



Presqu'île

Resource Management
Implementation Plan
Park Mainland

Ontario Parks is presently engaged in a project evaluation and consultation process for the mainland of Presqu'ile Provincial Park. As part of the environmental assessment planning process I am pleased to present the draft **Presqu'ile Mainland Resource Management Implementation Plan**.

The draft resource management implementation plan meets project description and evaluation aspects for landform, vegetation, and wildlife management under the *Class Environmental Assessment for Provincial Parks and Conservation Reserves*. This document will apply to the implementation of these projects on the Presqu'ile mainland for the next ten years (2009 – 2018).

You are invited to review and comment on the draft resource management implementation plan. Ontario Parks is collecting this information under the authority of the *Environmental Assessment Act* to assist in making decisions and determining further consultation needs. Comments and opinions that do not constitute personal information as defined by the *Freedom of Information and Protection of Privacy Act* will be shared within the Ministry of Natural Resources (MNR) and may be included in study documentation that is made available for public review. Personal information will remain confidential unless prior consent to disclose is obtained. However, this information may be used by the MNR to seek public input on other resource management surveys and projects. To submit comments, or to obtain further information regarding this Act, please contact:

Corina Brdar
Zone Ecologist, Southeast Zone
Ontario Parks
51 Heakes Lane
Beechgrove Complex
Kingston ON, K7M 9B1
Phone: 613-545-4034
Fax: 613-536-7228

Your participation in this consultation process is encouraged. All comments will be carefully considered during the preparation of the final resource management implementation plan.

Yours truly

original signed by

January 29, 2009

Bruce Bateman
Southeast Zone Manager
Ontario Parks

Date

TABLE OF CONTENTS

1.	INTRODUCTION AND PLANNING CONTEXT.....	1
1.1	DESCRIPTION OF PROJECT STUDY AREA.....	2
1.2	PURPOSE OF RESOURCE MANAGEMENT	4
1.3	ADAPTIVE MANAGEMENT APPROACH	4
2.	GENERAL LANDFORM AND VEGETATION MANAGEMENT	5
2.1	LANDFORM MANAGEMENT	5
2.2	HAZARDOUS TREES AND WINDTHROW	6
2.3	MOWING	7
2.4	LEAF AND VEGETATION DISPOSAL.....	7
2.5	LANDSCAPING	8
2.6	PLANTATIONS.....	8
2.7	RESTORATION.....	8
2.8	PLANT AND SEED COLLECTION	9
2.9	ALIEN AND INVASIVE PLANT SPECIES	9
2.10	USE OF HERBICIDES AND PESTICIDES	11
2.11	FIRE MANAGEMENT	11
3.	GENERAL WILDLIFE MANAGEMENT	13
3.1	SIGNIFICANT SPECIES.....	13
3.2	BIRDS	13
3.3	MAMMALS	14
3.4	OTHER WILDLIFE.....	14
3.4.1	<i>Reptiles</i>	15
3.4.2	<i>Amphibians</i>	15
3.4.3	<i>Fish</i>	15
3.4.4	<i>Insects</i>	15
3.5	HYPER-ABUNDANT, NUISANCE, AND INVASIVE ALIEN SPECIES.....	15
3.5.1	<i>Deer</i>	16
4.	ZONE-SPECIFIC MANAGEMENT	19
4.1	NATURE RESERVE ZONES	19
4.1.1	<i>Zone NR1 – Panne-Marsh (340 ha)</i>	19
4.1.2	<i>Zone NR 2 – Owen Point-Islands (200 ha)</i>	21
4.1.3	<i>Zone NR 3 – North Beach and Foredunes (14.5 ha)</i>	21
4.1.4	<i>Zone NR4 – Foot of Presqu’ile (230 ha)</i>	21
4.1.5	<i>Zone NR 5 – Calf Pasture Point (10 ha)</i>	22
4.2	NATURAL ENVIRONMENT ZONES	23
4.2.1	<i>Zone NE1 – Beach-Foredunes (57 ha)</i>	23
4.2.2	<i>Zone NE2 – Calf-Pasture Cove (4 ha)</i>	23
4.2.3	<i>Zone NE 3 – South Shore (49 ha)</i>	23
4.3	HISTORICAL ZONE	25
4.3.1	<i>Zone H1 – Presqu’ile Point (1.4 ha)</i>	25
4.4	DEVELOPMENT ZONES.....	27
4.4.1	<i>Zone D1 – Campgrounds (50 ha)</i>	27
4.4.2	<i>Zone D2 – Lighthouse Lane Day Use (23 ha)</i>	28
4.4.3	<i>Zone D3 – Park Store (0.6 ha)</i>	29
4.4.4	<i>Zone D4 – Main Roads (17 ha)</i>	29

4.4.5	Zone D5 – Operations Areas (4 ha).....	30
5.	DESCRIPTION OF CONSULTATION.....	31
6.	PLAN IMPLEMENTATION, REVIEW, AND AMENDMENT	31
7.	RESOURCES AND REFERENCES.....	32
	APPENDIX 1A: RECORD OF PROJECT SCREENING AND EVALUATION	34
	APPENDIX 1B: RECORD OF PROJECT SCREENING AND EVALUATION	38
	APPENDIX 1C: RECORD OF PROJECT SCREENING AND EVALUATION	42
	APPENDIX 1D: RECORD OF PROJECT SCREENING AND EVALUATION	46
	APPENDIX 2. ASSESSING TREATMENT OPTIONS FOR HAZARDOUS TREES	49
	APPENDIX 3: LIST OF SIGNIFICANT SPECIES AT PRESQU'ILE	50

1. Introduction and Planning Context

Located on the north shore of Lake Ontario at the western edge of Ecodistrict 6E-15, Presqu'île Provincial Park is recognized for its diversity of habitats, its unique landform, and the migratory and nesting birds that it receives each year. Established in 1922, the park now encompasses a total of 937 ha, including two islands (Figure 1). As a natural environment class park, Presqu'île is managed to protect its significant and representative natural features while providing high quality recreational and educational experiences.

Presqu'île Provincial Park Management Plan (2000) provides policy direction for landform, vegetation, and wildlife management at Presqu'île Provincial Park. The Park Management Plan is available on the Ontario Parks website:

http://www.ontarioparks.com/english/pres_planning.html.

This resource management implementation plan has been developed pursuant to the *Presqu'île Provincial Park Management Plan (OMNR 2000)*. Implementation plans translate broad direction from management plans into specific actions. Under the *Provincial Parks and Conservation Reserves Act* the maintenance and restoration of ecological integrity is one of the guiding principles for park management and planning. This principle is addressed by the guidelines provided throughout this document.

This implementation plan addresses zone-specific vegetation, landform, and wildlife management projects on the mainland at Presqu'île Provincial Park. This ecosystem approach recognizes that the diverse habitats at Presqu'île are naturally dynamic and influenced by factors that are inter-related. An overview of guidelines is provided for management of landforms, vegetation, fire, significant species and communities, and wildlife throughout the park mainland. Following the overview, guidelines are provided for some of the mainland park zones. **Specific guidelines are highlighted in bold throughout the document.**

This document also provides descriptions of several projects for the purposes of the *Class EA for Provincial Parks and Conservation Reserves*. The following projects described within this implementation plan are Category "A" projects under the Class EA and may proceed without further evaluation:

- cut, mow, spray vegetation for maintenance (Sections 2.2, 2.3, 2.10)
- controlling invasive alien vegetation and insects as described in this plan and the park management plan (Sections 2.6, 2.9, 3.5)
- development of a hiking trail in zone NR1, generally following a former trail bed (Section 4.1)
- reconfigure existing road or parking area (Section 4.4)

The following projects described within this plan have been screened as Category "B" projects and are being evaluated as such under the Class EA (Appendix 1A to 1D). These projects are being evaluated as recurring projects. Their implementation may proceed following the consultation described in section 5 and completion of the project evaluation. A notice of completion will be provided to individuals that comment on the Category B project evaluation:

- maintenance and restoration of natural environments (Sections 2.6, 2.7, 3.2)
- managing an animal population, including deer (Section 3.5, Section 3.5.1)

- control nuisance or invasive wildlife species (Section 3.5)
- control erosion or stabilize shoreline or bank (Section 2.1)

This document will apply to the implementation of these projects on the Presqu'île mainland for the next ten years (2009 – 2018).

1.1 Description of Project Study Area

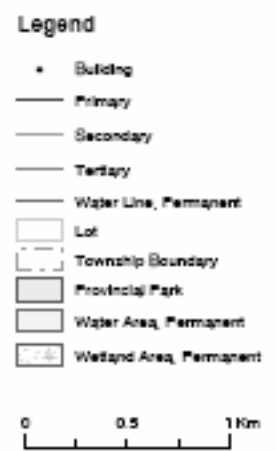
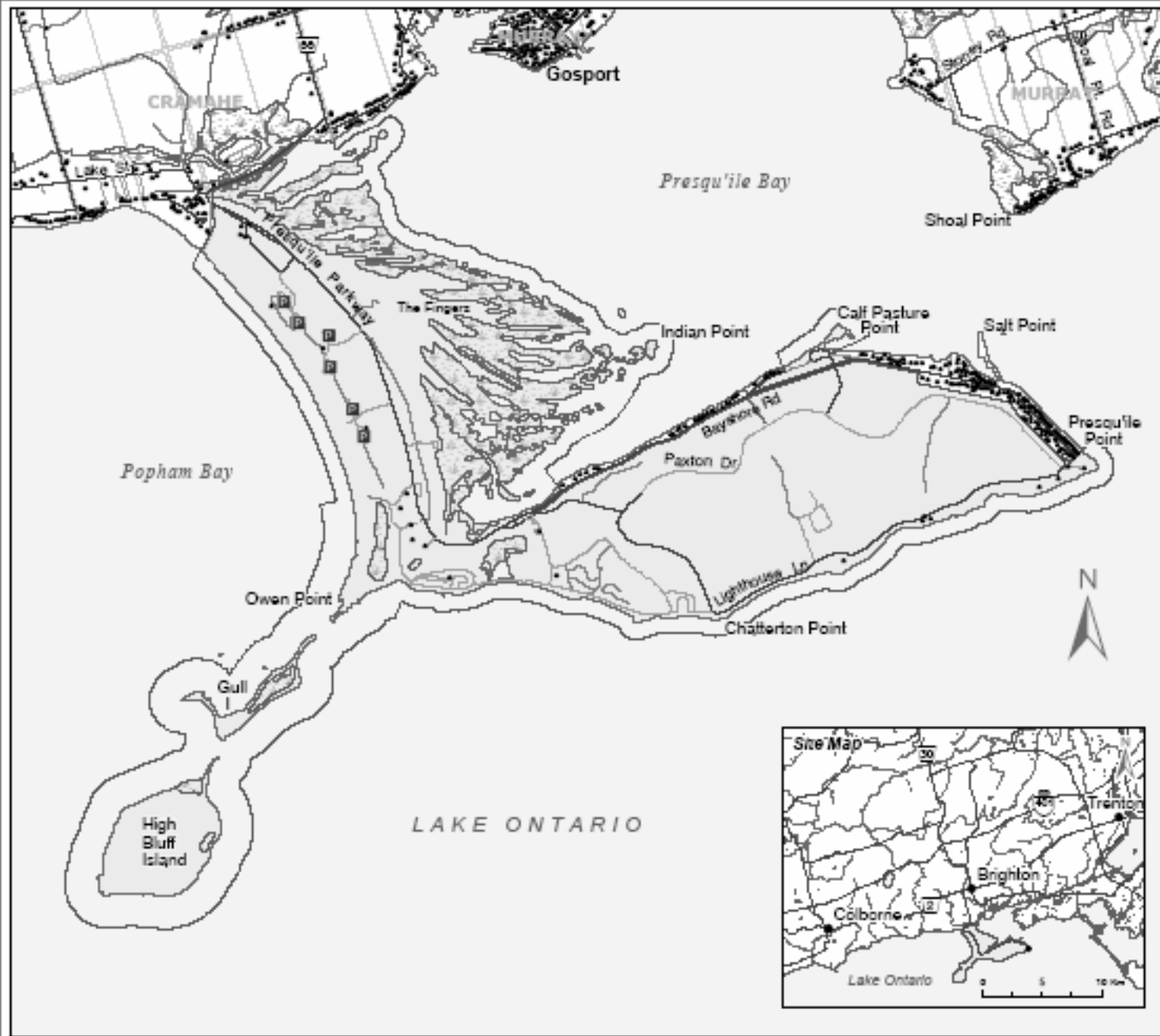
The park is a tombolo – a former limestone island (the foot of Presqu'île) linked to the mainland by a barrier beach system (the dunes, pannes, and fingers). The park's variety of landforms and moisture conditions allow it to support diverse vegetation communities. The park's landform and vegetation communities are described in greater detail in the Presqu'île Background Information/Issues and Alternatives (OMNR 1996), and later in this document.

Through the *Presqu'île Provincial Park Management Plan* (OMNR 2000), the lands and waters of Presqu'île are zoned on the basis of their significance for protection and potential for recreation and development. Four zone types were identified to guide the management and development of the park: nature reserve (NR), natural environment (NE), historical (H), and development (D). Each zone permits certain land uses and is described in further detail in Section 4.0 of this implementation plan.

Given the diversity of ecosystems at Presqu'île and the complexity of resource management challenges, two complementary resource management implementation plans are being prepared – one for the park islands and one for the beach and dune areas on the mainland. The *Presqu'île Islands Resource Management Implementation Plan* will provide project details for wildlife management and vegetation restoration on High Bluff and Gull Islands (zone NR2). The *Presqu'île Beach and Dune Resource Management Implementation Plan* (Ontario Parks 2008) provides project details for recreation and shorebird habitat within the beach and dune areas in park zones NE1, NR2 and NR3. All plans are available on the Presqu'île planning website (http://www.ontarioparks.com/english/pres_planning.html). **The general guidelines provided in this plan will apply on the islands and on the beach and dunes when the specific plans for those areas are silent.**

FIGURE 1

REGIONAL SETTING



Published December 2008
© 2008, Queen's Printer for Ontario

This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Natural Resources (OMNR) shall not be liable in any way for the use of, or reliance upon, this map or any information on this map.

