IMPORTANT BIRD AREAS OF CANADA

LES ZONES IMPORTANTES POUR LA CONSERVATION DES OISEAUX AU CANADA

NIAGARA RIVER CORRIDOR

IMPORTANT BIRD AREA

CONSERVATION PLAN

By the Niagara River Corridor IBA Working Group

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Buffalo Audubon Society*
Buffalo Institute of Urban Ecology*
Buffalo Ornithological Society*
Canadian Nature Federation*
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Peninsula Field Naturalists Club
The Nature Conservancy
US Army Corps of Engineers, Regulatory Branch
USDA Natural Resources Conservation Service
US Fish and Wildlife Service - New York Field Office*
Western New York Land Conservancy
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1 INTRODUCTION

The Niagara River, world renowned for its spectacular waterfalls and surging rapids, is an international waterway also important for a breath-taking annual gathering of birds. There are four species that congregate here in globally significant numbers; Bonaparte's Gull (*Larus philadelphia*), Herring Gull (*Larus argentatus*), Canvasback (*Aythya valisineria*) and Common Merganser (*Mergus merganser*). The Niagara River Corridor also annually supports one of the largest and most diverse concentrations of gulls in the world. More than 100,000 individuals can be observed foraging along the river during fall and early winter. A total of 19 gull species has been recorded (60% of all New World gull species), with up to 14 species being recorded on a single day. The number of gulls and diversity of species generally peak in late November or early to mid December. A wide variety of waterfowl is also present much of the year, with over 35 different species recorded in the corridor. Concentrations during fall and winter also regularly exceed 20,000 individuals of more than 20 species. These spectacular congregations have led to the Niagara River Corridor being designated a globally significant Important Bird Area (IBA).

Another gull species, the Ring-billed Gull (*Larus delawarensis*), is present in the Niagara River Corridor in Canadian nationally significant numbers. The site also hosts birds that meet several New York state level IBA criteria including heron and egret colonies, significant diversity of migrating songbirds, and varying numbers of several state-listed at-risk species.

The Niagara River corridor area is also home to over 1 million people, who use the waterway for water, power, and recreation activities in both Canada and the United States. The Great Lakes area has a long history of water pollution due to agriculture, industry, and urban development along its shores. Early contaminants included sewage, bacteria, oil, and phenols, but have shifted to more persistent toxic substances (OMEE et al. 1993). As a result of the International Joint Commission's Great Lakes Water Quality Agreement of 1972 and the revised agreement in 1987, provincial, state and federal governments and industry have greatly improved the quality of water in the Great Lakes. Generally there has been a decline in the concentration of several of the priority contaminants that have been studied in the Niagara River over the past 30 years (OMEE et al. 1993). The dramatic improvements are due to the work of many government and non-governmental organizations and individual citizens who continuing to work together to create a healthier and safer environment for the people and wildlife of the area.

The Canadian Nature Federation, Bird Studies Canada, Audubon New York, Buffalo Ornithological Society and the American Bird Conservancy officially dedicated the Niagara River Corridor IBA as a globally significant IBA on December 11, 1996. The Niagara River Corridor IBA includes the full length of the Niagara River plus a 5.6 km (3.5 mile) wide corridor on both the Ontario and New York sides of the waterway.

This binational IBA conservation plan is being written in conjunction with the Niagara River Corridor IBA Working Group. This group is composed of representatives from various member

groups of the Niagara River Corridor IBA Partners, currently made up of 27 organizations from Canada and the United States. The Working Group sees this area without borders, and its members are striving to work together to conserve the Niagara River Corridor.

The long-term vision for the Niagara River Corridor IBA Working Group is that:

> *The Niagara River Corridor, being an Important Bird Area, will be conserved because of its importance to the international conservation of migratory and resident bird species that provide enjoyment to people worldwide, and economic, ecological and educational benefits to the people and governments of the United States and Canada.*

This conservation plan describes the Niagara River Corridor IBA, focusing on the globally and nationally important bird species present and the potential challenges they have at this site. This is followed by a series of goals and objectives that will aid in the conservation of these species and the habitat that supports them. This plan is not a static document, and should be revisited regularly to evaluate the progress and success of its conservation objectives.

2 THE IBA PROGRAM

The IBA program is a global initiative coordinated by BirdLife International, a partnership of organizations in over 100 countries seeking to identify and conserve sites important to all bird species worldwide. 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, all of which use internationally agreed upon criteria to designate sites.

The Canadian BirdLife co-partners are the Canadian Nature Federation (CNF) and Bird Studies Canada (BSC). The IBA program in Canada is being implemented at the provincial level, with the Federation of Ontario Naturalists taking the lead in Ontario.

The National Audubon Society (NAS) is the BirdLife International Partner Designate for the United States, and as such the NAS has the responsibility of identifying IBAs of national, continental, and global significance.

The Americas IBA program is made up of partners in Canada, the United States, Mexico, and 17 countries in Central and South America, so that as birds migrate throughout the western hemisphere, all sites of importance, which they visit and/or breed in can be conserved.

The goals of the IBA program are to:

- identify a network of sites that are essential for sustaining naturally occurring bird populations and which are critical to the long-term conservation of birds, other wildlife and their habitats;
- determine the type of protection and 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.

Global, continental, and national 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.

In New York State, Audubon New York, the state program of the National Audubon Society, is identifying state-level IBAs. State-level IBA criteria were developed by a technical committee made up of the state's top bird experts. These IBAs are identified by the presence of birds falling

under one or more of the following criteria:

1) State endangered, threatened, or special concern species
2) Biome-restricted/representative assemblages
3) Congregatory species (thresholds lower than national level)

At the state level, the abundance thresholds for congregatory species are lower than at the national level. A category for restricted-range species is not included in the New York State IBA criteria because there are no bird species endemic to the state. The New York IBA program also has a separate category for sites that qualify as Important Bird Research Areas.

3 IBA SITE INFORMATION

The Niagara River Corridor Important Bird Area (43E07' N, 79E04' W) includes the entire 58 km (36 miles) length of the Niagara River running from Lake Erie to Lake Ontario, and a 5.6 km (3.5 mile) corridor on each side of the river (Figure 1). The Regional Municipality of Niagara, Ontario is on the western shore, and Niagara and Erie Counties, New York, are on the eastern shore. The international border runs the length of the river, passing around the west side of Grand Island along the Chippawa Channel. The IBA covers an area of approximately 6000 km^2 (60,000ha) including a great deal of private and public land, and large urban areas.

Figure 1: Map of Niagara River Corridor IBA (boundary indicated by red, dashed line).

The river itself is of great importance to the gull and waterfowl species that stage and over winter in the region. The width of the river varies from less than 150 m to over 2000 m, with depths of 1 to 50 m. The riverine habitats range from large lake-like areas, exposed boulder beds, rapids, falls and whirlpools, to stretches with swift currents. There are 8 islands and island groups and numerous rocky outcrops along the river, some of which are used by gulls as nesting locations. The natural shoreline of the upper river consists of low banks, with extensive, dense beds of aquatic macrophytes present in shallow bays and shoal areas around Grand Island and Strawberry Island (Muenscher 1929). These weed beds are an important area for fish reproduction and waterfowl foraging. The tributaries to the upper Niagara are also areas that support large spawning migrations of fish (Kerr 1860). For a 15 km stretch downstream from the world famous Horseshoe and American Falls, the river flows through the 100 m deep by 1 km wide Niagara

Gorge. The water leaving the Niagara River at Niagara-on-the-Lake makes up 83% of the total tributary flow into Lake Ontario. The Niagara River provides consumable water for drinking, recreation, industrial processes, and power generation to millions of people in Ontario and New York State within and outside of the Niagara region.

