Leslie Street Spit
Tommy Thompson Park
Important Bird Area
Conservation Plan

Written for the Leslie Street Spit IBA Stakeholders

by

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July 2001

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Acknowledgments

The Important Bird Area (IBA) Program is part of the Natural Legacy 2000 program, a nation-wide initiative to conserve wildlife and habitats on private and public lands. We gratefully acknowledge the financial support of the Government of Canada's Millennium Partnership Program. We also gratefully acknowledge the financial support of the Charles Stewart Mott Foundation to the Great Lakes Basin Important Bird Areas.

Canadian Nature Federation and Bird Studies Canada are the national partners of BirdLife International in Canada. The Federation of Ontario Naturalists is responsible for site conservation planning in Ontario IBAs.

The following people and organizations have contributed to this conservation plan in their comments, review and through meetings with the IBA steering committee:

Garth Armour, Don Barnett, Glenn Barrett, Hans Blokpoel, John Carley, Tamara Chipperfield, Phoebe Cleverly, Tania Havelka, Verna Higgins, Scott Jarvie, Ken Lundy, Craig McLauchlan, Cynthia Pekarik, Gaston D. Tessier, Chip Weseloh, Heather Wilson.

Section 4.2 was generously provided by Hans Blokpoel, Scott Jarvie, and Gaston D. Tessier.

Organizations:
Canadian Wildlife Service, Environment Canada
Toronto and Region Conservation Authority
City of Toronto
The Toronto Port Authority
Friends of the Spit
Toronto Ornithological Club
Toronto Field Naturalists
Aquatic Park Sailing Club

Citation

Wilson, W. G. and E. D. Cheskey 2001. *Leslie Street Spit – Tommy Thompson Park Important Bird Area Conservation Plan*. Can. Nature Fed., Bird Studies Can., Fed. of Ont. Naturalists. 56 pp.

1.0 Introduction

We wove our way down the Don Valley expressway towards downtown Toronto and Lake Ontario. My colleagues from San Jose, Quito, and Havana had not set foot outside the airport conference centre and were doubtful about seeing the "urban wilderness" I had promised. They were unanimously adamant about walking, not driving – such is the effect of listening to dozens of papers and talks over two intense days, with only six hours to satisfy the need for nature. I had considered the Bruce Trail, but they wanted to see birds, and where better when in Toronto than the Leslie Street Spit? Those who didn't have a plane to catch boarded the 4:00 am bus to Pelee. We had to settle for "Toronto's Pelee."

The parking lot was empty, as expected at 6:00 a.m. Sunday. The air had that late May feel to it, vibrant with promise and verdant life. We passed through the gate and began the long trek towards the peninsulas. The wind had shifted to the south during the night, and birds were literally dropping out of the sky into the Cottonwoods. In the distance a raucous cloud of gulls betrayed the relative calm of the early-morning city. As we approached, long lines of cormorants flew low over the water towards the rising sun. The background din was broken by guttural calls of Common Terns. They gracefully winged their way along the shoreline, heads cocked downward, vigilant for schools of small fish. How they managed amongst the thousands of Ring-billed Gulls swirling over the peninsulas was mind-boggling, though we remarked that despite their diminutive size, they were formidable opponents. After about an hour we stopped walking.

Short repeating whistles beckoned our regards skyward. Wind birds – a dozen Whimbrel – glided into one of the bays. The traffic and city noises had mutated into bird song. Here it was the birds' world. By 7:30 a.m. we had made it to the newly constructed blind overlooking peninsula C. Beyond the birds, beyond the blind, was the city, the morning sun reflecting brilliantly off towering skyscrapers. Marguerite had spotted two Scarlet Tanagers, visitors to Canada from their homeland in Latin America, she told me. A Night-Heron picked at the remains of something just beyond the blind. "*Tienes razon, mi amigo*,' she said, "this is 'urban wilderness.'"[1]

Leslie Street Spit is a remarkable story. A trip to the spit during mid to late May, or almost any time of the year for that matter, allows you to live that story. This Conservation Plan is intended to explore the story, reveal the main characters, expose the plots, and, we hope, set course for a happy ending.

The Leslie Street Spit/Tommy Thompson Park IBA, about 10 square kilometres in area, is an artificially constructed peninsula extending into Lake Ontario at the foot of Leslie Street on the City of Toronto waterfront. The IBA is globally significant under the congregatory species category due to large colonies of several species, including principally Ring-billed Gull, Black-crowned Night-Heron, Double-crested Cormorant, Common Tern, Caspian Tern, and Herring Gull.

[1] Edward Cheskey

This conservation plan was initiated jointly through discussions between Edward Cheskey (FON) and Scott Jarvie of the Toronto and Region Conservation Authority, which led to a January 2000 meeting of several interested parties. Many meetings later this informal steering committee had laid the groundwork for this conservation plan. Plans are works in progress, open to revision and rethinking. Yet we are hopeful that this plan will serve in demonstrating the significance of the Leslie Street Spit for breeding and migrant birds. We are optimistic that the arguments, goals, and objectives of this plan will serve the community and the birds well.

The layout for this conservation plan is as follows. Chapter 2 describes the IBA program and its goals and criteria for site selection. Chapter 3 provides a geographical and biophysical context to the IBA. Chapter 4 delves into the lives of the birds. Section 4.2 was contributed by Hans Blokpoel, Scott Jarvie, and Gaston Tessier, all experts on the colonial birds of "the Spit." It offers a detailed description of the complex factors influencing the evolution and expression of the bird colonies. Section 4.3 provides an accurate and current summary of the natural history of each IBA species. Chapter 5 describes the biologically significant features of the IBA beyond the IBA species. Chapters 6 to 8 discuss land ownership, the human cultural activity and history of the site. Chapters 9 and 10 present opportunities and threats to IBA species. The Action Plan, a presentation of the steering committee's vision, goals, objectives, and strategies, appears in chapter 11. This document is fully referenced.

The Vision statement for the Leslie Street Spit/Tommy Thompson Park IBA is as follows.

> *Leslie Street Spit/Tommy Thompson Park Important Bird Area will be conserved and managed as a public "urban wilderness" to protect its significance for colonial, migratory and resident birds, and other wildlife, and as a place where nature can be monitored, studied and enjoyed.*

2.0 The Important Bird Area Program

The IBA program is an international initiative coordinated by BirdLife International, a partnership of member-based organizations in over 100 countries seeking to identify and conserve sites important to all bird species world-wide. Through the protection of birds and habitats, they also promote the conservation of the world's biodiversity. There are currently IBA programs in Europe, Africa, the Middle East, Asia, and the Americas.

The Canadian BirdLife co-partners are the Canadian Nature Federation (CNF) and Bird Studies Canada (BSC). The Canadian IBA program is part of the Americas IBA program which includes the United States, Mexico, and 17 countries in Central and South America. The Federation of Ontario Naturalists is responsible for implementing conservation planning for IBAs in Ontario.

The goals of the Canadian IBA program are to:

- identify a network of sites that conserve the natural diversity of Canadian bird species and are critical to the long-term viability of naturally occurring bird populations;

- determine the type of protection or stewardship required for each site, and ensure the conservation of sites through partnerships of local stakeholders who develop and implement appropriate on-the-ground conservation plans; and

- establish ongoing local involvement in site protection and monitoring.

IBAs are identified by the presence of birds falling under one or more of the following internationally agreed-upon categories:

1) sites regularly holding significant numbers of an endangered, threatened, or vulnerable species;
2) sites regularly holding an endemic species, or species with restricted ranges;
3) sites regularly holding an assemblage of species largely restricted to a biome;
4) sites where birds concentrate in significant numbers when breeding, in winter, or during migration.

While the program at all stages is a voluntary one, the advantages of IBA recognition extend beyond those of conservation alone. There can be increased awareness of the true worth of the site among the local community, and community involvement can result in diverse groups working for a common cause.

In Ontario the Federation of Ontario Naturalists (FON) is conducting community conservation planning in approximately 20 sites as of 2000. Community conservation planning means engaging the local community in the development and implementation of the conservation plan. Leslie Street Spit/Tommy Thompson IBA has been led by the principal landowner, the Toronto and Region Conservation Authority (TRCA). A functioning and healthy natural system has established itself on this man-made environment over time, nurtured and managed by TRCA staff along with assistance from the community. It is hoped that this report can provide valuable direction to TRCA in their revision of the park's Master Plan. It also offers an opportunity for key interested parties such as the Friends of the Spit, the Toronto Ornithological Club, and the Toronto Field Naturalists to enrich this process through their wealth of experience and expertise. Innovative approaches such as IBA conservation plans are intended to be tools for stakeholders, interested parties, and individuals to further bird conservation at their site.

3.0 IBA Site Information

3.1 Location and Description

Site: Leslie Street Spit, CAON038G
Location: 43°38' N, 79°20' W

Leslie Street Spit IBA, about 10 square kilometres in area, is a man-made peninsula extending into Lake Ontario at the foot of Leslie Street on the City of Toronto waterfront and the

nearshore waters of the peninsula (see Figure 1). Construction of the Spit began in 1959, the year the St. Lawrence Seaway was opened to commercial traffic. The Toronto Harbour Commission (today known as the Toronto Port Authority) in response to this and, anticipating an increase in shipping along the Great Lakes Waterway, undertook an expansion of the City of Toronto's port facilities. The five-kilometre spit of land extending southwest from the waterfront provides a breakwater, the Eastern Headland, and creates the Outer Harbour. When expanded port facilities were deemed unnecessary in the early 1970s, this initiated a process of planning, public meetings, and environmental activism that led to the establishment of Tommy Thompson Park, the largest area of existing natural habitat on the waterfront of Canada's largest city (population 2.4 million [Statistics Canada 1996]).

Today, the Eastern Headland consists of Tommy Thompson Park and the endikement area. At the base of the Spit to the west lies the Outer Harbour Marina and across the Outer Harbour, on the mainland, lies the industrial basin of the Toronto waterfront. To the northeast, Ashbridge's Bay Sewage Treatment Plant is adjacent to the base.

The configuration of the IBA is a result of continuous lakefilling and dredging activities since 1959. The spine of the Outer Harbour's breakwater is lakefill constructed of large rubble – concrete, brick, and asphalt from the demolition of buildings – and of subsoil and bedrock material, all taken from excavation sites and subway construction in the Greater Toronto Area. On the leeward side of the spine facing the Outer Harbour, a series of four peninsulas and four embayments were created from the dredging of sand and silt out of the Outer Harbour, the Shipping Canal and Eastern Gap entrance to the Inner Harbour from 1974 to 1983. In 1979 the shoreline was realigned with the construction of the endikement area to minimize shoreline erosion of the spine and at the same time to create containment cells or disposal cells for dredged material from the Keating Channel at the mouth of the Don River and the Inner Harbour (MTRCA 1989). The endikement area is constructed of the same materials as the spine to strengthen and protect the headland from erosion. Leslie Street Spit was constructed from about 4.3 million truckloads (to the end of 1991) of rubble, subsoil, and bedrock material and about 6.5 million cubic metres of dredged sand and silt. The spine and endikement are relatively flat, about one to four metres above lake level. A main road extends the length of the spine leading to a lighthouse on the headland that rises about 13 metres above lake level. The spine, peninsulas, embayments, and endikement define the current configuration of Leslie Street Spit. The timing to complete the "final" configuration is subject to the availability of lakefill materials.

Figure 1. Leslie Street Spit / Tommy Thompson Park IBA boundaries

Lake Ontario significantly affects the weather of the Spit. In summer the discomfort of the heat and humidity of the city is reduced by the moderating effects of Lake Ontario and the prevailing westerly winds, whereas in winter these winds can generate severe wind chill. Snowfall is generally 30 percent less on the Spit than in the region immediately north of the Greater Toronto Area (MTRCA 1989). Fog forms twice as often over the Spit as over the rest of the city (MTRCA 1989).

Ashbridge's Bay

In the late 1800s the foot of Leslie Street ended abruptly at a large expansive marshland that formed the delta of the Don River. This marshland, Ashbridge's Bay, was separated from Lake Ontario by a long narrow peninsula of sand extending westward from Woodbine Avenue to what is now the Toronto Islands. Toronto naturalist, George Fairfield (1998) described this marshland:

"Ashbridge's Bay was one of the greatest freshwater marshes in Canada. It provided a home for untold numbers of mammals, reptiles, amphibians, fish and birds. It was an important stopover and feeding place for a myriad of migrating waterbirds."

From the early 1800s through to the 1950s, Ashbridge's Bay was a dumping ground for everything from raw sewage to industrial waste. In 1912, under the Toronto Harbour Commission's waterfront plan, much of the marsh was filled in, creating the industrial district of the Toronto waterfront.

Writing almost a century later, John Carley of Friends of the Spit visualizes the Leslie Street Spit IBA in a way that links its future with its past:

"Maintaining the Spit as a public urban wilderness is a way to return something to Toronto which had been lost by the filling of Ashbridge's Marsh. While not the same ... the same natural components of barrier beach and flora and fauna will gradually come to mirror that of the Marsh. The imbalance may truly be redressed if and when the Cory's Least Bittern returns as a resident!"

Leslie Street Spit IBA is a unique urban wilderness. On the leeward side of the Spit, woodlands of cottonwood, aspen, and willow grew rapidly in the sandy soils of the peninsulas. Other habitats were improved by combining natural succession with habitat creation, these enhancement and restoration practices accelerated by minimal human intervention and management (Toronto and Region Conservation Authority 2000).

