



IMPORTANT BIRD AREA



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for

**Manitoba Important Bird Areas Program
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Preamble.

This document is not intended to be static. It is hoped that the community stakeholder groups involved will use this CCP to guide their conservation efforts and continue to add to sections of this document over time.

Executive Summary

Oak Hammock Marsh IBA

The Important Bird Area Program

The Canadian Important Bird Areas Program (IBA) was established by the Canadian Birdlife Partners which include the Canadian Nature Federation and Bird Studies Canada, as part of an international effort to identify and conserve sites important to all bird species worldwide. In Manitoba, the IBA program is being delivered and administered by the Manitoba Naturalists Society.

Goals of the Canadian IBA Program

The goals of the IBA program are to (1) 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; (2) to determine the type of protection or stewardship required for each site; and (3) ensure the conservation of each site through partnerships with local stakeholder groups who develop and implement an on-the-ground community conservation plan (CCP).

Oak Hammock Marsh

Oak Hammock Marsh is part of what was once a larger wetland known as St. Andrews Bog. Established in 1973, the Oak Hammock Marsh Wildlife Management Area (WMA) is a restored wetland that is referred to as the flagship WMA in Manitoba (Whaley 1995). Oak Hammock Marsh is also a Ramsar site and is recognized as a site of regional

importance for shorebirds by the Western Hemisphere Shorebird Reserve Network. The IBA follows the boundaries of the WMA.

Significant Bird Numbers

Oak Hammock Marsh is one of Manitoba's top birding destinations and is recognized as a globally significant IBA based upon number of Short-billed Dowitchers, Hudsonian Godwits and staging geese. A total of 296 species have been recorded in this relatively small area.

Up to 5,500 pairs of breeding Franklin's Gulls have been recorded, representing at least 1.6% of the North American populations. As many as 70 pairs of Black-crowned Night-Herons, which represents approximately 1.4% of the Canadian population breeds at Oak Hammock Marsh.

In the spring, large numbers of shorebirds stop at Oak Hammock with as many as 16,759 birds observed in 1981. As many as 7,000 White-rumped Sandpipers (1.8% of the global population), 5,000 Short-billed Dowitchers (1.6% of the global population), 600 Hudsonian Godwits (1.2% of global population) and 5,400 yellowlegs (both species) have been recorded here- all globally significant numbers. Numbers of Black Terns and Forster's Terns also meet IBA criteria for national significance.

During fall migration, in excess of 250,000 Lesser Snow Geese have been observed, which accounts for about

8% of the Hudson Bay (Mid-continent) population. An impressive 200,000 Canada Geese have been recorded at the site. As many as four subspecies of Canada Geese were mixed in these flocks (Giant, Eastern Prairie, Short Grass Prairie and Tall Grass Prairie) with each one almost certainly surpassing their respective continental thresholds for IBA significance. Mallards have been recorded in numbers as high as 70,000. American Coots are also extremely well represented at Oak Hammock Marsh with 2.2% of the North American population, or over 30,000 individuals having been found. In 2000, 269,000 ducks and geese were counted during the week of October 7th.

Other species of interest that are reported occasionally (and may breed) at Oak Hammock include the Least Bittern, the Yellow Rail and the Red-headed Woodpecker, all nationally vulnerable species. During the winter months numerous Snowy Owls hunt the fields around the marsh.

Conservation Goals and Objectives

The intent of this conservation plan is to:

- (1) maintain traditional benefits for staging, moulting and breeding waterfowl;
- (2) foster awareness of the unique bird species and overall bird biodiversity at Oak Hammock Marsh; and
- (3) further recognize Oak Hammock Marsh as a resource for public use.

Research/Monitoring. In an effort to enhance shorebird habitat, two of the 58 nesting islands originally

constructed for waterfowl nesting will be leveled/sloped by Manitoba Conservation in the spring of 2001. A monitoring protocol will be developed to measure the success of this management action.

Bird Banding. Efforts will continue to monitor song bird migration and numbers through a mist-netting program. Canada goose banding initiatives will continue using leg bands and leg collars.

Education. The IBA working group will work towards development of an IBA interpretive trail highlighting the bird species unique to Oak Hammock Marsh. The trail would utilize the existing network of trails and would require 15-20 signs highlighting IBA species. Manitoba Conservation will replace the informational signs.

Habitat Enhancement.

Tall Grass Prairie. Habitat is to be enhanced through prescribed burns. There is a need for educational signs to identify key prairie plant species, mowing of the existing loop-trail, modifying the loop-trail so that it passes by key prairie plants, and developing a prairie tour.

Willow Bluff Habitat. The willow bluff habitat is deteriorating. Willows planted in the past have not established. The planting of willow posts using such native species as Peach-leaved Willow to restore the willow bluff habitat will be explored.

East Side Oak Bluff. Work towards improving Oak Bluff habitat and possible woodlot demonstration project.

Native Grass Plantings.

Manitoba Conservation will plant native grasses on the east side of the marsh.

Noxious Weeds. Efforts will continue in the control of noxious weeds such as Canada Thistles within the WMA.

Landowner Stewardship. Work towards establishment of landuse demonstration projects. Agricultural practices outside the WMA are resulting in the loss of perennial cover. Pastureland in the WMA northside of Wavey Creek may provide an opportunity for a managed grazing demonstration site that would provide habitat for shorebirds and other avifauna.

The Oak Hammock Marsh working group is comprised of

individuals from the Oak Hammock Marsh Interpretive Centre, Ducks Unlimited Canada and the Oak Hammock Marsh Manager representing Manitoba Conservation.

Contacts

Manitoba Important Bird Areas Community Conservation Planner

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1.0 The IBA Program

The IBA program is an international initiative coordinated by BirdLife International, a global partnership of over 100 countries seeking to identify and protect sites important to the conservation of bird species worldwide. Through the protection of birds and habitats, IBA's also promote the conservation of the world's biodiversity. IBA programs are currently in place in Europe, Africa, the Middle East, Asia, and the Americas.

The Canadian IBA Program was initiated in 1996 by two Canadian environmental non-government organizations - Bird Studies Canada (BSC) and the Canadian Nature Federation (CNF). The Canadian IBA program forms part of the Americas IBA program which includes the United States, Mexico, and 17 countries in Central and South America.

The goals of the Canadian IBA program are to:

- identify a network of sites that illustrate and 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 between local stakeholder groups who develop and implement appropriate on-the-ground conservation plans; and

- establish ongoing local involvement in site protection and monitoring.

IBA Site Identification & Criteria

IBA sites 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 biome.
- 4) Sites where birds congregate in significant numbers when breeding, in winter, or during migration.

Important Bird Areas Funding

In October 1998, the Government of Canada announced funding for the Natural Legacy 2000 project, a major initiative under the Canadian Millennium Partnership Program (CMPP). In total, \$10 million CDN were awarded to a consortium of four of Canada's largest nature conservation organizations - Canadian Nature Federation, World Wildlife Fund Canada, the Nature Conservancy of Canada and Ducks Unlimited Canada. A portion of the grant, \$1.25 million was awarded to the Canadian Nature Federation for the Canadian Birdlife International Partners to conduct the Important Bird Areas Program in

Canada. In Manitoba, funding has been received from the Murphy Foundation (in December 1999) and from the Manitoba Sustainable Development Innovations Fund (in April 2001).

For further information on the IBA Program contact:

www.ibacanada.com

1.1 IBA Manitoba

The Manitoba Naturalists Society (MNS) is cooperating with the Canadian Nature Federation and Bird Studies Canada to deliver the conservation planning component of the Manitoba IBA program. The MNS is a non-profit organization made up of individuals who share a common concern for the well-being of Manitoba's nature. It was founded in 1920 for the popular and scientific study of nature.