The corridor along the river contains urban areas, urban parks, industrial developments, reservoirs, and agricultural lands interspersed with parkland and remnant natural areas, including wetlands. The IBA includes several towns and cities with a total population of over one million Canadians and Americans. Large urban centers along the river include Fort Erie and Niagara Falls in Ontario, and Buffalo and Niagara Falls in New York. The American side of the upper Niagara River has much more urban and industrial development than the Canadian side. The area from the falls to the whirlpool is highly urbanized on both sides of the river, being one of the most-visited tourist attractions in North America. Within the Niagara Gorge, the cliff rim, cliff face, and talus slope communities support one of the highest concentrations of rare plant species in Ontario and New York. The land on either side of the lower river is mainly undeveloped parkland and mixed parkland/fruit growing land. The Niagara Parks Commission maintains large tracts of urban parklands and scenic parkways along a narrow strip of most of the Canadian shoreline. On the American side, there are several large state parks and a narrow strip of urban parkland in the Niagara Falls area that are maintained by the New York State Office of Parks, Recreation and Historic Preservation.

Brian Morin

The high industrial development along the south eastern shore of the Niagara River has resulted in highly polluted conditions, which are currently being addressed through a series of Remedial Action Plans (RAPs) in both the Canada and the United States. Petrochemical, steel, industrial-chemical, and agricultural-chemical productions are the major industries. Other sources of pollution include sewage treatment plants and other point and non-point sources.

The Niagara River Corridor IBA Working Group has decided to divide the IBA into relative use zones. There is a significant concentration of use by the IBA species at and near the river that will be considered the primary use zone. Additional use and/or influence areas, which may extend for many miles on either side (sanitary landfills, possible roosting and/or nesting sites), can be included within a secondary use and influence zone. The drainage to the Niagara River in this secondary zone should be an important consideration since nutrients, pollutants and biota are transported through this watershed to the River and Lake Erie as well as to Lake Ontario.

Until more data have been collected and we have a better understanding of the dynamics of the corridor and these zones, the Working Group does not think that precise eastern and western boundaries should be established. The boundaries are difficult to determine because the birds use a broad area on a daily basis and the watersheds that drain into the River and affect it extend many

miles to the east and west. At this time, we recognize a primary use zone extending 5.6 km (3.5 miles) on each side of the River, and a secondary use and influence zone which is much wider, less intensely used but still important.

4 IBA SPECIES INFORMATION

4.1 Global and National IBA Species

The Niagara River Corridor IBA is renowned for the large congregations of gulls and waterfowl that use it as a migration staging area and a wintering site. There are four bird species that concentrate in globally significant numbers at the Niagara River Corridor IBA (Table 1). Bonaparte's Gull, Herring Gull, Canvasback, and Common Merganser all use the Niagara River area as a staging and wintering area, and are usually present during fall and winter at greater than 1% of their global biogeography populations. Another gull species, the Ring-billed Gull, is present in the Niagara River Corridor in nationally significant numbers (greater than 1% of their Canadian national population). Both Herring Gulls and Ring-billed Gulls also breed in the Niagara River Corridor.

Table 1: Numbers of IBA species seen in the Niagara River Corridor IBA and their percentage occurrence at the global or national IBA level.

Common name	Numbers regularly seen[1] (single day maximum)	Level of importance	% of Global or National Population (maximum %)[2]
Bonaparte's Gull	>10,000 (50,000)	Global	>2% (>8%)
Herring Gull	>20,000 (50,000)	Global	>6% (>14%)
Canvasback	6,000 – 8,000 (15,000)	Global	>1%
Common Merganser	>5,000 (12,000)	Global	>1%
Ring-billed Gull	>18,000 (27,000)	National (Canada)	>1%

[1] Numbers: NY IBA Database and Canadian IBA Database (1998).
[2] Importance: Percentages from the Canadian IBA Database (1998).

There are also two species that occur in numbers that approach the threshold for congregatory species. Greater Scaup (*Aythya marila*) occasionally reaches numbers of global significance (two sightings greater than the 1% threshold of 7,300 individuals) while Common Goldeneye (*Bucephala clangula*) regularly approaches numbers of global significance (the global threshold for their North American population is 7,500 individuals). Further information collected on these species may qualify them for inclusion as a globally significant IBA congregatory species.

There are also specific sites along the river corridor that are significant for colonial nesters such as Black-crowned Night-Heron, Common Tern, and Ring-billed Gull. It should also be noted that the Little Gull (*Larus minutus)* is considered a species of interest at the site with over 15% of the estimated North American population being present during fall migration.

4.2 New York State-level IBA Species

There are several species present in the Niagara River Corridor IBA that qualify for state-level IBA status. This IBA conservation plan will concentrate on the global and national level species, but further information on the New York state-level IBA program is available from Michael Burger, Director of Bird Conservation at National Audubon Society-New York.

The Niagara River Corridor IBA has a number of state-listed species at-risk that breed within the habitats of the river corridor (Table 2).

Table 2: New York State level species at-risk, which qualify as IBA species within the Niagara River Corridor IBA.

Common name	State-listed Status	Breeding/Migration
Pied-billed Grebe	Threatened	breeds, spring/fall migrant
Least Bittern	Threatened	breeds, spring/fall migrant
Bald Eagle	Threatened	spring/fall migrant winter resident
Northern Harrier	Threatened	breeds, spring/fall migrant
Upland Sandpiper	Threatened	breeds
Common Tern	Threatened	852 prs bred in 1992, spring/fall migrant
Sedge Wren	Threatened	breeds, spring/fall migrant
Common Loon	Special Concern	spring/fall migrant
Osprey	Special Concern	spring/fall migrant
Grasshopper Sparrow	Special Concern	breeds

There are also nesting colonies of herons and egrets in the Niagara River Corridor IBA that number more than 100 pairs including 50-60 pairs of Black-crowned Night Herons and smaller numbers of Great Egrets and Great Blue Herons, meeting the New York State level IBA criterion for congregatory species.

The New York IBA designation also recognizes that an exceptional diversity of songbirds use the

habitat along the river corridor during migration.

4.3 Global and National IBA Species Accounts

GULLS

Nineteen gull species have been recorded in the Niagara River Corridor IBA, at least nine of which are regularly seen each year (Appendix 1). Of these species, three are present in numbers that reach global or national IBA thresholds for numbers of individuals of a congregatory species.

Within the Niagara River Corridor IBA, the most important areas for gulls are those used for roosting and feeding. The principal roosting areas are the rocks above the falls, Queenston Reservoir, and Lake Ontario. The main feeding areas are where fish, killed or injured by the impact of the flowing water, are readily available. The principal areas are the rapids above and below both falls, the whirlpool, off Adam Beck and Robert Moses Generating Stations, and near Queenston and Lewiston (G. Bellerby pers comm.). There are distinct communities of fish in both the upper and lower Niagara River, and movements, concentrations and species composition are continually changing due to weather and current factors, water quality, changes in and loss of habitat, and introduction of alien species (OMEE et al. 1993). Actual diet composition of gulls in the Niagara River Corridor IBA has not been assessed.

Bonaparte's Gulls

Bonaparte's Gulls nest in remote boreal forests in Canada and Alaska (Godfrey 1986), raising one brood per year. They migrate down three flyways (Pacific, Mississippi and Atlantic), with 60% of the total migrating population passing through the Great Lakes on their way down the Mississippi Flyway (Braune 1989). The Niagara River Corridor is one of the largest staging areas for Bonaparte's Gulls in North America (Kirk et al. 2000).

Mark Tremaine, Cornell Laboratory of Ornithology

The Niagara River Corridor IBA supports globally significant numbers of Bonaparte's Gulls, with more than 10,000 individuals seen regularly in the fall and early winter. Peaks of 40,000 to 50,000 individuals have been recorded in 4 separate years (1973, 1977, 1990, and 1991) (Can. IBA Database 1998, Table 1). There are two migratory waves of Bonaparte's Gulls in the Niagara River Corridor IBA each autumn (Beardslee 1944, Bellerby pers. comm.). The first wave arrives in August and remains through September, while the second wave begins in mid-October and continues until January. Numbers fluctuate throughout each period as well as annually, but appear to be partially correlated with temperature and ice formation (Beardslee 1944). Overall population numbers do not appear to have changed

significantly in the past 15 years (Bellerby pers. comm.). Up to 100,000 Bonaparte's Gulls (greater than 20% of the global population) may pass through the corridor during the fall and early winter (Can. IBA Database 1998). Studies are now underway to determine the actual numbers of birds, their pattern of movements, and the length of stay of individual birds in the corridor.