Based on this conservation design, the Toronto and Region Conservation Authority initiated a number of creation and enhancement habitat projects that have maintained and enhanced dry and wet meadows, marshes, shoreline ponds, nearshore islands, and beaches of gravel, sand, and shingle.

4.0 IBA Species Information

4.1 Why Leslie Street Spit Is an Important Bird Area

In the Leslie Street Spit IBA the numbers of colonial waterbirds are globally significant under the general congregatory threshold (Canadian IBA Database 2000). Furthermore, three species of colonial waterbirds breed in numbers above IBA thresholds (Table 1). About 32 percent of the estimated Canadian breeding population of Black-crowned Night-Herons nested here in 2000. The long-term average from 1983 to 2000 is 682 pairs, or 17.1 percent of the estimated national population. About 6 percent of the estimated North American Ring-billed Gull breeding population nest on Leslie Street Spit IBA, which represents 10.5 percent of the estimated Canadian population. A peak number of 75,564 pairs was recorded in 1984, which is 8.4 percent of the estimated global number. This Ring-billed Gull colony is one of the largest in the world (MTRCA 2000). Approximately 3,000 pairs of Double-crested Cormorant nest in this IBA, 1.4 percent of the estimated North American interior population of this species.

During spring and fall migration and during winter depending upon ice conditions, waterfowl concentrations in the waters of the lake and harbour off this IBA reach nationally significant numbers. In January 2000, for example, more than 11,000 waterfowl of 14 species congregated in waters about the IBA (Hewitt and Carley, pers. comm. 2000). Greater Scaup, Long-tailed Duck and Redhead made up 87 percent of the total.

Within the Leslie Street Spit IBA, 302 species of birds have been recorded, including 45 known breeding species (Jan. 2001, IBA steering committee). (See Appendix 2.) Large concentrations of songbirds have occurred during migration periods, for example, 370 American Pipits in October 1994. Other noteworthy concentrations include 200 Whimbrel during May 1994 and 34 Long-eared Owls during the winter of 1997 (Canadian IBA Database, 2000).

Two species of colonial waterbirds have historically nested in significant numbers and may do so again. Between 1976 and 1990, an average of 903 pairs of Common Tern nested on Leslie Street Spit, reaching a maximum of 1,694 pairs in 1982. The average number of breeding pairs during this period represents 1.8 percent of the estimated North American population and is globally significant. Habitat management and the use of artificial breeding platforms may increase breeding opportunities for this species. In 2000, 242 Common Tern nests were recorded, 27.1 percent of which were built on artificial platforms. In 2000, 18 Caspian Tern nests were found on Leslie Street Spit (Iron 2000), representing the second largest number of confirmed nests recorded here since 1987. In 1985, a maximum of 182 nests were recorded, which represents 1.3 percent of the estimated Canadian population. The species composition of colonial waterbird colonies continues to change. In 2000, two pairs of Great Black-backed Gulls nested in the IBA.

4.2 History of the Waterbird Colonies[2]

Bird colonies are dynamic evolving phenomena characterized by change. This section explores the complex interactions of species and environment behind the ever-changing colonies of birds living within the IBA.

[2] This section was prepared by H. Blokpoel, S. Jarvis, and G.D. Tessier

Table 1: Congregatory species breeding at Leslie Street Spit IBA, their significance and their percentage occurrence (based on information in Canadian IBA Database 2000)

Common Name & Scientific Name	Number of Nesting Pairs	Significance	Percent of National Population
Black-crowned Night-Heron* *Nycticorax nycticorax*	1265[1] (2000) 682[2] (1983-2000)	National National	31.6 percent 17.1 percent
Ring-billed Gull *Larus delawarensis*	50,000[1] (2000) 52,703[2] (1984-1991)	Global Global	6.3 percent 5.9 percent
Double-crested Cormorant *Phalacrocorax auritus*	3187[1] (2000) 1491[2] (1994-2000)	Continental –	1.4 percent 0.7 percent
Common Tern *Sterna hirundo*	325[3] (1999) 903[2] (1976-1990)	– Global	0.7 percent 1.8 percent

* Canadian Interior population (not including Atlantic coastal birds)

[1] Peak number (year)
[2] Long-term average (years)
[3] Most recent number available

Common Terns are known to have nested on the Leslie Street Spit as early as 1971, the first of many species to establish themselves at this site. They were followed in 1973 by small numbers of Ring-billed Gulls. In later years other species colonized the peninsula, at times in large numbers, including Double-crested Cormorant, Black-crowned Night-Heron, Herring Gull, Great Black-backed Gull, and Caspian Tern.

4.2.1 Factors determining species distribution and abundance

Several factors have determined the species composition, nest distribution, and abundance of the different species that have nested at the park during 1971-2000. These factors include:

- the availability of new nesting habitat through creation of land;
- competition for the newly created land by birds and plants;
- erosion of land by wave action;
- nest site competition between bird species;
- disturbance by the ongoing construction activities;
- gull control operations by the TRCA;
- tern conservation by the TRCA (in cooperation with CWS);
- depredations by avian and mammalian predators; and
- disturbance by people and their dogs.

Time and space do not permit the preparation of complete detailed history of all the waterbird colonies (a major undertaking, made even more daunting because the effects of some of these

[3] This section was prepared by H. Blokpoel, S. Jarvis, and G.D. Tessier

factors, either singly or in combination, are not well understood). Instead this section is a thumbnail sketch of the start of the colonies and their development up to 2000. The key factors are briefly reviewed below and dealt with in more detail, on a species-by species basis, in the next section.

4.2.1.1 New habitat through land creation

Land creation through lakefilling began at the foot of Leslie Street in 1959. In the late '60s and early '70s the main spine road was constructed mainly from rocky and earthen fill from building sites in the Toronto area (see Figure 1). Peninsulas A, B, C, and D were created during 1972-75 from sandy dredged spoil (Blokpoel and Fetterolf 1978). In later years, three cells were created on the lake side of the spine road to serve as "Confined Disposal Facilities." In 1987 a gap was excavated in the spine road to allow for easy access to the third cell for the scows transporting dredgeate. Since that time vehicular traffic can reach the tip of the Spit only via the lakeside road (see Figure 1). Even today (2001), more potential nesting habitat is created because construction operations are ongoing, especially at the southwest end of the endikement area. In this section the entire landmass that juts out from the foot of Leslie Street is referred to as the Eastern Headland consisting of Tommy Thompson Park (TTP) and the endikement area (see Figure 1). TTP is administered by the Toronto and Region Conservation Authority (TRCA).

4.2.1.2 Erosion of land by wave action

This has occurred to a noticeable extent at the tips of Peninsulas A, B, and C, as well as along the north side of Peninsula D. At the tip of Peninsula A, new dumping has taken place, and at the tip of Peninsula C an old barge has been partially sunk to act as a wave breaker. On the other hand, the land losses in B and D have not been replaced.

4.2.1.3 Competition between birds and plants for the newly created land

A large variety of plants, shrubs, and trees have colonized the Spit in an unplanned fashion (Higgins et al.1992). In addition, TRCA has begun a program to add more plant variety through plantings on newly created berms and in ponds and marshes.

Of the colonial waterbirds at TTP, the three gull and the two tern species are ground-nesters, whereas the cormorants and Night-Herons are usually found nesting in trees (although both species can be found nesting on the ground as well, particularly on islands). Immediately after the creation of the new land, ground-nesters began to colonize TTP, and only in later years when the cottonwood trees had grown to appreciable heights did the tree-nesters begin to colonize the area as well.

Ongoing competition between colonizing gulls and colonizing plants has had mixed results. All three gull species often use materials that are readily available to build their nests in early spring, in this case the remains of the vegetation of the previous year. The gulls pull out or break off stems and branches of plants. They also destroy vegetation by trampling or by their copious droppings. The large numbers of gulls nesting in dense colonies have suppressed the establishment and growth of vegetation in some areas but not in others.

Figure 2. Location of waterbird colonies in the IBA

In areas where the vegetation survived, natural succession has resulted in the development of stands of trees, especially cottonwoods, that occur as almost single-species woodlots on peninsulas A, B, and C. Among the tree-nesters, cormorants break off branches for nest building and their faeces "burn" the vegetation so that they have a major impact on their nesting trees, usually killing them in relatively few years. Night-Herons have much less noticeable impact on their nesting trees. As the nesting trees die and topple over, the distribution of the tree-nesters changes (Jarvie, et al. 2000).

4.2.1.4 Nest site competition between bird species

As both gulls and terns are ground-nesters, there is competition for nest sites, both between gulls and terns (especially between Ring-billed Gulls and Common Terns) and between gull species (especially Herring and Ring-billed Gull). Similarly, cormorants and Night-Herons compete for nesting sites in trees.

4.2.1.5 Disturbance by the ongoing construction activities

It is difficult to evaluate the effect of the lakefill operations. However, it is obvious that gulls and terns tend to avoid areas where lakefill operations occur on a daily basis, so these operations are a factor in the nesting distributions.

4.2.1.6 Gull control operations by the TRCA

In 1984 when the Ring-billed Gull breeding population at the Eastern Headland increased to over 70,000 pairs and had expanded to virtually all areas, the TRCA began a gull control program. The program restricted the gulls' nesting area. It also had a positive effect on the terns' nest distribution, because of decreased nest site competition in the area of gull control and increased competition outside the area.

4.2.1.7 Tern conservation by the TRCA

Because the large numbers of Common Tern nests were declining rapidly due to encroachment by vegetation and gulls, projects were carried out to provide suitable nesting habitat for the terns, as will be discussed in the next section.

4.2.1.8 Depredations by avian and mammalian predators

Black-crowned Night-Heron, red fox, raccoons, coyotes, and feral cats and dogs, all observed at TTP, almost certainly take eggs and/or chicks, though the impacts of the mammals are generally unknown. It is likely that Night-Herons, in combination with mammalian predators and increased vegetation in Peninsula C, caused the gradual abandonment of the central portion of that peninsula as a nesting area.

4.2.1.9 Disturbance by people and their pets

TRCA regulations prohibit pets from TTP. However, some people entering after working hours let their dogs run loose. There have been observations of dogs running through the colonies and causing major disturbances. The impact of dogs on the ground-nesters is unknown. People have also been observed entering colonies without authorization, causing chicks to fall out of their nests (Night-Herons and cormorants).

Table 2. Numbers of nests of colonial waterbirds at Tommy Thompson Park[4]

Year	Double-cr. Cormorant	Black-cr. Night-Heron	Ring-billed Gull	Herring Gull	Great Black-backed Gull	Common Tern	Caspian Tern
1970	-	-	-	-	-	-	-
1971	-	-	-	-	-	30-40	-
1972	-	-	-	-	-	-	-
1973	0	0	9	0	0	170-200	0
1974	0	-	"small numbers"	-	-	-	-
1975	-	-	-	-	-	-	-
1976	0	0	10,382	12	0	1,246	4
1977	0	0	20,564	32	0	1,238	6
1978	0	0	22,735	48	0	1,310	15
1979	0	(7)	-	-	0	1,483	24
1980	0	42	66,517	62	0	1,327	-
1981	0	-	(70K-75K)	88	0	1,310	60
1982	0	-	(70K-75K)	77	1	1,694	63
1983	0	41	(70K-75K)	74	0	847	98
1984	0	50	74,564	91	0	822	163
1985	0	39	47,895	79		564	182
1986	0	54	39,788	84	0	583	150
1987	0	591	45,355	95	0	424	41
1988	0	621	62,782	158	0	447	0
1989	0	918	61,945	139	0	108	0
1990	6	989	46,799	96	0	136	0
1991	62	792	42,495	106	0	-	0
1992	85	860	-	102	1	-	0
1993	188	911	-	120	0	389	0
1994	524	536	48,603	123	0	396	1
1995	414	790	(50K-55K)	-	0	-	3
1996	931	1,195	(50K-55K)	-	0	-	28
1997	1,241	829	(55K-60K)	-	0	0	0
1998	1,598	807	(55K-60K)	-	-	266	3
1999	2,539	1,001	59,453	111	1	325	-
2000	3,187	1,265	-	-	2	242	18

[4] The numbers refer to nests known or likely to have eggs and/or chicks. Bold figures are estimates based on the extent of nesting and on nest counts in earlier years. Data for 1970-76 are from Blokpoel and Fetterolf 1978, data for 1977-89 from Morris et al. 1992, data for 1990-97 from Jarvie et al. 1999 (DCCO and BCNH only) and the remaining data for 1990-2000 from Iron (2000) and unpublished TRCA and CWS files.

4.2.2 Common Tern

As Table 2 shows, Common Terns were the first to colonize the Eastern Headland, with 30 to 40 nests noted in 1971. By 1976, when the first nest survey was done, the nesting population was already 1,246 pairs, increasing to a maximum of 1,694 nests in 1982 before declining rapidly thereafter.

As the vegetation increased and gull numbers swelled during the early 1980s, the terns were often displaced from their "traditional" nesting areas. As a result, their nesting colonies have frequently shifted from year to year resulting in their nesting all over the Eastern Headland during this period. In 2000, terns nested on rafts and at a few locations on the endikement area.

Several factors have influenced nesting distribution and abundance: habitat losses due to encroachment by gulls and vegetation and to mortality caused by predators on the one hand, and conservation efforts, conducted since 1980, to try to compensate for some of those losses on the other. Ring-billed Gulls are larger than Common Terns and return to the headland to nest almost a month before the terns, so the burgeoning gull population has usurped more and more tern nesting areas year after year.