The MNS believes that the chance to experience an undamaged environment in peace and tranquility is a joy and a privilege. It also believes in the importance of sound stewardship, the wise use of our natural resources, fostering an awareness and appreciation of the natural environment and an understanding of humanity's place therein.

The objectives of the MNS include:

- to provide an association and a voice for those interested in natural history and the outdoors;
- to cooperate with individuals and organizations with similar objectives;
- to arrange educational and recreational programs and field trips to promote an understanding of the natural environment;
- to stimulate research and to record and preserve data and material in natural history and allied subjects; and
- to work for the preservation of our natural environment.

In 1996, a number of Manitoba birders gathered to begin identification of potential Manitoba IBA's. By 1999, over 100 locations were nominated for IBA status in Manitoba. In August of 1999, the MNS began IBA community conservation planning with the hiring of a conservation biologist. Shortly after, strategy meetings were held to further identify Manitoba IBA's with local community interest. Advice was solicited from groups including the Manitoba Naturalists Society (Avian Research Committee), Canadian Wildlife Service, Ducks Unlimited Canada, Manitoba Conservation, The Nature Conservancy of Canada, Manitoba Habitat Heritage Corporation and local birders.

2.0 Introduction

Oak Hammock Marsh (OHM) is part of what was once a larger wetland known as St. Andrews Bog. The name Oak Hammock originated about 1874 as a description of homesteader Adam McDonald's land and use of hammocks slung between oak trees at a wooden picnic site located there (Gardener 1981).

Situated approximately 30 km north of Winnipeg, Oak Hammock Marsh is the site of the national office of Ducks Unlimited Canada and the Oak Hammock Interpretive Centre. The Oak Hammock Marsh Interpretive Centre (a joint project of Ducks Unlimited Canada and the Government of Manitoba) offers educational programs throughout the year.

Oak Hammock Marsh is a man-made freshwater marsh restored from a remnant of the former St. Andrew's Bog and the marginal agricultural land created by its near complete drainage. This very flat area is characterized by a series of dykes, water impoundment's and artificial islands that are managed to provide wetland habitat. Water enters the wetland from artesian wells and Wavey Creek, flows south through the man-made basins, and then empties out of Oak Hammock Marsh into Parks Creek, a tributary of the Red River. The marsh is equally divided between wetlands and uplands. The bulk of the uplands are sedges and grasses including remnant tall-grass prairies which provide nesting sites for waterfowl and other grassland bird species. The uplands also contain lure crops that are managed as

to prevent for waterfowl depredation prevention on surrounding agricultural lands.

Marsh Restoration

Beginning in 1967, Manitoba Conservation, Ducks Unlimited Canada, the Government of Canada, volunteer conservation organizations and local landowners began restoration of the marsh and associated wetlands.

By the spring of 1974 Oak Hammock Marsh WMA consisted of 3,500 acres of restored marsh and 5,000 acres of upland (Gardener 1981). Over 14 miles of dykes were constructed dividing the marsh into a series of cells enabling water control. The main water supply comes through spring snowmelt and rain and from nearby springs. Fifty-eight nesting islands were constructed for waterfowl nesting and several hundred acres of Crown land are seeded annually to lure crops in an effort to decrease waterfowl depredation on local lands (Gardener 1981). Six observation mounds provide an enhanced view of the marsh.

Improvements to water control were made from 1983-1987, including access to additional water supplies, an upgrade of water distribution systems and improved drainage from individual cells (Whaley 1995).

3.0 IBA Site Information

Name: Oak Hammock Marsh WMA

IBA site number: CAMB010G

Central Coordinates (Lat/Lon):

Latitude: 50° 11 N; Longitude 97° 08 W

NTS Sheet or other site map: 62 I/7

Area: 3,500 acres of marsh;
5,000 acres of upland (WMA)

Oak Hammock Marsh IBA lies between the Stonewall ridge to the west and the lower Selkirk ridge to the east. Drainage of the area is generally in a southeasterly direction (Whaley 1995). Ground infiltration of rain and melt water within the WMA is poor on the uplands in the western portion of the WMA due to impermeable subsoils and a high water table coupled with poor drainage.

Naturally occurring artesian springs situated in the grasslands to the west of the marsh provided a water supply that was channeled eastward into the marsh cells (Whaley 1995). Water levels are independently managed in each of four cells (see Figure 1) by gravity flow through control structures located in the cross dykes (Whaley 1995).

Whaley (1995) reported that prior to 1986 the ability to control water levels at Oak Hammock Marsh was less than optimum. There was no adequate and reliable supply of water to ensure marsh cells held sufficient water each spring. In addition, the ability to manage water levels throughout the marsh and drain individual cells was not adequate. Improvements to

water management were addressed between 1983 and 1987 by the Province of Manitoba and Ducks Unlimited Canada. An additional water supply was provided through the construction of a diversion channel from Wavey Creek. Four marsh cells were created through a series of cross dykes as well as a series of water supply channels that allow for distribution and diversion of water enabling marsh bottom irrigation and refill after drawdowns (Whaley 1995). Marsh water outlets were improved on Parks Creek and on the Dewar Drain to allow rapid dewatering of any marsh cells (see Figure 1).

The following site description is taken from Gardner (1981). The largest percentage of the area is open terrain consisting mainly of marsh, hay and sedge meadows, cultivated fields and pastures (see map). Treed areas consist of mainly woodlots, bluffs and farm shelterbelts. In general the Oak Hammock Marsh WMA is surrounded by which was formerly aspen parkland, but is now almost completely denuded of trees and true prairie.

Soils are Lakeland Association in the western portion where most of the grasslands exist, Osborne Association in the eastern portion and marsh bottom and Red River Clay soils in the southeast portion of the WMA (Whaley 1995).

3.1 Vegetation

The dominant vegetation cover is a complex of grasses, sedges, reeds and

weeds. Plant composition consists of common reed (*Phragmites communis*), cattail (*Typha latifolia*), bulrush (*Scirpus spp.*) and sedges (*Carex spp.*).

