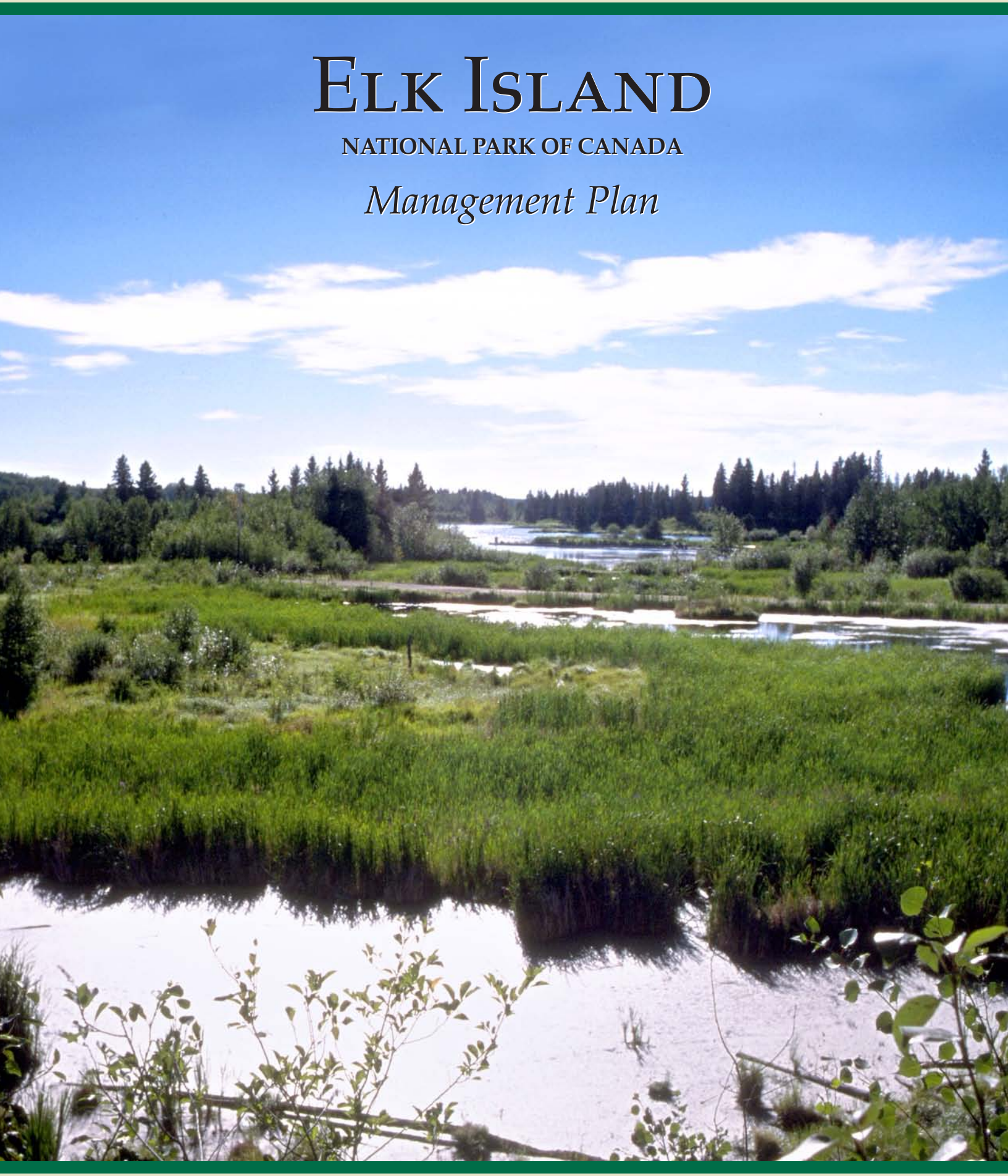
Elk Island

National Park of Canada

Management Plan



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Canada

Elk Island National Park of Canada

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2005

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Foreword

Canada's national historic sites, national parks and national marine conservation areas represent the soul of our country. They are a central part of who we are and what we are. They are places of beauty and wonder and heritage. Each tells its own story. Together, they connect Canadians to our roots, to our future and to each other.

We see a future in which each of the national historic sites of Canada, whether federally owned or not, enjoys sound commemorative health, and in which our system of sites evolves as our country evolves. Our national historic sites will be places for all Canadians to experience and learn from. They will help our communities to be vibrant and creative, and contribute to our efforts to revitalize Canada's cities. Together, we will hold these places in trust for this and future generations, while ensuring they contribute to Canada's sustainable economy and environmental health.

Our vision is also for each of Canada's unique terrestrial and marine regions to be represented by at least one national park or national marine conservation area, for all national parks to be in sound ecological health, for all national marine conservation areas to promote the ecologically sustainable use of our marine resources in a way that harmonizes conservation practices with human activities, and for both national parks and national marine conservation areas to be places for all Canadians to experience and enjoy.

These principles form the foundation of the new management plan for Elk Island National Park of Canada. May I offer my appreciation to the vast range of thoughtful Canadians who helped develop this plan. I am especially grateful to our very dedicated team from Parks Canada and to all those local organizations and individuals who have demonstrated such good will, hard work, spirit of co-operation and extraordinary sense of stewardship.

In that same spirit of partnership and responsibility, I am pleased to approve the Elk Island National Park of Canada Management Plan.

Stéphane Dion
Minister of the Environment

ELK ISLAND NATIONAL PARK OF CANADA MANAGEMENT PLAN

This plan has been recommended for approval by:

Alan Latourelle
Chief Executive Officer
Parks Canada

Rod Blair
Northern Prairies
Field Unit Superintendent

EXECUTIVE SUMMARY

This is a new management plan that was developed, with public consultation, as a result of a review of the *Elk Island Management Plan*, tabled in Parliament in 1996. Prepared in consultation with the public, the revised plan includes a vision for the park along with strategic directions, objectives and actions for each area of park management and operation.

Common Issues, Cooperative Solutions

Maintaining Ecological Integrity

In spite of its size, Elk Island National Park plays an important role in protecting the ecological integrity of the Beaver Hills ecosystem. Rare, threatened and endangered wildlife find sanctuary in the park. The recovery of the wood bison depends on the park's herd of this threatened species. Environmental concerns associated with nearby urban, industrial and agricultural development include habitat fragmentation, disruption of wildlife corridors, and air and water pollution.

Protecting and restoring biological diversity in a fenced sanctuary requires more intensive resource management than traditionally employed in Canada's national parks. Prescribed burns and vegetation programs will promote better habitat, encouraging species such as badger, red fox, black bear, and western meadowlark to move back into the park.

The revised plan updates the park's ecological indicators and targets, valuable decision-making tools used to monitor progress in restoring or maintaining the ecosystem. This plan also includes an ecosystem model, indicators and targets (e.g. population thresholds for a variety of species) and a description of a long-term monitoring program that has been developed with the Science Advisory Committee.

Working with Others

A small patch of lower boreal mixed forest nestled in an agro-industrial community, Elk Island National Park is virtually surrounded by agricultural land. Cattle ranching is well established nearby and there are a number of game farms in the area. Domestic animal diseases pose a constant threat to the park's ungulates. Park staff must invest a great deal of time monitoring infectious diseases in bison and elk populations.

The sustainability of the Beaver Hills ecosystem depends on cooperative solutions and common goals. Regional collaboration is a key objective of the management plan. Proposed actions include participation in the Beaver Hills Initiative. This group of stakeholders share an interest in the environmental, economic and social welfare of the region. Their goals are to maintain the last remaining natural habitat corridor in east-central Alberta, to protect at-risk or vulnerable species in the region, and to maintain the viability of protected areas.

Living Within a Fence

The number of elk, deer, moose, and bison in Elk Island contributes to one of the highest densities of wild hoofed animals on the continent. Managing these ungulates in a small, fenced area is a constant challenge. Key issues are population control and the threat of disease. Year-round consumption of vegetation by a large number of ungulates also affects the structure, function and type of plants in the park.

The park will implement the "Reduction Strategy for Ungulates" to maintain the population of these species within well-defined limits. This will help reduce the impact of over-grazing on biological diversity. Park staff will constantly monitor wildlife to maintain the disease-free status of its bison and elk herds.

Restoring Natural Processes

Because the park is so small, it is difficult to restore large-scale natural processes. These processes are particularly important in maintaining a healthy, representative plant community.

A priority is to restore or maintain three important natural processes -- fire, herbivory, and beaver flooding. A prescribed burn plan will address vegetation issues. Park staff will carry out air surveys to assess beaver populations and will maintain between 100 and 600 active colonies in the park. Photo mosaics and satellite imagery will be used to monitor wetlands and flooding.

Welcoming Visitors

Less than an hour's drive from Edmonton, the park is a popular destination for city dwellers. More than a million people live within 100 km of the park. Most of the park's 200,000 visitors are from Alberta, enjoying a day trip to the area. Like many national parks in Canada, Elk Island is looking at ways to provide for human use, while at the same time protecting the environment people come to enjoy.

The park will work with the tourism industry and with the Edmonton Capital Region Tourism Partnership to ensure visitors understand and appreciate the facilities, services and experiences a national park can offer. In-park programs will encourage support for ecological integrity and promote environmental stewardship. The management plan calls for an active partnership with the educational community to foster a shared responsibility for and understanding of ecological integrity. A Heritage Tourism Strategy will influence marketing and promotion efforts that affect the park.

The Future of Elk Island

The vision for Elk Island National Park foresees that the park will continue to:

Protect a portion of the Southern Boreal Plains and Plateaux Natural Region.

Maintain or restore ecological processes, mainly fire, herbivory, and beaver flooding.

Remain a renowned destination where visitors can view and appreciate nature.

Play an important role in the re-establishment of species such as the trumpeter swan and wood bison.

Form an integral part of the Beaver Hills ecosystem due to the joint efforts of surrounding landowners and Parks Canada.

The environmental assessment of the *Elk Island National Park Management Plan* made a number of observations on the preparation of the revised plan and the expected outcome of its implementation:

The plan is consistent with Parks Canada legislation and policies.

Satisfactory peer review and public input has been a part of the plan's making.

Proposals in the management plan will not have significant adverse environmental effects.

The cumulative effect of the proposals will enhance ecological integrity.

Habitat effectiveness will improve, while habitat fragmentation will decrease.

A more balanced lower boreal mixed wood forest dominated by aspen will be represented.

The extent of non-native plant species will decrease.

Natural vegetation succession will improve.

Better management of human activities will reduce visitor stress on the park.

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1.0 INTRODUCTION

1.1 A Park of Many Places

Canada National Parks Act dedicates the country's national parks *"to the people of Canada for their benefit, education and enjoyment"* to be *"maintained and made use of so as to leave them unimpaired for the enjoyment of future generations."* The Act provides clear direction on the management of national parks, focusing on the *"maintenance or restoration of ecological integrity, through the protection of natural resources and natural processes."*

This management plan is a key tool for shaping the future of Elk Island National Park of Canada, in keeping with the spirit and intention of the *Canada National Parks Act*. It recognizes Elk Island as a park of many places. Above all, the park is a place for nature, where the intricate relationships that make up the web of life continue to evolve as they have for thousands of years. At the same time, the park is a place for people,

where they can discover the wonder of the natural environment and appreciate the richness of Canada's heritage. And finally, the park is a place that, while celebrating the past, looks to the future.

1.2 Role in a National Park System

Canada's system of national parks began more than a century ago with the establishment of Banff National Park around some intriguing hot springs in Alberta's Rocky Mountains. Over the years, 41 national parks and national park reserves have joined the system, ranging in size from 9 km^2 to 45,000 km^2. Together they form a nation-wide system in which the goal is to ensure all of Canada's 39 terrestrial natural regions are represented. Along with Wood Buffalo, Prince Albert, and Riding Mountain national parks, Elk Island protects a part of the Southern Boreal Plain and Plateaux Natural Region.

1.3 A Place for Nature

A mosaic of knob and kettle topography, the park towers thirty to sixty metres above the surrounding plains. Elk Island is in the Cooking Lake Moraine, the northern section of the greater Beaver Hills ecosystem, a unique transitional area of the lower boreal mixed forest dominated by aspen. Along with other conservation areas, Elk Island plays a vital role in protecting one of the last remaining habitat corridors in east-central Alberta.

In the early 1900s, a group of concerned Albertans had a vision—to set aside an area for the protection of what was thought to be the last remaining elk on the Canadian prairies. This beginning, as a fenced preserve for a single species, sets Elk Island apart from the rest of Canada's national parks, established for their outstanding scenic beauty or to protect representative examples of the country's terrestrial and marine natural regions. The elk preserve now forms part of Elk Island National Park, where ungulate populations such as plains bison, moose, elk, and deer thrive.

The park's role in the conservation of rare, threatened and endangered species continues and has even expanded. The park plays an important role in the re-establishment of species at risk, such as the trumpeter swan and wood bison.

1.4 A Place for Culture and History

The Elk Island story begins at the end of the last ice age. Canada's First Nations are believed to have lived here between 8,000 and 10,000 years ago. Archaeological research has identified more than two hundred Aboriginal camps and stone tool-making sites. The Sarcee were the first people to live in the area. Sometime in the 1700s, the Cree forced the Sarcee into the surrounding plains. The Cree continued to hunt in the Beaver Hills, supplying pelts to the fur traders to satisfy the fashion interests of Europeans.

The rich supply of plants and game in the Beaver Hills provided the Aboriginal peoples with a varied and nutritious diet. With the depletion of game and fur species, they left the area.

German, English, and Ukrainian settlers arrived in the 1880s. They quickly began clearing land and farming the area around the Beaver Hills. The Beaver Hills themselves were considered too hilly, wet and generally less suitable for agriculture.

Cultural resources in the park include the site of Alberta's first Forest Ranger Station and the oldest Superintendent's residence in the national park system. The only national historic site commemorates the preservation of the plains bison.

1.5 A Place for People

Elk Island welcomes visitors to experience solitude, nature, outdoor recreation, and history through many activities, including hiking, camping, golfing, canoeing, wildlife watching, picnicking, and cross-country skiing. Through seasonal interpretative programs, people of all ages learn first-hand about Canada's national parks and the natural region Elk Island represents.

Once one of few recreational attractions in the Beaver Hills area, the park boasted a dance hall, hotel, private cottages, band shell, police detachment, and a gas station. While many of these facilities have disappeared, today's visitors still enjoy various recreational activities.

As times and interests changed, so did the activities of park visitors. In the early days, a trip to the park was a major undertaking, requiring at least a full day and often an overnight stay. Better highways have made Elk Island a popular day-use destination where area residents find a short break from the daily routine.