Common Terns have very short legs, which might explain their preference for nesting in open areas with sparse, low vegetation allowing easy takeoff and landing and good visibility (Blokpoel et al. 1978). As the vegetation grows taller, nesting habitat becomes unsuitable and the terns will move elsewhere.

Although there have been observations of a Great Horned Owl preying on Common Tern chicks, and of Night-Herons and all three species of gull preying on both eggs and chicks, the impact of these predators on the number and distribution of Common Terns at the headland is unknown (Blokpoel, pers comm).

Conservation efforts have consisted of vegetation control, a CWS gull exclusion experiment, the TRCA gull scare program, reduction of human disturbance, and creation of new nesting habitat (Morris et al. 1992).

Vegetation control involved removing all vegetation from two small islands early in the season in 1982. This resulted in successful recolonization by terns that year. However, the vegetation grew back in following years, and the terns abandoned the sites (Morris et al. 1992).

The CWS gull exclusion experiment involved the installation of parallel monofilament lines over an area that had been used by terns for nesting but that had been taken over by Ring-billed Gulls. Although reasonable success was obtained in the first year (1985), the results were disappointing in 1986 and 1987 and the project was discontinued (Morris et al. 1992).

The TRCA gull-scaring program was successful in excluding gulls from targeted zones. Unexpectedly, the scare program had no effect on Common Terns, and increasing numbers of terns nested on the endikement area where the gull scaring took place (Morris et al. 1992).

4.2.2.1 Reduction of human disturbance

Efforts to discourage people from entering the bird colonies focused on the installation of informational signs at strategic locations requesting people to refrain from entering the bird colonies during the breeding season. While the signs probably prevented some unintentional disturbances, some people were observed ignoring the message. The signs are also in a state of disrepair (i.e., broken, bent, faded, and missing), requiring repair and updating.

4.2.2.2 Creation of new nesting habitat

One low-lying sandy area on the west side of Peninsula C supported many Common Tern nests in 1982 but was completely washed away by a storm. It was decided to try and compensate for this and other habitat losses. As it had become clear that Common Terns preferred small open islands with little or no plant growth (Blokpoel et al. 1978), the TRCA and CWS carried out a joint project to develop nesting platforms.

Started in 1990, this project was expanded in 1991 when four wooden rafts, covered with sand, gravel, and driftwood and supplied with decoys, chick shelters, and ramps, were installed in the waters of TTP. The terns readily colonized the platforms and nested successfully (Dunlop et al. 1991). Further improvement of the raft included the addition of plastic snow fence hanging down from the underside of the raft. These sheets acted as artificial reefs to create fish habitat. The "reefrafts" are still used successfully at TTP and have been introduced elsewhere along the waterfront of the Greater Toronto Area. CWS and TRCA jointly produced a pamphlet describing the construction and installation of reefrafts (Jarvie and Blokpoel 1996) and a video.[5] Although Common Terns have nested in recent years on the endikement, the reefrafts appear to provide the safest nesting habitat.

4.2.3 Ring-billed Gull

"Ring-bills" were the second species to colonize the Eastern Headland, with nine nests found in 1973 (Table 2). The nesting population increased enormously, with 66,517 nests counted in 1980, reaching an estimated 70,000 – 75,000 pairs in the years 1981-83, before declining in 1985 when gull control was carried out from the beginning of the nesting season (Table 2). In 1984 gull control was initiated during the nesting season and displaced gulls re-nested elsewhere on the headland.

Gulls rapidly colonized the peninsulas created during 1972-75, almost as soon as they became available. In addition, the Ring-bills have nested, or tried to nest, at most other locations at the Eastern Headland in one year or another. Since implementation of the annual gull control program, most nesting has been limited to Peninsulas A, B, and C. During 1996-2000, gulls nested on the three peninsulas and locations on the endikement with little vehicular traffic. Although eggs in the nests on the endikement were oiled, the nests were counted other years and are included in the 1999 census (Table 2).

[5] Available from CWS-Ontario Region, 4905 Dufferin Street, Downsview, ON, M3H 5T4

The main factors now determining the size and distribution of the Ring-billed Gull nesting population are the effectiveness of the TRCA's gull control program and the amount of suitable habitat on Peninsulas A-C where the gulls are allowed to nest.

The gull control program was begun in 1984 with the following rationale:

- to allow the unimpeded continuation of the lakefilling and construction operations at the site;
- to reduce the wounding/killing of recently fledged gulls by trucks and cars;
- to maintain all options for the development and implementation of the TTP Master Plan;
- to reduce displacement of more sensitive avian species such as Common Terns;
- to reduce the impact of the nesting gulls on local vegetation;
- to address concern about potential bird strike problems at the nearby Toronto City Airport;
- to address a growing number of complaints about gulls begging for food and defecating in public places.

Between 1984 and 1992, certain portions of the Eastern Headland were kept free of nesting gulls by a contracted falconer (Blokpoel and Tessier 1987, 1992). Budget restrictions ended the use of falcons in 1993. As an alternative, from 1993 to 1995 TRCA staff used pyrotechnics, artificial owls, and egg collecting to deter gulls. Further funding cuts limited the control program to egg collection and oiling from 1996 to 2000. The program has been relatively successful in keeping the breeding population from growing. Without the program, it was predicted that the population could increase to 180,000 pairs. In most years the program has been able to restrict gull nesting to peninsulas A, B, and C. Even so, as soon as control is relaxed, gulls are quick to recolonize other areas. This has been the case in some years in some parts of the endikement area.

The amount of suitable habitat on peninsulas A-C is finite and gradually shrinking due to erosion at the north end of A and B. Vegetation encroachment is of less importance if only because in some areas, such as the centre and north end of B, the gulls destroy the vegetation. In other areas, such as the centre of C, nest numbers declined when cottonwood trees grew taller. In that location it is probably the combination of the extent of the trees and the presence of resident foxes that has caused the gulls to abandon their traditional nesting area, which over the years had become a substantial woodlot. In many other areas of peninsulas A and B, gulls nest in dense numbers under trees. Gull nesting density is not expected to increase beyond current numbers.

During years with high lake levels early in the season, large portions of the centre of peninsula B and the north end of peninsula C become inundated. Although some gulls will build tall nests in the water (presumably on the site where they nested in previous years), the nest density in these inundated areas is lower than when the sites are dry (Jarvie, pers comm.).

Competition with Herring Gulls for nest sites is unimportant, if only because the Herring Gull population is very small (Table 2). Depredation by mammalian predators occurs, but does not appear to have a noticeable impact on peninsulas A and B, whereas in peninsula C, as noted above, foxes may well have had an impact.

4.2.4 Herring Gull

In 1976, 12 Herring Gull nests were found, so it is likely that this species began to nest at the Eastern Headland in 1975 or 1974, years for which no data are available (Table 2). The Herring Gull nesting population has increased slowly over the years and has always remained relatively small, reaching a peak of 158 nests in 1988.

Like Ring-billed Gulls, Herring Gulls have nested on the headland wherever conditions were suitable. Before the endikement area was constructed, they nested on all four peninsulas and south of the spine road. When the endikement area had been constructed, they also nested there, usually at the more remote sites. Since the start of the gull control operations they have nested only on peninsulas A-C, except for some years when they were allowed to nest, in very small numbers, on some portions of the endikement.

It is not known why the Herring Gull population is so small compared to that of the Ring-billed Gull. It may be that the smaller and more versatile Ring-billed Gull is better able to capitalize on opportunities provided by the environment of the headland, including Lake Ontario and the urban settings of the Greater Toronto Area. In any case, it is likely that Herring Gulls will continue to nest at TTP but that their nesting population will remain below 200 pairs in the next few years.

4.2.5 Caspian Tern

First breeding occurred in 1976 with four nests reported. Since that year, the numbers of nests slowly increased to a maximum of 182 nests in 1985, and then dropped rapidly to only 41 nests in 1987 and none in 1988 (Table 2). In later years there has been sporadic nesting, with small numbers of nests present in 1994-96 and 1998.

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The main colony that existed during 1976-87 was located on a sandy knoll in the middle of peninsula B, where the colony was surrounded by gull nests. The small numbers of Caspian Tern nests found in later years were at different locations at the end of the endikement and at one site towards the end of peninsula C, near the sunken barge.

The main factors affecting Caspian Tern nesting abundance and distribution on the Eastern Headland are probably vegetation growth, encroachment by gulls, and, perhaps most importantly, the shift to preferred nesting habitat created in Hamilton Harbour.

When “Caspians” began nesting in the centre of peninsula B, they still had good visibility of the lake surrounding the peninsula. At all Caspian Tern colonies in the Canadian Great Lakes, the birds prefer to nest on islands and always in open situations on substrates that have little or no vegetation. When vegetation surrounding the sandy knoll grew thicker and taller during 1976-85, habitat likely became less suitable. Terns may have continued to nest on the knoll because of their strong nest site tenacity (the tendency to nest at the same location year after year, a behaviour shared with many other species). There also appeared to be encroachment by nesting Ring-bills but the extent and impact were unknown.

The rapid decline and disappearance of the colony were not likely due to excessive mortality but rather to a relocation in 1987 and 1988 to the newly created Eastport Development in nearby Hamilton Harbour. The situation in Hamilton Harbour was similar to that on peninsula B in 1976, with almost bare ground allowing good visibility in most directions with open water nearby. In 1986, the first year of decline at peninsula B, a Caspian colony of 48 nests was found at Eastport. By 1987 the Hamilton colony had increased to 134 nests (Dobos et al. 1988) and the Toronto colony had decreased to 41 nests. In 1988 there were 242 nests in Hamilton (Moore et al. 1995) and none in Toronto.

It is interesting to note that the sporadic nesting at the Eastern Headland in later years also occurred in open areas with little or no vegetation. Because of the presence of a "source colony" nearby, it could be fairly easy to entice Caspian Terns to begin a new colony on the Eastern Headland by installing decoys at the right time in areas with suitable habitat. This kind of tern management was done successfully at two locations in Hamilton Harbour (Lampman et al. 1996; Pekarik et al. 1997).

4.2.6 Black-crowned Night-Heron

The first time Night-Herons were probably nesting on the Spit was in 1979, when seven nests were found late in the season. During 1980-86, nest numbers fluctuated but increased to 54 nests in 1986. The following year, however, there was a 10-fold increase (591 nests), corresponding with abandonment of nesting on nearby Muggs Island. Thereafter the nesting population increased more slowly and with considerable fluctuations, to a maximum of 1,265 nests in 2000 (Table 2). The colonies at TTP constitute the largest known nesting concentration of Black-crowned Night-Herons in Ontario.

The first nests were found in cottonwood trees in peninsula D. The following year nests were found in the cottonwoods of peninsulas A and B as well. During 1981-89, peninsula D was abandoned but a major increase occurred in the extensive stand of cottonwoods in peninsula C.

The abundance and distribution of Night-Heron nests at TTP has been largely determined by the availability of suitable nesting sites and a likely shift of birds from the nearby colony at Muggs Island, Toronto Harbour.

Night-Herons normally nest in trees or tall shrubs, which were in short supply in the early years of the Eastern Headland, as compared to other sites along the Toronto Waterfront. However, in the early 1970s stands of cottonwood had grown to sufficient height to attract Night-Herons in numbers for nesting.

The great influx of new nesters in 1987 was almost certainly due to a mass relocation of Night-Herons from nearby Muggs Island, where there had been a large colony for several years. Muggs Island also held a large Ring-billed Gull colony that created problems for nearby Toronto City Airport and the adjacent Centre Island Park grounds. A project was carried out during 1985-86 to discourage gull nesting by installing a large exclosure (Blokpoel and Tessier 1987) and during 1987-90 to prevent hatching by oiling the eggs (Blokpoel and Tessier 1992). These large-scale

operations must have caused disturbance to Night-Herons that also nested on the island but, perhaps more importantly, they removed a nearby, easy, and reliable source of food (Ring-bill chicks) for the Night-Herons. The Muggs Island Night-Heron colony was still active with 383 active nests in 1986, but in 1987 (the year of the major influx at TTP) no active nests were seen at Muggs Island. It is likely that the influx at TTP was the relocation of the Muggs Island colony, although the reasons for the relocation are not fully understood.

The future of the Night-Herons at TTP is threatened by the fast-growing nesting population of cormorants, as explained in the next section. In addition, a small number of active nest trees have toppled over due to erosion of the soil by wave action, especially at the north end of peninsula B. This process is likely to continue, particularly during years with high lake levels.

4.2.7 Great Black-backed Gull

"Great Black-backs" have nested only sporadically at Tommy Thompson Park with single nests present in 1982, 1992, and 1999. The presence of two nests in 2000 suggests that the species may be becoming more firmly established at TTP. The nests were located in open areas towards the end of peninsula B and at the tip of peninsula A.

The Great Black-backed Gull is essentially a marine species, but in the last few decades it has slowly established itself as a nester in the St. Lawrence River, Lake Ontario, Lake Erie, and Lake Huron (Ewins et al. 1992). The nesting at TTP is part of this very slow expansion of its breeding range into the Great Lakes. As the largest gull species at TTP, Great Black-backs should have no problem establishing nesting territories. We expect that the species will continue to nest at TTP, perhaps more frequently than so far, but still in small numbers during the next several years.

4.2.8 Double-crested Cormorant

Cormorants began colonizing TTP in 1990, when six nests were built in cottonwood trees at the end of peninsula B. The nests were located on branches overhanging the water. Nest numbers increased rapidly in following years and 3,187 nests were counted in 2000 (Table 2). During the years 1990-2000 the nesting distribution expanded as well, and by 2000 the cormorants were nesting in the cottonwoods in peninsulas A, B, and C.