Projection: UTM Zone 18
Datum: North American Datum 1983
Base derived from: NRVI5 (Natural Resource Value Information System)
Produced by: Ontario Parks, Southeast Zone

1.2 Purpose of Resource Management

The purpose of resource management projects at Presqu'île is to ensure the protection and perpetuation of the full diversity of naturally occurring communities in the park, as well as the processes that have led to their development, whenever possible. This will be achieved through various maintenance and active management practices as required and as resources allow. These practices will follow an adaptive management approach when appropriate.

The specific protection, resource management, and recreation objectives for each zone, as described in the park management plan, are provided in Section 4. The desired outcomes of resource management projects are:

- conservation of natural communities, processes and significant species
- restoration or enhancement of natural features and processes that have been, or may be, lost or degraded
- elimination or reduction of the threat of alien¹ species where possible
- creation of opportunities for park visitors to appreciate and learn about the diverse communities and wildlife of the park in ways that do not threaten existing natural values
- protection of the safety of park visitors

1.3 Adaptive Management Approach

Ecosystems are dynamic and complex and cause-effect relationships are rarely simple to understand. Adaptive management is the science-based application of specific management activities to address resource management issues. This form of management treats actions as experiments. The results of the management experiments are then incorporated into further management decisions and activities (Grumbine 1999, Stankey et al. 2005).

Effective adaptive management requires actions to be informed by monitoring outcomes of previous activities. Each proposed management action would have associated predicted outcomes and monitoring indicators. An adaptive management approach will be used on the Presqu'île mainland when possible, particularly for more complex projects, like deer management or plantation restoration.

- **An adaptive management approach will be applied to resource management projects within Presqu'île as appropriate.**

¹ In this plan "alien" means species of plants, animals and micro-organisms introduced by human action outside their natural past or present distribution. These species are referred to as "non-native" in the park management plan.

2. General Landform and Vegetation Management

This resource management implementation plan provides guidelines for implementing resource management on the mainland at Presqu'île. Most of the guidelines in this section apply to the day-to-day operations and maintenance of the park. It is essential that all park staff familiarize themselves with, and follow, these guidelines. These guidelines, which apply to all areas of the park mainland unless otherwise specified, are based on Ontario Parks policy and direction provided in the 2000 Park Management Plan.

Specific Class EA information requirements for the Category B projects details are described here and in Appendix 1.

- **Native vegetation communities will be allowed to develop naturally, except in areas where active restoration is the preferred approach or where management is required for recreational use.**

2.1 Landform Management

The landforms that might require management at Presqu'île are the park shorelines and the dune areas, both of which are subject to the forces of erosion and deposition. The draft *Presqu'île Shoreline Resource Management Strategy* (1988) provides background information and preliminary management guidance for the park. Details on beach and dune management will be provided in the *Presqu'île Beach and Dune Resource Management Implementation Plan*.

In accordance with the overall approach to resource management at Presqu'île, disruption of natural processes of erosion and deposition will be minimized. Whenever possible, management actions will try to maintain and/or mimic natural processes.

In some cases, shoreline stabilization may be required. These cases are described in more detail in the zone-specific guidelines. Ecologically-based methods (e.g. planting native vegetation appropriate to shoreline environments, shoreline nourishment) will be the preferred erosion control techniques, when feasible. Shoreline hardening structures such as breakwalls and groins will not be used unless they are the only means for protecting high value structures or resources that cannot be moved. In cases where a shoreline hardening structure is the only viable solution, all of the following factors will be considered:

- Effectiveness of the erosion control structure at protecting threatened facility
- Habitat value of the potential erosion control structure for wildlife and vegetation at the location in question
- Potential of the erosion control structure to cause negative changes to shoreline dynamics elsewhere in the park
- Aesthetic values of erosion control structure
- Longevity of erosion control structure
- Cost of hardening vs. relocation of structure or resource

- **Disruption to natural processes of erosion and deposition will be minimized**
- **Shoreline hardening structures will only be used when high value resources are threatened by erosion and there is no other viable solution**

2.2 Hazardous Trees and Windthrow

Dead standing wood and downed woody debris play a crucial role in forest ecology, and are important to restoring natural areas at Presqu'île. A treatment options summary is provided in Appendix 2. Project details for tree removal in plantation areas is provided in section 2.6.

Safety of park visitors is the highest priority for hazardous tree treatment decisions. Before dead trees are removed the actual risk they pose will be assessed by the superintendent or designate, and if possible, only broken or rotted limbs or crowns will be removed, leaving as much of the main trunk as possible for wildlife purposes. Trees and brush may be cut or pruned only to:

- enable resource management or facility development specifically authorized in one of the park plans
- ensure public safety, or
- in the Hydro One Networks Inc. easement, subject to the guidelines in Section 8 of the park management plan.

When feasible, windthrow and felled limbs and trunks will be relocated just off the trail or roadway, or used to create brush piles for restoration of dunes or open field habitat. If this is not possible, downed woody material may be chipped in place and used for trail maintenance or salvaged for noncommercial firewood.

Windthrown and felled limbs and trunks will be left in place in natural environment, nature reserve, and historic zones, except those situations that impede passage on roads or trails, or have fallen on mown portions of day-use areas, campsites, or park facilities. In plantation areas felled limbs and trunks may be removed.

In cases of extreme weather events (e.g. wind or ice storms), clean up and salvage operations will follow provincial guidelines.

- **Unless it is unsafe to do so, windthrown and dead standing trees should be left in place as they serve important ecological functions. Refer to Appendix 2 for a decision guide.**
- **When feasible, downed woody material will be left in place.**
- **When woody material must be removed, it will be used to create brush piles for restoration, chipped for trail maintenance, or salvaged for firewood.**

2.3 Mowing

Mowing will be kept to a minimum. Mowing for certain habitat restoration projects, controlling certain alien species, and in order to enhance the safety and comfort of park users will be permitted to continue.

Mowing may be used along park boundaries in order to assist in clearer boundary identification, to maintain rights of way in zone D4 (up to a maximum width of 2 m), and to the extent necessary in other development zones in order to support recreational uses (e.g. cyclists, pedestrian use, etc.).

Areas around road intersections and beach parking lots will be rough cut infrequently throughout the operating season to provide adequate visibility.

In areas where mowing is eliminated, manual or herbicide control efforts to prevent invasion by alien species may be necessary.

In all mowing and cutting operations, care will be taken to avoid girdling trees and small shrubs. Damaged trees and shrubs will be protected from further damage by installing tree guards.

- **Mowing will be done only when required for habitat restoration, park user safety and comfort, and boundary delineation.**
- **Mowing may be suspended in areas where significant herbaceous species (Appendix 3) grow and will be resumed once that species completes its life cycle.**
- **Care will be taken to avoid damaging trees and shrubs.**

2.4 Leaf and Vegetation Disposal

Leaves and vegetation debris should be left in place unless they need to be removed for maintenance purposes. If disposal is not done properly it has the potential to suppress indigenous vegetation and create conditions favourable to exotic species. Additionally, improper dumping may create fire hazards. Therefore, unless it is being used for restoration purposes, leaves and vegetation will be disposed of in an approved area inside or outside of the park.

Project details on beach raking and disposal guidelines are provided in the *Presqu'île Beach and Dune Resource Management Implementation Plan*.

- **Vegetation debris will be left in place whenever possible.**
- **Vegetation debris will be disposed of in a pre-approved site inside or outside of the park.**
- **Burning of leaves is not permitted in the park.**

2.5 Landscaping

Native trees and shrubs from local genetic stock may be used to create shade and privacy in campground and day-use areas. The plant nursery at the park will continue to be developed using local seeds. The nursery program may be expanded in order to provide the main source of plants for landscaping and habitat rehabilitation purposes. In the absence of local sources, stock from within local ecodistricts (6E-15, 6E-13) may be used.

- **Native trees from local genetic stock may be used for landscaping, including plants from the park nursery.**

2.6 Plantations

The homogeneous structure and composition of the plantations within the park have resulted in relatively sterile habitats with low biological diversity. Alien species are commonly found in the plantations and some species, particularly Scots pine (*Pinus sylvestris*) and Norway spruce (*Picea abies*), exhibit invasive tendencies. The low diversity of plantation forests can mainly be attributed to stand density. Without light penetrating the forest floor very little vegetation is able to grow in the understorey.

Ultimately, the purpose of any plantation restoration efforts will be to assist the succession of plantations into forest environments more typical of what was historically found at these sites. The priority of plantation restoration treatment include (from highest to lowest priority):

- Alien plantations of species exhibiting invasive tendencies
- Alien species plantations
- Native species plantations which are especially monotypic (sterile)
- Native species plantations

The guidelines for individual zones later in this document highlight plantation areas needing restoration. Plantation areas will be described, and detailed prescriptions for plantation renaturalization will be prepared for these areas.

- **Plantation naturalization prescriptions will be implemented as resources allow.**
- **Naturalization activities may be interpreted to the public through park publications and the natural heritage education program.**

2.7 Restoration

Due to the park's long history of human use, several areas of the park require active management to restore natural features. The guidelines for wildlife and individual zones later in this document highlight areas needing restoration. Specifically, old field areas that are priorities for management will be described and more detailed prescriptions for management will be prepared. Old field habitats may be managed in a variety of ways to provide habitat for significant species and other wildlife (see Section 3.2).

Restoration can be done by planting native species or their seeds. Every effort will be made to use seed and plant material derived from within the park. If this is not possible, seed and plant material will be acquired from a source that uses local genetic stock.

Alien trees serving an important function, such as providing shade for park visitors, will be left in place unless they are deemed invasive. Alien trees will be removed as native trees become established. Trees with historic significance (e.g. apple trees) will generally not be removed due to the historical period they represent.

- **Restoration prescriptions will be implemented as resources allow.**
- **Restoration will be done using local seed stock and plant materials.**
- **Alien trees that are not invasive will be left in place if they are serving a function such as providing shade or representing the park's history.**

2.8 Plant and Seed Collection

Plants and seeds may not be collected by anyone other than Ontario Park staff, unless they receive permission through a permit in accordance with Ontario Parks policy. Seeds may be collected for use in propagation and restoration programs within the park. Collection for use outside the park may be permitted on a case-by-case basis through consultation with park or zone staff and in accordance with Ontario Parks policy.

Harvesting effort will be rotated and spread throughout the park. The amount of seed collected will be limited based on the species, and determined in consultation with park or zone staff. When possible, the park will maintain records concerning the species and amount of seeds harvested, harvesting dates and locations, and the final destination for seeds collected. The park's two nurseries will be used to the fullest extent possible. These nurseries will be used to propagate species for restoration and landscaping projects.

Traditional plant collection by Aboriginal people may be permitted in consultation with park and zone staff.

- **Plant and seed collection by anyone other than park staff, including Aboriginal people, will be in accordance with Ontario Parks policy and in consultation with appropriate staff.**
- **Seed harvesting will be done appropriately and will support the park nursery.**

2.9 Alien and Invasive Plant Species²

Approximately 40% of Presqu'île's 750 plant species are not native to the park. Alien species continue to enter the park and those that are invasive need to be managed on an ongoing basis. The *SE Zone Invasive Exotic Plant Management Strategy* provides guidelines for managing invasive alien plants.

² **Invasive (or invading) species** are alien species whose introduction or spread threatens the environment, the economy or society, including human health

Table 1 lists some of the most problematic plant species in the park. This list is in order of current management priorities and does not include planted conifers. Priorities are based on the *SE Zone Invasive Exotic Plant Management Toolkit* (Ontario Parks 2003) and consultation with the park Biodiversity Specialist (Tyerman 2006, pers. comm.). Management will be as aggressive as possible when there is the potential for spreading or disruption of natural habitats and there is a realistic potential for control. Nature reserve and natural environment zones will be higher priorities for management. Management will make use of information available from other resource managers. An adaptive management approach should be used when possible to help provide information to other zone staff and to ensure best results.

Table 1: Alien Species and Degree of Invasiveness

Species	Known Locations	Degree of Invasiveness
Dog-strangling Vine (<i>Vincetoxicum spp.</i>)	Calf Pasture, Jobes Lane, wooded areas near staff house, edge of day-use areas and High Bluff Island	Very High
Buckthorn (<i>Rhamnus spp.</i>)	wooded areas especially near the Lighthouse	High
Garlic Mustard (<i>Alliaria petiolata</i>)	Campground and marsh boardwalk parking lot, Jobes' Woods Trail and High Bluff Island	High
Norway Maple (<i>Acer platanoides</i>)	forest in Lighthouse vicinity	Moderate
Purple Loosestrife (<i>Lythrum salicaria</i>)	pannes and marshes	Moderately High
Japanese Barberry (<i>Berberis thunbergii</i>)	forest in Staff house area	Moderate
Canada Thistle (<i>Cirsium arvense</i>)	High Bluff Island	High
Bull Thistle (<i>Cirsium vulgare</i>)	High Bluff Island	N/A
Japanese Knotweed (<i>Berberis thunbergii</i>)	cobble shorelines, Camp Office area	Moderate
European Frogbit (<i>Hydrocharis morsus-ranae</i>)	Marsh areas throughout the park	High
Common Reed <i>Phragmites var. australis</i>	Owen Pt, Park Store, Group Camp parking, Marsh Edge	High
Stinging Nettle <i>Urtica dioica</i>	High Bluff Island, disturbed organic shorelines	Moderate

- **Aggressively manage alien species in areas where there is the potential for spread and realistic potential for control.**
- **Species that show invasive tendencies will not be used for ornamental or historic purposes.**

- **Use an adaptive management approach when possible and provide information to the Zone Ecologist when new invasive alien species are discovered and/or more effective management strategies are created, to enable updating of the *SE Zone Invasive Exotic Plant Management Strategy*.**

2.10 Use of Herbicides and Pesticides

All herbicide use will be in compliance with Ontario Parks policy. Any person authorized to apply herbicides in the park must comply with provincial legislation.

As stated in the park management plan, invasive alien species and poison ivy (in development zones) may be controlled with herbicides as required in small, localized applications. Only herbicides that biodegrade quickly, have low or no soil activity, and for which environmental impacts have been tested and shown to be minimal will be used (e.g. glyphosate and triclopyr). Herbicide use will be kept to a minimum and alternatives to chemical herbicides will continue to be used whenever possible.