At its peak in the mid-1960s, Elk Island attracted more than 500,000 visitors. Parking was scarce at Astotin Lake, vehicles crowded the parkway, and a quiet picnic spot was hard to find. This situation changed dramatically later in the decade as attendance dropped steadily. While specific information is not available, several factors could have contributed to this change—the growth of Edmonton and the introduction of other recreational facilities, higher fees, smaller advertising budgets, and the removal of several facilities.

1.6 A Place for the Future

On behalf of the people of Canada, Parks Canada protects and presents nationally significant examples of our country's natural and cultural heritage. Fostering public understanding, appreciation and enjoyment of these places in ways that ensure their ecological and commemorative integrity is vital to this mandate.

The *Canada National Parks Act* requires each national park to have a management plan. These plans, which reflect the policies and legislation of Parks Canada, are prepared in consultation with Canadians and, every five years, are reviewed by the minister responsible for Parks Canada and tabled in Parliament.

This management plan update is part of Parks Canada's continuing effort to fulfill its obligation to future generations. The revised management plan will guide the overall direction of the park for the next 10 to 15 years. The park's management objectives are to achieve the following:

- describe a vision for the future;
- maintain ecological integrity;
- promote high quality visitor experiences;
- offer appropriate activities in a national park setting;
- involve others in protecting the shared ecosystem;

2.0 PLANNING CONTEXT

2.1 Regional Setting

Canada's only entirely fenced national park, Elk Island is located approximately 45 km east of Edmonton. The park, with an area of 194 km^2, its neighbours, and adjacent provincial lands protect a core area of the Beaver Hills ecosystem (Figure 1). For some native species, this ecosystem is an important refuge from urban expansion in the Edmonton area.

Surrounded by three counties – Beaver, Lamont, and Strathcona, the park is within easy reach of many potential visitors. Some one million people live less than 100 km from the park. Highway 16 (the Trans-Canada Yellowhead Highway), which divides the park in two (Figure 1), offers easy access.

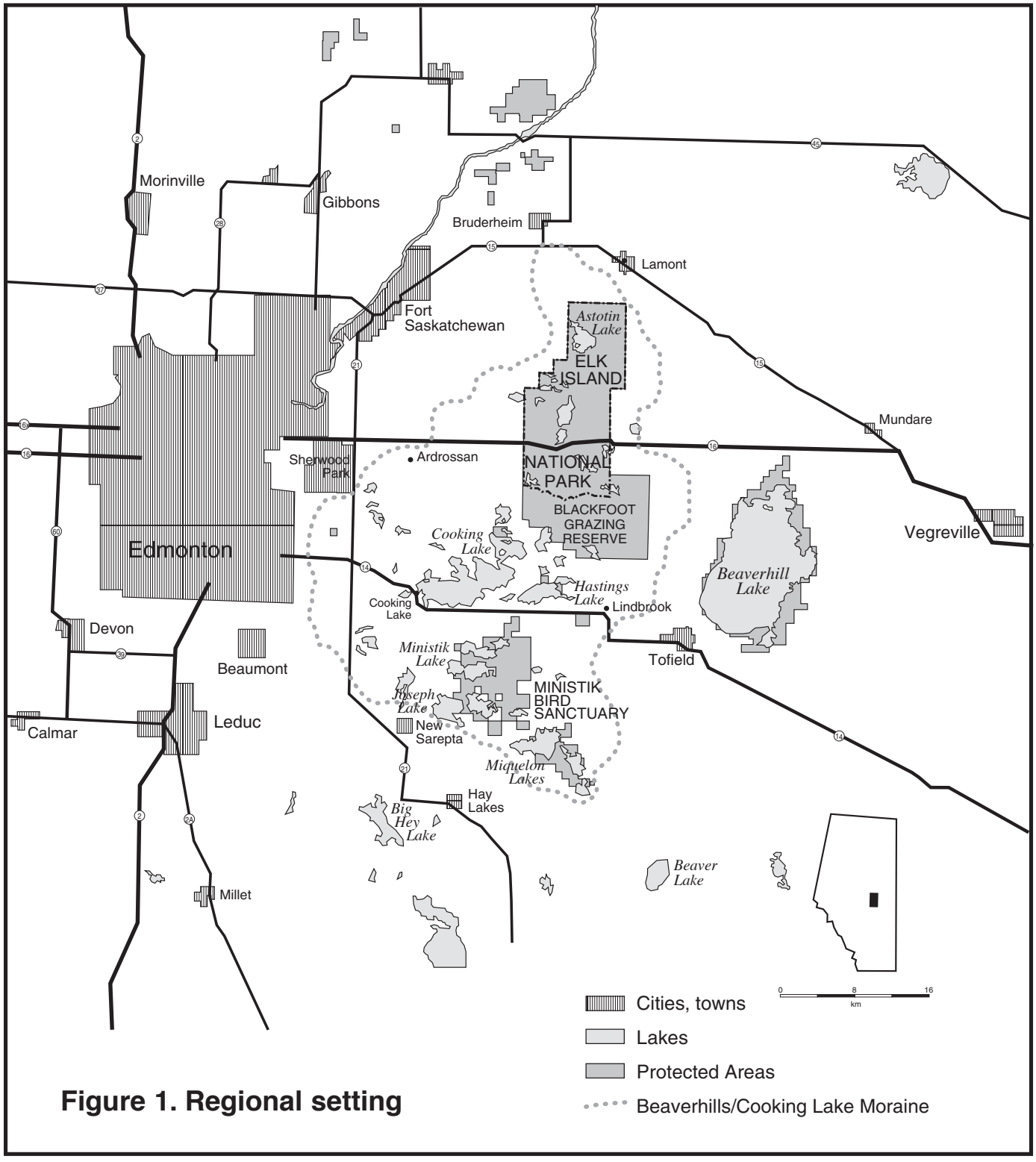


Figure 1. Regional setting

Private land, primarily used for agriculture, borders the main park area (134 km^2) north of the highway. Most visitor facilities and services are located here, including Astotin Lake, the Parkway, and the park's administrative centre. South of the highway, the wood bison area covers 60 km^2. Facilities include a trail and a bison handling facility. Agricultural land borders this part of the park to the east and west. The Blackfoot/Cooking Lake Provincial Recreation Area is to the south, and the Ukrainian Cultural Heritage Village to the southeast.

2.2 Planning in a Changing Environment

Many changes have taken place since the previous management plan was approved in 1996 – new issues and opportunities, completion of the park's Ecosystem Conservation Plan, new policies and legislation, and a better understanding of ecosystem-based management and biodiversity.

The 1996 plan resulted from nationwide public consultation and in-depth analysis of the social, economic, and environmental conditions facing the park. It is now time to re-evaluate these conditions and revise the plan accordingly.

The management plan also incorporates the concept of Ecological Integrity Statements (EIS) for national parks, which began to develop in the mid-1990s.

The following examples illustrate some of the changes in legislation, policies, plans and studies that have strengthened Parks Canada's commitment to preserving park resources in a way that integrates ecological integrity and the social and economic needs of surrounding communities:

- *Parks Canada Guiding Principles and Operational Policies*, 1994
- *Parks Canada Agency Act, 1998*
- *Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals*, 1999
- *Canada National Parks Act*, 2000
- *Parks Canada Action Plan in Response to the Panel on the Ecological Integrity of Canada's National Parks*, 2000
- *Unimpaired for Future Generations, The Report of the Panel on the Ecological Integrity of Canada's National Parks*, 2000
- *First Priority; Progress Report on Implementation of the Recommendations of the Panel on the Ecological Integrity of Canada's National Parks*, 2000

2.3 Park Management and Land Use

As scientific understanding increases, park management continues to evolve. Many activities sanctioned by former policies are no longer considered appropriate in a national park. Indeed, many current efforts are aimed at restoring systems altered as a result of former policies, particularly in the area of fire suppression. Suppressing fires, confining ungulates, and preventing flooding caused by beaver dams, common practices at the turn of the century, disrupted the natural evolution of the environment. Aspen flourished under these conditions, to the detriment of a more representative mixed boreal forest. Today, park managers have a better understanding of the importance of natural processes to ecological integrity. Management actions and decisions are scrutinized and revised to benefit from the best scientific, social, and economic information currently available. Cooperative research with the Science Advisory Committee, the Friends of Elk Island Society, and other professional institutions are the foundation of a credible ecosystem-based management program.

2.4 Public Consultation

Public feedback was instrumental in revising the management plan. Open houses were held in several communities surrounding the park including Edmonton, Lamont, Ardrossan, Tofield, and Vegreville. The Internet allowed people outside the region to offer their thoughts on the future direction of Elk Island National Park. Park staff and stakeholders also provided valuable insight into the management of the park.

2.5 Regional Cooperation

Activities in the surrounding area have a profound impact on the park's ecological integrity. The regional population and industrial use have increased significantly in the past decade and growth is expected to continue. The Beaver Hills Initiative (Section 9.3) recognizes the need for a multi-jurisdictional approach to protect the Beaver Hills ecosystem for future generations. The park will play a significant role in maintaining the Beaver Hills ecosystem by protecting a core area; contributing expertise to assist other jurisdictions in making sound environmental decisions; and participating in the creation of regional, provincial, and national tourism strategies.

2.6 Ecosystem-Based Management

One of the most difficult challenges national parks face is how to maintain a natural environment and protect important cultural resources, while at the same time supporting quality visitor experiences and contributing to social and economic needs. To address this challenge, Parks Canada has adopted a philosophy known as "ecosystem-based management".

Ecosystem-based management is a holistic approach that involves working with others to achieve common goals. Productive, positive, and long-term relationships are the key to its success. Multi-disciplinary in nature, ecosystem-based management seeks to integrate biological, physical, and social information. The goal is to preserve the park's resources in a way that integrates ecological integrity of the park and the social and economic needs of surrounding communities.

Key Components of Ecosystem-based Management

1. Ecosystems extend beyond park boundaries. Activities on neighbouring lands affect the park's wildlife, water, and vegetation. By the same token, park activities affect its neighbours. Integrated management is essential.
2. People are a fundamental part of the ecosystem. Recognizing their own basic social and economic needs makes it possible for people to contribute to and benefit from a sustainable environment within the Beaver Hills ecosystem. Inside the park, these basic needs must be considered in the context of protecting ecological and cultural heritage. Outside the park, Parks Canada will encourage sustainable development and activities that incorporate heritage values.
3. Understanding the relationship between people and the environment, both past and present, is the foundation for good decision-making. Recognition of the meaningful role played by Aboriginal peoples is essential.
4. Parks Canada must carefully manage human use and development to ensure ecological and cultural resources are respected by setting limits where necessary to ensure the park is available for future generations to enjoy. Efforts are made to ensure visitors come to the park with the right expectations, visit at the right time of year, and participate in activities at the right place.
5. Decisions are based on the best current information (ecological, cultural, and social). Benchmarks and parameters help us understand the park's ecological integrity.
6. The precautionary principle guides the determination of appropriate levels of development, human use, and active ecosystem management initiatives.
7. Consultation with visitors, residents, and businesses, both inside and outside the park, creates awareness of ecosystems, the challenges involved in protecting them, and the role people can play.
8. Natural processes and adaptive management are important processes in maintaining and restoring ecosystems.

This management plan is founded on these ecosystem management components. While individual chapters address different issues, the actions in each are linked. Collectively they represent an integrated approach that Parks Canada believes will ensure Elk Island National Park of Canada continues as a living example of national park values.

3.0 VISION FOR THE FUTURE

3.1 Looking to the Future

Management planning invites all Canadians to think about the future of their national parks, to envision what kind of places they should be, and to participate in identifying the actions that will make that vision a reality.

Elk Island National Park will continue to:

- protect a portion of the Southern Boreal Plains and Plateaux Natural Region;
- remain a renowned destination where visitors can view and appreciate nature;
- play an important role in the re-establishment of species such as the trumpeter swan and wood bison;
- maintain or restore ecological processes, mainly fire, herbivory, and beaver flooding;
- form an integral part of the Beaver Hills ecosystem due to the joint efforts of surrounding landowners and Parks Canada; these co-operative efforts have made it possible to sustain a key connecting corridor between the boreal forest region to the north and the grassy plains to the south.

Throughout its history, Elk Island National Park has been a gateway to the world of leisure, letting visitors understand and appreciate the park's natural and cultural resources and enjoy various recreational activities such as nature viewing, camping, golfing, and hiking. A peaceful refuge filled with the sounds, smells, sights, and wonders of nature, the park is a quiet retreat from the urban setting. Future generations will be able to enjoy the park in the same way if visitors have the right expectations at the right time of year and participate in appropriate activities.

Visitors and residents in the area recognize that the future integrity of the park is directly linked to the longevity of the Beaver Hills area. Through cooperative efforts with its neighbours, Elk Island National Park promotes the coexistence of humans and nature in a sustainable relationship. People in Elk Island and the Beaver Hills area are an important component of the ecosystem and that these components change over time.

The landscape's integrity is restored through the natural processes of fire, herbivory patterns of large animals, and beaver related flooding. However, limitations such as the boundary fence and lack of predators continue the need for active management of bison, elk, and moose. In all cases, management is based on progressive social and natural science programs.

Striving for ecological integrity enables the park to continue providing visitors with appropriate experiences. A treasured resource, Elk Island welcomes people to experience a special place that is part of the family of Canada's national parks.

Parks Canada will have realized the vision for Elk Island National Park when the following strategic goals become a reality:

Managing for Ecological Integrity

- the public understands the mandate of the national parks system, as well as Elk Island National Park's management, planning and programming designed to foster a shared responsibility for and understanding of ecological integrity.
- cooperative land use initiatives secure the long-term viability of the Beaver Hills ecosystem for future generations.
- fire, ungulate herbivory, and beaver flooding retain the viability of this transitional zone.
- the Beaver Hills ecosystem maintains its air and water quality.
- the park's vegetation reflects the area's natural composition, patterns, and diversity.
- wetlands and aquatic ecosystems support a diversity of plant and wildlife species.
- Elk Island National Park maintains the biological diversity of species representative of the region.
- Elk Island National Park maintains an appropriate level of ecological integrity.

Protection of Cultural Resources

- cultural resources associated with Elk Island National Park of Canada are protected and the themes presented as part of the overall park message.

Heritage Presentation

- Canadians and international visitors appreciate the natural and cultural history of the park and the role it plays in Canada's national parks system.
- visitors make choices that keep their impact on the ecological integrity of the park and surrounding area to a minimum.