Bonaparte's Gulls feed on small fish and invertebrates (Braune and Gaskin 1982, Braune 1987), including the gizzard shad (*Dorosoma cepedianum*), an abundant fish species in the Niagara River (Kirk et al. 2000).

Herring Gulls

The large and ubiquitous Herring Gull breeds across most of Canada, in the northern United States and south along the Atlantic Coast to South Carolina. The Herring Gull breeding sites in the Niagara River area does not contribute greatly to their overall population in the Great Lakes. In 1990, there were 45 Herring Gull colonies in the lower Great Lakes, including 3 small colonies on the Niagara River that totaled 104 nests (Blokpoel and Tessier 1996). In 1975 Andrle (1976) counted at least 51 nests on the cliff face ledges and the talus slope in the gorge at the falls on the west end of Goat Island.

There has been an ongoing Canadian Wildlife Service (CWS) study on the levels, trends and effects of contaminants on Herring Gulls at one of these sites along the Niagara River. Since

1974, toxic chemicals in gull eggs have been measured at a number of sites in the Great Lakes, including one of the colonies of Herring Gulls in the Niagara River Corridor IBA. Since adult Herring Gulls are present year round on the Great Lakes and feed primarily on fish, they make good environmental indicators. CWS has been monitoring over 75 toxic chemicals in these eggs, which have all declined over the past 20 years. In some cases, these decreases have been quite dramatic. For example, the concentration of PCBs found in eggs has declined over 90% from 1979 to 1997 (Pekarik et al. 1998). Herring Gulls nesting in the Niagara River currently have some of the lowest levels of PCBs of any gull colony on the Great Lakes (Knapton and Weseloh, 1999).

Numbers of individual Herring Gulls tend to decrease in September and October, and then peak in November and December, when over 20,000 individuals are regularly present (Table 1). Schaffner and Clark counted a maximum of 50,000 birds in 1979 at Niagara Falls (Weseloh pers. comm., Can. IBA Database 1998). Herring Gulls on the Great Lakes are highly omnivorous, but feed mainly on fish (Fox et al. 1990, Ryckman et al. 1997).

Ring-billed Gulls

The smaller Ring-billed Gull breeds throughout southern Canada and into the northern United States (Godfrey 1986). Ring-billed Gulls are omnivorous and highly adaptable gulls, often living in urban and suburban areas. They are the most numerous gull species nesting in the lower Great Lakes, with numbers of breeding birds increasing dramatically throughout their range since the late seventies. Only one of 34 Canadian breeding colonies in the lower Great Lakes is found on the Niagara River, and has not changed in size (400 nests in both 1976 and 1990) (Blokpoel and Tessier 1996, United States data not included).

Ring-billed Gulls tend to migrate from the Great Lakes to the south Atlantic Coast, and their higher rate of population growth (compared to Herring Gulls) has been suggested to be due, in part to milder wintering conditions (Blokpoel and Tessier 1996). They reach numbers of greater than 18,000 during their spring migration through the Niagara River Corridor IBA (Table 1).

WATERFOWL

There are **11** species of waterfowl that breed in the Niagara River region, and 28 species that migrate through, over winter, or are occasionally seen passing through the Niagara Peninsula (Appendix 2). In the fall, the majority of waterfowl pass through the Niagara River area in late December (Mullie et al. 1996), and two of these species (the Canvasback and the Common Merganser), are regularly present in globally significant numbers.

The majority of waterfowl appear to use the upper river to feed, especially near the head of the Niagara River, near Buffalo. There are also large concentrations that feed near the water intake structures further downstream. Hot spots containing highly contaminated sediments occur at inlet points such as Scajaquada Creek in Buffalo, the Black Rock Canal in Tonawanda and Cayuga Creek in Niagara Falls, New York.

Canvasback

The Canvasback is a diving duck that breeds mainly in western Canada and northwestern United States. This species migrates through western Canada and southern Ontario, wintering from the northern United States (including the Niagara River) to the Gulf States and Mexico (Godfrey 1986). In the Niagara River, Canvasbacks tend to peak in number in mid-November, then decline in numbers from March to the end of May (Mullie et al. 1996). The maximum known number of bay ducks (including

Canvasbacks) were reported in 1980, and the lowest minimum number were recorded in 1993. Canvasbacks have very specialized vegetative diets (Kortright 1967).

Common Merganser

The Common Merganser breeds across Canada and into the United States, and is found mainly in freshwater habitats. Common Mergansers are fish eaters, although they do feed to some extent on various invertebrates and vegetation (Kortright 1967). In North America, this species winters in southern Canada and the United States, and northern Mexico (Godfrey 1986). The majority of Common Mergansers pass through the Niagara River area in late December (Mullie et al. 1996).

Mike Hopiak, Cornell Laboratory of Ornithology

5 OTHER ELEMENTS OF HIGH CONSERVATION VALUE

Although the NRIBA Working Group is focusing on the global and national level IBA species in the corridor, there are many other species present of high conservation value. Over 310 bird species have been seen in the Niagara River corridor, with 27 species that are at some level of risk at the global, national, provincial or state level (Appendix 3). Nineteen of these species are listed as globally or nationally at risk in either Canada and/or the United States. Of special note is a pair of Peregrine Falcons that successfully fledged three chicks in 1998 along the Ontario shoreline across from the Horseshoe Falls. This was the first natural breeding of Peregrine Falcons in southern Ontario in over 50 years. From 1999 to 2002 the pair nested in several locations on Goat Island, which is maintained by the New York State Parks Commission. Since 1998 the pair have had a combined reproductive output of 13 young. The adult female is thought to still be the same as in 1998, hatched in London in 1996. The original male (unbanded) remained through until at least 2000, but was replaced by a banded (but yet to be determined) male in 2001 or 2002 (M.Gahbauer, pers. comm.).

A small portion of the Niagara Gorge on the Canadian shoreline has been designated as an Area of Natural and Scientific Importance (ANSI). An ANSI is an area identified by the Ontario Ministry of Natural Resources (OMNR) as having representative ecological features at the regional or provincial level that protect Ontario's natural heritage values. Although the Niagara Gorge ANSI is very small, only covering a small portion of the Niagara River Corridor IBA, it is a very diverse site, both in numbers of species and habitats. The ANSI designation does not provide any overall protection status for a site, and it is up to individual municipalities to make decisions regarding development in an ANSI. The OMNR encourages ecologically sensitive land uses that will not affect the natural heritage features of the ANSI. In the case of the Niagara Gorge ANSI, the Regional Municipality of Niagara Falls is responsible for evaluating development proposals for land within and adjacent to the site. Due to its important tourism value, long-term protection of this site is probable.

A small portion of the Niagara River Corridor IBA is also within the Niagara Escarpment Biosphere Reserve. Biosphere Reserves are an international network of the representative global ecological systems and the human uses associated with these systems. These reserves are designated by UNESCO (United Nations Educational, Scientific and Cultural Organization), under the Man and the Biosphere Programme. The Niagara Escarpment Biosphere Reserve has a total area of 207,240 hectares, and follows the escarpment from the Bruce Peninsula to the Canadian side of the Niagara River. The portion within the Niagara River Corridor IBA is a narrow stretch of the riverside downstream from Niagara Falls. Biosphere Reserves also do not have any protection status, but can add to the importance of a given site and encourage protection at some level. This designation also acknowledges resource use in addition to conservation objectives when dealing with resource management issues.

On the U.S. side, a portion of Buckhorn Island State Park has been designated as a NY State Bird

Conservation Area (BCA). The New York State BCA program recognizes state-owned lands that are significant bird habitats. The Buckhorn Island State Park BCA was recognized because of its importance to wetland dependent bird species within the Niagara River Corridor. Other BCAs are likely to be designated in the near future including, Fort Niagara State Park, Joseph Davis State Park, and a portion of the Falls State Park. The NYS BCA designation does not provide any specific protection but encourages management and stewardship of designated sites for the birds they support.