Spraying will only be done where park visitors or park staff are not at risk of contact during normal activities, preferably during the off-peak season.

The Municipality of Brighton will be encouraged to continue to use mechanical means to remove brush from the portions of Bayshore Road that are adjacent to the park.

- **Herbicide use is restricted and must be in compliance with provincial regulations.**
- **Safety of park visitors is the highest priority. Herbicide use must be kept to a minimum, using suggested chemicals and appropriate safety precautions avoiding areas where park visitors and staff may contact it.**

2.11 Fire Management

MNR recognizes fire as an essential ecosystem process, fundamental to restoring and maintaining the ecological integrity of protected areas in the Deciduous Forest Region. Studies of the historical role of fire in this region are limited. Though fire did occur occasionally, it was much less common than in other forest regions. Aboriginal use of fire may have been a significant factor but its extent and impacts are not well understood (Van Sleeuwen 2006).

The Forest Fire Management Strategy for Ontario (OMNR 2004) provides strategic direction for the management of wildfire across Ontario. Fire management involves the protection of values and the attainment of resource stewardship objectives through two main areas:

- Fire response: The protection of people, property and natural areas from wildfire
- Fire use: The strategy of maintaining fire as an ecological process or meeting resource management objectives through the application or management of fire

Fire Response

Presqu'île Provincial Park is in the Southern Ontario Fire Management Zone. This fire management zone is located Outside the Fire Region (OFR). Municipalities have a

mandate to provide forest fire protection on all lands OFR. Municipalities have the lead in fire protection and management activities under the Fire Protection and Prevention Act (i.e. to protect human lives and properties) and through municipal by-laws. The Municipality of Brighton fire department is responsible for fire protection and response in the park area. Ontario Parks will pursue an agreement with the municipality for management of forest fires occurring within the park, in accordance with OMNR policy on Fire Management South of the Fire Regions (FM:2:04).

Fire management objectives within Presqu'île will focus on preventing personal injury, value loss, and social disruption. Fires that pose a threat to public health and safety, property and infrastructure, or significant natural values are a priority for suppression. An agreement on fire suppression will be reached through consultation with the Municipality of Brighton fire department and authorized MNR fire management personnel. MNR fire management may support the Municipality of Brighton fire department in severe or extraordinary fire situations.

"Light on the land" fire suppression techniques will be addressed in the fire management agreement and used whenever feasible. These minimal impact suppression techniques do not unduly disturb natural or cultural heritage values. Examples may include limiting the use of heavy equipment or the felling of trees during fire response.

Partial or total fire bans can be set in place and enforced at the discretion of the park superintendent following consultation with MNR fire personnel and the local municipal fire departments.

Consistent with the Ontario FireSmart program, a forest fire hazard identification and risk assessment will be completed for infrastructure and steps will be taken to reduce or mitigate the threat posed by fire to infrastructure.

- **A fire suppression agreement will be reached with the Municipality of Brighton fire department, with a focus on preventing personal injury, value loss, or social disruption.**
- **"Light on the land" suppression techniques will be addressed in the agreement.**
- **Partial or total fire bans can be enforced at the discretion of the park superintendent following consultation with appropriate fire personnel.**
- **A fire hazard identification will be completed in accordance with Ontario FireSmart.**

Fire Use

Prescribed burning is the deliberate, planned, and knowledgeable application of fire by authorized personnel to a specific land area to accomplish pre-determined objectives. Prescribed burning to achieve ecological objectives may be considered. Plans for any prescribed burning will be developed in accordance with the MNR Prescribed Burn Policy and its associated planning manual, in cooperation with Haliburton fire management headquarters.

- **Prescribed burning may be considered and will be planned in accordance with policy.**

3. General Wildlife Management

The following section provides details to implement wildlife management projects. Project details for double-crested cormorant management on High Bluff and Gull Islands are found within the *Presqu'île Islands Resource Management Implementation Plan*. Some wildlife management guidelines are found in the *Presqu'île Beach and Dune Resource Management Implementation Plan*.

3.1 Significant Species

Many of the wildlife species at Presqu'île, and the vegetation communities that they rely on as habitat, are significant. Significant species are those that are designated as species at risk (SAR), and those that have been ranked by the Natural Heritage Information Centre (NHIC) as rare in Ontario (Appendix 3).

In this implementation plan, "species at risk" includes:

- Species named by regulation under the *Endangered Species Act*,
- Species designated as endangered, threatened or of special concern in Canada by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

Recovery strategies with specific management direction exist for many species at risk, and more will be developed in the next several years as the *Endangered Species Act* is implemented.

- **Where recovery strategies exist, recovery actions will be implemented in the park whenever possible.**
- **Encourage monitoring of significant species when opportunities exist.**
- **Encourage research efforts that help define important habitats within the park and manage those areas accordingly.**
- **Development projects within the park will be screened under the Class EA to determine possible impacts on significant species and habitats**
- **Continue to educate park visitors on species at risk and how they can contribute to their protection.**

3.2 Birds

Some of the bird species that use Presqu'île are rare or designated as species at risk, and rely on specific habitat types found within the park, both as breeding habitat and as staging and resting areas during migration (Appendix 3).

Marsh

Many species of marsh birds are in a state of decline across the province, and some are designated as species at risk. These declines are often attributed to habitat loss, pollution, and recreational activities. For example, the least bittern (*Ixobrychus exilis* - Threatened) is being threatened by the loss of wetlands and by urban development outside of protected areas. The least bittern is a secretive bird that requires large undisturbed marshes.

- **Protect nesting and feeding sites of significant species from development and human disturbance. Appropriate nest protection and habitat enhancement techniques may be used.**
- **In order to protect marshes within the park, Ontario Parks will continue to work towards restricting motorboats in portions of the marsh.**

Coastal Beaches

The *Beach and Dune Resource Management Implementation Plan* provides the project details for species that rely on these areas.

Old Field

Old field habitats are found throughout the park, especially along Paxton Drive. These habitats support a variety of wildlife species, which would be rare or absent from the park without these habitat types. For example, there was evidence of Henslow's sparrow (*Ammodramus henslowii* - *Endangered*) colonies during the 1950's and 1960's in these habitats and loggerhead shrike (*Lanius ludovicianus* - *Endangered*) have nested in old fields just outside of the park. In order to sustain habitat diversity within the park, some old field habitat may be maintained.

- **Monitor old field habitats for the presence and breeding activity of species at risk.**
- **Identify old field habitats that will go unmanaged, be converted to woodland, or actively maintained to provide appropriate habitat and meet the purpose of restoration (see Section 2.7).**

Woodlands and Forests

Many woodland bird species are limited by forestry practices in the surrounding landscape and by competition with alien species for nesting sites.

- **Increase the connectivity between forest blocks and retain snags to support a habitat used by cavity birds and other woodland species.**
- **Use active management to accelerate the rate of natural succession in some old field habitats (see Section 2.7). Candidate areas include isolated old fields that separate otherwise intact forest blocks.**

3.3 Mammals

There are no known species at risk mammals. Mammals known to inhabit the park regularly include white-tailed deer (*Odocoileus virginianus*), coyote (*Canis latrans*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), fisher (*Martes pennanti*), mink (*Mustela vison*), and other weasels (*Mustela spp.*). Given its diversity of habitats, the park likely supports many different species of small mammals. Approaches for managing overabundant or nuisance mammal species are described in section 3.5.

3.4 Other Wildlife

The complete diversity of Presqu'île's wildlife communities is unknown. However, maintaining habitat diversity and minimizing habitat disturbance, which is recommended throughout this plan, will benefit all wildlife species.

3.4.1 Reptiles

Presqu'île supports a variety of snakes and turtles, some of which are species at risk (Appendix 3). In particular, the marsh area provides extensive undisturbed habitat for Blanding's turtles (*Emydoidea blandingii* – *Threatened*) and stinkpots (*Sternotherus odoratus* – *Threatened*), although both species and other turtle species have been observed dead on the main park road. Common threats to these and other reptile species in the park include road mortality, nest predation by mammalian predators, and habitat changes. A detailed strategy for monitoring and protecting SAR turtles in SE Zone parks has been prepared.

- **Comply with the Southeast Zone Species at Risk Turtle Strategy when possible, including measures to mitigate the impact of parks roads and mammalian predators.**

3.4.2 Amphibians

The marshes and pannes provide excellent breeding habitat for frogs and toads. Moist forest soils also provide amphibian habitat. Park staff contribute to the Marsh Monitoring Program coordinated by Bird Studies Canada and the Canadian Wildlife Service. There are anecdotal reports of significant roadkill of frogs and toads on the main park road, especially near the park store.

3.4.3 Fish

Little is known about fish populations at Presqu'île, although the marsh area provides spawning habitat for many species, including grass pickerel (*Esox americanus* - Special Concern). Given its location in Lake Ontario and variety of aquatic habitat, the waters of Presqu'île likely support many different fish species.

3.4.4 Insects

Very little information is known about the status of insect populations provincially. One exception is the monarch butterfly (*Danaus plexippus* – *Special Concern*). A large number of monarchs use Presqu'île as a stopover site during their fall migration. Monarchs also use Presqu'île for breeding. Monarchs lay their eggs on milkweed, and caterpillars and adult butterflies use the plant as a food source. In Ontario threats to monarchs include the impacts of pesticides and herbicides on milkweed populations.

Fairly extensive butterfly and dragonfly surveys have been done, indicating a diverse insect population that depends on the maintenance of a diversity of habitats. Some dragonfly species rely on the fishless pools in the pannes for breeding habitat.

3.5 Hyper-abundant³, Nuisance, and Invasive Alien Species

The Presqu'île Provincial Park Management Plan (OMNR 2000) states that:

“Animal populations, including invasive domestic animals⁴, may be controlled when essential to protect human health, and safety, natural heritage values, or the

³ Hyperabundant refers to a wildlife population that clearly exceeds the upper range of natural variability that is characteristic of the ecosystem, and as a result, there is a demonstrable long-term negative impact on ecological integrity

health of species outside the park. When animal control is necessary, techniques will be used that have minimal effects on the rest of the park's environment. Any hunting, trapping, or other control measures will be carried out directly by, or under the supervision of, Ontario Parks."

Nuisance species such as the common raccoon and the striped skunk have become habituated to acquiring food from handouts or garbage. Domestic animals are sometimes discovered roaming freely in the park. These mammalian predators can have a negative impact on bird, reptile, and amphibian populations within the park and can threaten park visitor comfort and safety.

Invasive alien species like the mute swan (*Cygnus olor*) are currently nesting in the marsh areas of the park. Mute swans are aggressive birds and may affect other marsh-nesting species. It is possible that they have contributed to the decline of some of these species. In particular, black tern (*Chlidonias niger* - Special Concern) disappeared from the marsh at about the time Mute Swans became established. Invasive alien animal species include insects, such as the Emerald Ash Borer (*Agrilus planipennis*).

- **Control hyper-abundant/nuisance/invasive species when an unacceptable degree of conflict occurs between park visitors and wildlife.**
- **Control hyper-abundant/nuisance/invasive species if they are negatively impacting sensitive species or communities in the park, if feasible and in accordance with relevant regulations.**
- **Educate park visitors on the consequences of providing handouts to wildlife and the improper disposal of garbage.**
- **Use animal control officers to assist park staff in dealing with domestic animals at large.**
- **Invasive alien insect species will be managed according to advice from forest health professionals**

3.5.1 Deer

Deer densities are high throughout their continental range. At high densities deer can alter forest habitats by eating understorey plants and new growth on young trees, thereby causing long-term changes in the composition of both plant and animal species (e.g. Allombert et al 2005, DeCalesta 1994, Rooney 2001, Tilghman 1989). The effect of deer on forest habitats has been well documented in many locations in southern Ontario, including at Presqu'île and other provincial parks (Koh 2005, Tanentzap unpublished data).

Deer populations at Presqu'île have been above the ecological carrying capacity of the park for many years, negatively affecting forest communities. As a result, herbaceous and shrub vegetation have decreased and trees are not being replaced by natural recruitment. In response to this condition, the Presqu'île Provincial Park Management Plan (OMNR 2000) states that:

"The deer population will be reduced to, and then maintained at, a level that is within the carrying capacity of the park's deer habitat and sustainable in the context of the park environment... The target population is estimated to be 35 as

⁴ e.g. feral cats or dogs

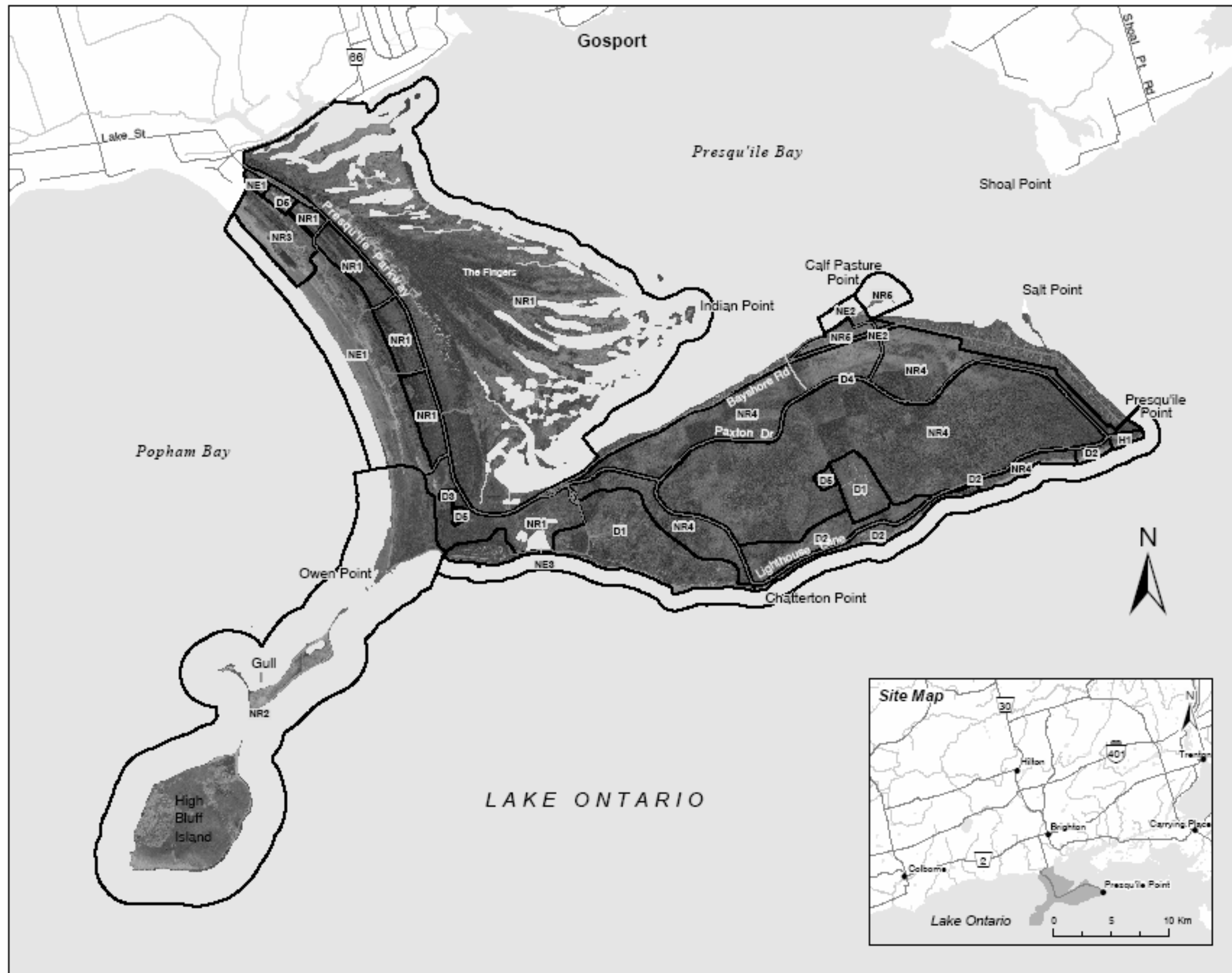
of 2000, but will be subject to change from time to time on the basis of new information or habitat changes...”