Visitor Use and Services

- Canadians and international visitors enjoy high quality, authentic learning and travel experiences that are based on national park values and that foster a sense of Canadian identity.
- a well-informed tourism industry promotes park messages and activities that support the goal of restoring or maintaining ecological integrity.
- appropriate facilities and services allow visitors with varying interests to enjoy the natural and cultural heritage of the park.

Transportation and Utilities

- park roads enable visitors to understand and appreciate the park, while supporting the restoration and maintenance of ecological integrity.

Partnership and Public Involvement

- key policy and planning decisions are timely, fair, and consistent, and are reached in an open and participatory manner.
- the ecological integrity of the park and the social and economic needs of the surrounding communities benefit from an integrated approach to managing land use, human activities, and ecological initiatives.

Administration and Operations

- Elk Island National Park of Canada demonstrates sound environmental practices in all its activities, services, and products.
- visitors and staff contribute to the principles of environmental stewardship and sustainability.

The following chapters describe the objectives and key actions to achieve these goals.

4.0 MANAGING FOR ECOLOGICAL INTEGRITY

4.1 Overview

Maintenance or restoration of ecological integrity, through the protection of natural resources and natural processes, shall be the first priority of the Minister when considering all aspects of the management of parks.

– Canada National Parks Act

Parks Canada defines ecological integrity as, "a condition that is determined to be characteristic of its natural region and likely to persist, including abiotic components and the composition and abundance of native species and biological communities, rate of change and supporting processes."
(*Canada National Parks Act*).

In other words, a national park has ecological integrity when its native components (plants, animals, and other organisms) and processes (such as growth and reproduction) are not impaired, and people use the park and its surroundings in a way that respects the needs of those plants and animals and allows for natural processes.

Ecological integrity is not a static end-point, but rather a continuum of characteristics that a landscape or area should possess. Ecological integrity is measured in the following terms:

- ecosystem health, including the ability to evolve, develop and adapt to change;
- biological diversity, including the ecological and evolutionary processes that keep species functioning;
- the ability of plant and animal communities to resist or adapt to stresses and change;
- the ability of plants and animals to sustain healthy populations;
- the integration of people into the environment in ways that sustain both human quality of life and biological diversity.

4.2 Environmental Context

A Glacial Legacy

The advance and retreat of great glaciers during the last ice age sculpted the landscape of North America. The Elk Island area was no exception. An escarpment rising 60 metres out of the plains northwest of the park marks the edge of the Edmonton Formation, a layer of bedrock that extends west directly under Elk Island National Park. As the continental ice sheets passed over this escarpment they folded and buckled, forcing an insulating layer of glacial debris onto the ice surface.

When the vast ice sheets began to melt about 12,000 years ago, the debris-covered ice over Elk Island melted slowly where it lay, creating one of the most extensive dead ice moraines in the prairies, known as the Cooking Lake Moraine. As the ice block disintegrated, a variety of landforms appeared. Commonly known as "knob and kettle" topography, the park is a complex array of hummocks, prairie mounds, linear ridges, kames, post-glacial drainage channels, kettle ponds, fens, bogs, and sand hills.

Glaciation left other marks, including a 75 m layer of glacial till (a mixture of mud, sand, rock, and gravel) on top of the sedimentary bedrock. The park has no exposed bedrock, a characteristic unique among national parks in Alberta and British Columbia.

Aquatic Resources

Lakes, ponds and wetlands are another legacy of glaciation, one that has been augmented by a large and growing beaver population. Rising 30 to 60 metres above the surrounding plain, the park lies virtually at the top of a regional watershed. In spite of this, drainage is poor. The park's 250 lakes and ponds, which cover 20 per cent of the park, are shallow, highly productive, and important to regional waterfowl. Bogs, fens, swamps, and marshes provide an important variety of wetland habitats.

Climate

The park's small size and limited topographic relief create a relatively uniform climate, similar to that of the region. Thick forest and slightly higher elevation mean a shorter frost-free period, earlier freeze-up, and longer-lasting snow cover than the surrounding plains.

Vegetation

The park includes a variety of habitats for plant and animal life. Hummocky terrain creates a variety of micro-climates that support a rich mosaic of aspen forest, wetlands, boreal mixed-wood forest, sedge meadows, shrubs, and grassland.

Elk Island contains more than one-quarter of all vascular plant species in Alberta, including several rare species. It is one of the few places in the province where North America's smallest flowering plant, Wolffia, grows.

Wildlife

The park's diverse landscape and habitat are home to a rich variety of wildlife, including 44 species of mammals, more than 250 species of birds, five species of amphibians, one reptile species and two species of fish. Songbird and waterfowl populations are noteworthy. The number of elk, deer, moose, and bison contribute to one of the highest densities of wild hoofed animals on the continent.

Rare, threatened and endangered wildlife find sanctuary in the park. A population of genetically pure and disease-free plains bison share space with the native elk the park was originally established to protect. The recovery of the wood bison depends on the park's herd of this threatened species. Moose were introduced between 1910 and 1914. Beaver, released in the 1940s, now number over 2,000. The 1980s saw the introduction of trumpeter swans, followed by the fisher in 1980s. All the introduced species were once native to the Beaver Hills.

4.2.1 Rare and Unique Natural Resources

The term "rare and unique natural resources" applies to features and wildlife that are significant, sensitive, or require special recognition. All these resources are located in Zone II (see Figure 5 – Park Zoning), where activity is kept to a minimum and the impact of actions on the resources is considered in any planning decision.

Environmental assessments will pay particular attention to these sensitive areas to help determine acceptable levels of change over time.

Features

Saline Marshes

The saline marshes are the rarest wetlands in the park. Dominated by the arrowgrass family, they are found along the park's eastern boundary and south of Walter Lake.

Soap Holes

The evaporation of ground water at these locations contributes to the accumulation of soluble salts at the surface. Poorly drained, these soils support a unique community of alkali grasses. Soap holes in the park are on the east side of the Hayburger Trail.

Needle-Leafed Evergreen and Deciduous Wetlands

These swamps consist of a mix of white spruce, black spruce and larch. The only wetland of its type in Western Canada, it is found in the northern section of the park.

Spruce Islands of Astotin Lake

Large mature stands of native white spruce grow on several islands in Astotin Lake. These unique areas escaped the effects of fire and browsing by ungulates. They are important habitat for some species.

Old Growth Mixed Wood Forest

The most representative area of old growth mixed wood forest is found in the northern part of the park. Loss of this small, localized habitat would be devastating for certain birds.

Jack Pine

A small, isolated stand of jack pine grows west of the parkway, south of the turnoff to the park administration building. Recent surveys located only one living jack pine in this stand.

The Sand Hills

Sandy soils are naturally exposed in three areas—southeast of Moss Lake; the southwest corner of the Wood Bison Trail, known locally as the Blueberry Hills; and the west side of Walter Lake. The Blueberry Hills, where soil conditions have turned the aspen bark white, are of particular interest.

White Birch Communities

White birch communities are rare in the area. They occur in closed stands and are prominent on the west side of Tawayik Lake.

Natural Licks and Ground Water Springs

Several springs in the park provide a source of minerals for ungulates. The water chemistry of the springs also supports unique vegetation.

Wildlife

Wood Bison

Wood bison is the only species in the park listed as threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Wood bison are not native to Elk Island. The herd was introduced into the park in 1965 as part of the wood bison recovery effort.

Badger

The badger, considered rare locally, appears to be on the increase around the park. There have been several recent sightings in the park. Re-establishing badgers would result in a more natural predator–prey relationship for ground squirrels.

Water Shrew

The water shrew, considered rare in the park and scarce regionally, is only seen on rare occasions. As its name implies, this species frequents the shores of lakes and ponds and other wetlands.

White-Tailed Jackrabbit

The presence of coyotes and the lack of open rangeland make the park unsuited to the white-tailed jackrabbit, which is found elsewhere in the region.

Fisher

Fishers were reintroduced in the Beaver Hills area and the park in the mid–1980's. Although several sightings of fishers are reported every year, their status is unknown.

Pine Marten

The pine marten is a rare transient. While there is no definitive population in the park and surrounding area, tracks have been observed in mature spruce stands on the Astotin Lake islands.

Red Fox

Historically uncommon in the area, the red fox is widespread outside the park. This species does not reside in the park because of the large coyote population.

Black Bear

Black bears are rare in the area. The park is unsuitable habitat because of its small size, lack of corridors linking it to larger habitat, and a limited berry supply. Black bears are usually removed from private land in the area.

Northern Long-Eared Bat

The northern long-eared bat is the rarest bat in the park. The Elk Island region is at the northern limit of its range. This bat has been observed close to buildings and cleared areas but little is known about its life history.

Birds

Of the 253 species recorded in the park, 137 species are known to breed there. The following birds are considered rare breeders in the park.

Chestnut-Sided Warble

The chestnut-sided warbler is one of the rarest warblers breeding in the park. Breeding pairs have been observed in mature aspen stands with a thick understorey of beaked hazel, usually on south facing slopes.

Trumpeter Swan

The trumpeter swan reintroduction program, ongoing since 1987, aims to restore a population in the Beaver Hills area in an effort to expand its range. Although listed as threatened in 1987, COSEWIC now considers the trumpeter swan "not at risk." While several breeding pairs have returned to the park and area, the goals of the re-introduction program have not been reached.

Bobolink

The bobolink is a rare bird, only ever recorded in the hay meadow. Records indicate it has bred in the park.

Brown Creeper

The brown creeper is one of the rarest permanent residents of the park.

Sedge Wren and Black-Billed Cuckoo

The sedge wren and the black-billed cuckoo are rare summer residents.

4.3 Threats to Ecological Integrity

Despite its high degree of ecological integrity, Elk Island National Park is not entirely free of environmental stress. The indicators of ecological integrity discussed later in this section are based on the major stressors summarized below. Developed from the *Ecosystem Conservation Plan* (1999), the list was revised by an interdisciplinary group of resource managers, wildlife biologists, local residents, park users and staff.

Land use around the park increases fragmentation and decreases habitat connectivity. The park has become a small patch of lower boreal mixed forest nestled in an agro-industrial community.

The proximity of urban development (Fort Saskatchewan and Edmonton) increases the probability of atmospheric contamination, which may have an impact on air quality.

Park roads and facilities affect the connectivity of aquatic habitats, disrupting the development of some wetlands. ***Water management practices outside the park*** influence the hydrology, quality, and ecology of water and aquatic habitats in the park. ***A dam*** that once blocked the main drainage system outside the park resulted in the disappearance of several native fish species that once migrated from the North Saskatchewan River into Astotin Lake. ***Rural development*** has increased significantly along the drainage.

Year-round consumption of vegetation by a large number of ungulates affects the structure, function and type of plants in the park. No major ungulate mortalities have been recorded for more than 20 years. The need to remove ungulates requires infrastructure (e.g., traps, larger pens) and time to round up, trap and hold animals during the winter. High population densities and increased ungulate management may upset the balance between natural grazing patterns, vegetation structure, and succession. Elk, moose and deer feed on deciduous saplings while bison trample and break conifer saplings, hindering the development of a spruce forest.

Lack of fire has altered the park's vegetation, mainly the understorey.

Domestic animal diseases in the Beaver Hills ecosystem pose a constant threat to the park's ungulates. Cattle ranching is well established near the park and there are a number of game farms in the area. Park staff invest a great deal of time monitoring infectious diseases in bison and elk populations. Living in a fenced,

densely populated environment may also exacerbate the impact of naturally borne pathogens and parasites (e.g., liver fluke and winter ticks).

Exotic plants continuously invade the park. Some extremely invasive species compete with native plants. The park has an ongoing program to prevent the introduction and establishment of exotic plants, including noxious weeds.

4.4 Managing for Ecological Integrity

In spite of its fence, Elk Island National Park is not a closed ecosystem. It is neither self-sustaining, nor immune to influences from beyond its boundary. Protecting and restoring biological diversity in this fenced sanctuary require more intensive resource management than traditionally employed in Canada's national parks. The challenge in managing for ecological integrity in Elk Island is to ensure management actions evolve and reflect the park's vision and goals for ecological integrity.

Managing for ecological integrity is based on the following understandings.

- the first priority is to restore or maintain important ecological processes, mainly fire, herbivory, and beaver flooding.
- the park recognizes that humans modify the ecosystem and that human impact on the ecosystem is an evolving process.
- comparisons between the past and present respect the changes that have taken place locally, regionally, and globally.
- it is important to understand the scale of the landscape under consideration. Many natural processes such as bison migration or mass fire cannot be replicated because of fragmented natural habitat. Elk Island will never represent a system where large-scale ecological processes are completely restored.
- in small, fragmented ecosystems, disturbances can have more pronounced effects due to limited buffering capacity.
- ecological integrity is not static; it reflects the constant adaptation of the landscape and of the resulting changes in the ecosystem. More emphasis will be placed on assessing the current state of ecological integrity as a point in time along an evolving path.
- the park must continue to refine current indicators (Section 4.12) and adapt its management program accordingly.

4.5 Awareness and Support for Ecological Integrity

Communicating the park's objectives and initiatives to the public, whose decisions and actions influence ecosystems, is vital in fostering support for ecological integrity. The participation of governments, local residents, visitors, and all Canadians is necessary to accomplish goals, objectives and actions related to ecological integrity.

4.5.1 Strategic Goal

The public understands the mandate of the national parks system, as well as Elk Island National Park's management, planning and programming, fostering a shared responsibility and creating an understanding of ecological integrity

4.5.2 Objectives

To communicate with key stakeholders, the general public, and tourism and educational institutions.

To include messages about ecological integrity in all major park communication products and activities.

4.5.3 Key Actions

1. Provide information about the prescribed burn program for stakeholders and neighbours.
2. Offer programs for the public, staff, local landowners, special interest groups, and local schools about ecological integrity.
3. Coordinate the park's environmental education program with local and regional school districts.
4. Develop park-specific messages for television, brochures, and interpretive programs.
5. Cooperate with local tourism organizations on joint messages and marketing initiatives.
6. Participate in revising the Alberta school curriculum concerning ecosystem management.

4.6 Shared Regional Ecosystem

The Beaver Hills ecosystem is one of the last remaining habitat corridors in east-central Alberta. While the park's fence restricts the movement of bison, elk and moose, all other mammals are able to migrate in, out, or through the park. From a regional perspective, this area is also becoming the industrial heartland of Alberta.

The long-term viability of any ecosystem depends on the community's ability to successfully manage the physical, biological, economic, and social environment. Business and industry are crucial to economic development and contribute to a high quality of life for the community. Protected areas are important storehouses for shared resources such as water, air, land, and biological diversity. The two must work together to achieve sustainable land use policies for the Beaver Hills communities and to implement environmentally sound technology and land use practices.