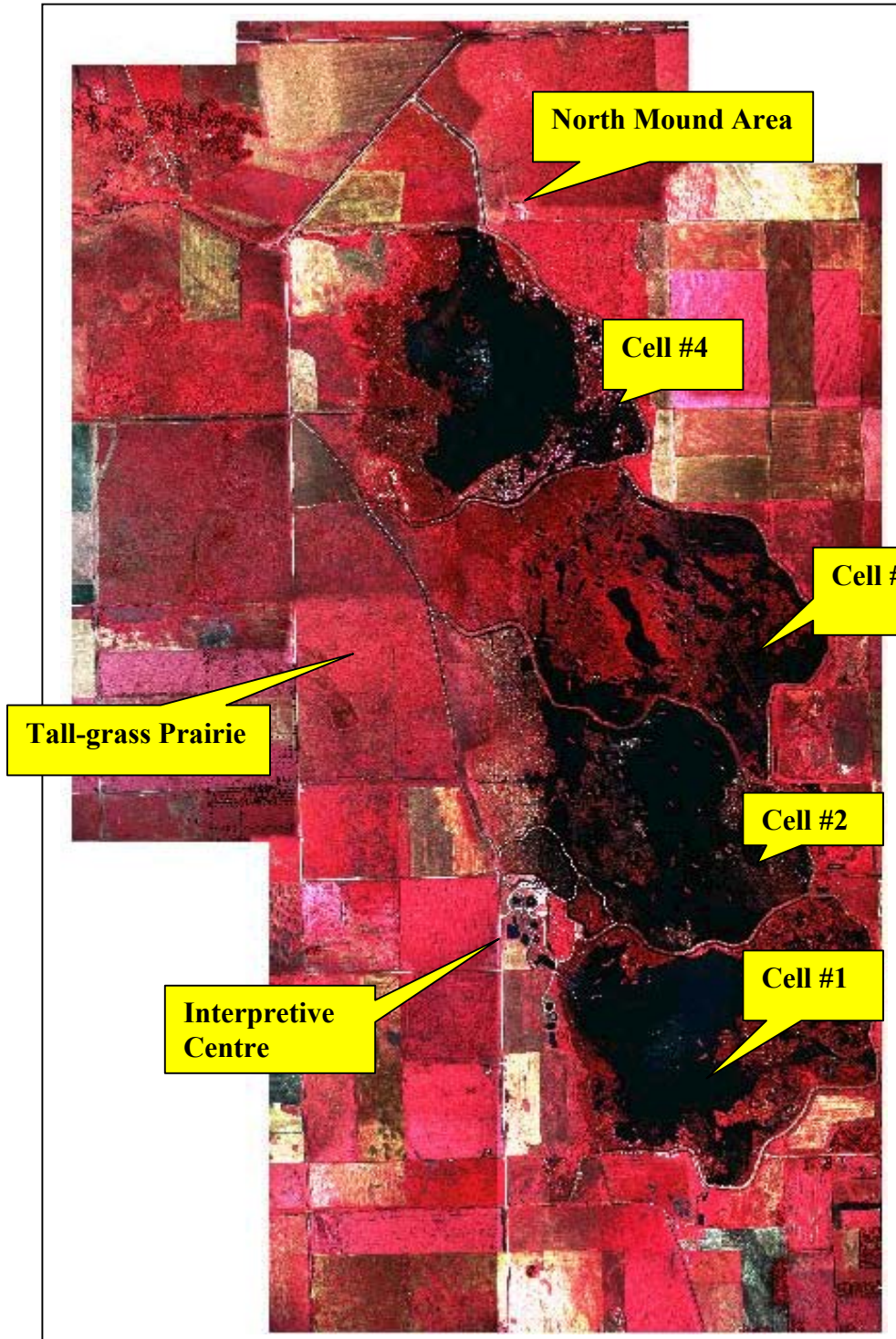
change the vegetation community and distribution (Whaley 1995). The wet-dry

Pakulak and Sawka (1972) also described the general vegetation as wetland vegetation consisting of reed grass (*Phragmites communis*), cattail (*Typha latifolia*), bulrush (*Scirpus acutus* and *validus*) and sedges (*Carex spp.*). In 1974, a study of the area 1.6-km west from the north cell by Oetting and Dixon (1975) found the following vegetation - sedges (*Carex spp.*), rushes (*Juncus spp.*), bluegrass (*Poa spp.*) smooth brome grass (*Bromus inermis*), sweetgrass (*Hierochloa odorata*), wild rose (*Rosa spp.*), sow thistle (*Sonchus arvensis*), water parsnip (*Sium suave*), water hemlock (*Cicuta maculata*), bedstraws (*Galium spp.*), arrowgrass (*Triglochin maritima*), sunflowers (*Helianthus spp.*), goldenrods (*Solidago spp.*), yarrow (*Achillea millefolium*), asters (*Aster spp.*), mints (*Mentha arvensis* and *Stachys palustris*), dogbanes (*Apocynum spp.*), Canada thistle (*Cirsium arvensis*), cattail (*Typha latifolia*), bulrushes (*Scirpus spp.*), willows (*Salix spp.*), birch (*Betula glandulosa var. glandulifera*), marsh marigold (*Caltha palustris*), and parnassus (*Parnassia spp.*).

3.2 Marsh Drawdowns

The present system of dikes at Oak Hammock Marsh divides the marsh into a series of management cells which allows for water to be removed from cells through drawdowns. Periodic marsh drawdowns

Figure 1. Oak Hammock Marsh



cycle drives the productivity of wetlands.

Artificial drawdowns mimic the wet-dry cycle of prairie wetlands. Wetlands where much of the emergent vegetation has been eliminated are thought to be unproductive. A drawdown is an attempt to restore the wetland to a productive stage by increasing desired vegetation. Murkin et al. (2000) described the wet-dry cycle - during drought conditions. During the drawdown or dry stage, the wetland, or the bottom of the wetland, is exposed allowing seed bank germination resulting in a plant community comprised of emergent and annual species. When the wetland is reflooded, the annual plants are eliminated, emergent species expand and submersed species germinate. The reflooding stage is known as the regenerating stage.

3.3 Woodlots

Treed areas consist of mainly woodlots, bluffs and farm shelterbelts. The only trees the IBA consist of 46 acre bluff of oaks and aspen located in southeastern corner known as the Oak Bluff. This woodlot contains trembling aspen (*Populus tremuloides*), bur oak (*Quercus macrocarpa*), balsam poplar (*P. balsamifera*), willow (*Salix* spp.) hazil (*Corylus* spp.), highbush cranberry (*Viburnum trilobum*), saskatoon (*Amelanchier alnifolia*) and chokecherry (*Prunus virginiana*) (Gardner 1981).

3.4 Brennan Prairie

Remnant stands of Tall-grass prairie exist in the IBA (also see section 5.2). These stands of warm season native grasses are found along the western borders of the WMA and are managed through prescribed burning. Common grass species include big (*Andropogon gerardi*) and little bluestem, switchgrass, prairie cord grass and needle and thread grass. Over 65 forb species exist on these sites including prairie lily, golden alexanders and blazing star (*Liatris ligulistylis*).

3.5 Noxious Weeds

Thistles. Canada Thistle grows profusely throughout the area frequently forming pure stands (Gardner 1981) and replacing native vegetation. Thistles have become invasive at Oak Hammock Marsh, particularly along the dikes of the management cells.

Purple Loosestrife. Purple loosestrife (*Lythrum salicaria*) has not been found in the Oak Hammock Marsh, however it has been found in the immediately surrounding areas. Loosestrife has been found (and subsequently removed) in ditches along Ammeter Road and along highway #67. Loosestrife is also currently found in residential gardens south of Oak Hammock Marsh along PR #220. These garden plantings provide a continued threat through dispersing seeds and pollen.

3.6 Lure Crops

Large concentrations of fall staging waterfowl necessitate an intensive effort to control damage birds do to surrounding farmers' crops (Whaley 1985). Lure crops are planted to discourage migrating waterfowl from damaging the surrounding farmers fields (Senecal 1999). Annually a Waterfowl Crop Damage Prevention Program comprised of a Lure Crop Program and Waterfowl Scaring Program are delivered by Manitoba Conservation (Whaley 1985). Area landowners are entitled to 100% damage compensation inside the Oak Hammock Marsh Managed Hunting Area.

3.7 Artesian Springs

Natural springs which flow year round occur in a number of locations in Wavey Creek, Parks Creek and connecting ditches and run year round (Gardner 1981). Artesian springs historically were common in the area originating from an underground aquifer trapped below a deep impervious layer of clay and gravel. Small fissures in the impervious clay layer allow for aquifer water under pressure to rise to surface as artesian springs (Whaley 1995). These artesian springs contribute to the water supply in Oak Hammock Marsh.

4.0 IBA Bird Species

Oak Hammock Marsh is Manitoba's most well-known provincial wildlife management area supporting

significant concentrations of many species of marsh birds. Oak Hammock Marsh is recognized as a globally significant Important Bird Areas for a number of bird species.

During the breeding season, large colonies of both Franklin's Gulls and Black-crowned Night-Herons are present. At least 5,500 pairs of Franklin's Gulls have been noted, which represents at least 1.6% of the North American population. A colony of 70+ pairs of Black-crowned Night-Herons at the marsh represents approximately 1.4% of the Canadian population. Surveys conducted in 2000 found 753 Black Terns and 200 Forster's Terns, both populations meet IBA criteria for national significance (see Appendix V).