The park management plan also states that deer population reduction will be undertaken directly by Ontario Parks, or through partnerships, and that the reduction will be by shooting.

A successful deer herd reduction program took place on the park’s mainland from 2003 until 2007 through an agreement with the local First Nation. This management was successful in reducing the deer population and allowing some recovery of forest vegetation. Methods for estimating deer numbers and their impact on vegetation communities are being developed in cooperation with other Ontario Parks and OMNR staff. An adaptive management approach will be taken in all deer management and monitoring activities.

- **Management of the deer population may continue as part of a park-wide approach**
- **Monitoring will continue to be undertaken to track changing levels of deer browsing damage in the park and to establish the need for management.**
- **Deer management targets will be adjusted to reflect new information regarding their impact on vegetation communities.**

FIGURE 2

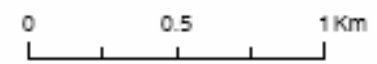


Presqu'ile



Legend

- Road
- River/Stream
- ▭ Park Zones
- Waterbody



Published December 2008
© 2008, Queen's Printer for Ontario

This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Natural Resources (OMNR) shall not be liable in any way for the use of, or reliance upon, this map or any information on this map.

Projection: UTM Zone 18
Datum: North American Datum 1983
Base derived from: NRVIS (Natural Resource Value Information System)
Produced by: Ontario Parks, Southeast Zone

4. Zone-specific Management

The following zone-specific management guidelines include specific actions that are not addressed by the general guidelines described in previous sections. Where there are no zone-specific management guidelines the general guidelines described in Sections 2 and 3 apply. Figure 2 illustrates the different zones within the park as detailed in the Presqu'île Provincial Park Management Plan (OMNR 2000). The resource management and protection objectives listed for each zone are derived from that plan.

Vegetation communities in some areas of the park have been inventoried and classified according to the Ecological Land Classification (ELC) of Southern Ontario protocol (Lee et al 1998). Where appropriate, community types are referred to in the zone descriptions below. The number of hectares listed for each zone is based on current digital mapping.

4.1 Nature Reserve Zones

Nature reserve zones protect provincially significant earth and/or life science features within a park, and may include a protective buffer area in which a minimum of development is permitted. Development should be limited to trails, necessary signs, and temporary facilities for research and management (OMNR 1992).

The park has five nature reserve zones. These zones incorporate approximately 80% of the total park area (OMNR 2000).

4.1.1 Zone NR1 – Panne-Marsh (340 ha)

The panne-marsh nature reserve zone is a low, flat area of the tombolo that lies between the two main ridges of dunes, parallel to the park road. The zone includes the bed of Presqu'île Bay within 100 m of shore, except in front of the private lands along Bayshore Road.

Pannes have fluctuating water levels that support concentrations of rare species. The panne is one of the largest remaining examples of a panne-marsh community type along the north shore of Lake Ontario (Keddy 1989). This globally significant community type is also known as Graminoid Coastal Meadow Marsh Type.

The marsh has been identified as a provincially significant wetland and varies from narrow, inter-ridge features to extensive marshes. The area contains important breeding and feeding habitat for water birds, turtles, fish, and invertebrates. The marsh is also an important stopover site for migratory birds.

The pannes, marsh and fingers are one of Presqu'île's most significant park values -- recognized by the MNR as forming part of a provincially significant Presqu'île Provincial Park provincial ANSI complex. This area supports the highest concentration of significant species (Appendix 3) in the park.

A series of low dunes along the west side of the panne in this zone supports a variety of meadows and thickets. Dunes are fragile, with visitor numbers and activities resulting in reductions in dune vegetation and stability. Additional information on dune habitats is provided in the *Beach and Dune Resource Management Implementation Plan*.

Objective

- To protect the landform, communities, and habitat for significant species.

Landform Management

Climate change poses a threat to the fingers and marsh, as well as other landforms that are dependent on water levels. Climate models predict a lowering of water levels in the Great Lakes over the next 50-100 years (Mortsch 1999). The response of communities and habitats to these changes is currently unknown. The pannes, the dunes and finger bar communities are also directly impacted by water table levels. The water table levels are responsible for the development and maintenance of these communities. Dune systems are fragile and disruption to them in this zone should be minimized.

- **Encourage long-term research that assesses the long term impacts of climate change on the park's vegetation and landforms.**
- **Allow marsh successional processes to develop naturally.**
- **Minimize disruption to the dunes in zone NR1.**
- **Allow natural panne development processes to occur.**

Vegetation Management

The pannes are a *Great Lakes Graminoid Coastal Meadow Marsh Ecosite* (MAM4-1, S2). The area is covered sparsely by low-lying rushes and reeds and supports many plant species that are unique to this habitat type and rare in the ecodistrict.

The fingers and marsh have several different community types. Based on limited surveys it appears the broader basin where the substrate is rich in organics is a *Cattail Organic Shallow Marsh Type* (MAS3-1, S5) community; on the more sandy substrates grasses and sedges there is a *Bulrush Mineral Shallow Marsh Type* (MAS2-2, S5) community, and on the drier areas with shrubs and forbs there is a *Bluejoint Mineral Meadow Marsh Type* (MAM2-1, S5) community. While these communities are all ranked as S5, taken as a whole they represent one of the largest contiguous coastal marsh complexes on Lake Ontario, and the largest such system in a protected area in Ontario.

- **Assess the presence of alien plants in the pannes and fingers/marsh and implement management actions as necessary.**
- **Remove planted invasive conifers.**

Facilities and Development

Much of the panne habitat in this zone has been disturbed by past development. Roads and parking lots are prevalent in the pannes, bisecting natural landforms in this zone and zone NE1.

There are nine waterfowl hunting blinds and a boardwalk in the marsh area of this zone. This area has an existing walking trail that was previously a bicycle trail, with an underlying water supply line. The water supply line must be kept clear for maintenance purposes. Therefore this area represents the most appropriate site for the development of a new trail, although it is often under water in spring as it is on the edge of the panne.

- Remaining development that is not approved in the park management plan will be removed and these areas restored.
- Marsh boardwalk maintenance or construction activities will continue to follow requirements under the Class EA and will minimize disturbance to the marsh community”.
- Assess the possibility of reducing the footprint of roadways and parking lots in the pannes (specifically access roads).
- Other than the marsh boardwalk, associated parking area, and existing restricted access route, development is restricted to hiking trails, as outlined in the *Park Management Plan* (OMNR 2000). A new hiking trail may be developed along the route of the old bicycle trail, avoiding significant vegetation. Bicycling will be prohibited along this trail.
- Monitor vegetation and ensure native species become established in areas where facilities have been decommissioned.

4.1.2 Zone NR 2 – Owen Point-Islands (200 ha)

Specific vegetation, wildlife management and restoration guidelines for High Bluff Island and Gull Island are described in the *Island Resource Management Implementation Plan*.

Specific guidelines for the Owen Point area of this zone are described in the *Beach and Dune Resource Management Implementation Plan*.

4.1.3 Zone NR 3 – North Beach and Foredunes (14.5 ha)

Specific guidelines for this zone are described in the *Beach and Dune Resource Management Implementation Plan*.

4.1.4 Zone NR4 – Foot of Presqu’île (230 ha)

This zone encompasses most of the foot of the Presqu’île peninsula and was once a limestone island. It includes remnant dunes from ancestral Lake Ontario, as well as mixed soils over the limestone base. This area was originally entirely forested, although some areas were cleared. Some of the former fields were planted with conifers while others were left unmanaged.

Objective

- To protect representative sites for landform interpretation, deciduous forest and important habitat for several plant, bird, and insect species, and to maintain habitat diversity.

Landform Management

Most of the landform in this zone is stable. The shoreline area along Lighthouse Lane is susceptible to occasional erosion during high wind events when water levels are also high.

- **Shoreline erosion concerns will be managed using ecologically-based methods when possible, in accordance with section 2.1.**

Vegetation Management

This zone contains the highest diversity of vegetation communities, including upland and swamp forests and thickets, various conifer plantations, and old fields in different transitional stages. The vegetation communities in this zone have been severely impacted by historical settlement practices and more recently by the local white-tailed deer population.

The conifer plantations are composed of a variety of species, some of which are not native to the park. Section 2.6 provides more detail on managing conifer plantations. Old field habitats are found throughout much of this NR4, especially along Paxton Drive. These areas provide habitat to some significant bird species, and increase the overall habitat diversity of the park. Sections 2.7 and 3.2 provide more information on enhancing bird habitat in old fields.

- **Conifer plantations will be managed as resources permit (Section 2.6).**
- **Old fields may be managed to encourage forest succession or maintained to provide bird habitat (Sections 2.7 and 3.2)**

4.1.5 Zone NR 5 – Calf Pasture Point (10 ha)

This zone is at the eastern end of Presqu'île Bay and includes most of Calf Pasture Point, a spit that extends into Presqu'île Bay. This zone includes an old field area and shoreline wetland habitat, both of which support nesting and migration habitat for a variety of bird species.

Objective

- To protect representative sites for landform interpretation, and habitat for nesting and migrating birds.

Landform Management

This zone contains a spit landform that creates a migration funnel for water and land bird migration staging areas.

- **Boating will be discouraged during periods of waterfowl migration. Public education will be the primary means of discouraging this activity.**
- **Shoreline hardening structures such as breakwalls or groins will not be considered. Native vegetation will be used to manage shoreline erosion concerns.**

Vegetation Management

Vegetation management will follow the general vegetation management policies, and old field management may be considered in accordance with sections 2.7 and 3.2.

4.2 Natural Environment Zones

Natural environment zones include natural landscapes with a minimum level of development. Development in these zones is limited to trails, necessary signage, interpretive facilities, access areas, and similar simple facilities that support low-intensity recreational use. The park has three natural environment zones, which represent approximately 11% of the total park area (OMNR 2000).

4.2.1 Zone NE1 – Beach-Foredunes (57 ha)

Specific guidelines for this zone are described in the *Beach and Dune Resource Management Implementation Plan*.

4.2.2 Zone NE2 – Calf-Pasture Cove (4 ha)

Zone NE2 is a low intensity day-use area where the main outdoor recreational pursuits are picnicking and birding. The picnicking activities are focused along the open shoreline areas and the grassy upper level. Birding occurs throughout the area. The zone includes the bed of Presqu'ile Bay adjacent to part of zone NE5 and within 100 m of shore, defined by the high water mark. Although the Calf Pasture Cove boat launch will remain closed, this area will remain important as a secondary day-use area and the park's only recreational area on Presqu'ile Bay.

Objective

- To provide low intensity day-use while limiting disturbance to the significant bird habitat and maintaining natural processes.

Vegetation

The land area consists mostly of a former farmstead. Vegetation includes ornamental plants representative of this former land use, a vegetated strip consisting of mostly willows and early successional trees, and a second strip of native vegetation found along Presqu'ile Bay.

- **Ornamental plant species originating from the original farm will not be removed unless they are found to be invasive, as they reflect a heritage aspect of this site.**
- **Some planting of appropriate native plant species may occur to prevent shoreline erosion and provide wildlife habitat.**

Facilities and Development

There is currently access, parking and a viewing tower in this zone.

- **Existing development (parking area, viewing tower) will remain in place.**

4.2.3 Zone NE 3 – South Shore (49 ha)

This zone consists of the bed of Lake Ontario within 100 m of shore in front of zones D1, D2, H1, and NR4 from High Bluff Campground to Presqu'ile Point. It includes the

shorelands in front of zones D1 and D2 up to 10 m inland from the high water mark, except existing car campground areas less than 10 m inland, which will remain part of zone D1.

Limestone bluffs and gravel cobble beaches form most of the southern shoreline and are subject to erosion and deposition. The shore includes representative sites for landform interpretation and provides outstanding vistas of Lake Ontario.

Objective

- To protect the limestone bluffs and gravel and cobble beaches and the representative sites for landform interpretation and bird migration areas, while continuing to provide outstanding vistas and low intensity access points to Lake Ontario.

Landform Management

The shoreline area along Lighthouse Lane is susceptible to occasional erosion during high wind events when water levels are also high.