4.6.1 Strategic Goal

Cooperative land use initiatives secure the long-term viability of the Beaver Hills ecosystem for future generations.

4.6.2 Objectives

To practice sustainable land use, through the Beaver Hills Habitat Corridor Initiative, in cooperation with neighbours and key stakeholders in the region.

To recognize the link between environmental conservation, the economy, and human health.

4.6.3 Key Actions

1. Engage in discussions with key stakeholder groups that share similar sustainable ecosystem management objectives.
2. Participate and foster involvement in the Beaver Hills working group.
3. Help stakeholders draft a mission and vision for the Beaver Hills working group.

4. Participate in identifying actions to sustain shared resources; restore ecological corridors for fish and wildlife; and sustain prosperity and quality of life for the community.
5. Help develop a research and monitoring framework to address ecological, social, and sustainable land use.

4.7 Restoring or Maintaining Ecological Processes

Conservation planning in Elk Island National Park is based on the following philosophies:

- fire and ungulate herbivory are key processes that maintain the ecological integrity of the ecosystem;
- beaver-related flooding plays an important ecological role;
- humans have always interacted with the environment.

4.7.1 Strategic Goal

Fire, ungulate herbivory, and beaver flooding retain the viability of this transitional zone.

4.7.2 Objectives

To restore fire, herbivory, and beaver flooding as natural processes.

To manage the level of grazing within the natural range of variation.

4.7.3 Key Actions

Prescribed fire

1. Prepare prescribed burn plans for the park. These plans consider the appropriate frequency of fires, the variety of plants and animals in the park, and the rare and unique cultural and natural resources.
2. Where possible, assist neighbours in the Beaver Hills with their fire management initiatives.
3. Identify and encourage research on prescribed fire.

Ungulate Herbivory

4. Identify and encourage research related to herbivory.
5. Implement the Reduction Stragety for Ungulates (1999) to manage the level of grazing within the natural range variation.

Beaver Flooding

6. Monitor wetland flooding through remote sensing to determine both short and long-term effects.
7. Survey beaver populations to determine their status and distribution.
8. Remove beaver where the park's infrastructure is at risk.
9. Identify and encourage research on the effect of flooding.

4.8 Air and Water Quality

The proximity of urban and industrial development increases the probability of air and water contamination in the park and surrounding area. Extensive agricultural land in the Beaver Hills also raises concern about water quality and bio-contaminant loading. In a small park like Elk Island, waste management practices and the placement of road culverts can also threaten water quality.

4.8.1 Strategic Goal

The Beaver Hills ecosystem maintains its air and water quality.

4.8.2 Objective

To cooperate with neighbouring jurisdictions on air and water quality programs for the Beaver Hills area.

4.8.3 Key Actions

Air Quality

1. Set up stations in the park with Environment Canada Meterological Services and other industrial partners to monitor air quality in the park and surrounding region.
2. Participate in air quality research and management initiatives in the Beaver Hills ecosystem.

Water Quality

1. Monitor water quality in the Beaver Hills ecosystem for evidence of contamination.
2. Monitor invertebrates and fish diversity within the Beaver Hills ecosystem every five years.
3. Evaluate the park's wastewater treatment and address potential impacts on Astotin Lake.

4.9 Vegetation

Located in the boreal forest natural region, Elk Island National Park is best described as a transitional area where aspen dominate the lower boreal mixed wood forest. Vegetation patterns change constantly due to the park's geography and climate. Non-native species have invaded the park's small pockets of grasslands. Management of ungulate populations, fire suppression, and beaver flooding also have a considerable impact. In spite of these pressures, the park's vegetation remains resilient. Restoring natural processes are the main tools to maintain natural vegetation diversity and patterns.

4.9.1 Strategic Goal

The park's vegetation reflects the area's natural composition, patterns, and diversity.

4.9.2 Objective

To restore and maintain representative vegetation.

4.9.3 Key Actions

1. Adjust targets for maintaining and restoring representative vegetation using information obtained from the bio-monitoring program.
2. Use prescribed fire and ungulate herbivory as management tools to maintain and restore park vegetation.

3. Identify and encourage research to identify, restore, and maintain a range of native plant species.
4. Evaluate the current exotic plant management and monitoring program, including hay used to feed surplus captive wildlife and park horses.
5. Update the park's plant checklist with special emphasis on species at risk.

4.10 Wetlands and Aquatic Ecosystems

4.10.1 Strategic Goal

Wetlands and aquatic ecosystems support a diversity of plant and wildlife species

4.10.2 Objective

To increase understanding of the hydrology in the park and surrounding area..

4.10.3 Key Actions

1. Encourage partnerships to protect and maintain rare and unique wetlands outside the park.
2. Use remote sensing to monitor landscape fragmentation; incorporate this information into a wetland monitoring program.
3. Mitigate the impact of the Elk Island Parkway and other related infrastructure on wetlands (See section 8.0).
4. Monitor beaver populations by surveying beaver food caches every three years.
5. Identify and encourage research related to wetland ecology inside and outside the park.
6. Expand the range of indicators for the aquatic ecosystem (e.g., herpetofauna and invertebrates).
7. Identify gaps in the aquatic inventory and identify priority areas for research.

4.11 Wildlife

Managing ungulates in a fenced area is a constant challenge. Key issues are population control and the threat of disease. In 1999, the park launched a program to reduce the number of ungulates. The goal of the program was to restore a balanced consumption of the park's vegetation and to complement biological diversity.

A landscape restoration program will allow species such as badger, red fox, black bear, and western meadowlark to move back into the park. Initiatives such as prescribed burns and vegetation programs will promote better habitat.

4.11.1 Strategic Goal

Elk Island National Park maintains the biological diversity of species representative of the region

4.11.2 Objectives

To monitor and manage wildlife in the park to ensure genetic viability of populations.

To maintain natural fluctuations of wildlife species.

To participate in cooperative initiatives for common wildlife species in the Beaver Hills ecosystem.

4.11.3 Key Actions

1. Implement the Reduction Strategy for Ungulates (1999).
2. Apply Parks Canada's Surplus Wildlife Directive to the management of ungulates.
3. Survey ungulates for domestic animal diseases and for endemic wildlife disease.
4. Participate in initiatives to monitor bison genetics.
5. Monitor bird populations to determine their status and distribution.
6. Identify and encourage research related to small mammals, herpetofauna, and insects.
7. Evaluate the park's contribution to national and international wildlife conservation programs.
8. Observe the "Code of Humane Practice" from the Animal Care Guidelines.
9. Support First Nation groups in cooperative ungulate conservation programs.

4.12 Indicators of Ecological Integrity

Ecological monitoring provides information about complex systems and the effects of disturbances. An early warning system, monitoring provides managers with information in a variety of areas:

- the need for research and management action;
- the effect of management actions;
- the need for adaptive management;
- progress in achieving ecological integrity goals.

Elk Island National Park and the Science Advisory Committee developed a monitoring and ecosystem model that they believe will be effective and sustainable over the long term (Figure 2). This model is essential to address legal requirements for State of Protected Heritage Area Reports and State of Park Reports that inform future management planning on the state of the ecosystem.

Consistent measurements over a long period of time allow researchers to track changes in the structure and function of ecosystems. Ecological indicators are a valuable decision-making tool used to monitor progress in restoring or maintaining the ecosystem. The following guidelines help determine the choice of appropriate indicators:

Indicators must:

- include both spatial and temporal scales;
- detect changes in the composition of biological diversity;
- monitor the health and viability of species and specific organisms;
- identify key stressors;
- be adaptive, easily repeatable and cost-effective;
- allow managers to identify the influence of management actions, environmental change, and stressors on biological diversity.

Elk Island has updated its ecological indicators (Figure 3). With the help of the park biological group, the Science Advisory Committee, and national office, the park will continue to refine these indicators.

4.12.1 Strategic Goal

Elk Island National Park maintains an appropriate level of ecological integrity.

4.12.2 Objectives

To continue to refine ecological integrity indicators and targets.

To provide ecological information that supports early and decisive management action.

4.12.3 Key Actions

1. Implement Status/Actions identified in the Ecological Integrity Indicator Table (See Figure 3).
2. Develop targets for native grasses.
3. Spot spray 127 hours/year, averaging 10 hectares/year to minimize the spread of weeds.

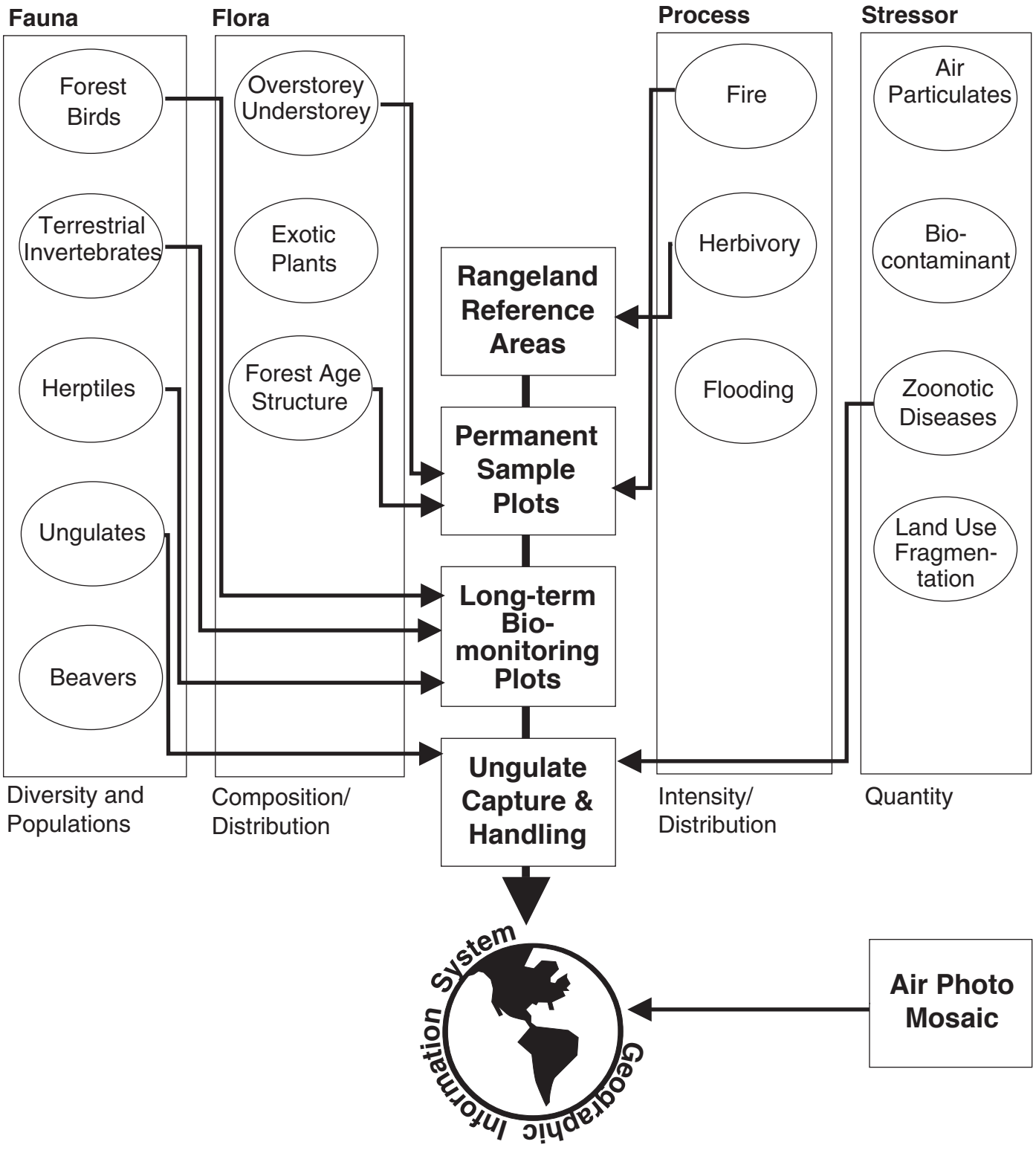


Figure 2. Ecological Integrity Monitoring Program

Table 1. Ecological Integrity Indicators

1. OBJECTIVE

To maintain viable ungulate populations; to restore and maintain herbivory; and to contribute surplus ungulates for conservation initiatives.

INDICATOR	TARGET	STATUS/ACTIONS
Disease in ungulate populations.	Maintain Tuberculosis and Brucellosis free status in both the Wood and Plains Bison herds. Maintain current disease status of endemic and foreign ungulate diseases.	Check for Tuberculosis, Brucellosis, and disease when handling surplus animal. Monitor elk, moose, and deer populations for changes in prevalence of Giant Liver Fluke, Chronic Wasting Disease, and internal parasite loading.
Genetic integrity of ungulate populations.	Maintain the genetic viability of populations. Minimum viable populations are being determined. Interim targets are as follows: *Interim Targets:* Threshold Wood Bison Area — Upper — Lower Elk — 314 — 119 Wood Bison — 338 — 300 Moose — 250 — 96 Main Park Area Elk — 760 — 550 Plains Bison — 504 — 472 Moose — 400 — 210	Bison targets are being determined through a population viability model. Monitor populations through annual aerial surveys.
Ungulate recruitment/ mortality rates.	Maintain an annual recruitment of 10 – 25%.	Remove surplus ungulates to keep populations within interim target levels.

2. OBJECTIVE

To restore and maintain patterns and structure of native vegetation.

INDICATOR	TARGET	STATUS/ACTIONS
Beaver flooding.	Use air photo mosaic and satellite imagery to monitor wetland patterns and flooding.	Conduct aerial surveys every 3 years to determine the status of beaver populations. Maintain 100 - 600 active beaver colonies as a monitoring benchmark.
Frequency of fires.	Maintain, as a minimum, the national fire return interval of 20% for this ecosystem while developing a fire cycle representative of the southern limits of the lower boreal mixed wood forest.	Prepare a fire application and monitoring program with the Park Science Advisory Committee.

2. OBJECTIVE
(continued)

INDICATOR	TARGET	STATUS/ACTIONS
Structure of aspen, dogwood, and beaked hazel.	Reduce hedge effect created by heavy browsing to enhance aspen, dogwood, and beaked hazel saplings between 1.5 -3.0 metres in height.	Monitor the effect of fire and ungulate population reductions on vegetation in permanent sample plots.
Vegetation patterns.	Interim vegetation pattern targets for the dominant vegetation communities: % of total park Southern Lower Boreal Mixed Wood 10-20% Aspen/balsam Poplar Upland 50-70% Native Grass/shrub 10-15% Wetland/shrub 10-15% Cattail/sedge 20-40% Coniferous Wetlands 10-15%	Use air photo mosaic and satellite to monitor changes in vegetation patterns.