During fall migration many species including American Coot, Lesser Snow Goose, and Canada Geese use Oak Hammock Marsh as a stopover site. Numbers in excess of 250,000 Lesser Snow Geese have been observed, which accounts for at least 5.5% of the estimated Hudson Bay (Mid-Continent) population. An impressive 100,000 or 19% of the Short-grass Prairie Canada Goose population has been recorded at the site. American Coots are extremely well represented here, with 2.2% of the North American population, or over 30,000 individuals found here.

The numbers of staging ducks and geese peaked during the week of 7 October, 2000, with an estimated 269,000 birds. Surveys conducted by Manitoba Conservation in 2000 indicated 50,000 staging Canada Geese on September 22, 115,000 on October 7th and 96,000 on

October 20th. Surveys also indicate there were 5,000 Snow Geese on September 22nd, 54,000 on October 7th and 65,000 on October 20th. The number of ducks counted in 2000 were 60,000 on September 22, 100,000 on October 7th and 91,000 on October 20th 2000.

Other avifauna found at Oak Hammock Marsh in large concentrations include nesting Eared Grebes, and in autumn, Yellow-headed Blackbirds, Red-winged Blackbirds, and Bank Swallows.

Species or groups meeting IBA criteria	Season	Number
American Coot	FM	30,000+
Lesser Snow Goose	FM	250,000 (1996)
Canada Goose	FM	200,000 (1995)
Waterfowl (ducks)	FM	100,000 (2000)
Mallard	FM	70,000 (1993)
Yellowlegs spp.		5,400
Shorebirds	SM	16,759 (1981)
White-rumped Sandpiper	SM	7,000
Short-billed Dowitcher	SM	5,000
Franklin's Gull	B	11,000
Black Tern	B	753 (2000)
Black-crowned Night-Heron	B	140
Forster's Tern	B	200 (2000)
Hudsonian Godwit	SM	600

Whaley (1995) reported that waterfowl are by far the most abundant species with spring migration bringing over 100 species of waterbirds. Several subspecies of Canada geese include staging Interior, Lesser, Hutchinsons, and Giant Canada geese (confirmed nesting since 1982). Fall staging populations peak in early October exceeding 300,000 in some years. Eighteen species of ducks are common migrants, nine are known to breed in Oak Hammock Marsh either in the grasslands or wetlands. Blue-winged

Teal, Northern Shovelers and Northern Pintails are grassland nesters while Mallards and Gadwalls are island nesters. Canvasbacks, Redheads, Lesser Scaups, and Ruddy Ducks nesting efforts varies with marsh drawdowns (Whaley 1995).

Cleveland et al. (1988) reported at least 93 bird species have bred at OHM and over 242 species have been observed. Snowy Owls, Short-eared Owls, Bald Eagles, Golden Eagles, Northern Harriers, can be seen in the fall and into freeze-up. Sandhill Cranes, American White Pelicans, and Tundra Swans are common.

Oak Hammock Marsh is also recognized by Poston et al. (1990):

- as a habitat subregion of local importance for moulting ducks in Canada's prairie provinces. Local sites have flock sizes of 1000 to 5000 ducks.
- as a wetland site of regional importance for duck staging - with flocks of 5000 to 20,000 birds.
- as a wetland of National Importance for staging geese - > 15,000 birds.
- a priority site for breeding colonial waterbird species for Western Grebes (Local Importance 50 to 500 nests), Eared Grebes (Local Importance 100 to 1000 nests); Black-crowned Night-Heron (Local Importance 11 to 30 nests); Herring Gull (Local Importance < 50 nests), Franklin's Gull (Regional Importance 2000 to 5000 nests) and

Foster's Tern (Local Importance < 100 nests).

piglike sounds with the head up and neck stretched out. Breeding males extend their throats while performing aerial displays.

Breeding. Birds are polygynous and pairs are formed on the males'

4.1 IBA Species Natural History

4.1.1 White-rumped Sandpiper

Calidris fuscicollis

Life history information on the White-rumped Sandpiper was taken from Parmelee (1992). This small Nearctic sandpiper migrates from its principal breeding ground in the Canadian Arctic to the southern extremes of South America, one of the longest animal migrations in the Western Hemisphere. Much of its migration is made of few, long, non-stop flights which can last as long as 60 hours and 4,000 kilometers. Wetlands play an important role in these migrations as they provide the food for fat reserves necessary for these long migrations. Banding studies indicate this species is capable of flying directly over the Atlantic Ocean from eastern Canada to northeastern South America.

It is very similar to the Baird's Sandpiper (*Calidris bairdii*) in size and structure but is usually grayer (see below photo source: www.museum.gov.ns.ca). The breeding habitat usually consists of wet, hummock-tundra near marshy ponds. Birds are most conspicuous above breeding grounds in aerial display. Males typically fly 10-25 meters above ground and changes from normally deep to shallow wing beats while hovering and uttering rattling sounds interrupted with



territory. Females alone build the nest. Females generally lay 4 eggs that are a distinctive pale to olive green and are spotted reddish-brown. Incubation period is around 22 days.

Population Status. Canadian and global population estimates of White-rumped Sandpipers are 400,000 birds, which is considerably higher than the previous estimates of 50,000 birds (Morrison et al. 2001). Total adult summer populations are estimated at 25,000 birds at Banks Island, 15,000 birds at Prince of Wales Island and 1,056 birds at Jenny Lind Island. Loss of wetlands for feeding and resting and in wintering areas is a threat to this species as well as to all shorebirds. The preservation of wetland

staging areas in Latin America is of equal importance.

4.1.2 Snow Goose

Anser caerulescens

Based upon numbers, the Snow Goose is the most significant avian species associated with the Oak Hammock Marsh IBA. As many as 200,000 migrating Snow Geese have used the area in spring and fall or about 7% of the Mid-Continent population of Snow Geese. The following information on Snow Geese is taken from the Canadian Wildlife Service (1989) *Hinterlands Who's Who*.

Description. The Lesser Snow Goose comes in two different color phases. The plumage of white-phase geese is almost completely white, except for black wing tips. The blue-phase goose has a white head, a bluish color on the feathers of the lower back and flanks, and a body that ranges in color from very pale, almost white to very dark. Both the white and blue-phase snow geese frequently have rusty orange faces, because their feathers have been stained by iron in the earth where the birds feed.

Population Status. In an age of declining wildlife populations, Lesser Snow Geese have doubled in number in the past 15 years and, among North American geese, their numbers are second only to those of the Canada Goose. However, because there are many subspecies and races of Canada Geese, the

Lesser Snow Goose can probably be considered the single most abundant goose in Canada. The current population of mid-continent Lesser Snow Geese is probably between 4.5 and 6 million (Batt 1997).

Birds from the eastern Arctic stage in very large numbers in James Bay and on the west coast of Hudson Bay before heading farther south. During migration they pass through Manitoba and Ontario, on a rather broad front, en route to the coast of the Gulf of Mexico.

Manitoba Migration Shift. Major shifts in autumn distribution have taken place in prairie Canada since 1975. In that year 50,000–100,000 snow geese started to use a more westerly route through eastern Saskatchewan. The shift from southwestern Manitoba to eastern Saskatchewan has continued annually to 1988. This means that birds from the central Arctic fly in two directions: one southwestward corridor takes them into Alberta and western Saskatchewan and another south-eastern corridor through southern Manitoba.

Nesting. Lesser Snow Geese, unlike most other waterfowl, usually nest close to each other in large colonies with densities of up to 2000 pairs per square kilometre. When snow geese first return to their breeding colony the ground is often still snow-covered. But snow geese are well adapted to wait for the thaw of ice and snow in order to nest. In spring they carry heavy loads of fat and protein in their body reserves and can live on these for up to two weeks, though where possible they feed on emerging vegetation.

As the snow begins to melt the flock breaks into smaller groups and eventually into pairs.