- **Shoreline erosion concerns will be managed using ecologically-based methods when possible, in accordance with section 2.1. The shoreline hardening of the High Bluff Campground Causeway may be maintained.**
- **New development which would weaken the bedrock on the lake side of Lighthouse Lane will not occur.**

Vegetation

The land base of zone NE3 consists of a combination of gravel and limestone bluff shorelines, and the lakeside edges of native forests, former agricultural fields and cottage sites. Conifers and some ornamental tree species have been planted in various locations.

- **To lessen erosion effects and establish appropriate wildlife habitat, native vegetation may be planted along the shorelines.**
- **Planted conifers and ornamental tree species will be removed unless they are protecting shorelines from erosion. In these situations, native species will be planted before conifers and other ornamental trees are removed.**

4.3 Historical Zone

Historical zones encompass the provincially significant cultural resources of a park. They generally focus on a specific site and that site's relationship to the surrounding landscape. These zones may include a protective buffer around the main feature in the zone. Development is limited to trails; necessary signs; interpretive, educational, research and management facilities; means of travel appropriate to the historical resources; and historical restorations or reconstructions, where appropriate (OMNR 1992).

The park has one historical zone protecting the lighthouse and its relationship with the surrounding landscape. The historical zone represents <1% of the total park area (OMNR 2000).

4.3.1 Zone H1 – Presqu'île Point (1.4 ha)

This zone includes the historic Presqu'île lighthouse and the fog-horn station, the Lighthouse Interpretive Centre, and associated access, parking, and day-use facilities.

Objectives

- To protect the historic Presqu'île Lighthouse and associated historical features, part of a significant monarch butterfly migration area, and a significant bird migration area.

Vegetation

The exposed nature of zone H1 at the tip of the Presqu'île peninsula results in extensive and frequent wind damage to vegetation. This damage was recently exacerbated by the impacts of the high population of white-tailed deer. As a result, the early successional shrub thickets once predominant at this location are disappearing rapidly. As well, mature trees are not being replaced by natural recruitment.

A series of trails have been established in this zone to control foot traffic and protect vegetation.

- **There will be no expansion of the manicured areas around the Lighthouse Interpretive Centre.**
- **Only native species of trees, shrubs or flowering plants will be used for landscaping. Native plants attractive to monarch butterflies and native, berry-producing shrubs attractive to birds may be considered for planting in this area.**

Facilities and Development

The Lighthouse, Lighthouse Keeper's house (now part of the Lighthouse Interpretive Centre) and the remains of the fog-horn station are the key historic features of this zone. The Lighthouse was constructed in 1840. A major retrofit in 1894 established the current appearance of this structure. The only noticeable change to the Lighthouse since 1894 was the removal of the lantern-house in the 1960s.

The Lighthouse tower is owned by Presqu'île Provincial Park but the light is owned and serviced by the Canadian Coastguard. For navigation purposes, the visibility of the light cannot be interfered with.

In the 1990s the Lighthouse Keeper's house was attached to the Lighthouse Interpretive Centre. It is now a multi-function interpretive space featuring an audio-visual presentation. The exterior of this structure has been restored to an 1840's appearance.

- **Facility development will remain at a moderate level within H1. Permitted facilities include the Lighthouse and the Lighthouse Interpretive Centre, information and educational signage, minimal structures housing research and educational equipment, wildlife protection and interpretive structures. structures (e.g. fencing to protect significant species), and walking trails and viewing areas.**

4.4 Development Zones

Development zones contain the areas of a park geared towards the support of intensive day-use and car camping activities. They constitute a relatively small portion of most parks. Development may include roads, visitor control structures, day-use facilities, car campgrounds, basic commercial service facilities including food and beverage; and orientation, interpretive, educational, research and management facilities (OMNR 1992).

The park has five development zones, which represent approximately 9% of the total park area (OMNR 2000).

4.4.1 Zone D1 – Campgrounds (50 ha)

Zone D1 consists of the campgrounds, the campground access roads, and the lands up to the zone NE3 shoreline strip, including parking facilities less than 10 m from the waters edge.

Objective

- To provide facilities and services associated with day use, campgrounds and access routes, while minimizing habitat disturbance.

Landform Management

- **Shoreline erosion concerns will be managed using ecologically-based methods when possible, in accordance with section 2.1. The shoreline hardening of the High Bluff Campground Causeway may be maintained.**

Vegetation

Over the past century this zone has undergone significant intentional and unintentional vegetation alteration. The group camp is a former pasture defined by the maple trees planted alongside Jobes' Lane around a century ago. Other remnants of Presqu'île's agricultural legacy include the apple trees found scattered throughout D1 and other park zones.

In an attempt to re-establish forest cover, parts of D1 were planted with conifers of a variety of species. This is especially apparent within the campgrounds. These conifers now provide valuable shade and shelter from wind.

Vegetation within the campgrounds consists primarily of conifer plantation and mature hardwood forests. Due to the high degree of human activity, vegetation in the campgrounds suffers from sporadic cutting and trampling. In most cases this results in decreased levels of plant diversity and biomass. Invasive alien plant species often gain their initial foothold within the park's campgrounds due to the high density of motor and human traffic within the campgrounds. Nonetheless, some areas of the campgrounds appear to support healthier plant communities than do the surrounding forests. It is likely that human activity has discouraged the park's white-tailed deer from browsing as heavily in campground areas than elsewhere.

- **Planted conifers will be removed unless they are providing a valuable function, such as providing wildlife habitat, shade or wind protection for**

- park visitors. In the long term alien trees may be removed and replaced with native species (Section 2.6).
- The apple trees found growing throughout the park represent a heritage feature and will be allowed to remain.
 - Any future development will avoid the mature hardwood forest portions of the zone.
 - The planting of native vegetation to provide buffers between campsites and mitigate the effects of high levels of human activity will be encouraged.
 - A special emphasis on the quick eradication of new invasive alien species will occur in zone D1.

Facilities and Development

Wet areas providing amphibian and reptile breeding habitat are found in the buffer areas between and adjacent to campsites.

- To minimize impacts on amphibian and reptile habitat, campsites will continue to be monitored, and in times of unusually high water levels sites will be closed until the water levels lower naturally.

4.4.2 Zone D2 – Lighthouse Lane Day Use (23 ha)

This zone includes the Lighthouse Lane day use area on both sides of Lighthouse Lane, the four heritage cottages and adjacent lands south of Lighthouse Lane, and associated parking, except for the zone NE3 shoreline strip. This is one of the park's two main day-use areas.

Objective

- To serve as a day-use area, and to protect and enhance the mature forest strip along the shoreline.

Landform Management

- Shoreline erosion concerns will be managed using ecologically-based methods when possible, in accordance with section 2.1.
- New development which would weaken the bedrock on the lake side of Lighthouse Lane will not occur.

Vegetation

This zone includes old field habitat and a mature forest strip along the shoreline of Lake Ontario.

- Native vegetation may be planted along the shorelines to lessen erosion effects and maintain and enhance the shoreline forests.
- Planted conifers and ornamental tree species will be removed unless they are protecting shorelines from erosion. In these situations, native species will be planted before conifers and other ornamental trees are removed.
- Lawn mowing operations will be limited. Areas open to human activities will be clearly defined in order to limit the human footprint.

Facilities and Development

The cottages present an opportunity to provide roofed accommodations for visitors, consistent with a new initiative in Ontario Parks to diversify its accommodation options.

- **Any new development will be located in areas that are already disturbed or in plantations. No development will occur in the native forest stands south of Lighthouse Lane.**
- **Existing high intensity development, such as the intensive day-use facilities and the Lighthouse Lane cottages will be permitted to continue and be repaired as needed. The footprint of these facilities will not be increased.**
- **The *Lighthouse Lane Heritage Building Stewardship Plan (2005)* provides direction on how these cottages will be managed.**

4.4.3 Zone D3 – Park Store (0.6 ha)

This zone includes small areas of panne and forested habitat near the park store and associated access and parking areas.

Objective

- To provide park store services, while minimizing impacts on landform and vegetation near the park facilities.

Vegetation Management

This zone includes panne habitat and mature cedar bush.

- **Lawn mowing operations will be restricted around the park store vicinity.**
- **Areas where human traffic is permitted will be clearly defined in order to limit the human footprint and minimize damage to vegetation in this zone.**

4.4.4 Zone D4 – Main Roads (17 ha)

The zone consists of a 15 m right of way which includes the main park roads - the portions of Bayshore Road within the park, Paxton Drive, and Lighthouse Lane.

Objective

- To provide the main roadways in the park, while limiting landform and vegetation management to that required for maintenance of public health and safety.

Landform Management

- **Shoreline erosion concerns will be managed using ecologically-based methods when possible, in accordance with section 2.1. In situations where roadbeds are threatened by erosion, consideration will be given to re-routing the road within the 15 m right of way.**

Vegetation

The disturbed habitats characteristic of roadways are pathways for alien species.

- **Invasive alien species will be aggressively managed in this zone.**

- **Roadways will be cleared of fallen trees and limbs. A mowed section of up to 2 m width along each side will be kept clear in order to ensure adequate visibility.**

4.4.5 Zone D5 – Operations Areas (4 ha)

The zone includes the park office, warehouse, maintenance compound, pump house and native plant nursery facilities. These facilities were constructed in the 1950's to facilitate park administration, maintenance, and operational needs. At that time most of these facilities were built in the panne habitat area of the park. Additions to these buildings have occurred since that time.

Objective

- To provide facilities required for park administration, maintenance, and operations

Facilities and Development

Since the approval of the park management plan the office/maintenance compound area has been reduced by approximately 40%.

- **The office/maintenance compound will not be developed beyond the existing footprint; however, development may occur within the existing footprint to accommodate administrative, maintenance, and operational needs.**

5. Description of Consultation

Consultation is an important part of this environmental assessment process. There will be a 45 day review and consultation period for the draft resource management implementation plan, meeting the requirements for the initial notice for Category B projects in the PPCR Class EA. A paid advertisement will appear in local media and the draft plan will be posted on the Ontario Parks website. Paper copies of the draft plan will be sent to those who request it. All comments will be carefully considered in the preparation of the final mainland resource management implementation plan. Upon the release of the final implementation plan, a notice will be sent to individuals and groups that commented on the draft plan. This resource management implementation plan will be reviewed or amended as required.

6. Plan Implementation, Review, and Amendment

This implementation plan will be in effect from 2009 until 2018, in accordance with the provisions for recurring projects under the *Class EA for Provincial Parks and Conservation Reserves*. Upon approval, the projects described within this plan may be implemented each year that the plan is in effect. Management actions and their effects will be reviewed internally each year. In 2018 the plan will be formally reviewed with consultation, if monitoring indicates that further management activity is necessary.

7. Resources and References

Allombert, S., S. Stockton and J. Martin. 2005. A natural experiment on the impact of overabundant deer on forest invertebrates. *Conservation Biology* 19:1917-1929.

Carr, L.W. and S. Koh, 2001. *Preliminary assessment of vegetative damage by the common cormorant, northwest forest, High Bluff Island, Presqu'île Provincial Park*. Unpublished report.

DeCalesta, D.S. 1994. Effect of white-tailed deer on songbirds within managed forests in Pennsylvania. *Journal of Wildlife Management* 58:711-718.

Environment Canada 2007. *COSEWIC rankings*. Accessed at: http://www.speciesatrisk.gc.ca/search/default_e.cfm. Accessed on March 2007

Geoff Hodgins Architect 2005. *Lighthouse Lane Cottages Heritage Building Stewardship Plan*. Unpublished report. 47 pp. + Appendices

Keddy, C. 1989. *Presqu'île Provincial Park Vegetation*. Ontario Parks, Ontario Ministry of Natural Resources. Queen's Printer of Ontario, Ontario Canada. 29 pp. + Appendices

Koh, S. 2005. 2004 assessment of the impact of white-tailed deer (*Odocoileus virginianus*) on plant communities in Presqu'île Provincial Park. unpublished report for Ontario Ministry of Natural Resources. 12 pp.

Mortsch, L. 1999. *Climate change impacts on hydrology, water resources management and the people of the great lakes – St. Lawrence system: a technical survey*. A report for the IJC Reference on Consumption, Diversions and Removals of Great Lakes Water. Environment Canada, Toronto.

Neuman, J. and H. Blokpoel. 1996. Canadian Wildlife Service. The Terns of the Canadian Great Lakes. Accessed at: http://www.on.ec.gc.ca/wildlife/factsheets/fs_terns-e.html, February 2006.

OMNR. 1992. *Ontario Provincial Parks: Planning and Management Policies*. Ontario Ministry of Natural Resources, Queen's Printer for Ontario, Toronto

OMNR. 1996. *Presqu'île Provincial Park Background Information Issues and Alternatives*. Ontario Ministry of Natural Resources. Queen's Printer of Ontario, Ontario Canada. 29 pp.

OMNR. 2000. *Presqu'île Provincial Park Management Plan*. Ontario Ministry of Natural Resources. Queen's Printer for Ontario, Ontario Canada. 36 pp.

Ontario Ministry of Natural Resources. 2001. *Rondeau Provincial Park Vegetation Management Plan*. Queen's Printer for Ontario.

OMNR. 2004. *Forest Fire Management Strategy for Ontario*. Ontario Ministry of Natural Resources, Queen's Printer for Ontario, Toronto, 64 pp

OMNR. 2004. *Fire Management Policy for Provincial Parks and Conservation Reserves*. Ontario Ministry of Natural Resources, Queen's Printer for Ontario, Toronto. 5p.

Ontario Ministry of Natural Resources. 2006. *Natural Heritage Information Centre - Areas Report* -. Accessed at: http://nhic.mnr.gov.on.ca/MNR/nhic/areas/areas_report.cfm?areaid=2092, February 2006.

OMNR. 2006. *Guidelines for Modified Response and Monitoring during Managed Fire Operations*. Ontario Ministry of Natural Resources, Queen's Printer for Ontario, Toronto. 21p.

Ontario Parks, 2002. *Management Strategy for Double-crested Cormorants Presqu'ile Provincial Park*. 18 pp. + Appendices

Ontario Parks 2003. *Invasive Exotic Plant Management Toolkit*. Ontario Parks, Ontario Ministry of Natural Resources. Kingston, Ontario. 71 pp.

Ontario Parks. 2008. *Beach and Dune Management Implementation Plan*. Presqu'ile Provincial Park. Unpublished document.