3. OBJECTIVE
To restore and maintain the natural diversity and viability of aquatic communities.

INDICATOR	TARGET	STATUS/ACTIONS
Water bird diversity.	Maintain current diversity of herons, cormorants, pelicans, trumpeter swans, and grebes. Restore 6 - 10 breeding pairs of trumpeter swans.	Monitor pelicans, cormorants, herons, and trumpeter swans annually. Survey red-necked grebes every 3 years. Survey spring migration every year. Conduct a Christmas Bird Count every year. Continue working with Canadian Wildlife Service and the Friends of Elk Island Society to restore Trumpeter Swans.
herpetofaunal diversity.	Maintain current assemblage (5 species). Targets are being developed for frogs and toads.	Complete a Species at Risk submission to research toads as indicators.
Beavers.	Maintain 100-600 active beavers colonies.	Survey beavers every 3 years.

3 OBJECTIVE
(continued)

INDICATOR	TARGET	STATUS/ACTIONS
Diversity of resident forest birds.	Maintain current variety of forest birds.	Monitor forest breeding birds and report on their status.
Ungulates.	See Objective 1 interim targets.	See Objective 1 for actions.
Richardson's ground squirrels..	Maintain 2 - 4 active colonies.	Monitor ground squirrel colonies. Re-introduce ground squirrels to sites were colonies once existed.

4. OBJECTIVE
Maintain or restore the ecological integrity of the park and the bio-diversity of the Beaver Hills ecosystem.

INDICATOR	TARGET	STATUS/ACTIONS
Quality natural landscape, water, and air within the Beaver Hills.	A formal Beaver Hills partnership has been established. The Beaver Hills partners have agreed upon a vision.	Encourage the development of a multi-stakeholder planning committee comprised of municipal and government organisations around the park and within the Beaver Hills.
Fragmentation of wildlife corridors and watersheds.	An action plan for Beaver Hills Partnership is developed. A common global information system is developed.	With the planning committee develop goals and objectives for sustainable community living which addresses air and water quality and land fragmentation within the Beaver Hills ecosystem.
Protected areas and rare and sensitive natural resources.	A grant application has been submitted and approved.	Map the Greater Beaver Hills ecosystem showing rare and sensitive resources, wildlife corridors, and watersheds.

5.0 PROTECTION OF CULTURAL RESOURCES

5.1 A Place of Historical and Cultural Significance

Elk Island National Park has an extensive cultural history dating back to the receding of the glaciers.

First Nations

Abundant wildlife undoubtedly attracted the first people to the area, probably between 8000 – 10,000 BP. Waterfowl, bison, moose, elk, deer and the area's fur bearing animals drew the Sarcee, Blackfoot and Cree peoples. Archaeologists uncovered more than 230 campsites and beach quarries as well as artifacts such as projectile points and scraping tools.

Most archaeological sites indicate short-term use by people repairing stone tools as they waited for game to appear. Several campsites reveal a larger number and variety of tools, signs of more intensive, long-term use and a greater range of domestic tasks. Tools include scrapers for preparing animal hides, pottery and hearths for cooking, small flakes of exotic stones brought to the site and reshaped into small tools, and large local quartzite cobbles made into heavy cutting and chopping tools.

Homesteading

German, English, and Ukrainian settlers arrived in the 1880s. They quickly began clearing land and farming the area around the Beaver Hills. The Beaver Hills were considered too hilly and wet for agriculture and little serious land clearing was attempted. Most, but not all, homesteads on the land that would become Elk Island, were primarily speculative. Evidence of the homesteading era includes the remains of Alberta's first forest ranger station, a trapper's cabin, homestead sites, and historic trails.

Becoming a National Park

Elk Island's history as a national park dates back to 1906, when five local men contacted the federal government regarding a small elk population in the Beaver Hills. The men felt the animals needed protection from hunting and were willing to post a $1,000 bond each if the federal government would set aside land and provide a fence to contain the animals. The government agreed and Canada's first federal sanctuary for large wildlife took shape.

Shortly afterwards, Elk Park, as it was then called, became a refuge for trainloads of plains bison purchased from a rancher in Montana. These bison were destined for the newly created Buffalo National Park (now Canadian Forces Base, Wainwright). The bison spent nearly two years at Elk Park awaiting completion of the fence at their future home. When the bison were finally rounded up for the move, about 50 were missed. The nearly 500 plains bison currently living in Elk Island are descended from these missing animals.

Elk Park became Elk Island Dominion Park in 1913 and Elk Island National Park in 1930. The reason for adding "island" to the park name is lost to history. A possible explanation is that it was named after Island, as Astotin Lake, with its 17 islands, was once known. One of those islands, Elk Island, may have inspired the expanded park name. Today the name is more appropriate than ever, as the park stands apart from its surroundings as an island of protection in a sea of development.

5.2 Cultural Resources

By linking the past and the present, cultural resources help Canadians appreciate the human experience and understand themselves as Canadians. Parks Canada defines cultural resources as "a human work or place which gives evidence of human activity or has spiritual or cultural meaning, and which has been determined to have historic value." This definition applies to a wide range of resources, including sites, structures, engineering works, artifacts, and associated records.

The cultural resources of Elk Island National Park tell the story of people using the landscape for thousands of years. The park's one national historic site commemorates the Preservation of Plains Bison. Four federal heritage buildings include the Superintendent's House, the oldest structure of its kind in the national park system. The remaining heritage buildings are the Sandy Beach Pavilion, the Horse Barn at Tawayik Warden Station, and the Ukrainian Pioneer Home.

Elk Island National Park is committed to identify, protect, and present the cultural resources in its care. This commitment is supported by the *Canada National Parks Act*, *Historic Sites and Monuments Act* (1953), *National Archives Act* (1987), *National Parks Regulations, Parks Canada Guiding Principles and Operational Policies* (1994) and the Federal Heritage Buildings Review Office *Code of Practices*.

Parks Canada's Cultural Resource Management Policy (1994) sets out five principles for the management of cultural resources: value, public benefit, understanding, respect and integrity.

5.2.1 Strategic Goal

Cultural resources associated with Elk Island National Park of Canada are protected and the themes presented as part of the overall park message.

5.2.2 Objectives

To protect significant heritage buildings, archaeological resources, historical objects, and documented records in recognition of their value as irreplaceable cultural resources.

To highlight cultural heritage in collaboration with First Nations in ways that respect their traditions and values.

5.2.3 Key Actions

1. Develop a strategy for long-term maintenance of cultural resources based on the *Parks Canada Cultural Resource Management Policy*.
2. Explore possible expansion of the archaeological inventory into the Beaver Hills area.
3. Investigate ways that First Nations can contribute to and elaborate on Elk Island's heritage.
4. Complete and update existing inventories. Incorporate information from the park's long-term bio-monitoring plots.
5. Monitor and maintain the four federal heritage buildings according to the Federal Heritage Buildings Review Office Code of Practices and *Parks Canada Cultural Resource Management Policy* (1994).
6. Analyze the potential effects of the prescribed burn program on archaeological sites during environmental assessments.
7. Encourage public awareness of, and involvement in, the protection and presentation of the park's cultural resources.
8. Set the presentation of cultural resources in the context of the overall park story.

6.0 HERITAGE PRESENTATION

6.1 Overview

Communication is essential in sustaining national parks and historic sites as protected areas. Interpretation and outreach connect Canadians to their heritage and promote stewardship. The more Canadians know about national parks and national historic sites, the more likely they are to support and participate in their management and protection.

Elk Island National Park currently offers information and outreach programs through exhibits, school programs, the park visitor centre, and trailhead information. There are minimal on-site personal heritage presentation programs.

Over the next five years, the park will prepare a heritage presentation plan based on *Parks Canada's Heritage Presentation Renewal* and *Engaging Canadians* strategies. The plan will identify target audiences, themes and methods and will compliment the overall park communication plan. Programs will offer visitors entertaining opportunities to learn more about national parks and encourage area residents, stakeholders and partners to become more involved in long-term protection efforts.

People who are unable to visit Elk Island will not be left out. The park will strive to reach as many audiences as possible through different media. New technology, coupled with traditional means of communicating, has opened doors to visitors from around the globe. Use of this new technology, partnerships with other stakeholders, and a heritage presentation plan are vital for communicating the importance of ecological integrity and building support.

6.2 Messages for Elk Island National Park

Messages will focus on the national significance of the park and the characteristics that make Elk Island special. The Heritage Presentation Plan will refine specific park messages and target audiences.

A SYSTEM OF PROTECTED AREAS

People will understand that Elk Island National Park of Canada is a national park in a Canada-wide "family" of national parks, national historic sites, marine conservation areas, and heritage rivers administered by Parks Canada Agency. They will know and appreciate that Elk Island represents the Southern Boreal Plains and Plateaux Natural Region, an ecosystem once so vast it spread across the Canadian prairies and today is an endangered ecosystem. This region is a mosaic of knob and kettle topography rising thirty to sixty metres above the surrounding plains of Alberta. The ecosystem has representative features of the lower boreal mixed wood forest that is dominated by aspen.

ECOLOGICAL INTEGRITY

People will understand the role of the park as a protected area within the Beaver Hills ecosystem, the threats and challenges to maintaining ecological integrity of the park, and what is being done to address these. They will understand that the environment they see today has been and will continue to be influenced by human presence. They will understand that Parks Canada is the lead steward in the protection of the park, but success can only be achieved through cooperation and shared stewardship with visitors, residents, landowners, special interest groups, and other government and non-government agencies.

A SENSE OF PLACE

People will appreciate the special character and unique features of the park's environments, the processes that created and continue to shape the landscape, and the influence of the landscape and its climate on flora and fauna, human and fire history, and present-day activities. Canadians will appreciate the Southern Boreal Plains and Plateaux Natural Region and its natural and cultural characteristics.

CULTURAL AND NATURAL HERITAGE

People will experience, appreciate, and understand the cultural and natural heritage of Elk Island National Park of Canada. They will understand the history of the park, the animals and the people, and their influence on the landscape. People will appreciate that Parks Canada protects the natural and cultural heritage for the appreciation, enjoyment, and understanding of future generations.

6.2.1 Strategic Goal

Canadians and international visitors appreciate the natural and cultural history of the park and the role it plays in Canada's national parks system.

Visitors make choices that keep their impact on the ecological integrity of the park and surrounding area to a minimum.

6.2.2 Objectives

To make visitors aware they are in a national park.

To help visitors understand and appreciate the significance of the family of national parks, national historic sites, and national marine conservation areas.

To promote shared stewardship.

To foster realistic expectations by helping visitors understand what a national park can offer and the type of uses that are appropriate.

6.2.3 Key Actions

1. Prepare a Heritage Presentation Plan for the park based on *Engaging Canadians, Parks Canada Strategy for External Communications*.
2. Offer weekly on-site heritage presentation programs during the peak season.
3. Work with Alberta Learning, educational institutions, and other Alberta national and provincial parks to revise the school curriculum relating to national park management (e.g., prescribed burns, landscape management, and environmental stewardship).
4. Revise information related to the on-site school group programs to reflect updated school curricula.
5. Encourage educational institutions to use the park's natural setting as a place for learning.
6. Incorporate research findings into on-site heritage presentation and educational programs.
7. Encourage visitors and local residents to participate in volunteer educational programs such as those offered by the Friends of Elk Island Society.
8. Create outreach educational opportunities in surrounding communities to present Parks Canada messages that link the park to the regional ecosystem and the national system of protected areas.
9. Coordinate communications with other national parks and regional visitor information networks.
10. Evaluate the success of heritage presentation programs at regular intervals. See Indicators 6.3.
11. Offer training that teaches staff ways to share their understanding of the park's natural and cultural heritage with visitors.
12. Provide information that is accurate, based on sound scientific knowledge and research, and includes national park messages.

Table 2. Social Use Indicators

1. OBJECTIVE

Increase awareness, understanding, and appreciation for Parks Canada's mandate and park management strategies.

INDICATOR	TARGET	STATUS/ACTIONS
Level of understanding of key messages.	75% of visitors understand key messages.	Survey visitors on a periodic basis.
Level of satisfaction with on-site and outreach programming.	85% of visitors are satisfied and 50% are very satisfied with on-site and outreach programs.	Survey visitors on a periodic basis.

7.0 WELCOMING VISITORS TO ELK ISLAND NATIONAL PARK

7.1 Overview

A tranquil retreat from hectic daily life, Elk Island National Park is a renowned destination for all seasons—a place where people can enjoy nature, learn about the area's history and culture, and participate in a range of activities.

Core activities that are supported by the park's visitor services and facilities for rewarding and enjoyable experiences and that are appropriate in a national park setting include:

- hiking/walking;
- summer camping (primitive, semi-serviced and group camping);
- golfing;
- day canoeing, kayaking, and sailing;
- heritage appreciation activities (wildlife viewing, bird watching, photography, and sightseeing/experiencing heritage resources);
- orienteering;
- picnicking;
- Astotin Lake Recreational Area playground activity;
- pleasure driving;
- snowshoeing;
- cross-country skiing.

For Parks Canada, the safety of visitors who enjoy the park's facilities and services is of paramount concern. Public safety is a shared responsibility. Visitors must take precautions that reflect the risk involved in their chosen activity. This involves knowledge of natural hazards, proper equipment and provisions, adequate skill and fitness, and the ability to cope with emergencies. Park management will concentrate on safety information, facility design, and staff training.

Elk Island management does not recommend bicycling on trails due to potential human-animal conflicts. Bicycles are quiet and move very quickly, at times startling animals. Bison may be come aggressive and charge bicyclists out of fright. Many cyclists enjoy road touring on the Elk Island Parkway, however, during animal rutting times, cyclists can expect to encounter large groups of bison on the parkway.

The management at Elk Island National Park also discourages visitors from swimming in Astotin Lake due to swimmer's itch.

7.2 Human Use and National Parks

National parks have long been a cornerstone of Canada's tourism industry. This role raises a number of questions.

How to manage growth?

How to ensure growth does not disrupt wildlife during the sensitive mating and birthing periods?

How to keep human/wildlife conflicts to a minimum?

How to respond to changing needs and expectations?

How to improve information services and aging infrastructure such as the parkway and interpretive displays?

To answer these questions, park staff will continue to work with the local and regional tourism industry, keeping up-to-date on trends and offering authentic experiences based on the park's key ecological and cultural values.