The nest itself consists of a scrape in the moss or gravel that often becomes built up into a mound over the years with bits of moss, willow, and grasses. Some down is added to the nest bowl as the eggs are laid. From two to six eggs are produced, with the average clutch size being around four. Incubation begins when the last egg is laid and continues for about 23 days. Only the female incubates. The male remains nearby to protect the female and nest from predators and from other geese looking for a ready-made home. The female leaves the nest for only a few minutes each day, and in the latter part of the incubation period she may not leave at all. As a result she is very thin by the time hatching begins; she may lose up to 30% of her body weight, which she regains when she starts to feed with the goslings.

Nesting starts as early in the spring as northern snow conditions allow and varies between colonies. Depending on latitude, egg-laying begins from late May to mid-June. If delayed by snow cover after 20 June, the geese do not breed; instead, they resorb their eggs and wait until the next year. Incubation starts about five or six days after the first egg is laid.

After all the young birds have hatched they may stay together in the nest for up to 24 h. When they have dried off they leave the nest, together with both parents, and begin to feed. Initially their diet consists mostly of insects, which are never scarce during summer in the Arctic.

As they grow, their need for a high-protein diet diminishes, and within about two weeks they have switched almost completely to grasses and sedges. From an initial weight of about 100 g at hatch the young grow to more than 1200 g in six to seven weeks. While the young are still small both adults moult their flight feathers, the males a week or so ahead of the females. Subadults and failed breeders moult two to three weeks before successful parents. Some goslings and their parents walk and swim up to 50 km during the eight-week period from hatching to fledging. Both the young and the adults must spend most of their time feeding in order to grow large enough to fly or to regain their flight feathers by mid-August. The family group gains its power of flight at the same time.

Management Concerns. The increased population is creating problems both for the Lesser Snow Goose and for people. When large numbers of geese concentrate in relatively small areas, they may deplete their natural food supplies. At McConnell River, on the west coast of Hudson Bay, a colony of about 200,000 breeding geese has denuded the original nesting area of edible vegetation so that little more than bare soil remains. On some colonies, including a recently established one on Jenny Lind Island, there may be too many geese for the food resources available.

4.1.3 Black-crowned Night-Heron

Nycticorax nycticorax

Unless otherwise referenced, life history information is taken from W. Davis (1993). The Black-crowned Night-Heron is a rather stocky heron. It looks as if it is hunched over with its head usually tucked down into its shoulders. Its plumage is gray and white with a distinctive black cap and a pair of white plumes that extend from the back of the head. During the breeding season, the black feathers from the head and back emit a bluish-green gloss and the legs become red.

This bird is a nocturnal and noisy heron. While "day" herons and egrets are roosting during the night, the Black-crowned Night-Heron is up feeding on fish, frogs, crustaceans, small mammals and even the young of other colonial-nesting waterbirds. Their digestive acids are so strong that bones that are consumed simply dissolve in their stomachs.



Black-crowned Night-Herons are colonial breeders and gregarious throughout the year usually among reeds in marshes, or up above the ground in trees. Their nests are seemingly haphazard

piles of reeds, sticks or twigs that may, over the years, become very bulky. Often, more than a dozen nests can be found in a tree. Also roosts communal in the winter. Will nest with other herons. Male initially begins to build a new nest or refurbish an old one with 86% of birds using old nests. The males' twig ceremony gradually changes to nest building and may function to strengthen the pair bond.

Generally only 2-3 bluish-green eggs per clutch are laid between June and July. Eggs are laid in 2-day intervals, both parents incubate with eggs hatching in 23-26 days. After 2 weeks the young can leave the nest and after 3 weeks are often found clustered at top of tree. One brood per year but will renest if first nest fails. Juvenile birds disperse widely in all directions after nesting, however, the northern populations have received much attention as it is in the opposite direction from normal migratory movements.

Migration and Habitat. This heron migrates in large flocks almost exclusively at night, resting during the daylight hours. Southward migration begins in late September or October following the Mississippi River system pathways. Birds begin to arrive in the northeast by the end of March. Birds prefer wetlands with equal proportions of water and vegetation. Use of habitats fluctuates accordingly to water levels. General habitats used by Black-crowned Night-Herons includes swamps, streams, rivers, lakes, lagoons, canals, ponds and wet agricultural fields.



Food Habits. Main foods taken include leeches, earthworms, aquatic and terrestrial insects, fish, lizards, rodents, snakes, eggs and plant material. Prefers to feed along shallow weedy pond margins and in marshes. Feeds primarily from evening to early morning but will feed during the day during the breeding season.

Behavior. Male chooses nest site and advertises for females. Pair formation begins with males performing "Snap Displays" in which they walk about in a crouch and lower extended head and neck with feathers of head and neck and back somewhat erect, and snap mandibles together. At the time of pair formation the legs of both sexes turn pink, back and head plumage has a glossy bluish-green sheen, lores become black. The white cranial plumes displayed during courtship aid in pair formation.

Population Status. Nesting individuals tend to be inconspicuous during aerial surveys, hence aerial surveys underestimate true numbers. No population data is available for all of North America. Little historic data exist

for Manitoba (Koonz and Rakowski 1985). Because of lack of census data population trends are difficult to assess. Drainage of wetlands may have caused some population declines due to loss of habitat.

In 1975 this species was listed on the National Audubon Society Blue List ("species which, in all or a significant part of their range, currently exhibit potentially dangerous, apparently non-cyclical population declines"), with Quebec and Ontario to the west coast also believed to be in population decline.

Habitat Destruction. Drainage of wetlands for development and agriculture, increased human disturbance, and use of islands continues to threaten Black-crowned Night-Herons. Koonz and Rakowski (1985) also identified marsh drainage, pesticides, predators and human disturbance as the important limiting factors for this species.

Conservation and Management. In the past, Black-crowned Night-Herons have been shot and trapped at fish hatcheries and hunted for food. Declines in many of its populations were probably attributable to the use of DDT. Black-crowned Night-Herons are high on the food chain and serve as excellent environmental indicators and are being evaluated as an indicator of estuarine contamination by the U.S. Fish and Wildlife Service's National Contaminant Biomonitoring Program (Custer et al. 1991). Pesticide contamination (organochlorine) also has been

demonstrated in eggs of Black-crowned Night Herons.

4.1.4 Franklin's Gull

Larus pipixcan

Unless otherwise cited, the following life history information is from Burger and Gochfeld (1994). Franklin's Gulls nest in dense colonies, forage in flocks and commute to and from foraging sites (Kopachena 1987). It is a small, black hooded gull that nests in marshes of interior North America.

The Franklin's Gull depends on extensive prairie marshes for breeding, and entire colonies may shift from year to year depending on water levels. Once threatened by habitat loss due to large-scale drainage projects and the Dust Bowl years, this species has regained numbers with the creation of large wetlands, mainly on protected national wildlife refuges. Colony shifts continue to occur, however, influenced by drought and fluctuating water levels (Burger and Gochfeld 1994).

Historical Population Changes.

Requires large prairie marshes for nesting, depending on water levels colonies will shift nesting sites in favour of suitable sites. Many colonies disappeared entirely during the Dust Bowl years of the 1930s and these populations were not regained. Populations began increasing after the 1930s with the creation of wildlife refuges and protected areas of marshland. Formerly abundant summer resident in Saskatchewan but has declined in the 1980's. Many colonies have been

destroyed as a result of wetland draining across the Canadian prairies. Reported as a common breeder in southwestern Manitoba.

Population Status. North American population estimated at 500,000 birds. Some controversy over recent population trends. Based on U.S. Fish and Wildlife Service BBS's, which reported a 7.4% annual decline or a 90% decline overall. Negative trend is not consistent with reports from breeding colonies. Nesting habits of the Franklin's Gull which prefer remote, large marshes makes breeding birds difficult to survey. Main factors regulating populations are sufficient and suitable nesting habitats on large marshes. These marshes are vulnerable to drought, draining, and burning.