6 LAND AND WATER OWNERSHIP AND USE

6.1 Land and Water Ownership

The Niagara River Corridor IBA has a wide range of public and private ownership on both the Canadian and American sides of the river. The river itself is under provincial jurisdiction under the Public Lands Act and Beds of Navigable Waters Act in Canada, and the New York State Department in the United States. There is currently no overall protection in place for the lands and waters within the Niagara River Corridor IBA.

On the Canadian side of the river, public lands include Department of National Defence land and several National Heritage Sites. There are several towns and cities including Niagara-on-the-Lake, Niagara Falls, Chippawa, and Fort Erie, many of which maintain municipal green spaces. Private ownership includes farmland and numerous private golf courses. The Niagara Parks Commission maintains much of the shoreline habitat. The NPC reports to the provincial Ministry of Economic Development, Trade and Tourism, but is considered a commercial entity and is responsible for generating its own funds.

There is more development and larger urban populations on the United States side of the Niagara River. There are numerous state parks under the jurisdiction of New York State Parks, as well as green spaces maintained by various municipalities (Buffalo, Niagara Falls, Lewiston, Youngstown, etc.). Private ownership on the American side of the river includes the largest concentration of industrial development in the IBA along the upper shoreline of the river from Niagara Falls to Buffalo.

6.2 Land and Water Use

Humans in the Niagara River Corridor IBA heavily utilize both the land and the water. Types of land use include agriculture, urban and industrial development and recreation. The river is used as a water and energy source, as well as heavily for tourism, including boating and fishing.

It is important to note that land use can have a dramatic effect on water quality within its drainage area. Agricultural practices are often harmful to the environment, and herbicides and pesticides, as well as fertilizers, have found their way into the Niagara River. Contaminants in waters from the upper Great Lakes and Lake Erie also affect the Niagara River. Since the early1900s, the availability of cheap hydroelectric power drew industry to the area, especially to the southeastern shoreline of the

Niagara River, where numerous industrial developments have dumped large amounts of various contaminants directly and indirectly into the river.

7 CONSERAVTION MANAGEMENT ACHIEVED AT THE IBA SITE

In 1982, the International Joint Commission (IJC) identified 43 Areas of Concern (AOC) in the Great Lakes Basin. Federal and provincial/state governments (in Canada and the United States) were mandated to develop and implement Remedial Action Plans (RAPs) to restore beneficial uses to these severely degraded areas. In each AOC, fourteen potential beneficial use impairments identified by the IJC were considered. Two of these AOC are found in the Niagara River Corridor IBA, the binational Niagara River AOC, and the Buffalo AOC in the United States. For more detailed information on these AOCs refer to Appendix 4.

Several conservation successes have been achieved in the U.S. portion of the Niagara River Corridor IBA as a result of political lobbying and grassroots advocacy. In 2000, an effort to develop a golf course that would have destroyed valuable bird habitat in Joseph Davis State Park was defeated. In 2001, plans to clad an observation tower and elevator shaft within the Niagara Gorge in reflective glass were changed due to the threat this would pose to gulls and other birds. Also in 2001, Buffalo Audubon Society led an effort to protect a valuable forested wetland within the corridor that was being developed.

8 IBA WORKING GROUP ACTIVITY

After the Niagara River Corridor IBA was designated in 1996, the Niagara River Corridor IBA Working Group first met in April 1997. This group is currently comprised of members from many of the 27 organizations from Canada and the United States working specifically on Niagara River Corridor IBA issues. The members have agreed to work in a complementary fashion to ensure that their efforts contribute effectively towards common goals identified in this binational plan. Planning in this context is challenging because there is no single agency that can set an overall budget and allocate resources among priorities.

Several meetings have been held in Buffalo, U.S.A. and Niagara Falls, Canada that have resulted in this conservation plan. A scientific committee and an education and outreach committee have been formed to work on more specific issues.

In 1999, the Canadian Wildlife Service produced a 32-page booklet on the gulls of the Niagara River (Knapton and Weseloh 1999), promoting the Niagara River Corridor IBA and the Working Group. A complementary pamphlet entitled *Gorgeous Gulls* was produced by CNF with funding from the Canadian IBA Community Action Fund, the Buffalo Audubon Society, The George Lunan Foundation, the Canadian Wildlife Service, the Canadian Millennium Partnership Program and the Ontario Power Generation. – This pamphlet describes the IBA site and bird species, aiming to assist amateur bird watchers to find the best viewing spots to identify the various species present in the corridor.

In 2001, Buffalo Audubon Society produced a guide to ecotourism and birding sites within the western New York region, including several within the Niagara River Corridor. In addition, Buffalo Audubon Society partnered with the Seaway Trails effort to create interpretive signage that was placed at several key locations overlooking the Niagara River. These signs primarily outlined the corridor's importance to birds.

Audubon New York, the New York State Department of Environmental Conservation, and the New York State Office of Parks, Recreation and Historic Preservation worked cooperatively through the New York State Bird Conservation Area program to create and install additional interpretive signs focusing primarily on birds and their habitats at Buckhorn Island State Park.

9 OPPORTUNITIES

The Niagara River Corridor is visited by over 14 million visitors every year, many to view the world renowned "Niagara Falls". There is obvious interest in maintaining the area's natural beauty for this large part of the region's economy. The Niagara River Corridor IBA has the advantage of having well maintained urban parkland along most of the length of both sides of the river. Both the Niagara Parks Commission and New York State Parks have shown interest in promoting the bird life in their educational programs, and other organizations involved in the Working Group guarantee the wide dissemination of educational materials in the area.

Nature-related activities in Canada and the United States are growing in popularity every year. In 1996, over $11.0 billion was spent in Canada on a variety of activities, including wildlife watching by 4.4 million Canadians (DuWors et al. 1999). That same year, 63 million Americans spent $29.2 billion specifically on wildlife watching, a 21% increase in spending since 1991 (USFWS 1998). Many of these expenditures (including purchase of equipment and food, transportation and accommodation costs, etc.) are made in local communities close to wildlife viewing areas.

The corridor is also being visited by hundreds bird watchers who come to view gulls and waterfowl in the winter months. A number of popular national bird tour companies offer annual fall trips to the Niagara River for gull watching led by professional guides. Similarly, many local bird clubs and Audubon chapters throughout Ontario, New York, Pennsylvania and surrounding areas, organize their own trips to the Niagara for fall gull watching. The area is also rich in other bird species year round. The presence of at-risk species, such as the pair of breeding Peregrine Falcons from 1998 to 2002, and the reappearance of Bald Eagles as winter visitors has added to the interest of bird watching in the area. The opening of the "Feather in the Glen" birding store by the Niagara Parks Commission in 1998 is also a sign of visitor interest in birds. There are many economic spin-offs to the promotion of the global importance of the gull and waterfowl congregations as a marketing tool. Interestingly, the IBA bird species are present during the low tourism season (November through February), which helps boost the economy during this slower time.

The greatest difficulty with the promotion of gulls in the Niagara River Corridor IBA could be the local attitude towards these birds. Many local residents see gulls as pests, i.e. hanging around garbage containers, defecating on boats and in public areas, eating game fish species, etc. Since the Niagara River Corridor IBA has been selected for gulls particularly for their congregatory behaviour, the stakeholder group will have to work on improving the image of gulls to local residents.

There is great potential for educational programs in the area. In addition to the production of the booklet and pamphlet on the IBA and the global significance of these populations, the first in a planned series of regular international gull conferences was held in the area in late November or early December.

10 THREATS TO IBA SPECIES

The threats identified below affect more than the IBA bird species that are present in the Niagara River Corridor IBA. Ultimately, these bird species could be used as an indicator to monitor the health and well being of people who live within the corridor. By promoting a sensitive and sustainable approach towards sharing the corridor with the wildlife that thrives here, we can improve the overall well being for all.