7.3 Human Use in Elk Island National Park

The growth of Edmonton and the influence of tourism are two of the challenges facing Elk Island National Park as it strives to welcome visitors and at the same time protect ecological integrity. Meeting this challenge requires the cooperation of many people and organizations.

Most visitors to Elk Island stop in the Astotin Lake area, drive along the parkway, and hike the park's trails. Use fluctuates by season, with the peak period between May and September. A visitor survey completed in 1999 offers the following insights about park visitors.

- the average party size is 2.9 people.
- 76% of visitors are 17 or older.
- 73% of visitors are on a day trip.
- overnight visitors tend to be on long trips.
- 64% of visitors use park trails.
- international visitors are most likely to stop at the visitor information center.
- Canadians who live outside Alberta are most likely to camp.

7.4 Human Use Management

Principles of Human Use Management

Human use management is the direction and guidance of visitors and their use of the parks and site - their numbers, their behaviour, their activities - and the infrastructure they require. The objective of human use management is to provide opportunities for use and enjoyment of the parks that are appropriate and consistent with the needs of visitors and the long-term maintenance of ecological and commemorative integrity.

Effective human use management is required for Elk Island National Park to continue to offer visitors the opportunity to enjoy a quality experience and at the same time fulfill its mandate. Because of the park's small size and unique situation, unrestricted human use or facility expansion could seriously disturb habitat, increase the potential for wildlife-human conflicts, and strain the ecosystem.

The park has taken a number of steps to reduce the impact of humans on the environment:

- removal of the old bath house, the North Campsite, two landfills, White Spruce Trail, and four kilometres of Sand Hills Road;
- rehabilitation of several of the above sites;
- realignment of approximately 40 km of the boundary fence and the removal of unnecessary internal sections.

7.5 Services and Facilities for Visitors

Elk Island National Park will continue to offer a range of services and opportunities suited to a variety of visitors. Every effort will be made to reduce the potential for conflicting use.

7.5.1 Strategic Goals

Canadians and international visitors enjoy high quality, authentic learning opportunities that are based on national park values and that foster a sense of Canadian identity.

A well-informed tourism industry promotes park messages and activities that support the goal of restoring or maintaining ecological integrity.

Appropriate services and facilities allow visitors with varying interests to enjoy the natural and cultural heritage of the park.

7.5.2 Objectives

To provide safe, well-maintained, and accessible facilities that have a minimal impact on the environment.

To integrate ecological integrity and visitor experience goals.

To promote sustainable tourism through participation in heritage tourism initiatives.

To involve the public in decisions about appropriate use.

To work with other organizations to minimize the impact of activities outside the park on the ecological integrity of the Beaver Hills ecosystem.

7.6 Existing Services and Facilities

The growth of Edmonton and the influence of tourism are two of the challenges facing Elk Island National Park as it strives to welcome visitors and at the same time protect ecological integrity. Meeting this challenge requires the cooperation of many people and organizations.

Existing park infrastructure is concentrated in four main areas: the Visitor Centre, Astotin Lake, campgrounds, and trails.

Visitor Information Centre

The 1996 *Elk Island National Park Management Plan* identified the need to explore, with partners, the potential for a visitor centre along Highway 16. This option has proven unworkable and the park will now focus on providing information for visitors within its boundaries.

The existing visitor centre at the south gate is underused. The suggestion to relocate the centre in the Astotin Lake area was well received by participants during public consultation. A preliminary assessment recommended the Snack Bar be made into a Visitor Information Centre.

Astotin Lake

Astotin Lake has always been the focal point for visitor activities. A 1997 investment strategy for the area, prepared in partnership with key stakeholders, contained a variety of long-term recommendations, including the creation of a central location for non-personal media, souvenirs, and snacks.

Accommodation

There is no roofed accommodation in the park. Sandy Beach Campground, near Astotin Lake, has 78 semi-serviced sites; washrooms and showers are located nearby. Groups can reserve the Oster Lake Group Tenting Area.

Trails

Elk Island has an extensive network of trails, ranging in length from 150 m to 18.6 km. Trails are used year-round for walking, hiking, cross-country skiing, and snowshoeing. Several trailheads have exhibits on the park's natural and human history.

Elk Island Golf Course

The Elk Island Golf Course, built in the 1930s, continues to attract people from around the region. A concessionaire has operated the nine-hole course for many years. In keeping with the *Parks Canada Action Plan on the Ecological Integrity of Canada's National Parks* (2000), the golf course will remain in the park. The course will not expand and careful management will mitigate its impact on the ecosystem.

7.6.1 Key Actions

1. Relocate the Visitor Centre to an existing structure in the Astotin Lake area. Close the current centre and rehabilitate the area as funds become available.
2. Maintain the existing capacity of Sandy Beach and Oster Lake campgrounds.
3. Convene a committee to review the current demand for trails and review recommended changes to the trail system.
4. Maintain the Elk Island Parkway as a scenic road.
5. Maintain the golf course's current area and number of holes.
6. Consider modifications to the golf course that enhance ecological integrity.
7. Use environmentally friendly products and techniques in the operation and maintenance of the golf course.
8. Ensure equitable access to public services and facilities.
9. Update the Public Safety Plan on a regular basis.
10. Monitor visitor services and satisfaction through periodic surveys.
11. Carry out customized visitor surveys at three to five year intervals.
12. Identify indicators to monitor visitor expectations and the quality of park experiences.
13. Identify factors that contribute to and detract from the experience of visitors.

7.7 Additions to Activities, Services and Facilities

Park managers will rely on the *Canada National Parks Act*, *Parks Canada Guiding Principles and Operational Policies* (1994), and the park's management plan for direction when asked to approve new activities or consider significant changes to existing activities. The review process must also be flexible enough to accommodate changing public values and perspectives while meeting legislative, regulatory and policy requirements.

7.7.1 Key Actions

1. Use the Appropriate Use Criteria (Table 1) and the park's zoning to evaluate proposed new activities and uses or increases in levels of use for existing activities.
2. Where services, facilities, or activities are not appropriate in the park, encourage other organizations to meet this demand outside park boundaries.
3. Involve the public in decisions about new types and levels of use.

Table 3 - Appropriate Use Criteria

The following criteria will be used to evaluate the merits of a new use, a change in an existing use, or a significant change in the level or intensity of use. The criteria are all relevant but are not meant to be exhaustive or absolute. They are intended to guide the evaluation process. In applying the criteria, the primary consideration is how the proposed change contributes to or detracts from the spirit and intent of the management plan, the *National Parks Act*, and Parks Canada's policy. The criteria are taken from the Banff-Bow Valley Study Round Table's Summary Report.

Impact on Environment

- Seeks to assess the extent to which the proposed change impacts the ecological integrity of the region. The assessment will include the effect of participation in the activity as well as the facilities and services required to support the activity.

Effects on Culture and Heritage

- Seeks to assess the qualitative dimension and preservation of a use that contributes to the region's heritage and cultural integrity. The assessment will reflect an understanding, appreciation of, and respect for the region's culture and heritage, and evolving cultural identity including Aboriginal people.

Quality of Experience

- Investigates the extent to which the participant's and other's quality of experience is enhanced or diminished as a result of the proposed change. Its application recognizes that different visitors seek a broad range of different experiences, and that they value different resources, facilities, and services in different ways.

Economic Effects

- Attempts to understand the economic effects of the proposed change. Issues that would be considered include: cost for visitors to the park, cost and revenues to Parks Canada, and effect on local, regional, and national economies and market conditions.

Public Safety

- Is used to determine the extent to which the proposed change imposes risks or dangers to participants or others.

Equity and Access

- Seeks to ensure that all citizens have a fair, reasonable, and equitable opportunity to participate in, and benefit from, the range of appropriate activities and experiences available in Elk Island National Park of Canada. It will consider such factors as economic status, physical capabilities, and place of residence of the visitor.

Social Effects/Quality of Life

- Examines the social implications of the proposed change. Questions applied here would speak to: level of change to the region's existing social patterns and needs; effects on the social service structure; effects on social indicators (e.g., income distribution, housing costs, levels of crime, etc).

Education and Awareness

- Focuses on the extent to which the proposed change contributes to better understanding and appreciation of natural and cultural heritage, Elk Island National Park of Canada, its role within the Canadian national park system and in the larger ecosystem.

Level of Use: Frequency, Timing, and Quantity

- Would involve questions such as: How often does a proposed activity occur? When does it occur (e.g., season)? How many individuals are involved? What is the level of support required?

Physical Setting Related

- Has two components. The first focuses on whether the proposed change is well-suited to the physical setting of Elk Island National Park of Canada. The second considers to what extent the proposed change is dependent upon a national park setting.

Heritage Tourism

- Focuses on the extent to which the proposed change contributes to the park's Heritage Tourism goals.

Environmental Stewardship

- Focuses on the extent to which the proposed change contributes to the park's Environmental Stewardship goals.

7.8 Heritage Tourism

Heritage Tourism has enjoyed success in many parts of the world as a way to address the challenge of welcoming visitors while at the same time protecting the environment they come to enjoy. The World Tourism Organization defines heritage tourism as "*an immersion in the natural history, human heritage, arts, philosophy and institutions of a region or country*." National parks have expanded this definition to include environmental stewardship.

What does this mean for Elk Island? Ultimately it means the park is a place where people find a range of opportunities to enjoy, understand, appreciate, and preserve the park's natural, cultural, and scenic features.

What does this mean for the tourism sector? A tourism industry that respects the integrity of the natural environment and its importance to long-term economic viability will maintain a competitive advantage in a marketplace that increasingly demands quality and authenticity.

A small number of tour operators bring visitors to Elk Island. The park's Heritage Tourism Strategy will focus on cooperation with the local and regional tourism industry. Working with agencies such as Travel Alberta, Greater Edmonton Capital Regional Tourism Partnership, Kalyna Country, and tour operators, the park encourages the industry to distribute appropriate information and foster realistic expectations. The park offers something that is becoming rare and valuable – nature. By working together, the park and the tourism industry can offer rewarding opportunities and make a significant contribution to the enduring ecological integrity of the park.

7.8.1 Key Actions

1. Develop and market opportunities that enhance understanding and appreciation of Elk Island's natural and cultural values while respecting ecological and social carrying capacities. This involves the following:
   - ensure that marketing and awareness programs reflect that the park is part of a national system and is available to all Canadians;
   - ensure marketing efforts are properly targeted and information needs of the target markets are met;
   - promote heritage tourism to the people working within the tourism industry.
2. Work with the tourism industry to:
   - provide regulatory, safety, and management information on a timely basis;
   - develop marketing and heritage tourism products;
   - participate in joint tourism, marketing, and trade show initiatives;
   - improve the presentation and promotion of appropriate activities in the park;
   - improve employee orientation and training as it relates to heritage understanding and the sharing of that understanding with visitors.
3. Work with the tourism industry to develop and improve learning opportunities and the communication of park messages. There will be special emphasis on ecological integrity and resource management initiatives.

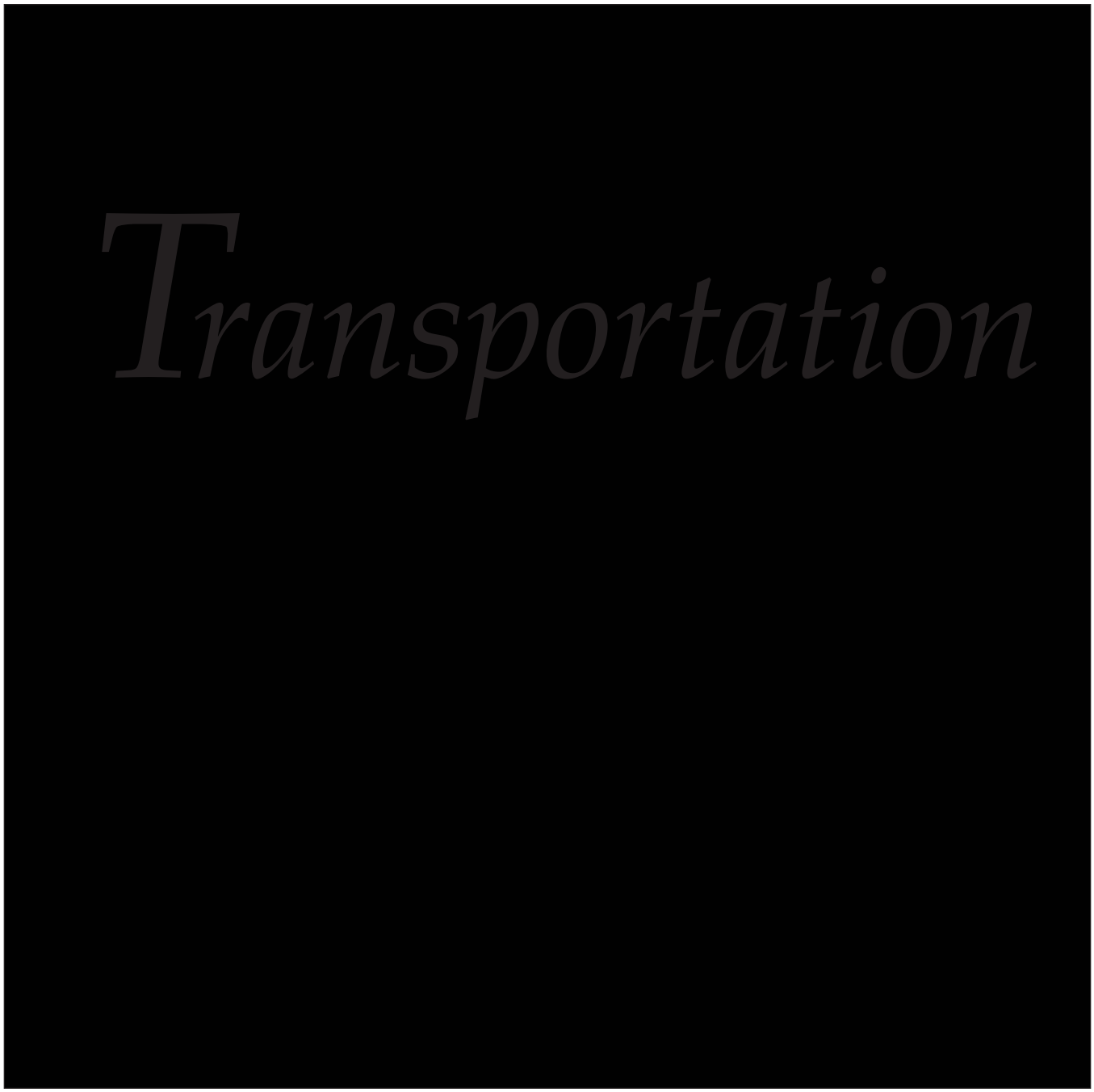
   Within a local and regional context, encourage Aboriginal tourism programs where they enhance understanding and appreciation of Elk Island's natural and cultural values.