In Manitoba, Manitoba Conservation Data Centre (1996) ranks the Franklin's Gull as "apparently secure" with 5-6 main nesting colonies with 12,000 breeding pairs in 1994 (W. Koonz, personal communication, 2000).

Habitat and Predators. Always nests over water on floating mats of vegetation, on muskrat houses or floating debris in inland freshwater marshes or lakes. Colonies in cattails (*Typha* spp.), bulrushes (*Scirpus* spp.), phragmites (*Phragmites communis*) or other emergents. Nests over water for predators are mainly aerial or aquatic such as Mink (*Mustela vison*), Muskrat (*Ondatra zibethica*), Northern Harrier (*Circus cyaneus*), Great Horned Owl (*Bubo virginianus*), Peregrine Falcons (*Falco peregrinus*). Black-crowned Night-

Hérons (*Nycticorax nycticorax*) and American Coots will take young chicks and eggs.

Food Habits. Eats earthworms, grubs, insects, seeds, mice, fish, fish offal, crab, snails, and invertebrates. Forages in flocks in wet pastures. During breeding season feeds aerially on swarming insects and on water for aquatic insects as well as on the ground for earthworms and insects.

Vocalizations and Behaviour. There has been considerable research on Franklin's Gull vocalizations and behaviour. The vocal array includes an alarm call, long call, landing call, gakkering, and a mew call. Numerous displays have been identified such as wing-flapping, swoop and soar, threat, pursuit flights, upright, oblique, head-tossing, choking, and gakkering.

Breeding. Breeding is highly synchronous over a 21-d period. Arrives near breeding colonies in April (Dakotas and Minnesota). Subcolonies are formed around a series of epicentres which may coalesce. Birds often nest on same water body year after year but often use a new colony site. Pair formation occurs prior to arrival at colony. Egg laying begins about 1-week after nest construction usually in early to mid-May in Minnesota. Eggs hatch late May to mid June. Clutch sizes range from 2-4 eggs with a modal size of 3 eggs.

Conservation and Management. Sensitive to human disturbance early in the breeding cycle and will entirely desert

a colony site with excessive exposure to humans. Eggshell thickness did not change during the DDT era suggesting limited exposure. Nesting habitat degradation occurs during drainage of marshes or intentional drawdowns for management of waterfowl habitat. Gulls cause some degradation of habitat because of net contribution of nitrogen and phosphorus to immediate area of nesting. No management programs other than the Migratory Bird Convention Act. Maintaining large marshes and suitable water levels is main management technique.

4.1.5 Canada Goose

Branta canadensis

Unless otherwise referenced, Canada Goose life history information was taken from Bellrose (1976). Bellrose (1976) delineated numerous races or subspecies of Canada Geese that have developed as a result of ecological or geographical isolation on the breeding grounds. The various races mix together on migration and in wintering habitats.

Breeding. Canada geese are the very first bird to nest in the spring. Most Canada geese return to their breeding grounds as family units and yearlings leave shortly after arrival. Canada geese will nest in the same area of a marsh year after year and prefer the same nest foundation as previous year. Breeding pairs will defend a territory that will include the nest. Average clutch sizes are 5.14 eggs with a range of 1 to 12 eggs.

Egg laying commences shortly after nest construction. Incubation ranges from 25 to 28 days with an average of 26.8 days. The male defends the territory from a sentry position while the female incubates the eggs.

Food Habits. Canada geese benefit from agricultural products of man. Feed and cereal crops have resulted in great increases in Canada geese populations over the last three decades. While agricultural crops are the mainstay geese will consume aquatic plants and native grasses.

4.1.6 Hudsonian Godwit

Limosa haemastica

Life history information unless otherwise referenced is taken from



Godfrey (1986). It is a large shorebird with a long slender slightly upturned bill.

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Its tail is mainly black and contrasts with the white upper tail coverts and white wing stripe. Its blackish tail separates it from the Willet and Greater Yellowlegs which it may be confused with in the fall. Its bluish-grey legs are very different from those of either species of Yellowlegs.

Breed in a variety of northern habitats including northeastern Manitoba at Churchill. During the spring migration it crosses the prairie provinces. During fall migration large concentrations can be found on tidal mud flats, gently sloping beaches and sandbars.

The Hudsonian Godwit lays 4 olive buff eggs. It nests in a hummock or low mound in wet sedge or grass tundra with widely scattered trees. Incubation period is generally about 22 days.

Morrison et al. (2001) estimate the Western Hemisphere (i.e., global) population to be at least 50,000 birds based on wintering ground surveys.

4.1.7 Short-billed Dowitcher

Limnodromus griseus hendersoni

Life history information, unless otherwise referenced is taken from Godfrey (1986). Dowitchers have long straight bills and can be confused with the Common Snipe and the Woodcock (see photo). The whole lower back of a dowitcher is white, and the rump is white with a few black bars and spots.

Short-billed Dowitchers lay 4 greenish to olive-buff eggs spotted with

browns. The incubation period is about generally about 21 days. Three subspecies breed in North America: the nominate *L. g. griseus*, which breeds in northern Quebec and winters in Central America and South America, *L. g. hendersoni*, which breeds in Hudson Bay and winters on Atlantic and Gulf coasts, and *L. g. caurinus*, which breeds in southern Alaska and winters along the Pacific coast from California into South America (Morrison et al. 2001).

Based on wintering ground surveys, Morrison et al. (2001) estimated a global population of 320,000 birds (this also represents the North American and Canadian estimate for this species).

4.1.8 American Coot

Fulica americana

Unless otherwise referenced, life history information for the American Coot was taken from Alisauskas and Arnold (1994). American Coots are an abundant element in North American wetlands. American Coots resemble ducks but with bill and legs more like a chicken. They are sexually monochromatic with slate grey plumage that appears black from a distance. The tarsi and toes are green-ish yellow and the toes are lobed rather than webbed. They migrate at night singly or in loose flocks.

American Coots build nests on large floating nests that are anchored to emergent vegetation. Average clutch size is between 6-11 eggs with an incubation

period of about 22-26 days. American Coots usually raise 2 sequential broods and may re-nest up to 4 times following clutch or brood loss. Birds are primarily herbivorous throughout the annual cycle.

Prefer to nest in well-flooded, persistent emergent wetlands that have good interspersions of emergent vegetation and open water. American Coots breed throughout most of North America. Estimates of population numbers in the prairie parkland have increased in the last 30 years.

4.2 Shorebirds

Various sites used by shorebirds may not be used in every year as they are affected by drought and drainage. Oak Hammock Marsh is recognized as a wetland of national importance for staging shorebirds with flocks between 1000 to 2500 birds (Poston et al. 1990). The marsh has supported significant percentages of the totals of wintering shorebirds counted on the coast of South America for White-rumped Sandpipers, Short-billed Dowitchers, Hudsonian Godwits and yellowlegs (Morrison et al. 1995).

Whaley (1995) reported that shorebird migration in traditionally heaviest in May and again in late August and September. Shorebird numbers will vary with the availability of mudflats. Over 37 shorebird species have been recorded with common species being White-rumped Sandpipers, Marble

Godwits and Wilson Phalaropes (Whaley 1995).

4.3 Colonial Waterbirds

Poston et al. (1990) identify Oak Hammock Marsh as a wetland of regional importance for colonial waterbirds. Oak Hammock Marsh is identified as having breeding populations (local importance) Western Grebes (500-1500 birds), Eared Grebes 1000-5000 birds), Black-crowned Night-Herons (30-100 birds), Herring Gulls (50-200 nests), and Foster's Terns (100-350 nests). Franklin's Gulls are recognized as having regional importance (500 - 3000 nests).