Contaminants

Contaminants are the main threat that may potentially be affecting the various IBA species. These substances, such as PCBs and mirex, bioaccumulate in the fish and benthos that the gulls and waterfowl consume, and could potentially be affecting their reproductive success. Bird deformities, fish tumors and deformities, and degradation of benthos and fish populations have been identified in the Niagara River RAPs. Other potential impairments are unknown, but cannot be ruled out.

Sources of contaminants from within the Niagara River Corridor IBA are numerous, and include industrial and municipal point sources, urban and rural non-point runoff, sewer overflows, and waste disposal sites. Accidental oil or contaminant spills are another unpredictable threat. More than 100 municipal and industrial sources currently discharge various chemicals into the Niagara River. The American sources, although reduced, still release a substantially higher volume than Canadian sources (OMEE et al. 1993). There are over 200 hazardous waste sites in Niagara and Erie counties, many within the primary use zone of the Niagara River Corridor IBA. Although many contaminant sources have been identified within the Niagara River Corridor, contaminants from water originating in Lake Erie and the Buffalo River as well as airborne sources must be taken into consideration. Contaminants also settle into sediments along the river, depending on the rate of flow of water in a given area. There has been little clean up of persistent contaminants found in sediments.

Contaminants do not just affect wildlife. Residents in the Niagara Peninsula are concerned about the quality of their drinking water from the Niagara River and Lake Ontario (OMEE et al. 1993), and the bioaccumulation of chemicals through the food chain to levels in sports fish that are unfit for human consumption (OMEE 1997). Although there has been progress in slowing the input of many of the worst pollutants into the Niagara River, the general public still appears to be suspicious of improvements, often due to the plethora of information published in the media about toxics issues (OMEE et al. 1993).

The Niagara River Corridor is a complex area from a political standpoint. Due to the international border that runs down the river itself, there is no single jurisdiction over the area. Although the IJC has identified the Niagara River as a binational AOC, addressing impairments has been difficult for a number of reasons. Most of the background data on the area have been collected

separately by Canadian and American organizations, so data are not necessarily compatible or comprehensive. Contaminants impact both sides of the Niagara River, yet the majority of these substances originate from the American shoreline. The main problem is that both Canadian and American RAPs have suffered severe funding cuts, and implementation of the RAP recommendations has been minimal.

Habitat Loss and Degradation

Loss and degradation of both aquatic and terrestrial habitat have been identified as impairments in the Niagara River AOC. Urban, industrial, and agricultural development have increased sediment loading and degraded fish populations, especially along the upper Niagara River (OMEE et al. 1993). Species composition of fish along the river is continually changing, which in turn could affect the diet of piscivorous bird species. There has been a significant loss of shoreline habitat and wetlands through shoreline reconstruction and development, which has affected both fish and wildlife (OMEE et al. 1993). Loss of aquatic vegetation along the lower Niagara River may have caused a decline in waterfowl use in this area (Mullie et al. 1996).

The Niagara River Corridor has millions of tourists visiting the area every year, as well as an ever-increasing local population in both Canada and the United States. The Niagara River Corridor IBA Working Group knows that more development in the IBA is inevitable, but promotes a sustainable and responsible approach in order to preserve and enhance its biodiversity.

River Level Management

The Boundary Waters Treaty of 1909 requires the United States and Canada, to jointly approve projects that affect the levels and flows of water along their common boundary. In 1953, the International Joint Commission established the International Niagara Board of Control to provide advice on matters related to the Commission's responsibilities over water levels and flows in the Niagara River. The Board's main duties are to oversee water level regulation in the Chippawa-Grass Island Pool and the installation of the Lake Erie-Niagara River Ice Boom.

The power entities, Ontario Power Generation Inc. (OPG) and the New York Power Authority (NYPA), are required to operate the Chippawa-Grass Island Pool control structure to maintain a long-term average water level in order to lessen adverse effects from high or low levels. To date, there is minimal, if any, research on the environmental effects of water level management at the Chippawa-Grass Island Pool on the Niagara River. However, there is research to suggest that the water level management practices of Ontario Power Generation within the limits of the Grassy Island Pool cause a water level fluctuation problem within the Welland River. The twice daily vertical fluctuation of 1 to 1.5 feet has impacted the ability of the Welland River to transport its sediment or to maintain floodplain wetlands for fish habitat and erosion control (Niagara Peninsula

Conservation Authority 2000). Also, according to an Ontario Hydro environmental assessment done on the Niagara River for a proposed generating station at the Queenston-Lewiston Bridge, the effects of water level management at that site could cause some minor changes in aquatic biota because of the increase in time that the river will be at minimum flow levels Ontario Hydro 1991). These changes could decrease the food supply for over wintering aquatic bird species. Suffice it to say, it is conceivable that short-term water level fluctuations may adversely affect water biota, fish populations and aquatic vegetation, which in turn could be detrimental to IBA bird species. Further research on the subject is warranted.

There is insufficient research on the effects of the Lake Erie Ice Boom on the Niagara River ecosystem. However, it has been considered that the presence of the ice boom delays warming of water in the spring and this may affect fish populations in the Niagara River (OMEE et al. 1993). Consequently, this may affect fish species that are consumed by IBA bird species.

Fishing and Fish Stocking Pressures

The Niagara River is a popular area for recreational and sports fishing. It is regularly stocked with a variety of sports fish species, including Chinook and Coho Salmon, Steelhead, Walleye and several other trout species. In 2001, the NYSDEC, the Niagara County Federation of Sportsmen's Club and the Niagara River Anglers Association released over 217, 600 fish into the Niagara River. These fish introductions could affect the populations of forage fish, which are eaten by IBA bird species.

Boating/Human Disturbance

As recreational use of the Niagara River increases, disturbance to foraging and breeding gulls and waterfowl from boats and other watercraft is inevitable.

11 CONSERVATION GOALS AND OBJECTIVES

11.1 Vision Statement

The vision statement developed by the Niagara River Corridor IBA Working Group is as follows:

"The Niagara River Corridor, being an Important Bird Area, will be conserved because of its importance to the international conservation of migratory and resident bird species that provide enjoyment to people worldwide, and economic, ecological and educational benefits to the people and governments of the United States and Canada."

11.2 Goals and Objectives

Although the IBA bird species are present in large numbers at the Niagara River Corridor IBA, the long-term health of their populations is not necessarily secure. The Niagara River Corridor IBA Working Group has developed a series of goals that will fill in gaps in available information and address the identified threats in relation to the IBA bird species and the habitats they depend on in the Niagara River Corridor IBA. Although these threats are broad in scope, there are many organizations and individuals that are interested in attaining goals similar to those listed below. By collaborating with other organizations to reach these goals, we can work towards a healthier and more sustainable ecosystem for all beings in the Niagara River corridor.

The goals for the Niagara River Corridor IBA are organized into 4 areas of activity: research, infrastructure, conservation, and education/outreach. After each goal, the objectives that need to be reached are listed together with the individual actions needed to attain these goals. The responsible agency or group is also listed, along with progress to date.

RESEARCH GOALS FOR THE NIAGARA RIVER CORRIDOR IBA

GOAL 1. Establish solid estimates of numbers of IBA species that use the Niagara River Corridor IBA throughout the year.

Objective A: To obtain better estimates of numbers of Bonaparte's Gulls that use the Niagara River Corridor.

Action 1 Continue to collect data of flypasts during the winter (G. Bellerby)
Progress: Data exist for winter peak (1986-2001) collected by one observer (G. Bellerby). G. Bellerby will continue to collect data.

Action 2 Collect data of flypasts during the initial fall arrival of Bonaparte's Gulls (late August - early September) (G. Bellerby and volunteers)
Progress: Data collected during initial fall arrival in 1998, 1999, 2000 and 2001. (G. Bellerby)

Action 3 Develop protocol for data collection by volunteers (Sci. Comm., BSC)

Action 4 Use markings or radio-telemetry to track time spent by Bonaparte's Gulls in the Niagara River Corridor IBA
(CWS, Buffalo Ornithological Society and USFWS)
Progress: In November 2000 twenty-four Bonaparte's Gulls were captured on the Niagara River and fitted with VHF radio transmitters. The purpose of the study was to determine the local movements of BOGUs along the river and to determine their length of stay in the migratory staging area. Portions of these data are still being analyzed with new computer software (C. Weseloh, CWS).