The fast growth of the cormorant colonies is part of a general population explosion of this species in the Great Lakes (Weseloh et al. 1995). It is not known why cormorants only began to colonize TTP in 1986. Perhaps there had been other more suitable nesting areas up to that time (such as the cottonwood stand at the Eastport Development in Hamilton) and/or the cottonwoods at TTP had not yet reached sufficient height.

The cormorants have had two major impacts. They have already killed many of their nesting trees (see 4.3.3) and displaced all the Night-Herons from their nesting areas in peninsulas A and B (Jarvie et al. 1999 and unpublished data). Assuming that the cormorant population will continue to grow, the impacts of the cormorants on the Night-Herons will intensify. Some form of cormorant control appears necessary both to prevent further takeover of Night-Heron nesting trees and to delay the demise of potential nesting trees for Night-Herons.

4.3 IBA Species Information

4.3.1 Black-crowned Night-Heron

The Black-crowned Night-Heron is a predominantly black and grey heron with a stout bill and relatively short neck and legs. Often its presence is revealed by a loud "kwok" as it wings its way to a local wetland to feed for the night. When observed, it is often standing hunch-backed with its head drawn well into its shoulders.

4.3.1.1. Distribution, population trends, and abundance

The Black-crowned Night-Heron is found in the temperate and tropical regions of every continent except Australia and Antarctica (del Hoyo 1992) in both natural and artificial wetlands. In North America this bird ranges throughout Mexico and most of the United States, reaching its northern limit in southern Canada. The Black-crowned Night-Heron ranges north rarely to extreme southwestern British Columbia, locally and sparsely in Alberta, through southern Saskatchewan and into southwest Manitoba. It is confined in Ontario to the south, primarily along the shores of the lower Greater Lakes and localized on large inland bodies of water (Goodwin 1987). East of Ontario, Black-crowned Night-Herons are distributed along the St. Lawrence River corridor of Quebec, through New Brunswick to southwestern Nova Scotia.

The first documented nest record in Ontario was in 1921; within 30 years Black-crowned Night-Herons were widespread (though not in large numbers) along the shorelines of Lakes Erie and Ontario (Austen et al. 1994). In Ontario, Austen et al. (1994) considered this heron rare since there were relatively few colonies and Ontario was the northern limit of its North American range. Population trends early in the last century have been difficult to assess (Davis Jr. 1993). As with other fish-eating predators and raptors, the decline in numbers of the Black-crowned Night-Heron during the 1960s correlated significantly with widespread contamination of aquatic and terrestrial ecosystems by chlorinated hydrocarbons, e.g., DDT and other toxins (Austen et al. 1994, Davis, Jr. 1993). The Black-crowned Night-Heron has been proposed as a bio-indicator of estuarine contamination for the United States National Contaminant Biomonitoring Program (Davis Jr. 1993). As with other heron species, factors such as hunting, the trade in heron feathers, human disturbance at breeding colonies, drainage of wetlands, and land development have all contributed to population decline and habitat loss (ibid.). During the period between the mid-1960s and late 1980s, Breeding Bird Surveys indicated that the continental population remained stable and that the Canadian population had significantly increased, although a trend in Ontario could not be determined because of small sample size (Austen et al. 1994).

4.3.1.2 Natural history

The natural history of the Black-crowned Night-Heron is described by Davis Jr. (1993). The breeding colonies along the lower Great Lakes are noisy with the kwoks and squawks of returning Black-crowned Night-Herons as early as March (Goodwin 1995); courtship and nest-building is well underway by mid-April. Breeding colonies are often established in swamps or on islands presumably to minimize predation of eggs and young by mammalian predators. The Black-crowned Night-Heron may nest in a colony of its own species or in a mixed-species heronry. Their nests are often under canopy, deep in the cover of the tree crown. This nest placement may reduce competition for sites with other herons (Mousseau 1996). Double-crested

Cormorants, however, may invade Night-Heron nest trees and take over these sites. The nest of the Black-crowned Night-Heron is an untidy platform of sticks and twigs for three to five eggs which both male and female incubate for three to four weeks. Nestlings remain in the nest up to a month, attempting their first flight when they are 40-50 days old. Juveniles are independent of their parents a few days after their first flight (Davis Jr. 1993).

Mousseau (1996), citing Tremblay and Ellison, maintains that human disturbance results in nest desertion early in the nesting season, increases predation, particularly from American Crows, and increases mortality among flightless young. Predators also include racoons, Great Horned Owls and Ring-billed Gulls, which could become the number-one predator in many mixed-species colonies (Mousseau 1996). Colonies that are free from harassment, predation, and encroachment by other colonial nesters, such as Double-crested Cormorant, may last 30 to 50 years (Davis Jr. 1993).

During the breeding season after young have hatched, Black-crowned Night-Herons may forage during the day; however, for the most part, the species is a night-time feeder. By foraging much of the time between dusk and dawn, it avoids competition with day herons (Davis Jr. 1993). An opportunistic predator, Black-crowned Night-Herons prey on a wide variety of organisms along the edges of marshes, creeks, and ponds. Prey species include fish, amphibians, reptiles, rodents – including rats – insects, and birds, including young gulls, terns and other herons (Davis Jr. 1993, Mousseau 1996). Their diet may also be comprised of plant material and, under adverse circumstances, carrion and garbage (Davis Jr. 1993).

At the end of the breeding season, colony members disperse in all directions, foraging until the southern migration begins in late September and October. Birds migrate down both coasts of North America, and down the Mississippi River system following wetland habitat to their wintering grounds in the southern United States, Mexico, Central America, and islands of the Caribbean. Some individuals remain along the coasts north to Oregon and New England.

4.3.2 Ring-billed Gull

The Ring-billed Gull is a white-headed gull with brilliant white underparts and grey wings and back. It is distinguished from the similar Herring Gull by size and leg colour, the Ring-billed Gull being about 20 percent smaller with greenish-yellow rather than pink legs. A black ring encircles the end of the bill.

4.3.2.1 Distribution, population trends and abundance

Bent (1921) stated that "the ring-billed gull yields readily to persecution, is easily driven away from its breeding grounds, and seems to prefer to breed in remote unsettled regions, far from the haunts of man." How times have changed! Residents of almost every Canadian province would acknowledge the extraordinary increase in numbers of the Ring-billed Gull (referred to as "seagulls" in common parlance, which also includes all other gull species). Protected in 1917 under the Migratory Birds Convention Act, this North American species has staged a spectacular comeback and has reoccupied its former breeding range in southern Canada and the northern United States. It has become the most abundant gull in North America and perhaps is more abundant now than ever before (Blokpoel and Weseloh 1979). In fact, Ring-

billed Gulls were probably fairly common during the first half of the nineteenth century (Blokpoel 1987b). Only with the great demand by the millinery trade for feathers for hats and gowns, did this gull decline in number along with several other species of gulls, terns, and herons (Erhlich et al. 1988).

The world population of Ring-billed Gulls is estimated to be three to four million (Canadian IBA database 2000). This gull nests abundantly in Canada on the Great Lakes, Prairie Provinces, British Columbia, along the St. Lawrence in Quebec, the Maritimes, exclusive of Nova Scotia, and on the south and east coasts of Newfoundland. The North American breeding population is estimated to be 881,874 pairs of which an estimated 606,424 pairs breed in Canada (ibid.). In the Great Lakes Region, the number of breeding pairs has increased dramatically from 56,000 pairs in 1976 to four times that number in 1990 (Blokpoel and Tessier 1991).

4.3.2.2 Natural history

Ryder (1993) summarizes the natural history, as well as the conservation and management of the Ring-billed Gull. The Ring-billed Gull is an opportunistic feeder that readily feeds on offal and garbage, particularly in winter, and insects, worms, fish, rodents, and bird eggs (Ehrlich et al. 1988). It is also the bird that is encountered in the summer along beaches begging for food, and around fast-food restaurants and parking lots and in other urban situations. Comparing this gull's diet in a farming area and urban area, studies by Lefebre and Giroux, and Brousseau et al. (in Brousseau 1996), showed that only the proportions of food taken differed to any extent. In a farming area, the diet was 51 percent commercial waste (dead poultry chicks and viscera), 7 percent domestic waste, 26 percent insects, 6 percent earthworms and 5 percent small mammals. In an urban setting, the proportions were 42 percent garbage, 22 percent insects, 23 percent earthworms and 7 percent fish. North American society's approach to waste management has unwittingly included the Ring-billed Gull.

In Ontario, Ring-billed Gulls normally breed on islands in the Great Lakes, the St. Lawrence and Ottawa Rivers, and as far north as James Bay. A highly colonial species, they may nest in mixed colonies with Herring Gulls and terns, both Common and Caspian (Peck and James 1983). Nests are built on both natural sites, e.g., rocky islets, isolated coasts, and occasionally in marshes and artificial sites such as breakwaters, dredge-spoil areas, dykes, industrial yards, landfill sites, sewage lagoons, and even roof tops (Blokpoel 1987b). As with diet, the Ring-billed Gull exploits many new opportunities in the human environment. Nests are placed on raised mounds of grasses, plant stalks, aquatic plants, mosses, sticks, bits of wood, fish bones, or feathers. They are most often positioned on vegetated substrates of grasses, sometimes between bushes and shrubs, less often on bare rock. Ring-billed Gulls are on nest and laying eggs as early as 7 April in Ontario (Morris, pers comm.). The average clutch size is three eggs (Peck and James 1983).

From August, after the breeding season, to at least late November, Ring-billed Gulls may be observed congregating at active landfill sites, cultivated farm fields, parks, fishing ports, and marinas as well as school yards and golf courses. In late autumn through winter, gulls of several species including Ring-billed Gull congregate in large numbers on the lower Great Lakes and particularly along the Niagara River.

When freeze-up occurs, most Ring-billed Gulls migrate to the Atlantic and Gulf Coasts at the end of December and in January (Blokpoel 1987b). Some overwinter as far south as the Caribbean and Central America (Grant 1986). Christmas Bird Count data from southern Ontario has indicated a steady increase in the numbers of Ring-billed Gulls in southern Ontario in late December and early January in recent years.

4.3.3 Double-crested Cormorant

The Double-crested Cormorant is a large, dark fish-eating bird that exhibits distinctive postures: when swimming it often does so submerged to the neck with head tilted upward showing a slender, hooked-tip bill and orange-yellow facial skin. Its "double crest" is visible for a brief period of time early in the year during the breeding season. When standing, the Double-crested Cormorant often assumes a spread-wing posture that is thought to aid in drying wet wing feathers. Sexes are alike, although the male is somewhat larger.

4.3.3.1 Distribution, population trends and abundance

Widespread in North America, the Double-crested Cormorant is both a coastal and interior species. Along the Pacific coast it occurs from Alaska to northern Mexico. Along the Atlantic coast it occurs from southern Newfoundland and recently as far south as the mid-Atlantic States. Resident populations are found in Florida, the western Caribbean and along the Yucatan peninsula south to northern Belize. In the interior it is widely distributed from the southern boreal forest of the Prairie Provinces through the Great Plains to central Kansas and south to New Mexico. Recent expansion, particularly in the north and east, has blurred its distributional boundaries (Hatch and Weseloh 1999).

The first breeding evidence for the Great Lakes Region was not obtained until 1913 (ibid.). Whether breeding occurred in earlier times is uncertain, for Double-crested Cormorants have been persecuted over much of North America as a fish-eating competitor of humans so that by the beginning of the twentieth century its numbers and range were greatly reduced (ibid.). Beginning in Lake Superior, the colonization or re-colonization of Ontario extended east throughout all of the Great Lakes by the late 1930s. During the 1940s Double-crested Cormorants had become so common on the Great Lakes that commercial and sport fishermen were calling for, and in some instances, initiating control measures to reduce, if not eliminate, suspected competition for fish (Weseloh and Collier 1996).

At best, the control measures in effect on the Great Lakes between the late 1940s and 1960 merely slowed the growth rate, yet by the early 1970s, there were no cormorants nesting on either Lake Michigan or Superior and about 10 pairs on Lake Ontario (Weseloh and Collier 1996). What could account for the 86 percent reduction between the early 1950s and 1970s? With the discovery in 1939 of the insecticidal properties of DDT, this chlorinated hydrocarbon eliminated dependency on inorganic chemicals such as arsenic to control insect pests. Shortly after World War II, DDT came into widespread use as an insecticide. One sinister aspect of DDT was the ability of one of its breakdown products, DDE, to be passed up the food chain and to be stored in animals' fatty tissues in significant concentrations to cause reproductive failure. Cormorants acquired DDE from the fish they ate. The cormorants on the Great Lakes had the greatest amounts of DDE in their fatty tissues and suffered the greatest consequences: embryonic

abnormalities, crossed bills, eggshell thinning (Hatch and Weseloh 1999). Study after study on the Great Lakes implicated this insecticide as the cause of the cormorants' decline. A much maligned fish forager was the Great Lakes "canary in the coal mine."

Since 1975 the populations of cormorants on the Great Lakes, the Great Plains, and the Atlantic coast have exploded in number. On the Great Lakes, for example, cormorant numbers have increased over 300 times (Weseloh and Collier. 1996). There are now more than 100 colonies on the Great Lakes (Morin 2000). As toxins including DDT and PCBs were banned and the clean-up got underway, populations of Double-crested Cormorants increased. By the end of the 1980s DDE and PCB levels in cormorant eggs had decreased by more than 80 percent (Weseloh and Collier 1996).