Table 4. Human Use Indicators

1. OBJECTIVE

To provide opportunities for quality visitor experiences that support ecological and commemorative integrity objectives.

INDICATOR	TARGET	STATUS/ACTIONS
Levels and patterns of use: • number of visitors • number of user nights • number of user days • visitor origin • activities • temporal and spatial use patterns	To be developed.	Conduct Visitor Information Program surveys every five years.
Appropriateness of Activities: • based on appropriate use criteria	85% of activities support the park's visitor experience objectives.	Conduct Visitor Information Program surveys every five years.
Level of satisfaction with recreational experience.	85% of visitors are satisfied including 50% very satisfied with their recreational experience.	Conduct Visitor Information Program surveys every five years.
Level of satisfaction with quality of services and facilities.	85% of visitors are satisfied including 50% very satisfied with their overall park visit.	Conduct Visitor Information Program surveys every five years.



8.0 TRANSPORTATION

8.1 Overview

In national parks, roads are more than a means of moving people to their destinations. They are a key part of managing human use, providing travelers with opportunities to sightsee and explore the environment. Almost all visitors see and experience Elk Island from the parkway.

The 21-km parkway extends from Highway 16 in the south to the park's north gate. Surveys show visitors are generally satisfied with the condition of the road. The design of the road restricts water flow between wetlands, raising concerns about ecological integrity.

Several access roads and trailhead parking lots are located along the parkway. Administration Road winds around the south and west shores of Astotin Lake to the Warden Building and the Administration Compound. Tawayik Road takes visitors to a parking lot on Tawayik Lake. Several small roads at Astotin Lake lead to the golf course, campground, day use area, boat launch, and campgrounds.

8.1.1 Strategic Goal

Park roads enable visitors to understand and appreciate the park, while supporting the restoration and maintenance of ecological integrity.

8.1.2 Objectives

To keep the environmental impact of roads to a minimum.

To balance ecological integrity and visitor experience goals.

8.1.3 Key Actions

1. Maintain the Elk Island Parkway and other roads, as feasible.
2. Address concerns related to design faults.
3. Allow the natural rehabilitation of abandoned roads.

9.0 PARTNERSHIPS AND PUBLIC INVOLVEMENT

9.1 Overview

Elk Island National Park belongs to the people of Canada and all citizens have the right to participate in the management of the park. The public is most concerned about ecological integrity, access, and effective public involvement. This section highlights key strategies to ensure decisions concerning these areas are made in a consistent, fair, open, and responsive environment.

9.2 Public Involvement

Parks Canada is committed to ongoing public involvement. The type of involvement varies depending on the nature of the issue. Various groups and individuals will be asked for input on implementing this management plan's direction. Participation may take the form of advisory groups such as the Science Advisory Committee and the Friends of Elk Island Society, public open houses, working groups, meetings with neighbouring jurisdictions, and commenting via the Internet. An annual public review of the implementation of the management plan is conducted.

9.2.1 Strategic Goal

Key policy and planning decisions are timely, fair, and consistent, and are reached in an open and participatory manner

9.2.2 Objective

To ensure Canadians have access to planning processes and decisions about national parks.

9.2.3 Key Actions

1. Hold an annual public review to discuss progress in implementing the park management plan and how it relates to the State of the Parks Report.
2. Ensure local stakeholders are involved as early as possible in decisions or planning initiatives requiring public involvement.

9.3 Regional Coordination

The sustainability of the Beaver Hills ecosystem depends on cooperative solutions and common goals. Research, restoration, information, interpretation, tourism and stewardship initiatives are more successful when they are based on a common understanding of the regional ecosystem and the role of protected areas.

Some cooperative initiatives are local, while others involve the entire ecosystem. Coordination is key. For many years the park and adjacent jurisdictions have worked together on common concerns. Recent regional programs include the following initiatives:

1. Beaver Hills Initiative

Many federal, provincial, municipal, and non-government conservation initiatives occur in the Beaver Hills ecosystem, all working independently but with similar objectives. This project, still in its infancy, proposes to bring together a multi-disciplinary group, including municipalities, private landowners, and local industry. By crafting a common vision for the Greater Beaver Hills area, the group hopes to maintain the last remaining natural habitat corridor in east-central Alberta, to protect species in the region that are at risk or vulnerable, and maintain the viability of several protected areas.

2. Edmonton Capital Region Tourism Partnership

Through intensive community collaboration, Economic Development Edmonton and its regional partners implemented a strategy to enhance the capital region's image. The partnership hopes to attract business, employees, investment, and visitors to the area. The park participates in the partnership, particularly in the areas of tourism promotion and regional packaging.

3. Alberta Parkland Region

At least once a year, park staff and provincial Assistant Deputy Ministers from the Parkland Region and their representatives meet to share information. This allows federal and provincial representatives to coordinate planning and ecosystem initiatives on a broader scale.

9.3.1 Strategic Goal

The ecological integrity of the park and the social and economic needs of the surrounding communities benefit from an integrated approach to managing land use, human activities, and ecological initiatives effectively

9.3.2 Objectives

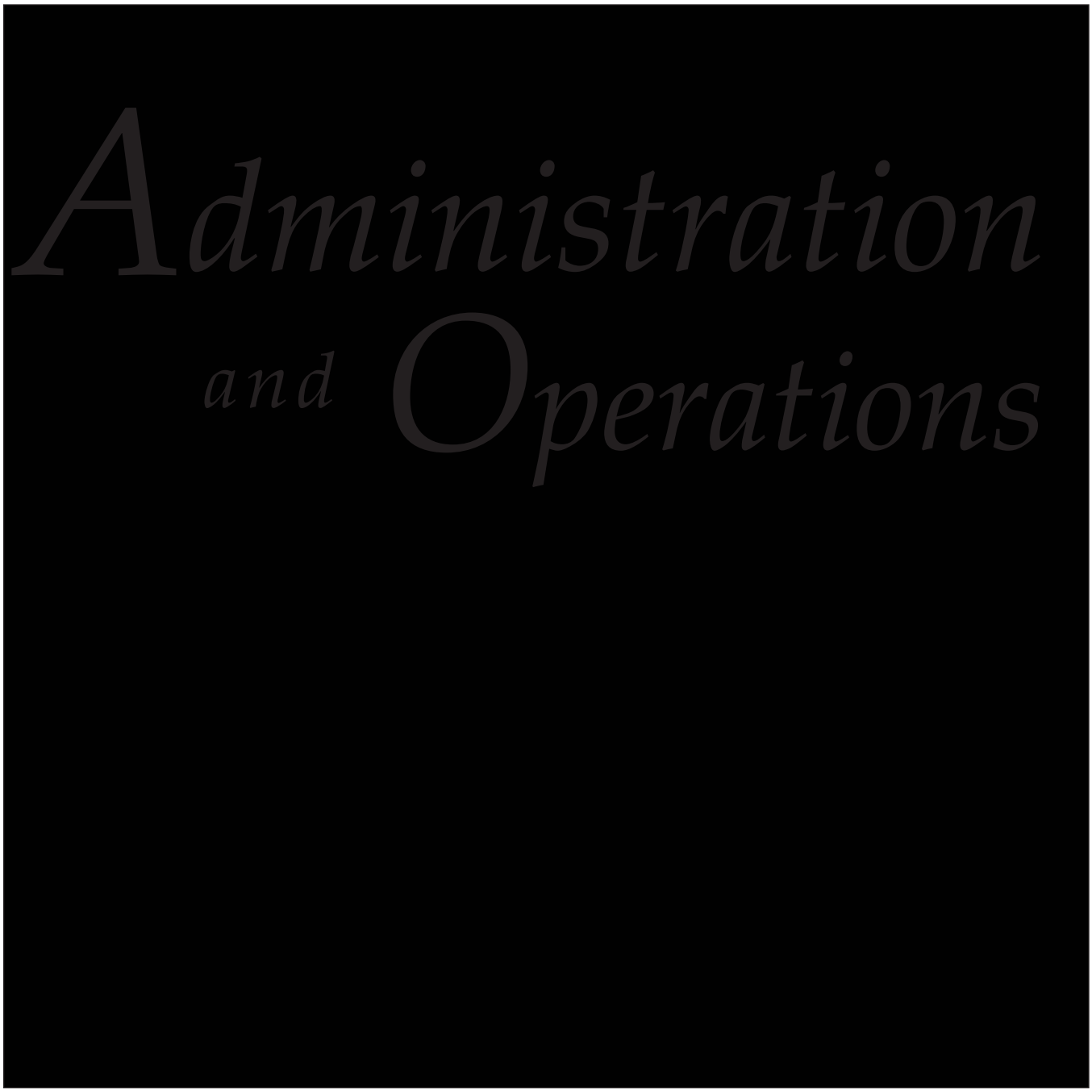
To share expertise with communities, government, and non-government organizations as a means of increasing understanding of park goals.

To enhance the quality of life for people and wildlife in the Beaver Hills ecosystem through coordinated regional development and use.

To create an integrated network of protected areas.

9.3.3 Key Actions

1. Actively participate on key ecosystem coordinating committees to:
   - pursue common goals;
   - consider short-term concerns as well as long-term strategic issues such as ecological integrity and tourism;
   - support groups that can help with an integrated approach to issues of mutual concern.
2. Support and pursue partnerships through the Beaver Hills Initiative.
3. Participate in environmental assessments or provincial/regional environmental reviews of projects outside the park that are likely to affect the park's environment.
4. Encourage environmental management and stewardship practices in the region.



10.0 ADMINISTRATION AND OPERATIONS

10.1 Overview

While Elk Island National Park is responsible for providing leadership in environmental stewardship, effective action requires broadly based support from local residents, private landowners, business, industry, and park visitors.

The Government of Canada is committed to the concept of environmental stewardship. This ensures every government department or agency meets or exceeds environmental laws and regulations, follows the best environmental practices available, and develops and implements a sound environmental management system. Many of the government's commitments to the Greening of Government Operations have been formalized through amendments to the *Auditor General's Act* and by the appointment of the Commissioner of the Environment and Sustainable Development. As a result, Parks Canada must now report to Parliament on its progress in fulfilling its environmental responsibilities.

An environmental management system (EMS) helps organizations and businesses apply environmental stewardship considerations to every decision. It ensures that the greatest environmental risks receive the highest priority.

10.1.1 Strategic Goals

Elk Island National Park of Canada demonstrates sound environmental practices in all its activities, services, and products.

Visitors and staff contribute to the principles of environmental stewardship and sustainability.

10.1.2 Objectives

To improve environmental performance through the implementation of an Environmental Management System.

To include environmental stewardship as an integral part of all park operations, including those of leaseholders.

To encourage park visitors to share responsibility for environmental stewardship.

10.1.3 Key Actions

1. Reduce or eliminate all contaminated sites in the park.
2. Apply safe and environmentally responsible management practices to the acquisition, reporting, monitoring, handling, storage, safe use, transportation, and disposal of hazardous waste.
3. Promote alternative fuels and reduced gasoline consumption.
4. Incorporate energy efficient, cost-effective technologies when upgrading facilities and equipment.
5. Reduce solid waste through reduction, reuse, and recycling programs.
6. Purchase products and services that meet environmental specifications; show leadership in the use of these "environmentally friendly" products (e.g., through information and articles in the Park Visitor Guide).
7. Ensure the use of surface and ground water does not impair aquatic and riparian systems.
8. Reduce water consumption by adopting water saving technologies.
9. Ensure potable water meets or exceeds provincial and national public health standards.
10. Monitor the operation of wildlife management facilities to ensure they have a minimal impact on the ecosystem.

11.0 PARK ZONING

11.1 Overview

The national parks zoning system is an integrated approach by which land and water areas are classified according to ecosystem and cultural resource protection requirements, and their capability and suitability to provide opportunities for visitor experiences. It is one part of an array of management strategies used by Parks Canada to assist in maintaining ecological integrity through providing a framework for the area-specific application of policy directions, such as for resource management, appropriate activities, and research. As such, zoning provides direction for activities of park managers and visitors alike.

– Parks Canada Guiding Principles and Operational Policies (Parks Canada, 1994).

The zoning system has five categories based on a park's natural and cultural features and current and proposed visitor use (Figure 5 – Park Zoning).

11.2 Zone I - Special Preservation

Zone I areas require special preservation because they contain or support unique, threatened or endangered natural or cultural features, or are among the best examples of the feature they represent in a natural region. Preservation is the key consideration. Motorized access is not permitted.

There are no Zone I areas in Elk Island National Park.

11.3 Zone II - Wilderness

These extensive areas preserve the natural region in a wilderness state. Protecting ecosystems where there is minimal human interference is the key consideration. Zone II areas offer opportunities for visitors to experience the parks' ecological characteristics firsthand with few, if any, rudimentary services and facilities.

In much of Zone II, visitors have the opportunity to experience remoteness and solitude. Motorized access is not permitted. Most of the park – a total of 86.7 per cent – is Zone II.

The *Canada National Parks Act* now requires wilderness areas to be declared by regulation, not just through policy. The intent of this legislation is to enhance protection and maintain a high level of ecological integrity. In these declared wilderness areas, the legislation only permits development and activities required for essential services and resource protection. Wilderness designation is one of a range of tools to ensure the preservation of wilderness values and will not change current visitor use of an area.

Elk Island National Park does not have areas large or remote enough to qualify for wilderness designation as outlined in the *Canada National Parks Act*.

11.4 Zone III - Natural Environment

In Zone III areas, visitors discover the parks' natural and cultural heritage through recreational activities that require few rustic services and facilities. Zone III applies to areas where visitor use and facilities exceed the acceptable standards for Zone II. Controlled vehicle access may be permitted.

Zone III areas in Elk Island National Park

- a 25-m buffer along the north and south sides of the Trans-Canada Yellowhead Highway (Highway 16)
- a 25-m buffer along the inside of the entire boundary fence
- Oster Lake Group Camping area and access road
- three animal-handling facilities and their access roads (Mud Lake Elk Handling Facility, Plains Bison Handling Facility, and Flying Shot Wood Bison Handling Facility)

9.8 per cent of Elk Island National Park is zoned as natural environment.

11.5 Zone IV - Outdoor Recreation

Outdoor recreation zones are limited areas capable of accommodating a broad range of opportunities for understanding, appreciating and respecting the parks' heritage value. Appropriate opportunities and related essential services and facilities are provided in ways that have the least possible impact on ecological integrity. Direct access by motor vehicles is permitted.