Priority: HIGH

Objective B: To quantify possible decrease in waterfowl numbers.

Action 1 Conduct species-specific census of waterfowl species (e.g. Canvasback, Common Merganser, Scaup, Common Goldeneye) (volunteers).

Action 2 Summarize CWS hunter reports (CWS, volunteer).

Action 3 Repeat CWS waterfowl survey conducted in the 1980s and early 1990s to establish

Canvasback numbers (CWS, volunteers).

Action 4 Summarize available CWS and NYSDEC historical banding data on waterfowl (volunteers, students).

Priority: MODERATE

Objective C: To determine if selected waterfowl species exhibit fidelity to the Niagara River wintering habitat.

Action 1 Use marking or satellite telemetry to identify wintering habitat usage of selected waterfowl species (CWS, NYSDEC).

Priority: LOW

GOAL 2. Identify key natural resources for Bonaparte's Gulls and other bird species in Niagara River Corridor IBA.

Objective A: To identify important food resources of various bird species.

Action 1 Collect a sample of Bonaparte's Gulls and determine their stomach contents (CWS)
Progress: CWS planned study for winter 1998/1999 but cancelled it until further notice.

Action 2 Continue to collect and analyze crops from ducks shot on river (hunters; OMNR; NYSDEC)
Progress: NYSDEC collected Scaup, Common Goldeneye and Common Merganser in1994-95 and 1995-96. Data available from NYSDEC, 270 Michigan Ave., Buffalo, NY 14203.

Priority:MODERATE

Objective B: To identify important feeding areas for Bonaparte's Gulls, other gulls, and waterfowl.

Action 1 Conduct surveys along the Niagara River to determine where and when Bonaparte's Gulls and other species are feeding (Mike Hamilton, Gordon Bellerby & volunteers).
Progress: The Niagara River Corridor IBA scientific committee conducted a study in

the winter of 1998 to determine the relative usage of various sections of the river by Bonaparte's Gulls. The study showed quite conclusively, which areas of the River were the ones preferred by BOGUs during this time of the year (Weseloh 1999).

Action 2 Conduct GIS mapping of important feeding areas for Bonaparte's Gulls and selected waterfowl species (CWS and/or NYSDEC).

Priority:HIGH

Objective C: To identify important roosting sites for Bonaparte's Gulls, other gulls, and waterfowl.

Action 1 Continue study in various locations along the Niagara River Corridor to establish where various bird species are roosting (T. Yonker, other volunteers).

Progress: 1) C. Weseloh and volunteers collected data in the spring of 1998 to establish important roosting sites for gull and waterfowl species. Some important hot spots, such as Lake Ontario and Queenston Reservoir, are known, but other areas need to be confirmed (e.g. the Lewiston reservoir is not a significant gull roosting area). The same study was carried out in fall 1998 (Weseloh 1999).

2) The Buffalo Ornithological Society, in cooperation with the Canadian Wildlife Service and the U.S. Coast Guard has conducted nighttime roosting studies of Bonaparte's Gulls at the mouth of the Niagara River since 2000 (T.Yonker, pers.comm.).

Action 2 Conduct GIS mapping of important roosting areas for Bonaparte's Gulls and selected waterfowl species and make this info available to stewarding agencies (CWS, NYSDEC).

Priority:MODERATE

GOAL 3. Determine how sediment and water quality are affecting birds.

Objective A: To summarize information on contaminant load in IBA species and their diet.

Action 1 Prepare a short summary of contaminant information for IBA species.

Progress: CWS and USFWS data exist, need to be summarized.

Action 2 Summarize toxic loads in local fish species (volunteers).
Progress: Data exists (DFO, other agencies), needs to be summarized.

Priority: MODERATE

Objective B: To identify source areas of heavy metal and organic chemical contaminants affecting selected species.

Action 1 Summarize information about known contaminant areas in the Niagara River.

Action 2 Compare diets of bird species with toxic loads in fish species.
Use data from Research Goal 2: Obj. A and Research Goal 4: Obj. A.

Action 3 Use marking or satellite telemetry to identify habitat use of selected waterfowl species.

Priority: MODERATE

GOAL 4: Determine migrating songbird usage of the Niagara River corridor.

Objective A: To summarize data known on songbird migration through area.

Action 1 Get summary of migrating songbird research conducted (by TNC) along the New York shoreline of Lake Ontario.

Action 2 Speak with Dr. J. Black (Brock University) who is using radar to track migration in St. Catharines area (volunteer).

Progress: Dr. J. Black is presently involved in determining how the data from the weather radar can be converted to numbers of birds migrating over Brock University.

Action 3 Talk to radar operators at the larger airports along the peninsula re: migration routes (volunteer)

.

Action 4 Summarize BOS data/surveys, such as the Christmas Bird Counts, the April and May Migration Counts, and the August Shorebird Count.

Priority: MODERATE

Objective B: To develop a study for data collection of songbird migration through the Niagara River Corridor IBA.

Action 1 Get data collection techniques and results from TNC re: migrating songbird research conducted along the New York shoreline of Lake Ontario (volunteer).

Action 2 Develop protocol and identify important areas for similar study on both Ontario and New York sides of the Niagara River Corridor (Sci. Comm., Bird Studies Canada).

Action 3 Find and organize volunteers to survey potentially important areas in spring 1999.

Priority: MODERATE

INFRASTRUCTURE GOALS FOR THE NIAGARA RIVER CORRIDOR IBA

GOAL 1. Promote communication and cooperation among Niagara River Corridor IBA partners, so their respective actions are coordinated, efficient, effective, cooperative, and value-added relative to each other.

Objective A: To facilitate communication amongst Niagara River Corridor IBA partners.

Action 1 Maintenance of email and fax mailing list to facilitate communication.
Progress: Email: This is working well, most members on email; need to get more people on the NY-NRIBA list serv. We need a volunteer to take over the fax mailing list.

Action 2 Meet regularly as a group to make decisions on direction of Niagara River Corridor IBA group actions.
Progress: With completion of this plan, a more regular meeting schedule should be set.

Action 3 Get smaller committees to work on actions and provide information to the entire group at meetings.
Progress: Science Committee has met. Other committees (Education, Gull Festival, etc.) should be formed.

Priority: MODERATE

Objective B: To produce a conservation plan for Niagara River Corridor IBA with longer-term goals.

Action 1 The Action Plan needs to be rewritten into a more comprehensive conservation plan format.
Progress: this is the penultimate draft.

Action 2 All interested members of the Niagara River Corridor IBA will have the opportunity to comment and revise sections of this, and future plans.
Progress: ongoing

Priority: HIGH

GOAL 2. Support and enable individual Niagara River Corridor IBA partners.

Objective A: To make funding opportunities (for research and promotion) known to all partners.

Action 1 All potential funding opportunities will be summarized into a table including organization, general information, contact information, and deadline.

Action 2 Niagara River Corridor IBA members should identify which funding opportunities they have the capacity to apply for, and report back to the group as to their success or failure in acquiring funds.

Action 3 Promote Niagara River Corridor IBA research needs within relevant agencies/institutions.

Action 4 Various Niagara River Corridor IBA members should consider group funding opportunities.

Priority: MODERATE

CONSERVATION GOALS FOR THE NIAGARA RIVER CORRIDOR IBA

GOAL 1. Ensure the sustainability of key resources and habitats for IBA bird species (once we have identified these resources/habitats with supporting scientific data).

Objective A. To encourage, persuade, and support governments and major landowners.

Action 1 Advocate for government follow-through on RAPs implementation

Action 2 Ensure bird conservation is a priority within the Canadian and American RAPs.

Action 3 Promote Niagara River Corridor IBA species with CWS booklet and Niagara River Corridor IBA pamphlet. Completed 1999.