4.3.3.2 Natural history

Hatch and Weseloh (1999) provide a comprehensive natural history of the Double-crested Cormorant. The birds feed primarily on schooling fish, on bottom-dwelling and often slow-moving fish and invertebrates (ibid.). They forage in shallow water and typically within 30 km of their nesting colony or roost site. Sometimes cormorants form loosely coordinated foraging flocks when feeding on schools of fish.

Today, as in the 1940s and '50s, fishermen are concerned about competition with cormorants for fish. Six cormorant diet studies on the Great Lakes between 1986 and 1998 are summarized by Hatch and Weseloh (1999). In every one of these studies the introduced alewife has been a major component of the cormorants' diet. A study in eastern Lake Ontario determined that forage fish including alewife make up 50 percent of the diet, panfish such as yellow perch 33 percent, and gamefish (e.g., Smallmouth Bass) 1.6 percent (14 percent were unidentified). Fisheries biologists point out that although Smallmouth Bass make up less than 2 percent of the total prey for cormorants in this study, this amount may be as much as one-third of the Smallmouth Bass available in the local waters a significant number in these waters. Control programs were implemented in Quebec (Alvo 1996) and more recently in New York and Vermont (Hatch and Weseloh 1999).

Double-crested Cormorants nest in colonies on the ground, often on islands or sites inaccessible to predators, in trees and on man-made structures including shipwrecks. Tree nesting may be a response to predators (Hatch and Weseloh 1999). There is no overlooking a cormorant-nesting colony: the wastes about the nest site reeks of guano (their faeces) and rotting fish. Flies are everywhere. The accumulated whitewash serves to cement the finger-width sticks that cormorant pairs use to build their nests and also kills the nest trees and other vegetation. Double-crested Cormorants often nest adjacent to other colonial waterbirds such as gulls, terns, and herons, including Black-crowned Night-Heron. These cormorants have a relatively high reproductive rate compared to many other colonial waterbirds (Geneseebirds 2000). The first egg of three or four is laid three to four weeks after arrival at the colony site. Eggs hatch in about a month; after three to four weeks in the nest, the young leave to form juvenile groups that roam about the colony mainly socializing, returning home periodically to be fed. At 10 weeks of age, they are independent of their parents. Predators of the eggs and young are many: gulls, American Crow, Bald Eagle, Great Horned Owl, likely Common Grackle, Coyote, Red Fox, and Racoon (Hatch and Weseloh 1999).

The Interior and Atlantic populations of Double-crested Cormorant are strongly migratory. Fall migration for the Great Lakes population is underway in late October and early November with large movements out of the Great Lakes and down the Mississippi Valley. They winter along the coast from North Carolina to the Gulf of Mexico, south to Belize. In spring, the first to arrive at the colonies do so early – when ice break-up is well underway but large areas of pack ice are still present (Hatch and Weseloh 1999).

4.3.4 Common Tern

Along shorelines, gulls and terns often overlap where they roost, breed, and feed. Somewhat similar in appearance with their pearl-grey backs and wings and gleaming white underparts, these birds, however, differ significantly. Terns are like sea swallows – slim, graceful fliers with pointed wings and forked tails. As well, their black caps and red-orange bills, usually with a black tip, distinguish them from the gulls. Common Tern and Caspian Tern both breed on the lower Great Lakes. The larger size and large red bill of the Caspian distinguishes it from the Common Tern.

4.3.4.1 Significance of Common Tern as an IBA species

The Great Lakes population of the Common Tern may represent a distinct genetic stock (Quinn et al. 1996). Studies of banded birds from the early 1920s to 1976 indicated very little movement of Common Terns into the Great Lakes from the East Coast. While the Committee on the Status of Endangered Wildlife in Canada has assigned no status to the Common Tern, numbers have been declining on the Great Lakes since the early 1970s. Should this decline continue, conserving the population in the IBA has important biological significance. It is well established that Common Terns on the Great Lakes and elsewhere have been affected by habitat loss (Neuman and Blokpoel 1997), and the response by conservation agencies has focused on enhancing existing nesting habitat and creating new habitat.

4.3.4.2 Distribution, population trends, and abundance

Breeding in the Northern Hemisphere, the Common Tern is distributed throughout the boreal and north temperate zones of North America, Europe, and central Asia. In Canada it breeds from the foothills of the Rocky Mountains in Alberta to Newfoundland. It occurs in a wider spectrum of habitats than other tern species (Razurel 1996).

At the beginning of the twentieth century the Common Tern was on the verge of extinction (Bent 1921). Common Tern feathers were popular in the millinery trade of the late nineteenth and early twentieth century. This practice devastated populations of many colonial waterbirds and songbirds. With the waning of the "fashionable feather" by World War I and with the ratification in 1917 of the Migratory Birds Convention Act, the Common Tern began its recovery. Many populations of this species would recover to their mid-nineteenth century levels (Ehrlich et al. 1988). Towards the end of the twentieth century, however, numbers once again declined.

The most recent population estimate for North America is 100,000 birds and an estimated 35,000 pairs for eastern North America (Canadian IBA database 2000). Although no population estimate exists for Canada, most of this species' eastern North American range lies within Canada. A sum

of Canadian regional estimates yields a total of at least 40,000 pairs in Canada during the late 1980s and early ’90s (Canadian IBA database 2000). During the last decade, however, observers have documented a decreasing trend at most of the larger colonies particularly in the Great Lakes (Courtney and Blokpoel 1983; Blokpoel and Scharf 1991). On the lower Great Lakes, few large tern colonies remain. On the Canadian side, there are Port Colborne IBA, with 500–1,000 pairs (Morris, pers. comm.), and Hamilton Harbour, with 954 nests in 1993 (Quinn et al. 1996); together these colonies represent about 80 percent of the lower Great Lakes’ population. Artificial islands have been created in Hamilton harbour to provide nesting habitat for Common Terns. (Blokpoel, pers comm.)

4.3.4.3 Natural history

Common Terns breed on islands, shores, and marshes of lakes and rivers. Of 132 breeding sites catalogued by Peck and James (1983), about 50 percent were on rocky, grassy, or sandy areas of islands; 32 percent on mainland shores of sand, rock and gravel, landfill, or grass; and 17 percent in marshes including cattail, marsh islets, and muddy or boggy edges of marshes. With loss of habitat, particularly on mainland shores, some attempts to provide artificial nesting habitats have been made on both Lakes Erie and Ontario with mixed results (Whan, pers. comm.; Martins 1997; Scott Jarvie, pers. comm.).

Common Tern arrives in the lower Great Lakes in early to mid-April (Goodwin 1995). Early arrivals may not settle immediately within the territory. They will remain in the general area, roosting nearby at night and feeding by day in the surrounding waters. Where Ring-billed Gulls breed at the same location as terns, the terns may arrive to find the breeding territories of their colony occupied by Ring-billed Gulls. The gulls normally initiate their nesting approximately three weeks earlier than the terns; this is a major threat that causes terns to desert their breeding sites (Morris and Hunter 1976).

Within a week of arrival, and in the absence of gull interference, Common Terns begin to select their breeding territories. These may be the same territories as previous years (Erhlich et. al. 1988). During the first three or four years of life, terns seldom return to their breeding colony (Morris and Hunter 1976) but instead remain on the wintering grounds or along the migration route. Young terns that do return tend to be unsuccessful at breeding and may roost in small groups outside the colony (Stokes and Stokes 1989).

Peck and James (1983) describe Common Tern nests as ranging from simple scrapes in gravel to elaborate bowls of vegetation. Occasionally, no nest is built. The average clutch contains three eggs, with incubation lasting 22 to 23 days (Peck and James 1983). During the first week after hatching, the young usually crouch together somewhere in the breeding territory and are brooded mostly by the female. As the young grow, they wander off territory and may hide beneath vegetation if present, or beside stones. Even after a month when they have grown all their juvenal feathers and perhaps have flown short distances, the young tend to sit and wait for adults to bring food. Disturbance at the colony throughout this period can cause juveniles to scatter. Flightless birds wander away from the nest site and are easy prey for gulls. Disturbance at the colony over this period can cause weak-flying juveniles to panic and fly from the colony, which would be disastrous for the colony’s success (Stokes and Stokes 1989, Morris et al. 1992).

Common Terns feed mainly on small fish and the young of larger fish species by hovering over open waters, then plunging headfirst into the lake in pursuit of their prey from several metres above the surface. Flocks of hovering terns often indicate the presence of a school of fish below. While 90 percent of the tern's diet is fish, crustaceans and insects make up the remainder (Erhlich et al. 1988).

By mid-August and early September the southward migration begins. Family units can begin migration together, if young continue to be fed by their parents. Flocks tend to be small; however, large flocks may form in response to food. By late fall, Common Terns have left the lower Great Lakes heading south to winter in South America (Blokpoel 1987a).

5.0 Other Elements of High Conservation Value

More than 300 species of birds have been recorded within the IBA. Forty-five species of birds are known to breed within the IBA; a pair of nesting Canvasbacks in 2000 represents the first confirmed nest for the province (Smith 2000, Coady 2000). The Spit provides stopover habitat between October and April for Short-eared Owl (Murr 1997), a provincially designated species of Special Concern.

In the span of four decades, plant species rarely observed in Toronto since early in the 20th century have appeared in the Leslie Street Spit IBA (TRCA 2000). High plant diversity is the result of the array of habitats from wetlands to woodlands to dry fields. Close to 400 species of plants have been reported growing on the Spit, some of which are nationally, provincially, or regionally rare (Higgins 1992, MTRCA 1989). Nationally rare plants include Erect Knotweed (*Polygonum erectum*), while provincially rare species include Sea-spurry (*Spergularia marina*), False Pimpernel (*Lindernia dubia* var. *anagallidea*), and Bushy Cinquefoil (*Potentilla paradoxa*). The regionally rare species are predominantly those associated with Great Lakes beach or wet meadows habitats, for example, Seaside Spurge (*Euphorbia polygonifolia*), Sea-rocket (*Cakile edentula*) and Slender Agalinis (*Agalinis tenuifolia*). Succession, together with habitat creation and enhancement projects on the Leslie Street Spit, have changed lakefill and dredge material into a landscape that meets a number of criteria for designation as an Environmentally Significant Area (ESA) (MTRCA 1982, 1993).

This IBA contains biological communities, both aquatic and terrestrial, that are exceptional within the region. Several habitats including dune, shoreline meadow, and cottonwood forest have limited representation and are geographically restricted within the region (TRCA 2000).

6.0 Land Ownership and Use

6.1 Land Ownership

The Toronto and Region Conservation Authority (TRCA) owns 260 ha of land and water included in Tommy Thompson Park within the IBA. Areas still under construction are owned by the Province of Ontario under the administration of the Ontario Ministry of Natural Resources (OMNR) and leased to the Toronto Port Authority. The OMNR will transfer 224 ha of land and water to the TRCA once lakefilling activities are complete or the lease expires (TRCA 2000, MTRCA 1992).

The Toronto Port Authority and the City of Toronto own the land and water adjacent to the northern part of the Tommy Thompson Park. Specifically, the Toronto Port Authority owns the waterlots as well as the Outer Harbour Marina and base lands west of Leslie Street. As well, the Toronto Port Authority owns the lands of the Ashbridge's Bay Sewage Treatment Plant which are under agreement with the City of Toronto. The remaining lands are held by the City directly or their subsidiary the Toronto Economic Development Corporation (TEDCO).

A brief history of Toronto waterfront planning

Since 1911 when the first report on the subject was prepared, the question about land use on the City's Lake Ontario shoreline has been the subject of short-sightedness and long-term vision, controversy and compromise, indecision and action. The 1988 Royal Commission on the Future of the Toronto Waterfront chaired by David Crombie recognized that air, land, and water were being compromised by human use and could not be sustained over time. The commission proposed that an ecosystem approach be used as the guiding principle to develop proposals for revitalization (Royal Commission 1992). This commission supported the Friends of the Spit who advocated that the area should be an urban wilderness (Carley 1998).

Faced with the opportunity of economic growth, urban planners responded for much of the last century with industrial expansion along the waterfront. Wetlands were convenient dumping grounds for both garbage and construction fill (Bodsworth 1998). Environmental planners today envision the Lake Ontario shoreline quite differently. "Ecosystem health" and "humans as a part of nature" are the operative terms and expressions of the twenty-first century vision of the lakeshore. From Etobicoke to Scarborough (Fung 2000), from Tommy Thompson Park to Frenchman's Bay (MTRCA 1996), from Niagara-on-the-Lake to Kingston – possibly around the entire lake – reports and management plans speak of "a special quality of life" defined by humans reconnecting with the waterfront and shoreline.

In 1992, after release of the Royal Commission's report, the Ontario Government established the Waterfront Regeneration Trust to implement the commission's recommendations. In 1995 the Trust released the Lake Ontario Greenway Strategy, outlining actions required to restore and protect the ecological health of the Lake Ontario waterfront while promoting a sense of community and economic vitality (Waterfront Regeneration Trust Corporation 2000). Leslie Street Spit IBA will be a significant component of this strategy, contributing to the public awareness of the special quality of life offered by this regeneration.

Figure 3. Ownership within the IBA

6.2 Land Use

Shaping Leslie Street Spit has been the newly emerging discipline of landscape ecology, which combines elements of geography, biology, sociology, and economics (Friesen 1995). New models of land use planning have been emerging that bring together landscape ecology, natural succession, and habitat management under the umbrella of conservation biology (Jackson 1992). Who would have predicted in 1959 when the first truckload of city rubble was dumped into Lake Ontario at the foot of Leslie Street that it was the beginning of an "urban wilderness"?