Rooney, T.P. 2001. Deer impacts on forest ecosystems: a North American perspective. *Forestry* 74:201-208.

Stankey, G.H., R.N. Clark, B.T. Bormann. 2005. *Adaptive management of natural resources: theory, concepts, and management institutions*. Gen. Tech. Rep. PNW-GTR-654. US. Department of Agriculture, Forest Service, Pacific Northwest Research Station. Portland, OR. 73 pp.

Tilghman, N.G. 1989. Impacts of white-tailed deer on forest regeneration in northwestern Pennsylvania. *Journal of Wildlife Management* 53:524-532.

Tyerman, D. Biodiversity Specialist, Presqu'ile Provincial Park. 2006. Personal communications.

Van Sleuwen, M. 2006. *Natural fire regimes in Ontario*. Ontario Ministry of Natural Resources, Queen's Printer for Ontario, Toronto. 143 pp

Appendix 1A: Record of Project Screening and Evaluation

Maintenance and restoration of natural environments/ enhance, rehabilitate, restore, or manage habitat

Scoping

Previous planning

The Park Management Plan (2000) states that:

- planted conifers will be removed from zones NR1 and NE1, and removal in other areas will be addressed through zone resource management plans (ie: this Mainland Resource Management Implementation Plan
- plant species may be re-established using local seed stocks, and that vegetation management planning will be accomplished through zone resource management plans.

Required evaluation and consultation steps

- As category B projects, an initial public notice, consideration of public input during final project evaluation, and a notice of completion are required.

Project Screening and Evaluation

Purpose and rationale

- See sections 2.6, 2.7, and 3.2 for full descriptions of the projects.

Project alternatives

- The only alternative to removing planted alien conifers and naturalizing plantations is to leave them intact and allow natural succession to take place. This method will be used at some locations within the park; however, is not the preferred alternative for certain locations.
- The only alternative to restoration is leave sites as they are and to allow natural succession to take place. This is the method that will be used at some locations within the park; however; in other locations it is preferable to use active management to enhance succession and increase the park's habitat diversity.

Study area and environment affected

- Planted conifer removal is proposed for zones NR1, NR4, NE3, D1, and D2 as described in the park management plan
- Restoration is proposed for zones NR5, NE2, NE3, D1, and D2 as described in the park management plan

Applicable MNR policies, procedures, manuals, guidelines

- MNR extension notes
- Approved recovery strategies for SAR birds

Potential environmental effects

- Net potential environmental effects will be positive, as this project will decrease the amount of alien species and increase habitat diversity.

Required mitigation, remedial, and enhancement measures

- Project activities will be timed to avoid disturbance to breeding or overwintering wildlife.

Monitoring requirements

- In areas of plantation naturalization where different methods are being tested, monitoring of understorey regeneration will be done to determine success of the methods used.

Anticipated level of public or agency concern

- Low to none – this is a relatively inexpensive project that will have net positive environmental effects.

Category and rationale

- This project has been assigned to Category B.
- The proposed project will have net positive environmental effects, and there is little anticipated public or agency concern.

Screening Criteria "This project may affect ..."	Rating of Potential Net Effect								Comments, Rationale
	-H	-M	-L	Nil	Unk	+L	+M	+H	
<ul style="list-style-type: none"> ▪ Values for which the provincial park or conservation reserve was established 							X		The affected vegetation communities are part of the park's unique natural heritage
Natural Environment Considerations									
<ul style="list-style-type: none"> ▪ Air quality 				X					
<ul style="list-style-type: none"> ▪ Water quality or quantity (ground or surface) 				X					
<ul style="list-style-type: none"> ▪ Species at risk or their habitat 							X		Some restoration activities are targeted for SAR bird habitat
<ul style="list-style-type: none"> ▪ Significant earth or life science features 				X					
<ul style="list-style-type: none"> ▪ Fish or other aquatic species, communities, or their habitat (including numbers, diversity and movement of resident or migratory species) 				X					
<ul style="list-style-type: none"> ▪ Land subject to natural or human-made hazards 				X					
<ul style="list-style-type: none"> ▪ Recovery of a species under a special management program (e.g. elk restoration) 				X					
<ul style="list-style-type: none"> ▪ Ecological integrity 								X	Restoration will improve habitat and therefore biodiversity
<ul style="list-style-type: none"> ▪ Terrestrial wildlife (including numbers, diversity and movement of resident or migratory species) 								X	Restoration will improve habitat and therefore biodiversity
<ul style="list-style-type: none"> ▪ Natural vegetation and terrestrial habitat linkages or corridors through fragmentation, alteration and/or critical loss 								X	Restoration will improve habitat and therefore biodiversity
<ul style="list-style-type: none"> ▪ Permafrost 				X					
<ul style="list-style-type: none"> ▪ Soils and sediment quality 				X					
<ul style="list-style-type: none"> ▪ Drainage or flooding 				X					
<ul style="list-style-type: none"> ▪ Sedimentation or erosion 				X					
<ul style="list-style-type: none"> ▪ Release of contaminants in soils, sediments 				X					
<ul style="list-style-type: none"> ▪ Natural heritage features and areas (e.g. areas of natural and scientific interest, provincially significant wetlands) 						X			The affected vegetation communities are part of the park's unique natural heritage
<ul style="list-style-type: none"> ▪ Other (specify) 									
Land Use, Resource Management Considerations									
<ul style="list-style-type: none"> ▪ Remoteness (access inaccessible areas) 				X					
<ul style="list-style-type: none"> ▪ Navigation 				X					
<ul style="list-style-type: none"> ▪ Other projects within a park or reserve 							X		Restoration is part of an ecosystem-based approach to resource management in the park
<ul style="list-style-type: none"> ▪ Other projects outside a park or reserve 				X					
<ul style="list-style-type: none"> ▪ Traffic patterns or traffic infrastructure 				X					
<ul style="list-style-type: none"> ▪ Public or private recreation 				X					
<ul style="list-style-type: none"> ▪ Or create excessive waste materials 				X					
<ul style="list-style-type: none"> ▪ Or commit a significant amount of a non-renewable resource (e.g. aggregates, agricultural land) 				X					
<ul style="list-style-type: none"> ▪ Noise levels 				X					
<ul style="list-style-type: none"> ▪ Views or aesthetics 							X		Part of the aesthetics of the park is its diverse

Screening Criteria "This project may affect ..."	Rating of Potential Net Effect								Comments, Rationale
	-H	-M	-L	Nil	Unk	+L	+M	+H	
									habitats and the wildlife they support
<ul style="list-style-type: none"> ■ Another project or be a precondition or justification for implementing another project 							X		Restoration of some habitats cannot occur without decreasing deer impacts
<ul style="list-style-type: none"> ■ Uses, persons or property outside a park or reserve 				X					
<ul style="list-style-type: none"> ■ Other (specify) 									
Social, Cultural, and Economic Considerations									
<ul style="list-style-type: none"> ■ Archaeology 				X					
<ul style="list-style-type: none"> ■ Built heritage 				X					
<ul style="list-style-type: none"> ■ Cultural heritage landscapes 				X					
<ul style="list-style-type: none"> ■ Sacred or traditional use sites 				X					
<ul style="list-style-type: none"> ■ Or displace people, businesses, institutions, or public facilities 				X					
<ul style="list-style-type: none"> ■ Community character, enjoyment of property, or local amenities 				X					
<ul style="list-style-type: none"> ■ Demands on government services or infrastructure 			X						Restoration requires staff time and resources
<ul style="list-style-type: none"> ■ Public health and/or safety 				X					
<ul style="list-style-type: none"> ■ Local, regional or provincial economies or businesses 				X					
<ul style="list-style-type: none"> ■ Tourism values (e.g. resource-based tourist lodge) 				X					
<ul style="list-style-type: none"> ■ Other (specify) 				X					
Aboriginal Considerations									
<ul style="list-style-type: none"> ■ First Nation reserves or communities 				X					
<ul style="list-style-type: none"> ■ Spiritual, ceremonial, or cultural sites 				X					
<ul style="list-style-type: none"> ■ Traditional land or resources uses, or affect economic activities 				X					
<ul style="list-style-type: none"> ■ Aboriginal values 				X					
<ul style="list-style-type: none"> ■ Lands subject to land claims 				X					
<ul style="list-style-type: none"> ■ Other (specify) 									

Appendix 1B: Record of Project Screening and Evaluation

Manage an animal population (deer)

Scoping

Previous planning

- The 2000 Park Management Plan states that:
 - *the deer population will be reduced to, and then maintained at, a level that is within the carrying capacity of the park's deer habitat and sustainable in the context of the park environment*
 - *The target population...will be subject to change from time to time on the basis of new information or habitat changes.*

Required evaluation and consultation steps

- As a category B project, an initial public notice, consideration of public input during final project evaluation, and a notice of completion are required.

Project Screening and Evaluation

Purpose and rationale

- See section 3.5.1 for a full description of the project.

Project alternatives

- Alternatives to shooting for managing deer populations were considered during the park management planning process. Current information from wildlife managers in other jurisdictions continues to support shooting as the most feasible approach to decreasing deer numbers when necessary
- An alternative to managing deer is to not manage them. This alternative was considered during the park management planning process. Deer will only be managed in years when it has been determined that they are continuing to have a serious negative impact on vegetation and there are sufficient numbers within the park during the winter months.

Study area and environment affected

- Deer management is proposed for the entire park mainland and is part of a broader park-wide program

Applicable MNR policies, procedures, manuals, guidelines

- Provincial Park Policy 2.48 – General liability in provincial parks

Potential environmental effects

- Net potential environmental effects will be positive, as this project will decrease the impacts of deer browsing on forest ecosystems, allowing for their recovery and an increase in biodiversity. Deer management in the past at Presqu'île has shown positive results.
- Negative effects are limited to demands on government services and impacts on the deer population. These are expected and reasonable negative impacts for this project. Some public concern from certain groups has been expressed.

Required mitigation, remedial, and enhancement measures

- Project activities will be carried out in a way to minimize potential suffering to the animals.
- Deer management activities would occur after the peak of fall movement into wintering areas and before spring movement. There is minimum ecological impact from these activities at this time of year.
- Human safety would continue to be the primary concern during all deer management activities.

Monitoring requirements

- Trends in deer populations will be monitoring yearly using at least one of several possible methods
- Deer impacts on vegetation will also be monitored yearly using at least one of several possible methods. Vegetation parameters will be measured to determine if deer management is required, and if implemented, to determine if it has been successful in allowing the recruitment of woody species.

Anticipated level of public or agency concern

- Medium – Deer management occurred from 2003 until 2007, and is occurring at several other provincial parks. There has been some opposition from certain special interest groups, but little from the general public. This project was already consulted on and approved in the park management plan.

Category and rationale

- This project has been assigned to Category B.
- The proposed project will have net positive environmental effects, and there is moderate anticipated public or agency concern from special interest groups.

Screening Criteria "This project may affect ..."	Rating of Potential Net Effect								Comments, Rationale
	-H	-M	-L	Nil	Unk	+L	+M	+H	
<ul style="list-style-type: none"> ■ Values for which the provincial park or conservation reserve was established 							X		The forest ecosystems are part of the park's unique natural heritage
Natural Environment Considerations									
<ul style="list-style-type: none"> ■ Air quality 				X					
<ul style="list-style-type: none"> ■ Water quality or quantity (ground or surface) 				X					
<ul style="list-style-type: none"> ■ Species at risk or their habitat 				X					
<ul style="list-style-type: none"> ■ Significant earth or life science features 				X					
<ul style="list-style-type: none"> ■ Fish or other aquatic species, communities, or their habitat (including numbers, diversity and movement of resident or migratory species) 				X					
<ul style="list-style-type: none"> ■ Land subject to natural or human-made hazards 				X					
<ul style="list-style-type: none"> ■ Recovery of a species under a special management program (e.g. elk restoration) 				X					
<ul style="list-style-type: none"> ■ Ecological integrity 							X		Deer management will help restore natural forest dynamics
<ul style="list-style-type: none"> ■ Terrestrial wildlife (including numbers, diversity and movement of resident or migratory species) 							X		Deer management will help young woody vegetation grow, which provides habitat
<ul style="list-style-type: none"> ■ Natural vegetation and terrestrial habitat linkages or corridors through fragmentation, alteration and/or critical loss 							X		Deer management will help young woody vegetation grow, which provides habitat
<ul style="list-style-type: none"> ■ Permafrost 				X					
<ul style="list-style-type: none"> ■ Soils and sediment quality 				X					
<ul style="list-style-type: none"> ■ Drainage or flooding 				X					
<ul style="list-style-type: none"> ■ Sedimentation or erosion 				X					
<ul style="list-style-type: none"> ■ Release of contaminants in soils, sediments 				X					
<ul style="list-style-type: none"> ■ Natural heritage features and areas (e.g. areas of natural and scientific interest, provincially significant wetlands) 						X			The forest ecosystems are part of the park's unique natural heritage
<ul style="list-style-type: none"> ■ Other (specify) 									
Land Use, Resource Management Considerations									
<ul style="list-style-type: none"> ■ Remoteness (access inaccessible areas) 				X					
<ul style="list-style-type: none"> ■ Navigation 				X					
<ul style="list-style-type: none"> ■ Other projects within a park or reserve 							X		Deer management is part of an ecosystem-based approach to resource management in the park
<ul style="list-style-type: none"> ■ Other projects outside a park or reserve 				X					
<ul style="list-style-type: none"> ■ Traffic patterns or traffic infrastructure 				X					
<ul style="list-style-type: none"> ■ Public or private recreation 				X					
<ul style="list-style-type: none"> ■ Or create excessive waste materials 				X					
<ul style="list-style-type: none"> ■ Or commit a significant amount of a non-renewable resource (e.g. aggregates, agricultural land) 				X					
<ul style="list-style-type: none"> ■ Noise levels 				X					
<ul style="list-style-type: none"> ■ Views or aesthetics 				X					
<ul style="list-style-type: none"> ■ Another project or be a precondition or 								X	Restoration of treed

