is too intense and indirect methods must be implemented, there are a number of control points available for suppression efforts.

All roads in and around the Natural Area provide good control points for indirect attack methods. The hay fields, when cut, can also provide a good anchor point. A chain of marl ponds and grass-covered marshes, running north-south through the middle of the Natural Area, can be used as a control point under the right conditions.

On the east side of the Natural Area is a cutline and wide utility right of way. These human-created clearings would provide a reasonable control point from which to anchor. They are covered in grass and light brush; however, this should pose no major problem as a base for efforts to establish and control a backfire.

Because the Natural Area is surrounded by farm land and roads, with the exception of the southeast corner, any large-scale wildfire should be easily contained inside the Natural Area or in turn stopped from coming into the Natural Area.

Fuel Types

The Wagner Natural Area has a mixture a fuel types , from light-fueled open grasslands (O1) to pockets of large white spruce (M2). The site also contains large areas of aspen types, willow/grass types and black spruce/tamarack types throughout. Small pockets of pure mature black spruce (C2) are also found in the Wagner Natural Area.

There is no single fuel type large enough to sustain a continuous crown fire of any size. There is, however, a good potential of candling and torching in numerous parts of the Natural Area.

In drier years, areas of deep duff found within the Natural Area will make mop up and control difficult. This in turn can translate into a more severe disturbance upon the site to make complete fire extinguishment more difficult.

Problem Areas

From a control point of view, the area next to Osborne Acres could cause the greatest problems. The area has some pockets of heavy fuel and the greatest risk of fire starts. Residents of this acreage development frequent the area, both by foot and ATV.

There is also a small spot along an old access trail, just west off the utility right of way, which people frequent for random recreational purposes complete with campfires. The potential of a fire in the forest fuel around the "party spot" is high.

III Recommendations

Needs

1) In the area of fire prevention the following sign program should be adopted:
   a) "no smoking" signs at the gate, shelter, place along the trails
   b) large "no fire" signs at gate, shelter, along trail and random recreational area
   c) a large sign at gate and picnic shelter "to report fires or other emergency call 911"

2) Have a key for the gate delivered to the Parkland County Fire Service.

3) Parkland Country Fire Service to acquire a float pump for the nearest fire station that services the Natural Area. (These steps took place shortly after a joint meeting in April of 1997.)

Maintenance

1) Continue to have the "hay fields" cut and baled. This practice greatly reduces the risk of fire and makes any fire that does occur very easy to control.

2) The Wagner Natural Area Society must continue to update the phone list and contacts named within this plan.

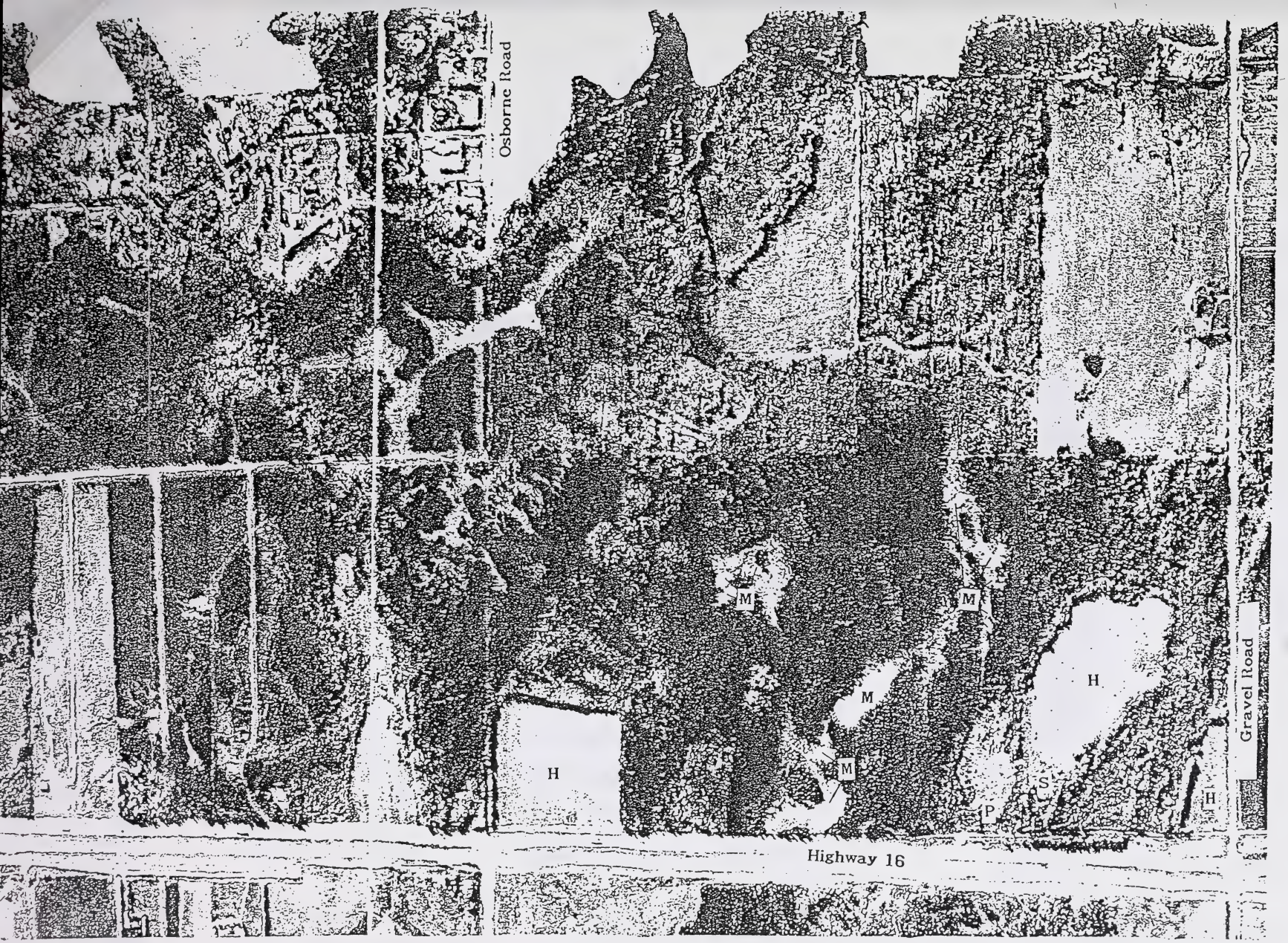
3) Maintain and upgrade sign program.