Action 4 Continue to encourage government agencies and landowners to join the Niagara River Corridor IBA group.

Priority: HIGH

Objective B. To have relevant agencies manage habitat on public lands.

Action 1 Determine important habitat (see Research Goal 2) and possible management.

Action 2 Work with the relevant agencies.

Objective C. To manage water quality, via the RAP, GLI, and LaMP programs.

Action 1 Determine contaminants affecting IBA species (see Research Goal 4).

Action 2 Advocate for government follow-through on RAPs implementation.

Objective D. To have public agencies and stewardship organizations acquire and manage land.

Action 1 Identify important habitat (see Research Goal 2), and determine whether acquisition of land is possible.

Action 2 Work with relevant agencies.

Priority: MODERATE

EDUCATION AND OUTREACH GOALS FOR THE NIAGARA RIVER CORRIDOR IBA

GOAL 1 Inform and educate various interest groups about the importance of and opportunities surrounding the Niagara River Corridor IBA.

Objective A: To inform and educate local government leaders, the general public (locals, tourists, and potential tourists), and local school children about the global significance of the abundance and species diversity of gulls and waterfowl using the river in late fall and early winter and the overall importance of the corridor for biodiversity conservation in a highly modified landscape.

Action 1 Produce pamphlet with information on Niagara River Corridor IBA working group, identification of important gull and waterfowl species, and map with viewing locations.
Progress:completed

Action 2 Place pamphlets in high traffic tourist areas (NPC, NYSParks, etc.).

Action 3 Create "Niagara River Corridor IBA Charter", and encourage municipalities to sign on the IBA concept.

Action 4 Promote and learn from NY State Bird Conservation legislation (NAS).

Action 5 Develop a logo.

Action 6 Develop an informational package targeting adults, e.g. slide presentation and handouts, and present to local government, business, and other groups (NAS-NYS).

Action 7 Develop an informational/educational package targeting school children (create with input from experienced environmental education experts) and present at local schools (NAS-NYS).

Action 8 Promote Niagara River Corridor IBA in the local, state, and provincial media (e.g. volunteer journalists write for local media; NY groups encourage NYSDEC to film a piece during winter for their new TV show).

Action 9 Promote available pamphlets, fact sheets, and informational/educational presentations, i.e. identify potential target groups.
Progress: Buffalo Institute of Urban Ecology has information already available for distribution
Priority: HIGH

Objective B: To inform and educate the same groups (above) about the tremendous quality of the bird-watching resource of the area and the ecotourism opportunities within the corridor during the off-season, i.e. winter.

Action 1 Create a committee to promote and broaden the International Gull Festival into a binational event (all members).

Action 3 Provide a gull and waterfowl observation day for school groups, staffed by volunteers and Niagara River Corridor IBA members at 2 key concentration sites annually (in conjunction with Gull Festival).

Action 4 Arrange for local politicians and business leaders to attend Gull Festival and/or bird-watching trips to the area.

Action 5 Promote Niagara River Corridor IBA bird-watching opportunities in the local, state, and provincial media (e.g. volunteer journalists write for local media; NY groups encourage NYSDEC to film a piece during winter for their new TV show).

Priority: HIGH

GOAL 2. Develop ecotourism around bird-watching opportunities in the Niagara River Corridor.

Objective A: To promote/market/develop birding ecotourism during the off-season, i.e. winter.

Action 1 Promote bird-watching trips to the area, especially those targeting gulls and waterfowl during the winter season.

Action 2 Organize birding trips to the area.

Action 3 Market birding trips outside the local area; enlist help of local businesses.

Priority: LOW

GOAL 3. Encourage broader participation in Niagara River Corridor IBA issues.

Objective A: To provide background information on the IBA program and the binational Niagara River Corridor IBA conservation partnership to various interest groups.

Action 1 Include such information in media releases and informational/educational materials targeting local government, business, and other groups.

Priority: MODERATE

Objective B: To attempt to dovetail objectives and actions with other groups that are currently active in the Niagara River Corridor IBA.

Action 1 Actively solicit other interested organizations to become members of the NRIBA Working Group.

Action 2 Work in partnership with other organizations to prevent duplication of effort.

Action 3 Decide on what is expected of an organization or individual that becomes an NRIBA partner or a member of the NRIBA Working Group (i.e. does a partner support our vision statement? Does a member actively pursue same goals, etc.).

Priority: HIGH

12 EVALUATING SUCCESS

The Niagara River Corridor IBA is an unusual IBA in many ways, including a very large area, which is highly modified and contains large urban populations, and an international border. In order to focus on conservation goals, it will first be very important to collect more basic data on the IBA species to build up the scientific data to support work on these goals. Volunteers, under the guidance of biologists, will complete much of this work.

The Niagara River Corridor IBA Working Group will continue to meet regularly to prioritize and implement the various goals outlined in the Section 11. Currently, there are two smaller groups planning on-going actions: a scientific committee and an education and outreach committee. The Niagara River Corridor IBA Working Group has been corresponding via email and fax, and agenda items are presented and discussed in this format before meetings. At least one member from the two smaller groups must be present at each meeting to report on progress and developments within their committee. Members attending meetings will vote on any decisions to be made for the group.

Goals, objectives and actions will be updated and/or revised annually or as needed, and a copy of these revisions will be distributed amongst members of the Niagara River Corridor IBA Working Group and sent to CNF <iba@cnf.ca> and the Director of Bird Conservation at Audubon New York <mburger@audubon.org>. Any important updates, changes in goals or objectives, or inability to complete actions should be brought to the attention of the appropriate committee or Working Group member as soon as possible.

In order to reach the next phase of this conservation plan, putting conservation goals into action, funding must be located and acquired. With the large number and diversity of stakeholder groups involved in the Niagara River Corridor IBA, the potential to successfully acquire funding is high.

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Appendix 1: Gull species and numbers seen annually in the Niagara River Corridor.

Gull Species	**Numbers seen annually**
Bonaparte=s Gull Ring-billed Gull Herring Gull	Tens of thousands
Great Black-backed Gull	Hundreds to two thousand
Little Gull Thayer=s Gull Iceland (Kumlien=s) Gull Lesser Black-backed Gull Glaucous Gull	Tens to hundreds
Franklin=s Gull Black-headed Gull California Gull Black-legged Kittiwake Sabine=s Gull	A few seen most years
Laughing Gull Mew Gull Ivory Gull	Irregular occurrence
Slaty-backed Gull Ross ' s Gull	Only one or two records ever

Table from Knapton and Weseloh (1999)

Appendix 2: Waterfowl species and numbers seen annually in the Niagara River Corridor[1].

Waterfowl Species	Numbers seen annually
Canvasback Common Merganser	>Ten thousand
Greater Scaup	Thousands
Common Goldeneye Bufflehead Oldsquaw Mallard* American Black Duck*	Hundreds
White-winged Scoter Red-breasted Merganser	Tens to hundreds
Blue-winged Teal* Wood Duck*	Summer resident, unknown numbers
Gadwall* Pintail American Wigeon* Redhead* Ring-necked Duck Harlequin Duck King Eider Hooded Merganser*	Winter visitor, unknown numbers
Green-winged Teal* Shoveler* Lesser Scaup Surf Scoter Common Scoter Ruddy Duck*	Migrant
Barrow's Goldeneye Common Eider	Rare

* Birds that breed in the region in summer, may also migrate through the region.

[1]Summarized from Niagara River Remedial Action Plan Stage 1: Environmental Conditions and Problem Definition.

Appendix 3: Bird species recorded within the Niagara River Corridor IBA that are at some level of risk at the global, national, provincial or state level.