Common Terns will breed at Oak Hammock with up to 300 breeding pairs in some years (Whaley 1995). Whaley (1995) reported that Pied-billed Grebes, Horned Grebes, Eared Grebes, Sora Rails, and American Coots are all prolific breeders in the IBA. Great-blue Herons, the American White Pelican, Double-crested Cormorants and Black-crowned Night-Herons are common summer residents with Snowy and Common Egrets occasionally seen (Whaley 1995).

4.4 Other Birds

The following information was taken from Whaley (1985). Common Terns infrequently nest at Oak Hammock with up to 300 breeding pairs. Snowy and common Egrets are also infrequent visitors as they travel to northern latitudes. Pied-

billed, Horned, and Eared Grebes, and Sora Rails are prolific breeders as are Red-winged and Yellow-headed Blackbirds. Many song birds are summer residents with tree nesting species common in the woodlots and grassland nesting species throughout the WMA. Marsh Hawks are abundant summer residents while Red-tailed Hawks, American Kestrels and Swainson's Hawks nest in the woodlot areas. Bald Eagles are often observed in early November as they prey on wounded waterfowl. Peregrine Falcons are rare visitors in the spring and summer. Also see Appendix III and IV.

5.0 Other Elements Of High Conservation Value

5.1 Artesian Springs

Natural or artesian springs occur along Wavey Creek, Parks Creek and connecting ditches and go by the local names of Popular Springs and Crystal Springs. Just northwest of the interpretive centre on Peregrine Drive, water from an artesian well bubbles from the ground (Senecal 1999).

5.2 Tall-grass Prairie

Oak Hammock Marsh is one of the few remaining remnants of tall-grass prairie in Manitoba. Today's tall-grass prairie is only a fraction (less than 1%) of its former self. The tall-grass prairie is unique in that it is the most biologically diverse and productive grassland in North

America, the northernmost extent occurs in Manitoba near Oak Hammock Marsh and historically Manitoba had the greatest amount of tall-grass prairie in Canada.

The steep declines of grassland birds in Canada can be explained by the loss of habitats such as the Tall-grass Prairie. Fragmentation of prairie habitats has also led to declines in grassland birds (Houston and Schmutz 1999). There is a need to conserve the remaining grassland stands in the Oak Hammock Marsh IBA.

6.0 Land Ownership and Use

The land parcels within the Wildlife Management Area and IBA are crown lands that are protected from mining, logging and hydroelectric development. Lands outside the WMA is privately owned and used for agricultural purposes such as mixed crops, sod farms, and livestock production including some horses, cattle and bison. Most of the land is seeded to wheat, oats, barley, corn, flaxseed, mustard and some hay crops. In some years of heavy precipitation farmers are unable to get on the land to harvest their crops or cut hay.

Livestock production is primarily cattle but also includes some horses, bison and sheep (Gardner 1981). Over-use by cattle in some locations had killed groves of poplar and willow. Sod farming has occurred in the area (Gardner 1981).

6.1 Managed Hunting

Waterfowl hunting at Oak Hammock Marsh has long been a traditional form of recreation to residents and non-residents of Manitoba. Hunting occurs on private lands and is managed by Manitoba Conservation as a special managed hunting area. The outer boundaries of the area are Provincial Trunk Road (PTR) #67 on the south, Petersfield Road (88N) on the north and PTH #8 on the east and PTH #7 on the west. A Managed Hunting Program has been implemented and operated since 1975. Hunting is not allowed within the WMA or Waterfowl Control Area. Hunting is allowed on the surrounding private lands. Hunters must obtain written permission from landowners as well as check in at a hunter check station prior to hunting. Most landowners charge a \$10 fee per person for one hunting opportunity. Whaley (1999) estimated hunter access fees contribute over \$50,000 to local landowners.

Over the past years, there has been a trend where private lands surrounding the marsh are being purchased by non-residents, primarily Americans, for waterfowl hunting purposes.

6.2 Trapping

Trapping of any wildlife in the WMA is prohibited except under special permit. At present, permits are issued for muskrats only in order to control damage this species does to marsh vegetation and dykes (Whaley 1995). Trapping of muskrats is best accomplished in the late

fall before muskrats cause damage to the vegetation rhizomes through their over winter feeding activities.

6.3 Public Use Facilities

A main access road, Provincial Road #220, runs along and through the IBA in a north south fashion and provides the general public with access to two main public use sites. Whaley (1995) reported that the main viewing mound received the majority of public use vs. the north end viewing mound. A large parking lot provides parking for up to 100 vehicles. Adjacent to the parking lot is the Oak Hammock Marsh Interpretive Centre (see section 8.1). A 300 meter boardwalk leads from the centre across the willow bluff and wet meadow to a 1-ha picnic and marsh viewing site. A second floating boardwalk heads east from the centre to a bird viewing blind. A earthen viewing mound overlooks the south end of the marsh. Walking trails traverse the dyke systems where the public can travel on foot, horseback, bicycle, canoe or any non-motorized vehicle. A small picnic area, known as the Oak Bluff site, has been developed adjacent to the woodlot at the southeastern end of the marsh.

Whaley (1995) noted that public use of the area has increased annually with about 70,000 users in 1987. It is estimated that in 2000 close to 200,000 people visited Oak Hammock Marsh.

7.0 Conservation management achieved at the IBA site

7.1 Ramsar Site

In 1971, at the invitation of the Iranian government, representatives of eighteen countries and several international organizations concerned over the alarming extent of wetland losses throughout the world, met in the town of Ramsar to draft the Convention on Wetlands of International Importance Especially as Waterfowl Habitat. The need to protect waterfowl habitat remains the key reason for the Ramsar Convention.

One major objective of the convention was to stem the progressive encroachment on the loss of wetlands, now and in the future. The convention, which has become known as the Ramsar Convention, came into force on December 21, 1975 (Gillespie et al. 1991). As of 1991, Canada had 30 Ramsar Sites from coast to coast.

Oak Hammock Marsh was established as a Ramsar Site in 1987, recognized as a important breeding and staging area where more than 260 species of birds have been recorded.

For Ramsar sites, an area can be identified as a wetland of international importance if it regularly support 1% of a species or sub-species of waterfowl (Morrison 2001).

7.2 Manitoba Heritage Marsh Program.

(Source: Manitoba Heritage Marsh Program brochure)

Wetlands play a vital role in prairie soil, water and wildlife conservation. Manitoba's wetlands have been disappearing at an alarming rate. Paradoxically, their very productivity has contributed to their destruction. Farmers have been draining wetlands to increase production and accommodate larger machinery. On April 18, 1985, Manitoba Conservation partnered with Ducks Unlimited Canada, the Manitoba Naturalists Society, Wildlife Habitat Canada, and the Manitoba Wildlife Federation in an effort to designate, conserve, manage and develop some of the province's most significant marshes for the benefit of all Manitobans.

A Heritage Marsh is identified as a wetland with significant value for a diversity of wildlife, including waterfowl, shorebirds and furbearing animals which also provides important recreational, economic or educational benefits to people. Administration of the Heritage Marsh Program is the responsibility of Manitoba Conservation. The Manitoba Heritage Marsh Program offers new hope and security for our endangered wetlands and the diversity of wildlife they produce.

7.3 Western Hemisphere Shorebird Reserve Network (WHSRN).

Morrison et al. (2001) notes that WHSRN is one of two major tools (the

other is the Ramsar Convention on Wetlands of International Importance) for the conservation of wetlands and waterbird populations in the Western Hemisphere. For WHSRN, three levels of importance have been recognized for site designation depending upon whether it supports 5% (regional), 15% (international) or 30% (hemispheric) of a flyway population of shorebirds.

Oak Hammock Marsh is recognized as a site of regional importance for shorebirds by the WHSRN. In the spring, combined maximum count totals from different areas of the marsh have reached nearly 30,000 shorebirds (Morrison et al. 1995). The importance of wetland areas such as Oak Hammock Marsh is magnified by the fact that over the past 10-20 years data indicates that shorebird populations are in decline (Morrison et al. 2001; CWS 1999).