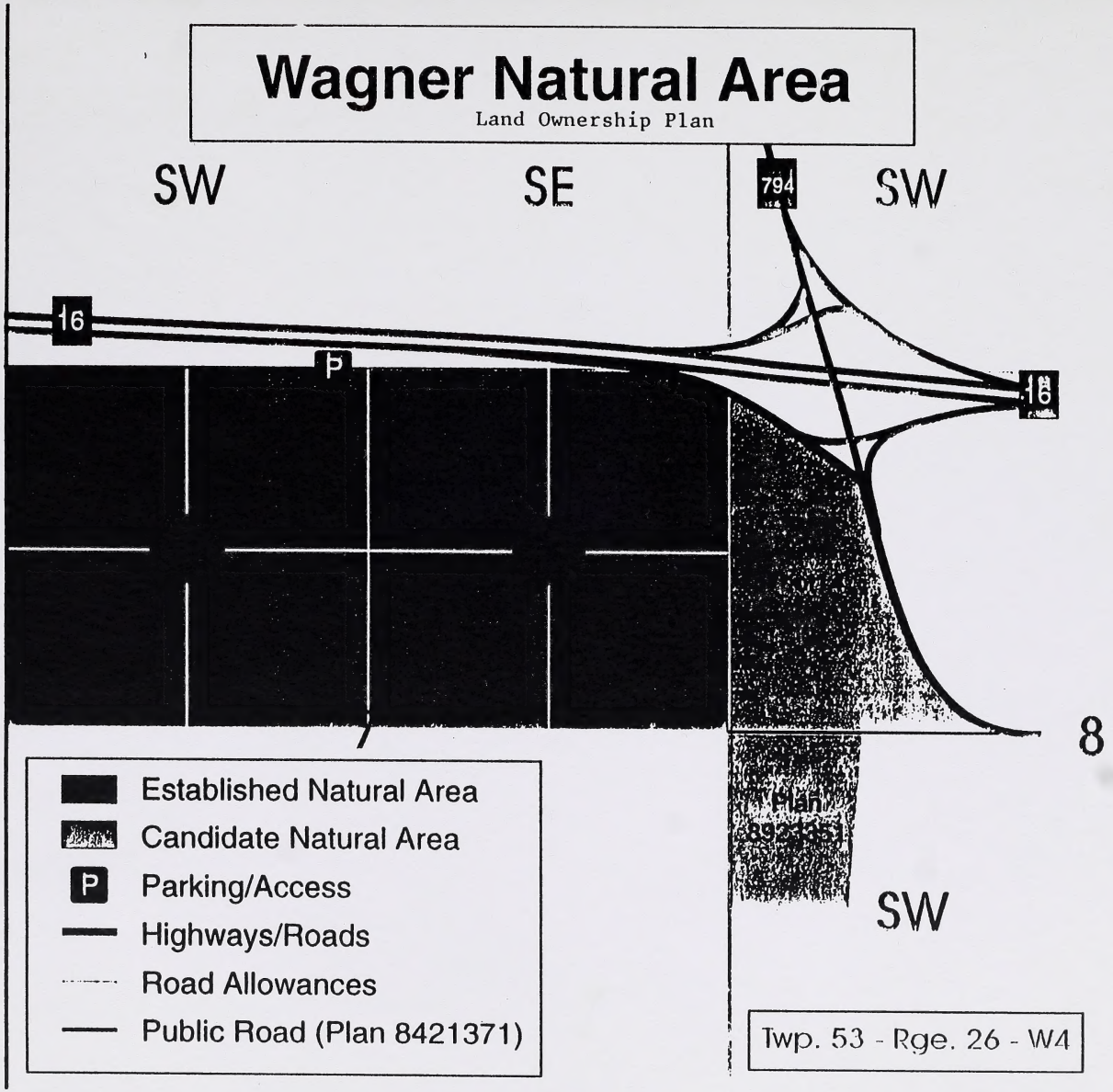
Future Requirements

The Wagner Natural Area Society should implement the following recommendations:

1) Some type of fuel modification should be done within the Natural Area near Osborne Acres. This could take the form of thinning, pruning or removal of downed and dead fuel. The fuel modification would make control efforts easier and reduce the risk of a crown fire.

2) If the number of people using the Natural Area increases over the years, it may become necessary to develop an evacuation plan. This plan should include an alternate exit out of the area, plus a map included in the Natural Area (handout and on a map sign) near the parking area.


Osborne Road
Gravel Road
Highway 16
M
M
M
M
H
H
H
S
P
N
Legend
M Marl Pond
H Hay Field
P Parking Lot
S Picnic Shelter


Wagner Natural Area
Land Ownership Plan
SW
SE
794
SW
16
P
16
8
Plan
SW
Established Natural Area
Candidate Natural Area
P
Parking/Access
Highways/Roads
Road Allowances
Public Road (Plan 8421371)
Twp. 53 - Rge. 26 - W4