As described in Section 3.1, construction of the Leslie Street Spit began in 1959 to expand the Toronto Harbour Commissioners' port facilities. In 1972, after about a dozen years of construction, it became apparent that port expansion was no longer required. In 1973 the Metropolitan Toronto and Region Conservation Authority (known today as the Toronto and Region Conservation Authority [TRCA]) was given the responsibility to develop a Master Plan for the Spit and an Interim Management Plan for both biological and human interest activities (TRCA 2000; MTRCA 1989 1992). It is unlikely that anyone in 1973 could have foreseen that it would be 1995 before a final Master Plan and Environmental Assessment would be approved. Years of planning, consultations, debate, delay, public meetings, and, most significantly, a ground swell of individual and organizational support ultimately generated and created a Master Plan committed to "passive" recreational use. Perhaps the rallying cry of Friends of the Spit, "Let it Be," best summarizes the consensus that gathered momentum over the two decades. Every season brought new life and added enthusiasm for allowing natural succession to dictate the Spit's development.

In 1985 Leslie Street Spit was officially named Tommy Thompson Park after a former Metro Toronto Parks Commissioner. The park was established as a unique open space for passive recreation and to conserve and manage the natural resources as well as the environmentally significant areas of the Spit (MTRCA 1989 1992). Included within the park is the Aquatic Park Sailing Club which is located in Embayment C with 100 swing moorings, on-shore facilities, including a clubhouse, that occupy one hectare at the eastern end of the embayment (MTRCA 1992). Adjacent to Tommy Thompson Park at the north end is the Outer Harbour Marina, a public facility presently with 654 slips for pleasure craft.

7.0 Conservation Management Achieved at the IBA Site

The Leslie Street Spit IBA has no protection status; however, Tommy Thompson Park, which constitutes much of the IBA land base, is owned and managed by the Toronto and Region Conservation Authority to conserve and enhance its natural significance (MTRCA 1989).

7.1 Bird Management

The federal Migratory Birds Convention Act of 1917 protects the waterfowl and a number of the colonial waterbirds that breed on Leslie Street Spit IBA, including Black-crowned Night-Heron and all species of gulls and terns. Migrants that make up the landbird concentrations that occur during spring and fall migration are also protected under this act. The Double-crested Cormorant is protected under the Ontario Fish and Wildlife Conservation Act. The Ontario Minister of Natural Resources may authorize control programs for this species.

Bird management activities within the IBA include an annual Gull Control Program and management of the Common Tern colony and will involve cormorant management. Beginning the end of March and continuing intermittently to early July, gulls are discouraged from nesting using various techniques described in section 4.2.3. A study of cormorant encroachment on the Black-crowned Night-Heron colony involving tree tagging is informing the TRCA, MNR, and CWS with regard to potential cormorant management options.

Common Tern management has involved defining the boundaries and monitoring and patrolling the nesting areas. Signage was erected to alert park users and minimize disturbance, but these signs were often ignored. Monofilament lines were installed to prevent encroachment on the tern colony by Ring-billed Gulls. Despite these attempts during the 1980s, the tern colony declined dramatically in numbers. In 1990, with the cooperation of the Canadian Wildlife Service, the Toronto and Region Conservation Authority installed four artificial nesting platforms in nearshore waters to increase nesting habitat, and to some extent these have been successful (Martins 1997). In 1993 the artificial platforms were modified to provide artificial reefs for fish. These artificial habitats continue to be monitored and inventoried.

To monitor the effectiveness of the terrestrial habitat creation/enhancement project for breeding and migrating land birds, a community volunteer is undertaking point count surveys (TRCA 2000).

7.2 Habitat Management

Tommy Thompson Park has been a repository for dredged sediments (see Section 3.1). Of the three cells receiving dredgeate, two have been filled to capacity and need to be capped. A minimum of 0.5 m of clean fill will be placed over the dredgeate and a wetland ecosystem established on top of the cap. These operations were approved under the Environmental Assessment Act by the provincial Ministry of the Environment (MTRCA 1992).

All of the natural areas within Tommy Thompson Park have been established on lakefilled land or water areas. The quality of this fill and water has been the concern of the Toronto and Region Conservation Authority. Contaminants can bioaccumulate in the food chain, having detrimental effects on top carnivores in particular. An improved Lakefill Quality Control program approved by the provincial Ministry of the Environment provided a consistent guideline in the Greater Toronto Area for the assessment of fill quality (MTRCA 1989).

The framework for the habitat management within the IBA was prepared through an extensive Master Planning Process undertaken by the TRCA (1989, 1992). *Tommy Thompson Park Public Urban Wilderness Habitat Creation and Enhancement Projects 1995-2000*, a summary of the habitat creation, enhancement and restoration work undertaken, is available (TRCA 2000). Funding for the habitat projects was primarily through the Great Lakes 2000 Cleanup Fund and the Toronto and Region Remedial Action Plan (TRCA 2000). Four major habitats have been established within the Tommy Thompson Park portion of the IBA, utilizing natural succession augmented by minimal human intervention and management (TRCA 2000). These projects have provided habitat for fish and wildlife including birds. The habitat projects have resulted in flooded pools, mudflats, and meadow communities – habitats for shorebirds and waterfowl.

The Master Plan for Tommy Thompson Park (1989) and the Revised Master Plan (MTRCA 1992) provided the basis for conserving and managing the natural resources and environmentally significant area of the site. The Natural Resource Area, the largest and most dominant area of the park, has nine community types (MTRCA 1992). Reviewing the Master Plan for the natural area was the Natural Areas Advisory Committee with representations from Friends of the Spit, Federation of Ontario Naturalists, Field Botanists of Ontario, Toronto Field Naturalists, Botany Conservation Group (University of Toronto), Toronto Ornithological Club, CWS (Environment Canada), OMNR, Metropolitan Toronto Parks and Property Department, Aquatic Park Sailing Club/Outer Harbour Sailing Federation, and the TRCA.

The shoreline and wetland creation/enhancement projects undertaken by the TRCA on Leslie Street IBA are not only providing habitat for IBA species and other wildlife but also contributing to the Toronto and Region Remedial Action Plan (Environment Canada 1999). Metro Toronto is one of 43 Areas of Concern around the Great Lakes Basin designated by the International Joint Commission in 1987 as defined by the U.S.-Canada Great Lakes Water Quality Agreement (Environment Canada 1999). As part of the Remedial Action Plan, habitat work on Leslie Street Spit contributes to the overall ecosystem health of the City of Toronto.

8.0 Stakeholder Activity

Below are those agencies, organizations, and clubs that have a direct stake in the IBA and its evolution.

8.1 Canadian Wildlife Service, Environment Canada

CWS is responsible for enforcement of the Migratory Bird Convention Act. Many of the species of colonial waterbirds nesting in the IBA (see Section 7.1), as well as migrants, are protected under this Act. CWS also monitors and manages some of these species, in partnership with TRCA and the OMNR, as described in chapter 4. CWS undertakes periodic colonial bird surveys on all of the Great Lakes and monitors microcontaminant levels in eggs of target species including Herring Gull, annually at colonies throughout the Great Lakes, including this IBA. CWS authorizes the control measures implemented for the Ring-billed Gull colony.

Since 1974 the Canadian Wildlife Service has measured contaminants in gull eggs taken from 15 sites around the Great Lakes including the 100+ Herring Gull colony in the Leslie Street Spit IBA. Herring Gulls are a good Great Lake bioindicator because they eat fish and live on the Great Lakes year round. Measurements of contaminants in their eggs such as PCBs and DDE, a breakdown product of DDT, reveal information about the health of the Great Lakes (Weseloh, pers. comm.). This long-term study has shown significant declines in contaminant levels in these Herring Gull eggs. The CWS website is: www.on.ec.gc.ca/wildlife/intro.html

8.2 Ontario Ministry of Natural Resources

The province owns the remaining lands still being lakefilled on the Leslie Street Spit, which will be transferred to the TRCA once lakefilling activity ceases or the lease to the Toronto Port Authority expires.[6] OMNR is responsible for managing the Lake Ontario sport and commercial fishery. Through the Ontario Fish and Wildlife Conservation Act, OMNR has responsibility for Double-crested Cormorant, birds of prey and game birds that are not protected under the Migratory Bird Convention Act. At present OMNR in concert with provincial and state partners is developing a cormorant management strategy for the lower Great Lakes. The OMNR website is: http://www.mnr.gov.on.ca/MNR/

8.3 City of Toronto

The City of Toronto, through powers delegated through the Planning Act of the Ministry of Municipal Affairs and Housing, is responsible for land use planning and regulation for all lands that fall within the municipality, including the lands of the IBA. Tommy Thompson Park is zoned as "Environmental Resource Area" and "Open Space," while lands at the base of the Spit have a variety of zonings. Environmental Resource Areas are maintained and managed for conservation, public enjoyment, and compatible recreation uses. The City, along with other stakeholders, has been involved in multiple planning exercises related to the waterfront and the port lands. The City of Toronto website is: http://www.city.toronto.on.ca/

[6] The province owns all lands created through landfilling and transfers ownership to an authority such as the TRCA in the case of the Leslie Street Spit.

8.4 Toronto and Region Conservation Authority

The TRCA owns the balance of lands within the IBA (Tommy Thompson Park). The TRCA developed the Tommy Thompson Park Master Plan and Environmental Assessment in 1989 and amended it in 1992. The authority leads environmental management and restoration activities as well as environmental education within the IBA, including both terrestrial and aquatic habitat management initiatives and management related to the bird colonies, described in chapter 4. The TRCA website is: http://www.trca.on.ca/

8.5 Toronto Port Authority

The Toronto Port Authority is a Canada Port Authority and part of a national ports system, replacing the Toronto Harbour Commissioners. Established on June 8, 1999, under the Canada Marine Act, the Toronto Port Authority is a federal public authority providing transportation, distribution, storage, and container services to businesses. The TPA owns and operates the Toronto City Centre Airport, Marine Terminals 51 and 52, and the Outer Harbour Marina. In addition it provides regulatory controls and public works services to enhance the safety and efficiency of marine navigation and aviation in the port and harbour of Toronto. It manages the development of the Leslie Street Spit lakefill site. The Toronto Port Authority website is: http://www.torontoport.com/

8.6 Friends of the Spit

Friends of the Spit is a non-partisan advocacy group founded in 1977 to keep the Leslie Street Spit as a public urban wilderness. Friends of the Spit work within the democratic process to ensure that the Spit remains a car-free environmental resource, entirely public and accessible at no cost. Over the years Friends of the Spit has evolved into a sophisticated political force and built a broad constituency of supporters. It is considered as Toronto's premier grassroots environmental group, with 1,200 members. Supporters, through membership in allied groups, number in the thousands. The Friends of the Spit website is:
http://www.interlog.com/~fos/whoare.friends.html

8.7 Toronto Ornithological Club

The Toronto Ornithological Club (TOC) has been active in the study and documentation of birds in the Toronto Region since 1934. The club has 120 members. Their activities include maintaining a database of observations within the Toronto checklist area, publishing observations and articles within their newsletter, holding regular meetings, and holding public events including outings to the IBA. TOC members have conducted an annual warbler count in May each year that includes part of the IBA, and maintain the results in a database.

8.8 Toronto Field Naturalists

One of the oldest naturalist clubs in the province, the Toronto Field Naturalists (TFN) holds monthly meetings, produces a newsletter, and has regular outings for the public. The TFN website is: http://www.sources.com/tfn/

8.9 Aquatic Park Sailing Club

APSC supports helping to conserve and manage the Spit as a public urban wilderness. The club, on the Spit since 1977, maintains 100 swing moorings for sailboats in Embayment C, along with a small clubhouse with limited services. Club members, under the jurisdiction of the

TRCA, sign individual agreements to protect the park's environment. Club fees support accessibility by the public to the Spit by partly funding the shuttle van on weekends and holidays. Volunteer activity by club members includes a Spit Clean-Up Day, and other activities as directed by TRCA staff.

9.0 Opportunities

Birdwatchers refer to Leslie Street Spit as Toronto's Point Pelee (Murr 1997) and as one of the premier birding locations in Toronto (Goodwin 1988). This IBA is a stopover and concentration point for migratory species, with more than 300 species of birds recorded including several rarities: Glossy Ibis, Tufted Duck, Yellow-crowned Night-Heron, Black-necked Stilt, California Gull, Boreal Owl, Great Gray Owl, and Western Kingbird (Bain and Holder 1996, 1997; Bain and Shanahan 1998; Murr 1997). The Toronto Ornithological Club and Ontario Field Ornithologists offer regular birding trips to Leslie Street Spit providing opportunities for both new and experienced birdwatchers.

The approved Master Plan of TTP proposes that the Leslie Street Spit offer Toronto residents and visitors passive recreational opportunities. A system of walking and bicycle trails is linked with the Martin Goodman Trail, which is part of the Metropolitan Waterfront Trail System. Bicycles are not permitted within the Natural Resource Area. Throughout the park are rest areas for wildlife viewing. Sensitive areas, indicated to visitors by signs, are out of bounds during the breeding season. Nature viewing and photography are encouraged outside of colonies. Leslie Street IBA is open on weekends and holidays from 9 a.m. to 4:30 p.m. in winter and 9 a.m. to 6 p.m. during other months, excluding December 25 and 26. Winter weather conditions may close the site due to unsafe conditions.