Screening Criteria "This project may affect ..."	Rating of Potential Net Effect								Comments, Rationale
	-H	-M	-L	Nil	Unk	+L	+M	+H	
justification for implementing another project									habitats cannot occur without decreasing deer impacts
<ul style="list-style-type: none"> ■ Uses, persons or property outside a park or reserve 				X					
<ul style="list-style-type: none"> ■ Other (specify) 									
Social, Cultural, and Economic Considerations									
<ul style="list-style-type: none"> ■ Archaeology 				X					
<ul style="list-style-type: none"> ■ Built heritage 				X					
<ul style="list-style-type: none"> ■ Cultural heritage landscapes 				X					
<ul style="list-style-type: none"> ■ Sacred or traditional use sites 				X					
<ul style="list-style-type: none"> ■ Or displace people, businesses, institutions, or public facilities 				X					
<ul style="list-style-type: none"> ■ Community character, enjoyment of property, or local amenities 				X					
<ul style="list-style-type: none"> ■ Demands on government services or infrastructure 			X						Deer management requires staff time and resources
<ul style="list-style-type: none"> ■ Public health and/or safety 				X					
<ul style="list-style-type: none"> ■ Local, regional or provincial economies or businesses 				X					
<ul style="list-style-type: none"> ■ Tourism values (e.g. resource-based tourist lodge) 				X					
<ul style="list-style-type: none"> ■ Other (specify) 		X							There are some ethical concerns in the community at large regarding killing deer
Aboriginal Considerations									
<ul style="list-style-type: none"> ■ First Nation reserves or communities 				X					
<ul style="list-style-type: none"> ■ Spiritual, ceremonial, or cultural sites 				X					
<ul style="list-style-type: none"> ■ Traditional land or resources uses, or affect economic activities 						X			Aboriginal groups are involved in deer management
<ul style="list-style-type: none"> ■ Aboriginal values 						X			Aboriginal groups are involved in deer management
<ul style="list-style-type: none"> ■ Lands subject to land claims 				X					
<ul style="list-style-type: none"> ■ Other (specify) 									

Appendix 1C: Record of Project Screening and Evaluation

Control nuisance or invasive wildlife species

Scoping

Previous planning

- The 2000 Presqu'île Park Management Plan states that:
 - non-native (alien) animal species that threaten park values may be eradicated if feasible and practical, and that
 - animal populations, including invasive domestic animals, may be controlled when essential to protect human health and safety, natural heritage values, or the health of species outside the park.

Required evaluation and consultation steps

- As a category B project, an initial public notice, consideration of public input during final project evaluation, and a notice of completion are required.

Project Screening and Evaluation

Purpose and rationale

- See section 3.5 for a full description of the project.

Project alternatives

- The alternative to managing nuisance or invasive wildlife species is to not manage them. This is the alternative that may be taken in cases where there is no impact of the species on the park's ecological integrity, or in cases where there is no feasible or practical way to manage these species.

Study area and environment affected

- Nuisance or invasive wildlife species may be managed anywhere on the park mainland

Potential environmental effects

- Net potential environmental effects will be positive, as this project will decrease the impacts of these species on the park's ecological integrity or protect human health and safety.

Required mitigation, remedial, and enhancement measures

- Project activities will be carried out in a way to minimize potential suffering to the animals.

Monitoring requirements

- Trends in populations of nuisance or invasive wildlife species and their impacts will be tracked to determine management needs

Anticipated level of public or agency concern

- Low to medium – There may be some opposition from certain special interest groups, but little from the general public. Most members of the public will be supportive. This project was already consulted on and approved in the park management plan.

Category and rationale

- This project has been assigned to Category B.
- The proposed project will have net positive environmental effects, and there is moderate anticipated public or agency concern from special interest groups.

Screening Criteria "This project may affect ..."	Rating of Potential Net Effect								Comments, Rationale
	-H	-M	-L	Nil	Unk	+L	+M	+H	
<ul style="list-style-type: none"> ▪ Values for which the provincial park or conservation reserve was established 						X			The ecosystems affected by nuisance and invasive wildlife are part of the park's unique natural heritage
Natural Environment Considerations									
<ul style="list-style-type: none"> ▪ Air quality 				X					
<ul style="list-style-type: none"> ▪ Water quality or quantity (ground or surface) 				X					
<ul style="list-style-type: none"> ▪ Species at risk or their habitat 						X			Wildlife management may enhance projects to help sensitive species
<ul style="list-style-type: none"> ▪ Significant earth or life science features 				X					
<ul style="list-style-type: none"> ▪ Fish or other aquatic species, communities, or their habitat (including numbers, diversity and movement of resident or migratory species) 				X					
<ul style="list-style-type: none"> ▪ Land subject to natural or human-made hazards 				X					
<ul style="list-style-type: none"> ▪ Recovery of a species under a special management program (e.g. elk restoration) 				X					
<ul style="list-style-type: none"> ▪ Ecological integrity 						X			Wildlife management may help restore natural ecosystem dynamics
<ul style="list-style-type: none"> ▪ Terrestrial wildlife (including numbers, diversity and movement of resident or migratory species) 						X			Wildlife management may decrease their impact on sensitive species or their habitat
<ul style="list-style-type: none"> ▪ Natural vegetation and terrestrial habitat linkages or corridors through fragmentation, alteration and/or critical loss 						X			Wildlife management may decrease their impact on sensitive communities
<ul style="list-style-type: none"> ▪ Permafrost 				X					
<ul style="list-style-type: none"> ▪ Soils and sediment quality 				X					
<ul style="list-style-type: none"> ▪ Drainage or flooding 				X					
<ul style="list-style-type: none"> ▪ Sedimentation or erosion 				X					
<ul style="list-style-type: none"> ▪ Release of contaminants in soils, sediments 				X					
<ul style="list-style-type: none"> ▪ Natural heritage features and areas (e.g. areas of natural and scientific interest, provincially significant wetlands) 						X			The ecosystems affected by nuisance and invasive wildlife are part of the park's unique natural heritage
<ul style="list-style-type: none"> ▪ Other (specify) 									
Land Use, Resource Management Considerations									
<ul style="list-style-type: none"> ▪ Remoteness (access inaccessible areas) 				X					
<ul style="list-style-type: none"> ▪ Navigation 				X					
<ul style="list-style-type: none"> ▪ Other projects within a park or reserve 						X			Wildlife management may enhance projects to help sensitive species
<ul style="list-style-type: none"> ▪ Other projects outside a park or reserve 				X					
<ul style="list-style-type: none"> ▪ Traffic patterns or traffic infrastructure 				X					
<ul style="list-style-type: none"> ▪ Public or private recreation 				X					
<ul style="list-style-type: none"> ▪ Or create excessive waste materials 				X					
<ul style="list-style-type: none"> ▪ Or commit a significant amount of a non-renewable resource (e.g. aggregates, agricultural land) 				X					
<ul style="list-style-type: none"> ▪ Noise levels 				X					

Screening Criteria "This project may affect ..."	Rating of Potential Net Effect								Comments, Rationale
	-H	-M	-L	Nil	Unk	+L	+M	+H	
▪ Views or aesthetics				X					
▪ Another project or be a precondition or justification for implementing another project				X					
▪ Uses, persons or property outside a park or reserve						X			Some wildlife species affect property owners outside the park
▪ Other (specify)									
Social, Cultural, and Economic Considerations									
▪ Archaeology				X					
▪ Built heritage				X					
▪ Cultural heritage landscapes				X					
▪ Sacred or traditional use sites				X					
▪ Or displace people, businesses, institutions, or public facilities				X					
▪ Community character, enjoyment of property, or local amenities				X					
▪ Demands on government services or infrastructure			X						Wildlife management requires staff time and resources
▪ Public health and/or safety						X			Wildlife management may be undertaken to ensure park visitor safety
▪ Local, regional or provincial economies or businesses				X					
▪ Tourism values (e.g. resource-based tourist lodge)				X					
▪ Other (specify)			X						There are some ethical concerns in the community at large regarding managing wildlife
Aboriginal Considerations									
▪ First Nation reserves or communities				X					
▪ Spiritual, ceremonial, or cultural sites				X					
▪ Traditional land or resources uses, or affect economic activities				X					
▪ Aboriginal values				X					
▪ Lands subject to land claims				X					
▪ Other (specify)									

Appendix 1D: Record of Project Screening and Evaluation

Control erosion or stabilize shoreline or bank

Scoping

Previous planning

- The park management plan states that: “landform management planning will be accomplished through zone resource management plans” (ie: this mainland resource management implementation plan, as well as the beach and dunes resource management implementation plan).

Required evaluation and consultation steps

- As a category B project, an initial public notice, consideration of public input during final project evaluation, and a notice of completion are required.

Project Screening and Evaluation

Purpose and rationale

- See section 2.1 for a full description of the project.

Project alternatives

- See section 2.1 for a full description of alternatives

Study area and environment affected

- Nuisance or invasive wildlife species may be managed anywhere on the park mainland

Potential environmental effects

- Net potential environmental effects will be neutral to positive, as this project will either ensure that erosion control structures will have a minimal effect on natural processes, or erosion control techniques will be ecologically-based.

Required mitigation, remedial, and enhancement measures

- Timing of project activities will avoid disturbance to breeding or migrating wildlife.
- Any erosion control structures will be designed to minimize impacts on the park’s environment and natural processes.

Monitoring requirements

- In cases where erosion control structures are used, they will be monitored to ensure that they are not causing increased erosion concerns elsewhere along the shoreline

Anticipated level of public or agency concern

- None to low – Some nearby landowners may have an interest in this project, but are expected to be supportive.

Category and rationale

- This project has been assigned to Category B.
- The proposed project will have net neutral or positive environmental effects, and there is little to no anticipated public or agency concern from special interest groups.

Screening Criteria "This project may affect ..."	Rating of Potential Net Effect								Comments, Rationale
	-H	-M	-L	Nil	Unk	+L	+M	+H	
<ul style="list-style-type: none"> ▪ Values for which the provincial park or conservation reserve was established 				X		X			
Natural Environment Considerations									
<ul style="list-style-type: none"> ▪ Air quality 				X					
<ul style="list-style-type: none"> ▪ Water quality or quantity (ground or surface) 				X					
<ul style="list-style-type: none"> ▪ Species at risk or their habitat 				X					
<ul style="list-style-type: none"> ▪ Significant earth or life science features 					X				Disruption of natural processes of erosion and deposition will be minimized
<ul style="list-style-type: none"> ▪ Fish or other aquatic species, communities, or their habitat (including numbers, diversity and movement of resident or migratory species) 					X				Any erosion control will be done in a way to minimize impacts on aquatic communities
<ul style="list-style-type: none"> ▪ Land subject to natural or human-made hazards 						X			Any erosion control will minimize potential loss of high value resources
<ul style="list-style-type: none"> ▪ Recovery of a species under a special management program (e.g. elk restoration) 				X					
<ul style="list-style-type: none"> ▪ Ecological integrity 					X				Disruption of natural processes of erosion and deposition will be minimized
<ul style="list-style-type: none"> ▪ Terrestrial wildlife (including numbers, diversity and movement of resident or migratory species) 				X					
<ul style="list-style-type: none"> ▪ Natural vegetation and terrestrial habitat linkages or corridors through fragmentation, alteration and/or critical loss 						X			Some erosion control will create more vegetated habitat
<ul style="list-style-type: none"> ▪ Permafrost 				X					
<ul style="list-style-type: none"> ▪ Soils and sediment quality 				X					
<ul style="list-style-type: none"> ▪ Drainage or flooding 				X					
<ul style="list-style-type: none"> ▪ Sedimentation or erosion 					X				Disruption of natural processes of erosion and deposition will be minimized
<ul style="list-style-type: none"> ▪ Release of contaminants in soils, sediments 				X					
<ul style="list-style-type: none"> ▪ Natural heritage features and areas (e.g. areas of natural and scientific interest, provincially significant wetlands) 				X					
<ul style="list-style-type: none"> ▪ Other (specify) 									
Land Use, Resource Management Considerations									
<ul style="list-style-type: none"> ▪ Remoteness (access inaccessible areas) 				X					
<ul style="list-style-type: none"> ▪ Navigation 				X					
<ul style="list-style-type: none"> ▪ Other projects within a park or reserve 				X					
<ul style="list-style-type: none"> ▪ Other projects outside a park or reserve 				X					
<ul style="list-style-type: none"> ▪ Traffic patterns or traffic infrastructure 				X					
<ul style="list-style-type: none"> ▪ Public or private recreation 				X					
<ul style="list-style-type: none"> ▪ Or create excessive waste materials 				X					
<ul style="list-style-type: none"> ▪ Or commit a significant amount of a non-renewable resource (e.g. aggregates, agricultural land) 			X						Some erosion control may require aggregates
<ul style="list-style-type: none"> ▪ Noise levels 				X					
<ul style="list-style-type: none"> ▪ Views or aesthetics 			X						Some erosion control may result in the

Screening Criteria "This project may affect ..."	Rating of Potential Net Effect								Comments, Rationale
	-H	-M	-L	Nil	Unk	+L	+M	+H	
									creation of an artificial structure
■ Another project or be a precondition or justification for implementing another project				X					
■ Uses, persons or property outside a park or reserve					X				Erosion control within the park may affect shorelines outside the park
■ Other (specify)									
Social, Cultural, and Economic Considerations									
■ Archaeology				X					
■ Built heritage				X					
■ Cultural heritage landscapes				X					
■ Sacred or traditional use sites				X					
■ Or displace people, businesses, institutions, or public facilities				X					
■ Community character, enjoyment of property, or local amenities				X					
■ Demands on government services or infrastructure			X						Erosion control requires staff time and resources
■ Public health and/or safety						X			Erosion control may be undertaken to ensure park visitor safety
■ Local, regional or provincial economies or businesses				X					
■ Tourism values (e.g. resource-based tourist lodge)				X					
■ Other (specify)				X					
Aboriginal Considerations									
■ First Nation reserves or communities				X					
■ Spiritual, ceremonial, or cultural sites				X					
■ Traditional land or resources uses, or affect economic activities				X					
■ Aboriginal values				X					
■ Lands subject to land claims				X					
■ Other (specify)									

Appendix 2. Assessing treatment options for hazardous trees

This appendix sets forth the normal approach for dealing with potentially hazardous trees. This approach aims to ensure safety while maintaining habitat and biodiversity.