Species	At-risk status				
Common name (*scientific name*)	**Global[1]**	**National Canada[2]**	**National US[3]**	**Provincial[4]**	**State[5]**
Common Loon					SC
Pied-billed Grebe					THR
Upland Sandpiper					THR
Least Bittern		THR		VUL	THR
Caspian Tern				VUL	
Black Tern				VUL	THR
Common Tern					THR
Red-shouldered Hawk		SC		VUL	SC
Bald Eagle			THR	END	THR
Peregrine Falcon		THR		END	END
Northern Harrier					THR
Osprey					SC
Northern Bobwhite		END		END	
Yellow Rail		SC			
King Rail		END		END	THR
Piping Plover	VUL	END	END		END
Ivory Gull		SC			
Barn Owl		END		THR	
Short-eared Owl		SC		VUL	THR
Red-headed Woodpecker		SC		VUL	SC
Loggerhead Shrike		END		END	END
Prothonotary Warbler		END		END	
Cerulean Warbler		SC		VUL	SC
Yellow-breasted Chat		SC		VUL	SC
Sedge Wren					THR
Grasshopper Sparrow					SC
Henslow's Sparrow		END		END	THR

Level at risk: END = Endangered, THR = Threatened, VUL = Vulnerable, SC = Special Concern.

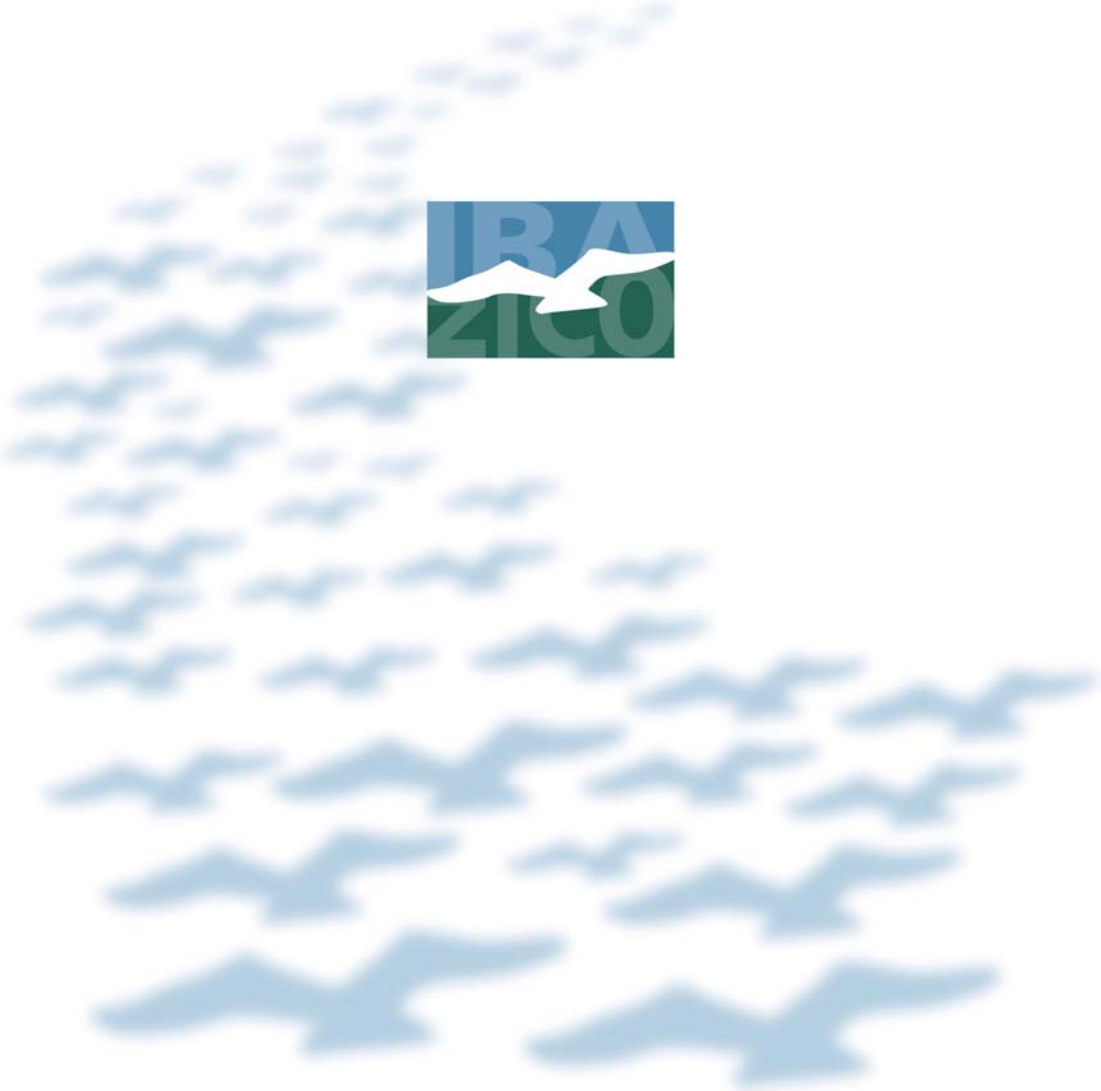
Global[1] – List of Globally Threatened Bird Species. BirdLife International Web Site (2002).
National Canada[2] – COSEWIC Species at Risk (2002)
National US[3] – USFWS List of Endangered Wildlife (2002)
Provincial[4] – Vulnerable, Threatened, Endangered, Extirpated or Extinct Species of Ontario, (OMNR 2002).
State[5] – NYSDEC List of Endangered, Threatened, and Special Concern Fish and Wildlife Species of New York State (2002).

Appendix 4: Background information on the International Joint Commissions Areas of Concern in the Niagara River Corridor IBA.

1) **Niagara River AOC** is one of five binational AOCs; however, Canada and the U.S. have written two separate RAPs. Although both RAPs have been written and some implementation has begun, there is currently little funding to further implement the recommendations suggested in the documents produced.

The Canadian Niagara River AOC includes the Niagara River and the Welland River drainage basin (which is not part of the Niagara River Corridor IBA). The Canadian RAP Stage 1 was completed in 1993. This document defined environmental conditions and defined problems within the AOC. Included in the 10 beneficial use impairments identified were the following: restrictions on fish consumption, degradation of fish populations, bird deformities, degradation of benthos, loss of fish habitat, and loss of wildlife habitat. It was unknown whether phytoplankton and zooplankton quality, wildlife populations, or bird reproduction were impaired at this site. In 1996, the Stage 2 report was released, which outlined recommendations to restore beneficial uses of the AOC and outlined an implementation strategy. In 1999 the Ministry of the Environment, Environment Canada and the Niagara Peninsula Conservation Authority entered into an agreement under which the Niagara Peninsula Conservation Authority (NPCA) will initiate and co-ordinate activities for the continued development and implementation of the Niagara River Remedial Action Plans. In 2000 the NPCA developed an Implementation Annex, which completes the stage II Remedial Action Plan.

The U.S. Niagara River AOC extends from Smokes Creek near the southern end of the Buffalo Harbor to the mouth of the river at Lake Ontario. The New York State Department of Environmental Conservation (NYSDEC) and Niagara River Action Committee released the U.S. RAP in 1994 **(not cited in bibliography)**, which outlined problems, sources, and recommendations for remedial actions to be taken. The area has 5 beneficial use impairments: restrictions on fish and wildlife consumption, fish tumors and deformities, degradation of benthos, restriction on dredging activities, and loss of fish and wildlife habitat. The status of degradation of fish and wildlife populations and the presence of bird or animal deformities or reproductive problems are not known and will require further investigations. Since 1994, remedial action has begun to address hazardous wastes, contaminated sediments, and point and non-point source pollutants.

2) **Buffalo River AOC** is located in the City of Buffalo, NY, extends approximately 10 km upstream from the mouth of the river and discharges into Lake Erie near the head of the Niagara River. Impairments include contaminated bottom sediments, restrictions on fish and wildlife consumption, degradation of fish and wildlife habitat, restrictions on dredging, degradation of benthos, and fish tumors or other deformities. Also likely are deformities or reproductive problems in birds and wildlife and degradation of their populations, although these have not yet been determined.

A RAP in the form of a working document was written in 1989 by NYSDEC and the Buffalo River Citizens' Committee (BRCC). Currently, planning is ongoing and some implementation and remedial action has occurred.