Perhaps one of the greatest opportunities lies in the potential for education and awareness. On weekend and holidays during the summer, interpretive programs are offered including guided hikes and presentations about the natural history of park wildlife including IBA species, history of Tommy Thompson Park, and the importance of the IBA as a stopover and breeding area. An interpretive centre with shelter and washroom facilities for students and public is planned for the base of the Spit. In the late spring of 2000 the TRCA, in conjunction with partners include the Friends of the Spit, the Toronto Field Naturalists, and the Toronto Ornithological Club, held a birding festival that included a public dedication of the IBA. This festival and other related events are viewed as an important for promoting environmental awareness and appreciation amongst the large and culturally diverse Toronto citizenry.

Habitat projects (see section 7.0) implemented within the IBA by the TRCA increase public awareness and provide educational opportunities related to habitat creation/enhancement techniques and educational opportunities concerning the specific habitat requirements of the IBA's birds, amphibians, reptiles, and small mammals. Special interest groups have opportunities to participate in habitat creation/enhancement techniques. For example, through a community outreach initiative, the TRCA provides local schools with hands-on environmental science through the Aquatic Plants Program (TRCA 2000). Public participation also includes

monitoring of the habitat projects by undertaking point count surveys. Wildlife sightings within the park can be reported on the Tommy Thompson Park Wildlife Hotline.

Leslie Street Spit IBA is an integral component of Toronto's waterfront. In the recently released report by the Waterfront Revitalization Task Force (Fung 2000), Leslie Street Spit is not only recognized as a natural open space but recommendations are made to link the IBA to the mouth of the Don River. The report describes a greenway connection between the Don Valley and Leslie Street Spit that would include a new Lake Ontario Park developed along the shoreline of the Outer Harbour between Cherry Beach and Ashbridge's Bay sewage treatment plant (ibid.). The proposed park, unlike Leslie Street Spit, would contain botanical gardens, formal gardens, and a butterfly house as well as trails and reforestation projects.

Vegetation within this proposed park would be of significant value to migrating landbirds. As Peuramaki (1998) points out, the vegetation of the mainland at the base of the Spit and west along the shoreline is more seasonally advanced in spring than on the Spit because of the difference in microclimate. In spring this habitat provides a major source of food for early spring migrants. In fall, when shrubs and trees on the exposed spit have lost most of their leaves, the habitat along the mainland shoreline again offers both food and cover to migrants.

Leslie Street Spit IBA is a core habitat area within the Integrated Shoreline Management Plan (MTRCA 1996). As the plan is implemented, the public will have the opportunity to walk, cycle, and jog along the Lakeshore from Tommy Thompson Park to Frenchman's Bay.

10.0 Threats

The efforts of Friends of the Spit to preserve the Spit are well known and documented (Fairfield 1998; Friends of the Spit 2000; MTRCA 1989, 1992). The success of this advocacy group has provided both inspiration and guiding principles/guidelines for others wanting to save natural areas threatened with development. For those involved in the preservation of the Spit for 25 years, the corollary to "let it be" has become "be ever vigilant." There is always a threat.

10.1 Competition between IBA Species

Double-crested Cormorants nest with many other colonial waterbirds throughout their range (U.S. Department of the Interior Fish and Wildlife Service 1999). They build nests adjacent to active colonies of other birds and, as their numbers increase, build nests within these colonies. They encroach upon tree-nesters such as Black-crowned Night-Herons, causing these birds eventually to abandon their nest trees and the colony.

There has been a rapid colonization of Leslie Street Spit IBA by Double-crested Cormorants, resulting in competition for nest sites between the cormorants and the Night-Herons. The TRCA, MNR, and Canadian Wildlife Service have undertaken an extensive monitoring program involving nest tree tagging and using GIS technology to plot encroachments by cormorant on Night-Heron nest sites (Jarvie et al. 1999). The data gathered during this five-year study will be

used to plan cormorant management on the site beginning in 2001. Studies in Alberta have suggested that Ring-billed Gull could become a major predator of Black-crowned Night-Heron (and *vice versa*) (Mousseau 1996).

Ring-billed Gulls and Common Terns have similar nesting habitat requirements and compete for space within that habitat (Morris et al. 1992). On the lower Great Lakes, Ring-billed Gulls arrive two to four weeks earlier than do the terns at breeding colonies and may usurp the entire tern colony site. Management efforts to control Ring-billed Gulls have been undertaken since 1980 by Toronto and Region Conservation Authority and Canadian Wildlife Service (ibid.) (see sections 4.2 and 7.0).

10.2 Human Disturbance

People and their dogs have disturbed gull and tern colonies for many breeding seasons in the Leslie Street Spit IBA. Signs were installed during the 1980s to discourage such disturbance (Morris et al. 1992), with minimal success. The Revised Master Plan permits sensitive areas to be blocked off for part of the year during the breeding season when colonial birds are especially vulnerable to disturbances (TRCA 2000). The TRCA supports restricting access to certain sections of the IBA during sensitive periods such as nesting and spawning seasons (TRCA 2000). Pets are not allowed in TTP, though many people ignore this requirement (Jarvie, pers. comm.).

By the end of the present decade, perhaps earlier, construction activities will cease on Leslie Street Spit. For the first four decades of the Spit's existence, it has been out of bounds on weekdays to the public due to construction. When construction ends, visitor use will increase significantly, which in turn could result in daily disturbance of the breeding colonies.

10.3 Nuisance and/or Hazard: Ring-billed Gull

The Ring-billed Gull is associated with recent concerns in urban and suburban areas of Ontario (Ryder 1993). These concerns include: aircraft flight safety, impact on industrial operations where nesting or night time roosting occurs on roofs, and conflict with human land use, especially in parks. Ryder (1993) briefly summarizes procedures and regulations, and the effectiveness and problems associated with control programs.

Toronto City Centre Airport (TCCA) is situated 5 km to the west of Leslie Street Spit IBA on one of the Toronto Islands at the foot of Bathurst Street. With a permanent land link or fixed-link bridge between the mainland and the airport pending final design approval, the TCCA anticipates a significant increase in short-haul passenger air service. Colonial waterbirds are present throughout the breeding season and numbers of birds are highest during the post-breeding period when breeding colonies are at maximum size and activity, with young of that year testing their wings. Ring-billed Gulls are by far the most numerous colonial waterbird on Toronto's waterfront with an average of more than 52,700 pairs breeding in the IBA (Canadian IBA Database 2000). At the end of the breeding season in August, there may be as many as a quarter of a million Ring-billed Gulls (Weseloh, pers. comm.). Flights of flocks in and around airports

may pose a safety hazard by increasing the risk of collision between birds and aircraft. Collisions involving Ring-billed Gulls have occurred in fall at Montreal, Toronto, and New York (Weseloh and Blokpoel 2000). A study along the Lake Michigan shoreline showed that Ring-billed Gulls fly at altitudes up to 400 m in flocks of six to more than 300 individuals during migratory flights (Ryder 1993). Flights to and from the IBA colony are likely within this range. Altitudes of flights inland during the same study were found to be usually above 400 m.

10.4 Use of Baselands

Human activity proposed for the baselands of the Leslie Street Spit, or lands adjacent to these lands, has been a concern those who support the Spit's remaining an urban wilderness. Since 1996 proposals of concern have included a 7.3 ha golf facility with driving range and mini-putt, the installation of wind turbines (Friends of the Spit 2000), and a potential location for a other waterfront developments (Toronto 2008 Olympic Bid 2001).

Concern about such proposals is that the baselands of the Spit is an Environmentally Sensitive Area (ESA) and together with adjacent lands is a stopover for large concentrations of spring and fall migrants (Peuramaki 1998; see also section 8.0). Through the efforts of the Friends of the Spit, the golf facility proposal failed to pass Council (Carley 1998). Concerns expressed by Friends of the Spit and others about the installation of wind turbines on adjacent lands of Ashbridge's Bay Sewage Treatment Plant were addressed by Ross James, former associate curator of ornithology at Royal Ontario Museum, and, Ross Harris, senior biologist, LGL Ltd. Reviewing more than 100 North American and European studies of the impact of wind turbines on birds, James reported that mortality rates were generally extremely low (Toronto Renewable Energy Co-operative 1999). Harris noted that a site in California recorded a number of collisions by raptors, especially Bald Eagles, and that this result was an exception during the 30 years that these studies under review were carried out. Approval to install up to three turbines on the Toronto waterfront has been granted by Environment Canada, with conditions related to design, monitoring, and mitigation of potential impacts on birds. Concern remains that approval of these turbines could lead to installation of more turbines on the Spit itself. Preliminary plans of the Toronto Renewable Energy Corporation (TREC) (prior to public consultations) showed a major wind park situated throughout the landbase of the IBA.

10.5 Industrial Pollution

Leslie Street IBA encompasses not only the embayments of Tommy Thompson Park but also the nearshore waters surrounding the Spit within the Outer Harbour and Lake Ontario. The Toronto Port Authority handles a relatively low volume of commercial shipping traffic; however combined with the other pleasure-craft boating activity in the area, there is some potential threat of oil spills.

Large rafts of waterfowl that include Greater Scaup, Long-tailed Duck, and Redhead and White-winged Scoter foraging in the waters off the IBA would be threatened by oil spills. Spills would likely damage shallow water areas in the IBA that serve as spawning beds for fish and foraging areas for wading birds, colonial waterbirds, and shorebirds. Emergency response to oil spills is a coordinated effort of the Fire Department, Marine Police Unit, and the Toronto Port Authority.

Equipment and trained personnel would respond to spill incidents in the area, recognizing the sensitivity of the shoreline ecology.

As previously described, the three cells in the endikement are confined disposal facilities for the disposal of contaminated dredgeate. As these are filled, and to date two of the cells are, a clean cap fill of sand and fill from 0.5 m to 3m in depth will be placed upon the contaminated sediments. Monitoring of the caps and wetlands created on top of the caps will continue to ensure the integrity of the procedure. Sediments in Triangle Pond have concentrations of lead and iron in excess of the Severe Affect Limit of the Ministry of the Environment Sediment Quality Guidelines. Both of these are lightly toxic and are readily taken up by many bottom-dwelling organisms. In Triangle Pond, oil and grease exceed open water guidelines (TRCA 2000). Toronto and Region Conservation Authority has capped these sediments with clean sand and fill to a depth of 0.5 m to 3 m to prevent bioaccumulation (ibid.).

10.6 Changes in Vegetation

10.6.1 Natural succession

Wetlands, meadows, and open hard-packed bare surfaces are all subject to natural succession. As wetlands age, they often fill in and become choked with vegetation. Wetlands that achieve a hemimarsh condition with a ratio of 50 percent emergent vegetation interspersed with 50 percent open water provide desirable habitat for marsh birds (Pittaway 1997). Meadow habitat gives way to scrubland and depending upon moisture and soil conditions can eventually support tree growth. Several management techniques are available to maintain meadow habitat (Bland 1997). Common Tern select sparsely vegetated nesting sites. Heavy vegetation cover, if not controlled, can in itself eliminate a tern colony (Morris et al 1992) (see section 4.2.2). Vegetation control procedures can maintain a site for Common Tern. When vegetation density and height increases, Ring-billed Gull may increase in number and Common Tern are eliminated (ibid.).

10.6.2 Alteration/Destruction of Habitat by Double-crested Cormorant

When Double-crested Cormorant select a stand of trees in which to establish their breeding colony, the trees are often killed in a few years. This is because the high soluble salt levels in their faeces exert a strong osmotic pressure on the roots, resulting in desiccation (U.S. Department of the Interior Fish and Wildlife Service 1999). Plant communities can experience long-term damage because seed germination rates and seedling and sapling survival are all negatively affected by cormorant faeces. Ground nesting cormorants and gulls also damage herbaceous vegetation (U.S. Department of the Interior Fish and Wildlife Service 1999).

10.6.3 Non-native flora

Embayment shorelines provide habitat for Purple Loosestrife, an aggressive non-native plant that thrives in wetlands throughout Ontario and can choke out native wetland species that provide important foods for wildlife and fish.

10.7 Soil Erosion

When habitat is created along the shoreline of a spit of land extending into a body of water as large as Lake Ontario, control measures are necessary to provide erosion protection. Storms generate waves that could wash away the newly planted shoreline vegetation (see section 4.2). The TRCA recommends that appropriate barriers to such wave action be designed and positioned to minimize damage (TRCA 2000).

10.8 Snow Dumps

A snow dump for the City of Toronto lies along the northshore of the Outer Harbour east of Cherry Beach and adjacent to the waters of the IBA. A snow dump is a seasonal point source of environmental contaminants including road salt, street garbage, vehicle particulate emissions, dust, and dirt particles. Spring runoff of large snow dumps into an aquatic system can result in environmental shock, increasing contaminant concentration, turbidity, and other water quality factors (Jarvie, pers comm. 2001).

10.9 Microcontaminants

Toronto lakefront is heavily industrialized and prone to many types of toxic contamination and pollution. Microcontaminants such as lead, mercury or PCBs bioaccumulate in the food chain, eventually being taken up by the fish-eating colonial birds. Many of these toxins have been linked to reproductive problems and birth defects in birds and are suspected of disrupting endocrine functions in humans. The CWS is studying contaminants in gull eggs taken from 15 sites about the Great Lakes, including the 100+ Herring Gull colony in this IBA (see section 8), as a way of monitoring the impact of many of these toxins on the food chain.

10.10 Disturbance from Boat Traffic

It is possible that disturbance to bird colonies or groups of feeding birds will become an issue with increasing boating activity along the waterfront, as well as the increasing popularity of personal watercraft.