Zone IV areas in Elk Island National Park

- Elk Island Parkway and associated trailhead parking
- Wood Bison trailhead and access road south of the Yellowhead Trans-Canada Highway (Highway 16)
- administration road
- administration area and staff residences

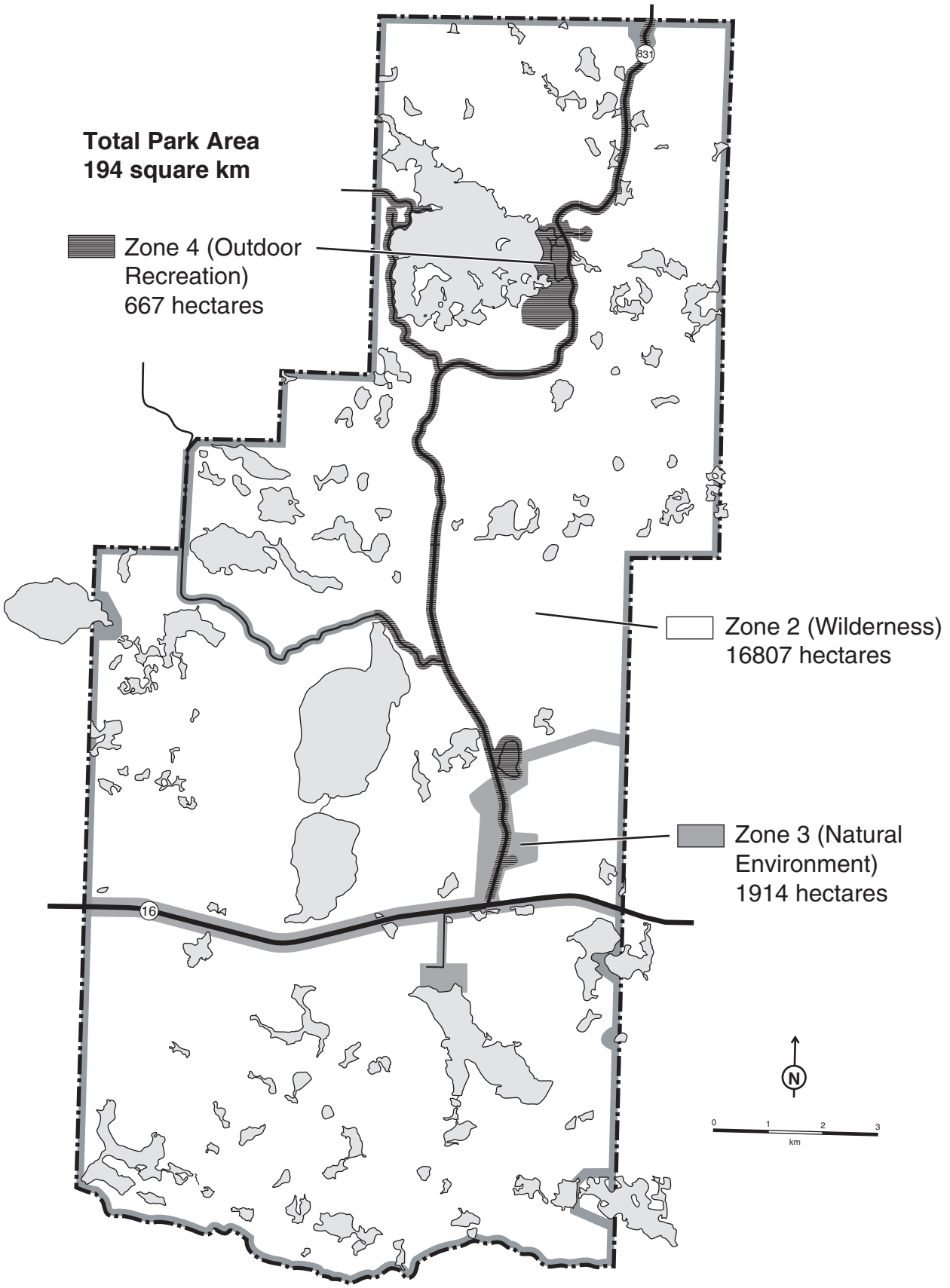


Figure 3. Zoning system

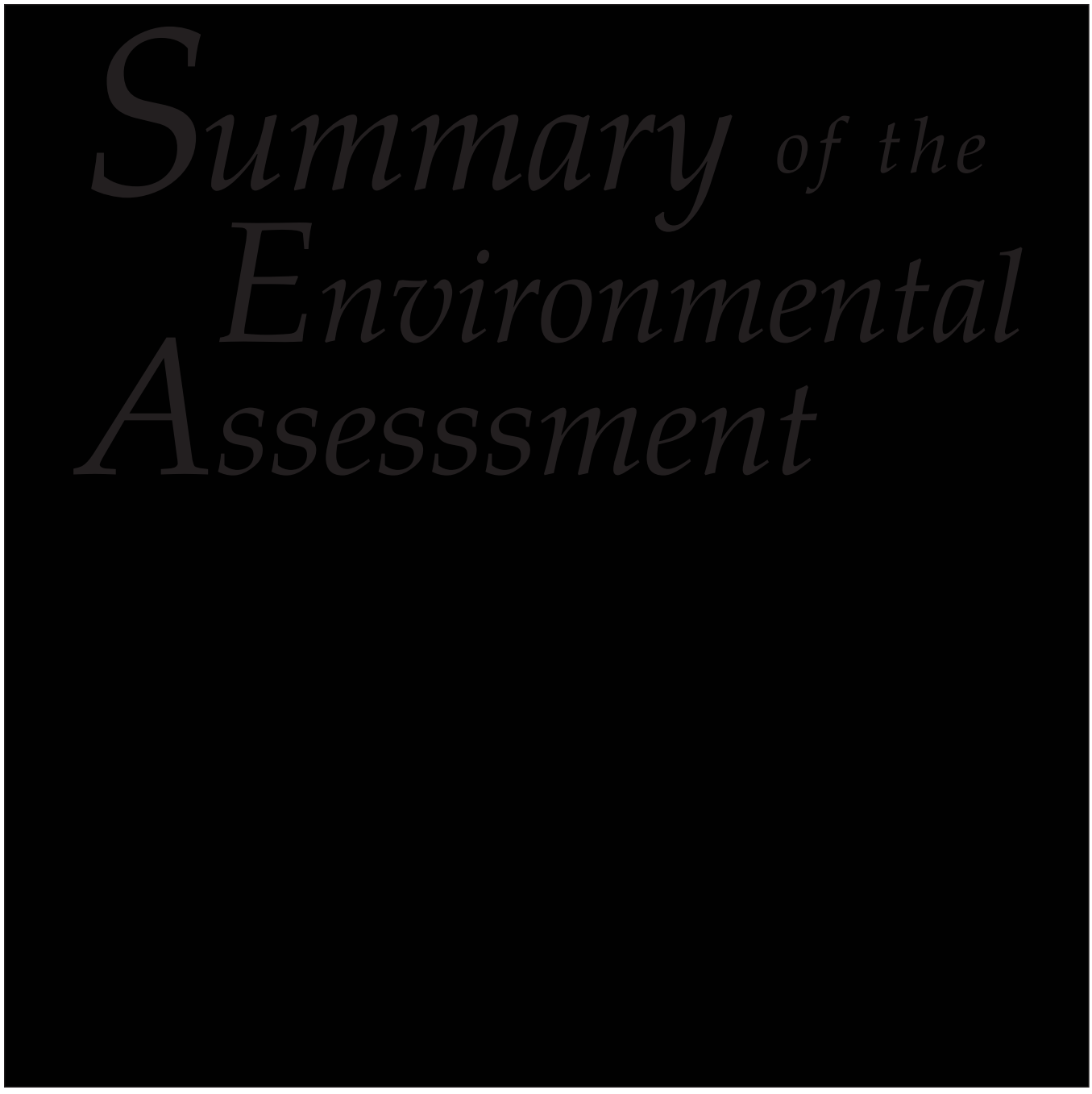
- Astotin Lake area, including the Elk Island Golf Course and Sandy Beach Campground
- visitor Information Centre area

Zone IV areas represent 3.5 % of the total park area.

11.6 Zone V - Parks Services

Park operations and administration, visitor services, and support facilities are concentrated in park service zones. Generally, this zoning applies to townsites such as Jasper or Waskesiu.

There are no Zone V areas in Elk Island National Park.



12.0 SUMMARY OF THE ENVIRONMENTAL ASSESSMENT

This chapter summarizes the highlights of a separate report entitled *Environmental Assessment—Elk Island National Park of Canada Management Plan, 2001*.

12.1 Background

In keeping with the *Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals* (Canadian Environmental Assessment Agency, 1999), an environmental assessment was prepared to

evaluate the effect of policies, programs, and proposed actions in this management plan. This assessment ensures that the plan is understood, that it complies with the *Canada National Parks Act* and Parks Canada's policies, and that it improves ecological and commemorative integrity.

Over the past century, Elk Island and the regional ecosystem have faced stress from settlement, development, transportation, agriculture and industrial activity.

Issues of greatest concern are:

- landscape fragmentation and loss of habitat connectivity as a result of development and human use in the park and surrounding area;
- the effects of non-native species, agriculture, domestic animal disease, and urban expansion;
- the effect on vegetation of fire suppression, a large ungulate population, and human modification of the landscape.

12.2 Regional Perspective

Over the years, the significance of a broader view of the park and its relationship to the surrounding area has emerged. In response to this understanding, the management plan takes a Beaver Hills ecosystem approach, encompassing an area of 800 km^2 including the park and surrounding area. Shared initiatives with organizations such as the Nature Conservancy of Canada, adjacent counties, and other government agencies will promote preservation of wildlife corridors and rare plants and animals in the Beaver Hills ecosystem, and ultimately aid in the long-term ecological sustainability of the park itself.

12.3 Scope of Assessment

The environmental assessment focused on proposals with potential environmental effects, both positive and negative, to achieve the following goals:

- restore and maintain ecological processes;
- inventory, preserve and monitor cultural resources;
- enhance the quality of appropriate visitor experiences;
- maintain and improve transportation corridors;
- implement open adaptive management;
- develop an environmental management system.

The management plan addresses the main ecological concerns facing the park and actions are intended either to reduce identified stresses or to enhance visitor experiences. Some actions will have immediate beneficial effect. Others, such as reclamation of the ecological integrity of a meadow, will take many years to accomplish. Restoration of natural processes such as vegetation succession may take decades to achieve.

The plan proposes performance targets and thresholds where these are known. Others will be established following further study (e.g., reduction of ungulate numbers, noxious weeds). Monitoring will evaluate the effectiveness of proposals and actions. The monitoring program is key to the success of the proposals and will identify where change or redirection is required.

Since the proposals do not contain project-specific information, this environmental assessment does not evaluate individual actions. Rather, it focuses on the cumulative effects of the proposals to determine if the park is moving toward, or away, from improved ecological integrity.

12.4 Public Input

The preparation of the management plan included ample opportunity for public input and expert review. Since the previous plan was approved, there have been numerous public surveys about the future management of national parks. The Banff-Bow Valley Task Force (1994-1996) established a round table that represented 14 sectors with an interest in national parks. Parks Canada's response to the task force

recommendations formed the basis for the 1997 *Banff National Park Management Plan* from which the *Elk Island National Park Management Plan* has taken key policy direction. In the spring of 2001, Parks Canada introduced the *Elk Island National Park Management Plan Concept* for review by the public. This document discussed the management plan proposals and resulting environmental effects. The plan concept was sent to individuals at their request, and was discussed with members of the public at open houses.

Parks Canada has analyzed public comments and incorporated suggestions where appropriate. Following Ministerial approval of the plan, many components of the plan will be subject to environmental assessment and public review as specific projects are brought forward for implementation.

12.5 Conclusion

The *Elk Island National Park Management Plan* is consistent with Parks Canada legislation and policies. Satisfactory peer review and public input has been a part of the plan's making and the proposed courses of action are feasible with existing technology. Further research and project-specific environmental assessments will be conducted before certain actions can begin.

The environmental assessment concludes that the proposals in the management plan will not result in significant adverse environmental effects. Moreover, it is clear that the cumulative effect of the proposals will move towards enhanced ecological integrity. Habitat effectiveness will improve, while habitat fragmentation will decrease. A more balanced lower boreal mixed wood forest dominated by aspen will be represented. The incidence of non-native plant species will decrease. Natural vegetation succession will be enhanced. Improved management of human activities will reduce visitor stress on the park. Development limits will be better defined, with all stakeholders knowing what the future holds for services and facilities in Elk Island National Park.

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GLOSSARY

Adaptive management

"Learning while doing". A series of carefully thought out actions with expected results (hypothesis). Results of the actions are monitored and compared to the predictions. Future actions are adjusted accordingly.

Exotic

A plant or animal species that did not originate from the area but has now established in the ecosystem.

Herbivory

The act of eating vegetation. Herbivores eat vegetation. "Grass eaters or grazers" such as bison consume mainly grasses. "Twig eaters or browsers" such as moose consume twigs from trees and shrubs. Browsers and grazers make up the herbivore guild.

Herpetofauna

A common name for the group of animals that includes frogs, toads, salamanders, snakes, and turtles. Herpetofauna can also be described as reptiles and amphibians.

Hydrology

The occurrence, circulation, and distribution of water in the environment.

Mitigation

Actions taken to minimize environmental impact of development to levels necessary to restore or maintain ecological integrity.

Monitoring

To gather information consistently over time on one or a group of living organisms or non-living elements to determine their status, abundance, distribution and/or interactions with other organisms or the environment.

Precautionary Principle

According to the 1992 Rio Declaration, "In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation." Beyond threats to the environment, this concept is increasingly being applied in cases involving threats to public health and safety. [1]

Riparian

Areas of land immediately adjacent to streams and rivers. Riparian also describes plants and animals associated with these areas.

Social and economic needs

This term reaches beyond financial needs. It refers to the needs of people to enjoy, appreciate, and understand nature, and to participate in the conservation of wilderness areas and the reintroduction of species. As an example, the reintroduction of a species could be the celebration of an event that has not taken place for decades.

Stakeholders

A person or organization with an interest in Elk Island National Park of Canada. Organizations may include both government and non-government organizations, commercial, and for profit or non-profit organizations.

Suite of Indicators

A range of indicators used to assess the current state of ecological integrity.

[1] *A Framework for Science and Technology Advice: Principles and Guidelines for Effective Use of Science and Technology Advice in Government Decision Making.* Government of Canada, 2000.

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