No action required if:

- Dead or living trees that are leaning away from trails, roadways, or facilities, provided the upturned root mass will not cause damage to trails or roads
- Trees within naturalization areas of development zones that do not pose a risk to trail, roadways, or facilities outside the naturalization area

Thinning of crown:

A hazardous tree may be treated by removal of selected limbs in the crown (thinning) when the trunk and base is sound and:

- The tree has a slight lean or shows signs of shifting (heaving or cracking of soil). Removing part or all of the crown will reduce its weight and the stress on the lower trunk and roots
- Weakness and rot is restricted to the upper crown/limbs
- Limbs are interfering with power lines of buildings

Cut top and upper limbs leaving bare trunk:

Trim back the crown and limbs to the main trunk(s) and limbs, relieving stress on the root system and reducing the possibility of the tree falling while leaving valuable wildlife habitat. Use this method when:

- The tree is located in a campground and day use areas and has significant rot or weakness in the crown or upper limbs but sound trunk and base.
- Rot is present in the trunk, but enough sound wood is left to support a bare trunk.
- The tree is a softwood or crotched hardwood.

Removal:

Removal of a hazardous tree is the final recourse when the first 3 options are not adequate to ensure the safety of park users and facilities. Complete removal is necessary only when:

- The base will not provide support to a bare trunk
- The tree is leaning such that the root system will not be able to support it, or a hazard is created by the uplifted roots
- There is substantial cracking in the trunk, indicating that the tree will likely fall due to wind or to ice accumulation

Unless they obstruct a roadway, trail, or facility or create a safety hazard, felled trees should be left in place.

Special Cases

In the cases of severe insect or disease outbreak (e.g. Emerald Ash Borer), approaches to tree removal may differ from those described above, depending on advice from experts or agencies.

Appendix 3: List of Significant Species at Presqu'île

Provincial rank (S-rank), provincial status (COSSARO), the park zone where a species can be found (where known) and any additional comments are listed. S-Ranks are based on 2006 Natural Heritage of Information Centre (NHIC) information. COSSARO ranks are based on the Species at Risk in Ontario List issued June 30, 2008. These records have been compiled from a variety of existing park sources. Species are listed in taxonomic order

Common Name Scientific name	S-rank*	COSSARO	Location (Park Zone)	Comments
PLANTS				
Lance-leaved Grapefern <i>Botrychium lanceolatum</i>	S3			
Grass-leaved Water-plantain <i>Alisma gramineum</i>	S3S4			unconfirmed
Crested Arrowhead <i>Sagittaria graminea</i> var. <i>cristata</i>	S3		NR1	marsh
Narrowleaf Sedge <i>Carex amphibola</i>	S2			
Slim-spike Three-awn Grass <i>Aristida longespica</i>	S2		NR1	occurs in the pannes (Keddy 1989)
American Beachgrass <i>Ammophila breviligulata</i>	S3		NR1, NE1	dunes
Low Nutrush <i>Scleria verticillata</i>	S3		NR1, NR3	occurs in the pannes (Keddy 1989)
Pale Green Orchid <i>Platanthera flava</i> var. <i>herbiola</i>	S3			
Southern Slender Ladies'-tresses <i>Spiranthes lacera</i> var. <i>gracilis</i>	S1			
Butternut <i>Juglans cinerea</i>	S3?	END	NR1	1-3 individuals, may be planted cultivars
Bushy Cinquefoil <i>Potentilla paradoxa</i>	S3			

Common Name Scientific name	S-rank*	COSSARO	Location (Park Zone)	Comments
Bushy Aster <i>Aster dumosum</i> var. <i>strictior</i>	S2		NR1	occurs in the fingers (Keddy 1989)
INSECTS – Lepidoptera (Butterflies)				
Giant Swallowtail <i>Papilio cresphontes</i>	S2		NR4, NE1	vagrant
Hickory Hairstreak <i>Satyrium caryaevorum</i>	S3SM		NR4	rare, possible resident
Monarch <i>Danaus plexippus</i>	S4	SC	All zones	annual migrant. This species congregates in high numbers on High Bluff Island and at Owen Point.
Pine Imperial Moth <i>Eacles imperialis pini</i>	S3		NR1, NE1	resident
INSECTS – Odonata (Dragonflies and Damselflies)				
Azure Bluet <i>Enallagma aspersum</i>	S3		NE1, NR1	rare breeder in pannes and possibly marsh
Vernal Bluet <i>Enallagma cyathigerum vernal</i>	S3		NR1	uncommon breeder in marsh
Citrine Forktail <i>Ischnura hastata</i>	S2		NE1	vagrant
Mottled Darner <i>Aeshna clepsydra</i>	S3		any	rare migrant, possible breeder in marsh
Green-striped Darner <i>Aeshna verticalis</i>	S2		any	uncommon migrant and possible breeder
Swamp Darner <i>Epiaeschna heros</i>	S2S3		NR4	uncommon migrant, possible ephemeral pool breeder
Halloween Pennant <i>Celithemis eponina</i>	S3		NR1, NE1, NR3	uncommon resident
FISHES				
American Eel <i>Anguilla rostrata</i>	(not tracked by NHIC)	END		
Grass Pickerel <i>Esox americanus vermiculatus</i>	S3	SC	NR1	

Common Name Scientific name	S-rank*	COSSARO	Location (Park Zone)	Comments
Lake Sturgeon <i>Acipenser fulvescens</i>	S3	SC		occasionally found dead on beach
REPTILES				
Stinkpot <i>Sternotherus odoratus</i>	S3	THR	NR1	rare
Blandings Turtle <i>Emydoidea blandingi</i>	S3	THR	NR1	uncommon
Northern Map Turtle <i>Graptemys geographica</i>	S3	SC	NR1	only occasional sightings, may be vagrant to Presqu'île Bay
Milksnake <i>Lampropeltis triangulum</i>	S3	SC	NR4	uncommon, mostly in Calf Pasture area
Eastern Ribbonsnake <i>Thamnophis sauritis</i>	S3	SC	NR1	past records, current status unknown
BIRDS				
Trumpeter Swan <i>Cygnus buccinator</i>	S2S3	NAR	NR1, NR2 + waters	uncommon migrant, rare in summer, attempted nesting in 2001
Tundra Swan <i>Cygnus columbianus</i>	S3B, SZN		NR1, NR2 + waters	annual migrant
Canvasback <i>Aythya valisineria</i>	S1B, S2N		NR1, NR2 + waters	annual migrant
Redhead <i>Aythya americana</i>	S2B, SZN		NR1, NR2 + waters	annual migrant, occasional breeder
Greater Scaup <i>Aythya marila</i>	S2B, SZN		NR1, NR2 + waters	abundant migrant and overwinters
King Eider <i>Somateria spectabilis</i>	S1B, SZN		NR2 + waters	rare but regular fall migrant 1975-1990
Surf Scoter <i>Melanitta perspicillata</i>	S1B,SZN		NR1, NR2 + waters	annual migrant
White-winged Scoter <i>Melanitta fusca</i>	S1S2B,SZN		NR1, NR2 + waters	annual migrant
Long-tailed Duck <i>Clangula hyemalis</i>	S2S3B, SZN		NR2 + waters	abundant overwinter
Bufflehead <i>Bucephala albeola</i>	S3B, SZN		NR1, NR2 + waters	annual migrant
Ruddy Duck <i>Oxyura jamaicensis</i>	S2B, SZN		NR1, NR2 + waters	annual migrant

Common Name Scientific name	S-rank*	COSSARO	Location (Park Zone)	Comments
Red-throated Loon <i>Gavia stellata</i>	S1S2B, SZN		NR2 + waters	annual migrant
Horned Grebe <i>Podiceps auritus</i>	S1B, SZN	DD	NR2. waters	annual migrant
American White Pelican <i>Pelecanus erythrorhynchos</i>	S2B, SZN	END	NR1	rare migrant in fall
Red-necked Grebe <i>Podiceps grisegena</i>	S3B, SZN	NAR	NR2, waters	uncommon migrant
Least Bittern <i>Ixobrychus exilis</i>	S3B, SZN	THR	NR 1	annual breeder
Great Egret <i>Casmerodius albus</i>	S2B, SZN		NR2, NR1	breeds on High Bluff Island
Black-crowned Night-heron <i>Nycticorax nycticorax</i>	S3B, SZN		NR2, NR1	annual breeder on High Bluff Island
Bald Eagle <i>Haliaeetus leucocephalus</i>	S4B, SZN	END	NR2, NR1	annual migrant
Rough-legged Hawk <i>Buteo lagopus</i>	S1B, SZN	NAR	NR 4, H 1, NE 3, NR2	annual migrant
Golden Eagle <i>Aquila chrysaetos</i>	S1B,SZN	END	NR2, NR1	rare occasional migrant
Peregrine Falcon <i>Falco peregrinus anatum</i>	S2S3B, SZN	THR	NE1, NR2	rare annual migrant
Yellow Rail <i>Coturnicops novboracensis</i>	S4B,SZN	SC	NR1	rare migrant
King Rail <i>Rallus elegans</i>	S2B, SZN	END	NR1	occasional breeder
American Golden-plover <i>Pluvialis dominica</i>	S1B, SZN		NE1, NR2	uncommon fall migrant
Piping Plover <i>Charadrius melodus</i>	S1B, SZN	END	NR 2, NR 3, NE 1	historical breeder, sightings in 2001, 2005 and 2006
Whimbrel <i>Numenius phaeopus</i>	S2B, SZN		NE1, NR2	annual migrant
Wilson's Phalarope <i>Phalaropus tricolor</i>	S3B, SZN		NE1, NR2	rare migrant
Semipalmated Sandpiper <i>Calidris pusilla</i>	S3S4B, SZN		NE1, NR2	abundant annual migrant

Common Name Scientific name	S-rank*	COSSARO	Location (Park Zone)	Comments
Pectoral Sandpiper <i>Calidris melanotos</i>	SHB, SZN		NE1, NR2	annual migrant, mostly fall
Dunlin <i>Calidris alpina</i>	S3B, SZN		NE1, NR2	annual Migrant
Stilt Sandpiper <i>Calidris himantopus</i>	S2S3B, SZN		NE1, NR2	rare annual fall migrant
Red Knot <i>Calidrus canutus</i> ssp. <i>rufa</i>	SZN	END (COSEWIC)	NE1, NR2	annual migrant
Short-billed Dowitcher <i>Limnodromus griseus</i>	S2S3B, SZN		NE1, NR2	annual migrant
Hudsonian Godwit <i>Limosa haemastica</i>	S2S3B, SZN		NE1, NR2	occasional fall migrant
Red-necked Phalarope <i>Phalaropus lobatus</i>	S3B, SZN		NE1, NR2	occasional fall migrant, one spring record
Little Gull <i>Larus minutus</i>	S1S2B, SZN		NE1, NR2	occasional fall visitor
Great Black-backed Gull <i>Larus marinus</i>	S2B, SZN		NE1, NR2	bred annually (2-5 nests) on High Bluff or Gull Island from 1962 - 2004
Caspian Tern <i>Sterna caspia</i>	S3B, SZN	NAR	NE1, NR2	colony breeds on High Bluff and Gull Islands Largest colony on the Great Lakes
Black Tern <i>Chlidonias niger</i>	S3B, SZN	SC	NR1	former breeder, rare migrant
Forester's Tern <i>Sterna forsteri</i>	S2S3B, SZN	DD	NE1, NR2	occasional migrant
Parasitic Jaeger <i>Stercorarius parasiticus</i>	S2B, SZN		NE1, NR2	occasional migrant
Short-eared Owl <i>Asio flammeus</i>	S3S4B, SZN	SC	NR4	occasional migrant and winter visitor
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i>	S3B, SZN	SC	NR 1, NR 4, NR 5, NE 2, NE 3, H 1, D 1, D 2, D 5	former breeder, occasional migrant
Acadian Flycatcher <i>Empidonax virescens</i>	S2B, SZN	END	NR4, NR2	rare migrant
Loggerhead Shrike <i>Lanius ludovicianus</i>	S2B, SZN	END	NR4	rare migrant, possible former breeder
Tufted Titmouse <i>Baeolophus bicolor</i>	S2S3		NR 4, H 1, NE 3	occasional spring migrant

Common Name Scientific name	S-rank*	COSSARO	Location (Park Zone)	Comments
Carolina Wren <i>Thryothorus ludovicianus</i>	S3S4		NR 4, H 1, NE 3, NR2	occasional migrant and over winter
Gray-cheeked Thrush <i>Catharus minimus</i>	S3S4B, SZN		NR 4, H 1, NE 3, NR2	annual migrant
Bohemian Waxwing <i>Bombycilla garrulus</i>	S2S3B, SZN		NR4	occasional winter sightings
Prairie Warbler <i>Dendroica discolor</i>	S3S4B, SZN	NAR	NR 4, H 1, NE 3, NR2	rare migrant
Yellow Palm Warbler <i>Dendroica palmarum hypochrysea</i>	S1B, SZN		NR 4, H 1, NE 3	occasional migrant
Louisiana Waterthrush <i>Seiurus noveboracensis</i>	S3B	SC	NR4	rare migrant
Cerulean Warbler <i>Dendroica cerulea</i>	S3B, SZN	SC	NR 4, H 1, NE 3, NR2	possible historic breeder, rare migrant
Hooded Warbler <i>Wilsonia citrina</i>	S3B, SZN	THR	NR 4, H 1, NE 3, NR2	occasional spring migrant, some territorial behaviour by lone males on occasion
Yellow-breasted Chat <i>Icteria virens</i>	S2S3B, SZN	SC	NR 4, H 1, NE 3, NR2	occasional spring migrant
Henslow's Sparrow <i>Ammodramus henslowii</i>	S1B, SZN	END	NR 4	possible historical breeder
Pine Grosbeak <i>Pinicola enucleator</i>	S3S4B, SZN		NR 4, H 1, NE 3, NR2	occasional winters

*S-Rank: S1=extremely rare, S2=very rare, S3=rare to uncommon, S4=common and apparently secure, SZB=breeding migrants, SZN=non-breeding migrants
COSSARO/COSEWIC: SC=special concern, THR=threatened, END=endangered, NAR=not at risk, DD=data deficient.
Location (Park Zone) (zone (s) species found): NR=nature reserve zone, NE=natural environment zone, H=historic zone, D=development zone