11.0 The Action Plan

The following action plan lays out the basics for bird conservation in the Leslie Street Spit/Tommy Thompson Park Important Bird Area. The vision, goals, and objectives were developed by the IBA Steering Committee. Bulleted strategies or actions follow each goal and objective. The suggested group or person responsible for implementation is listed in brackets. This listing is not intended to imply priority but simply to present the intent of the Action plan in a logical way. The IBA partnership is encouraged to establish a priority for undertaking or implementing the objectives and actions. Implementation will depend upon the interest and commitment of stakeholders, as well as the availability of resources.

People and agencies involved in implementation (and acronyms):

TRCA	Toronto and Region Conservation Authority
CWS	Canadian Wildlife Service
OMNR	Ontario Ministry of Natural Resources
TO	City of Toronto
TPA	Toronto Port Authority
FON	Federation of Ontario Naturalists
FOS	Friends of the Spit
TOC	Toronto Ornithological Club
TFN	Toronto Field Naturalists
SC	IBA Steering Committee members
APSC	Aquatic Park Sailing Club

11.1 Vision

Leslie Street Spit/Tommy Thompson Park Important Bird Area will be conserved and managed as a public "urban wilderness" to protect its significance for colonial, migratory and resident birds, and other wildlife, and as a place where nature can be monitored, studied and enjoyed.

11.2 Goals, Objectives, and Action Strategies

Caveat:

The main implementation mechanism for most of the proposed objectives and actions below is the Master Plan for Tommy Thompson Park. The IBA respects the primacy of this plan in management of the Leslie Street Spit. The Steering Committee encourages the TRCA to proceed with full implementation of the Master Plan, and, where required, integrate objectives and actions from this IBA conservation plan into the Master Plan.

1. To conserve and manage the IBA as a public "urban wilderness"

A. Support efforts to naturalize the IBA, including the baselands

- Encourage owners and stakeholders (e.g., City) to incorporate naturalized Spit into planning documents (SC)
- Create site plan to identify and prioritize areas for naturalization (TRCA)
- Organize public planting days, in concert with groups such as the Friends of the Spit, schools and the Evergreen Foundation (TRCA)

B. Encourage the current and future owners of the IBA lands and waters to maintain and enhance the Spit's natural state

- Formalize the "urban wilderness" concept into public planning documents such as the GTA Official Plan and Toronto Parks planning documents (SC, TRCA, TO)

C. Maintain and develop public access and circulation that does not threaten the bird colonies but allows quality nature experiences:

- Develop master trail plan that avoids sensitive areas (TRCA)
- Identify areas on trails for quality nature observation experiences (TRCA)

2. *To protect significance of the Leslie Street Spit for colonial and other resident and migrating birds and other wildlife*

A. Maintain and promote diversity of bird colonies

- Manage the colonies so that no species are lost and populations of Common Tern, Caspian Tern and Black-crowned Night-Heron are stable or increased (CWS, TRCA, MNR)

B. Protect all colonies from human and pet disturbance

- Avoid construction, dumping, or the use of any heavy equipment in or near the colonies during their breeding season (TRCA, TPA)
- Erect and maintain signage during breeding season to inform visitors of the colony's sensitivity (TRCA)
- Update existing signage prohibiting pet access to all areas of the park (TRCA)
- Update signs prohibiting public access to the colonies
- Prohibit public access to bird colonies during breeding season

C. Maintain or increase the population of breeding Common Terns and Caspian Terns

- Establish a no-entry policy for tern colonies during breeding season (TRCA)
- Discourage establishment of gull nests within the tern colony (CWS, TRCA)
- Create nesting platforms in protected bays (TRCA)
- Establish islands in appropriate locations and discourage the establishment of wood vegetation on these new islands (TRCA)

D. Maintain or increase the population of breeding Black-crowned Night-Herons

- Discourage establishment of cormorant nests within the heron colony (CWS, TRCA)
- Maintain the no-entry policy for the Black-crowned Night-Heron colony

E. Promote a naturalized corridor for migratory birds from the tip of the Spit to the Don Valley

- Work with City and other stakeholders to incorporate this concept into policies and plans (FOS, TOC, TFN, TRCA)
- Work with additional groups such as the Task Force to Bring Back the Don, the Don Regeneration Council, the Friends of the Spit, and the Evergreen Foundation to restore vegetative links from the base of the Spit to the Don Valley green corridor (FOS, TOC, TFN, TRCA, TO)

F. Establish habitat for migrating birds along and adjacent the shore along the waterfront

- Work with the City of Toronto, the Port Authority and the Waterfront Trust to establish migrating bird habitat in selected sites along the waterfront adjacent to the Spit (TOC, TFN, FON)

G. Discourage construction of new structures (buildings, towers, lighting, etc.) likely to pose threats to resident or migrating birds in the IBA core and buffer zones (SC)

- Attempt to make all windows on buildings within the IBA (e.g., nature centre) as harmless to birds as possible (TRCA, TPO)
- Discourage the installation of aerial services or guy wires in the IBA core and buffer (TRCA, TPO, TO)
- Establish height limits for any building or structure in the IBA so that any threat posed to birds is minimized (TRCA, TPO, TO)
- Work with the Fatal Light Awareness Program (FLAP) and stakeholders to minimize threats to migrating birds posed by lighting in and near the IBA (SC, TRCA, TO)

H. Promote landscaping and land management that respects and promotes natural habitat diversity that supports birds

- Work with the City of Toronto Parks Department and the other interested parties to plant species attractive to birds in restoration and planting efforts (TRCA, TPO, TO)

3. *To encourage monitoring and research in the IBA*

   A. Monitor populations of colonial nesting species on a regular basis

      - Conduct annual counts and mapping of nesting Black-crowned Night-Heron, Common and Caspian Tern, and Double-crested Cormorant (CWS, TRCA)
      - Conduct counts of nesting pairs in the gull colony on a regular basis. (CWS, TRCA)

   B. Develop partnerships with academic institutions (e.g., universities, colleges, and agencies) on species management, behaviour, and ecology

      - Determine diurnal and nocturnal movement patterns of colonial birds from and to the breeding grounds by age class (TRCA, CWS, TOC)
      - Establish faculty contacts at major academic institutions, the Royal Ontario Museum, Canadian Wildlife Service, Ministry of Natural Resources, and other organizations interested in research (CWS, TRCA, OMNR, TOC)

   C. Monitor avian mortality at proposed wind turbine sites and any other structure of concern within or adjacent to the IBA

      - Establish protocol for monitoring at the wind turbine site (ongoing) (IBA, TREC)

   D. Encourage and support volunteer-based monitoring and research projects within the IBA

      - Develop a checklist program to report and record bird observations in the IBA
      - Establish permanent Ontario Breeding Bird Atlas point counts on the Spit and continue use of point counts for long-term study (TRCA, TOC)
      - Support existing surveys and studies within the IBA including: the spring warbler study, the Christmas Bird Count, mid-winter waterfowl counts, colonial bird counts, and shorebird survey (TOC, TFN, TRCA)
      - Encourage the study of other biota within the IBA, such as a summer butterfly count (TFN, TRCA)

   E. Support contaminant studies of colonial species in the IBA (CWS, TRCA)

4. *To promote and develop educational and outreach programs and capacity in and for the IBA*

   A. Establish education and interpretation capacity for the IBA

      - Establish nature centre facilities on the Spit in the least disruptive site, either on the baselands or Unwin Avenue (TRCA, SC)
      - Establish IBA presence/displays in the nature centre (SC, TRCA)

B. Hold an annual bird festival for the IBA

- Organize an annual bird festival in spring or fall (TRCA, SC, TOC, FOS, TFN)

C. Promote the IBA and its goals and objectives to the public and the local media

- Hold media releases around events designed to promote the IBA (e.g., bird festivals) (TRCA, SC)

D. Encourage and enhance visitors experiences

- Construct a blind, or series of blinds, for sheltered viewing of birds without disturbing them (TRCA, CWS, SC)
- Establish stations with maps and interpretive information (TRCA, SC)
- Develop pamphlets on the IBA with map for distribution in Tommy Thompson Park (TRCA, SC)
- Install IBA plaque at a secure public location (TRCA, SC)

E. Encourage programs aimed at groups of people with limited access to nature

- Develop strategy to increase the interest, use, and appreciation of the IBA among visible minorities and groups with limited access to nature (TRCA, SC)

11.3 Implementation

As stated above, implementation of this plan will be dependent upon the revision and implementation of the Master Plan for Tommy Thompson Park. It will also be influenced by decisions on the development of the Toronto waterfront and Port Lands during the next few years. Most action strategies require resources for implementation. The steering committee should continue, in some form, to establish priorities and assist in obtaining resources for these actions. Some of the strategies are inherently political (e.g., 2F, 2H) and would not be the responsibility of government agencies.

Below is a sample chart to assist the steering committee in establishing priorities for implementation.

Table 3. Sample planning chart for one of the goals

Goal: Education and outreach							
Objective	Strategies	Priority Objec-tives	Priority Actions (order)	Lead Respon-sibility	Cost (in priority order)	Timing	Complexity
A. Hold birding festival	1. Organize annual birding festival	High	1	TRCA	3K	Annual	Medium
B. Promote IBA in media	1. Hold media events	High	1	SC	N/A	As needed	Low
C. Enhance visitor experiences	1. Construct blind 2. Interpretive stations 3. Pamphlets 4. Plaque	High	4 1 3 2	TRCA	5K 5K 1K 3K	Start 2002	Medium
D. Establish nature centre	1. Establish facility 2. Develop IBA displays	High	1 2	TRCA	1K	2004	High
E. Special programs	1. Strategy for access for all Torontonians	High	1	TRCA,	10K	2003	High

12.0 Evaluation

Planning in complex circumstances should include a system of evaluating progress, rethinking goals and objectives, and revising actions. This iterative approach to planning means not only that the plan is open to revision but also that evaluation and revision are a fundamental part of the planning process. The FON and its national partners are committed to supporting IBAs in plan implementation. Local stakeholders have already invested in the IBA, and have a stake in its success.

While the IBA steering committee may not continue in its present form, a mechanism to oversee implementation of these actions should be established. Plan implementation will come in part through the revision and implementation of the Tommy Thompson Park Master Plan and through work of the CWS, TRCA, and OMNR on managing the bird colonies. Implementation will also rely upon the participation and vigilance of other members of this steering committee such as the Friends of the Spit, the Toronto Ornithological Club, and the Toronto Field Naturalists. An annual update on the conservation plan implementation would be of great value to the CNF, FON, and BSC.

As Leslie Street Spit/Tommy Thompson Park has joined the global family of IBAs, information on the IBA will be incorporated into BirdLife's global IBA database. This database will be used to report on conservation progress in IBAs. The information recommended is listed below:

- summary of general progress by the stakeholders group;
- update on actions, objectives and goals;
- changes in actions, objectives and goals (explain why changes were needed);
- any changes in threats affecting the IBA species and site;
- copies of any media coverage or materials produced;
- an updated list of groups involved in the stakeholder group;
- successes and failures within the IBA.

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Appendix 1 IBA Program Partners

BirdLife International (BL)

A pioneer in its field, BirdLife International is the first non-government organization dedicated to promoting world-wide interest in and concern for the conservation of all birds and the special contribution they make to global biodiversity. BL operates as a partnership of non-governmental conservation organizations, grouped together within geographic regions (e.g., Europe, Africa, the Americas) for the purpose of planning and implementing regional programs. These organizations provide a link to on-the-ground conservation projects that involve local people with local expertise and knowledge. There are currently 20 countries involved in the Americas program throughout North, Central and South America. For further information about BirdLife International, check the following website: http://www.birdlife.net/.

The Canadian Important Bird Areas Program has been undertaken by a partnership of two lead agencies: the Canadian Nature Federation and Bird Studies Canada are the Canadian BirdLife International partners.

The Canadian Nature Federation (CNF)

The Canadian Nature Federation is a national conservation organization with a mission to be Canada's voice for the protection of nature, its diversity, and the processes that sustain it. The CNF represents the naturalist community and works closely with provincial, territorial, and local affiliated naturalists organizations to directly reach 100,000 Canadians. The strength of our grassroots naturalists network allows us to work effectively and knowledgeably on national conservation issues that affect a diversity of ecosystems and human populations in Canada. The CNF also works in partnership with other environmental organizations, government, and industry, wherever possible. Our approach is open and cooperative while remaining firm in our goal of developing ecologically sound solutions to conservation problems. CNF's website is http://www.cnf.ca.

Bird Studies Canada (BSC)

The mission of Bird Studies Canada is to advance the understanding, appreciation, and conservation of wild birds and their habitats, in Canada and elsewhere, through studies that engage the skills, enthusiasm, and support of its members, volunteers, and staff and the interested public. BSC believes that thousands of volunteers working together, with the guidance of a small group of professionals, can accomplish much more than could the two groups working independently. Current programs collectively involve over 10,000 volunteer participants from across Canada. BSC is recognized nationwide as a leading and respected not-for-profit conservation organization dedicated to the study and understanding of wild birds an their habitats. BSC's website is http://www.bsc-eoc.org.

Federation of Ontario Naturalists (FON)

The Federation of Ontario Naturalists protects Ontario's nature through research, education, and conservation action. FON champions wildlife, wetlands and woodlands and preserves essential habitat through its own system of nature reserves. FON is a charitable organization representing 15,000 members and over 105 member groups across Ontario. FON's website is <http://www.ontarionature.org