7.4 Wildlife Management Area

Established in 1973, OHM Wildlife Management Area (WMA) has been referred to as the flagship WMA in Manitoba (Whaley 1995). The province of Manitoba protects wildlife habitat through establishment of Wildlife Management Areas (WMA). These are publicly owned lands managed to provide the needs of wildlife. OHM WMA is managed by a Manitoba Conservation marsh manager.

7.5 Invasive Weed Control

In a biological weed control effort against Canada Thistles, approximately 100 Canada Thistle Seed Head Weevils were released (June 21, 1996) against Canada Thistle by Manitoba Agriculture at Oak Hammock Marsh. The Canada Thistle Seed Head Weevil (*Larinus planus*) is a large brown seed head weevil predicted to have little effect on existing Canada Thistle plants but hoped to prevent weed spread as larvae feed on flower head contents. It is not known if these biocontrol agents established. June and July is the best time to find adult weevils. There is a need to monitor and investigate the impact of these weevils.

7.6 Burrowing Owl Reintroduction's

Oak Hammock Marsh is within the historic breeding range of Burrowing Owls. Manitoba Conservation attempted to reintroduce Burrowing Owls to Oak Hammock Marsh in the late 1980s. A few immatures/progeny from a captive population in Ontario were released near the north end of Oak Hammock Marsh in 1986 (Ken DeSmet, personal communication, April 2001). These birds have not re-established.

8.0 IBA Stakeholder Group Activity

8.1 Oak Hammock Marsh Interpretive Centre

The Interpretive Centre is dedicated to fostering public awareness

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and knowledge of the inherent values of wetland ecosystems throughout North America, and to marshaling public support for their conservation. The goal is to make learning about wetlands fun!

The Interpretive Centre features modern, wheelchair-accessible indoor facilities (a 120-seat multimedia theatre, a scenic-view café, gift shop, and meeting rooms), rooftop observation deck, and interactive exhibits related to wetlands and their wildlife.



The Centre offers a full schedule of entertaining and educational public programs (slide shows, children's programs, adult workshops, day camps, special events, and seasonal activities such as snowshoe walks and canoe excursions) for drop-in visitors and members.

Staff at the centre currently conduct avifauna surveys (see Appendix IV) and a song bird banding program.

8.2 Ducks Unlimited Canada

Ducks Unlimited Canada has its head office at Oak Hammock Marsh. Founded in 1938, Ducks Unlimited Canada is a private, non-profit organization dedicated to the conservation of wetlands for the benefit of North America's waterfowl, wildlife and people.

To date they have secured and protected over 18 million acres of habitat, established nearly 6 thousand projects, and is formally recognized as the nation's most trusted and respected conservation organization.

Ducks Unlimited Canada has been a partner of the Provincial Government in the restoration of Oak Hammock Marsh. Ducks Unlimited has shared the costs of marsh restoration with the Manitoba Provincial Government. Ducks Unlimited holds the environmental license for Oak Hammock Marsh and in doing so is responsible for monitoring effluent from the sewage lagoon and revegetation of areas impacted by the construction of the building and infrastructure.

8.3 Manitoba Conservation

Manitoba Conservation has been actively involved in the development and management of Oak Hammock Marsh. The mandate its Wildlife Branch is to protect wildlife resources in a manner consistent with the conservation of species and ecosystems for the benefit of Manitobans. This responsibility is carried out under the authority of *The Wildlife Act*, *The Endangered Species Act*, and *The Conservation Agreements Act of Manitoba*, and by applying the principles of sustainable development. The Wildlife Branch develops programs, policies and legislation for hunting and trapping, biodiversity conservation, and habitat and land management on Crown and private land. The Branch also represents Manitoba

in numerous provincial, national, and international initiatives.

Manitoba Conservation employees a marsh manager who has an office in the Oak Hammock Marsh Interpretive Centre. The present marsh manager is Mr. Brian Hagglund who replaced Mr. Kent Whaley. Manitoba Conservation is responsible for the overall management and maintenance of the marsh including the banding Canada Geese.

8.4 Oak Hammock Marsh Working Group

The Oak Hammock Marsh Working Group is a formally organized committee composed of managers, users and farmer representatives formed to ensure public input into management programs. The purpose of the group is to provide regular communication between managers of Oak Hammock Marsh and interest groups through appointed delegates. The group includes representation from Manitoba Conservation Wildlife Branch, Selkirk Natural Resources officers, Water Resources Branch, Engineering and Construction Branch, Manitoba Crop Insurance Corporation, Manitoba Naturalists Society, Manitoba Wildlife Federation and local landowners.

9.0 Opportunities

9.1 Ecotourism

The popularity of birding is growing according to research by Cordell et al (1999):

- Birding is reported to be the fastest of all outdoor recreation activities tracked between 1980s and 1990s, it is moving toward attaining the status of America's most favored activities (Cordell et al 1999).
- Participation in birding has grown from 12% in 1983 to 27% in more recent years (Cordell et al 1999).
- The highest percentage of birders (59.1%) bird in private areas with resort areas as the most frequent destination (Cordell et al 1999).
- Birders are a powerful force in helping secure and manage bird habitat, stewardship can be pursued through citizen science.

Scace et al (1992) defined ecotourism as *"Ecotourism is an enlightening nature travel experience that contributes to conservation of the ecosystem while respecting the integrity of host communities"*.

Ecotourism is a significant component of the largest growth industry on Earth - tourism (Scace et al 1992). Tourism worldwide is a \$250 billion dollar per year industry and growing dramatically (Scace et al 1992), bird watching in Point Pelee National Park in Ontario generates \$6 million annually. Ecotourism can provide the economic justification to conserve areas that might otherwise not be protected. Bird watching is a significant component of ecotourism. Bird watching is conservatively estimated

to be worth more than \$20 billion each year in North America. Oak Hammock Marsh and the significance its avifauna is an identified ecotourist "product". The willingness of individuals to "pay substantially" for ecotourism opportunities is high, as evident in the fees charged for 13-day birding tours from Winnipeg which average about \$2500 per person. Research indicates that the key concepts underlying ecotourist motivations are wilderness, wildlife, parks, learning, nature and physical activity (Eagles 1997).

"Ecotourism can generate badly needed revenue for local and regional economies, heightened local awareness of the importance of conservation, and new incentives for governments and dwellers in and around appealing natural areas to preserve them"
Scace et al (1992, p. 11)

The Oak Hammock Marsh Interpretative Center and the National offices of Ducks Unlimited Canada are located in the OHM WMA. Public visitation grew by 7-10% annually between 1989 and 1994 (Whaley 1995). It is estimated that 200,000 people visited Oak Hammock in 2000. With tourism seen as the biggest growth industry in North America, there is tremendous opportunity to increase number of visitors to Oak Hammock Marsh.

9.2 Demonstration Projects

There is opportunity to partner with surrounding landowners in efforts to

establish landuse demonstration projects. For example, there is opportunity to establish a managed grazing project (along the northside of Wavey Creek on WMA land) demonstrating how effective grazing practices can increase shorebird habitat.

10.0 Threats

10.1 Agricultural Practices

Agricultural practices outside the WMA continue to result in the loss of perennial cover as some landowners convert pastureland into annual crops. For example, areas formerly used as pastureland and often over-grazed, created ideal habitat for migrating shorebirds. In addition, it is speculated that many of these nearby land parcels are in fact being purchased by non-residents for waterfowl hunting.

The declines of grassland birds since the mid 1960s can be explained in part by disappearing and the fragmentation of grasslands particularly the Sprague's Pipit and Chestnut-collared Longspur (Houston and Schmutz 1999).

10.2 Artesian Springs

Overuse of artesian well water sources by the general public may also potentially affect the amount and quality of water available to Oak Hammock Marsh. The artesian wells are used for drinking water by the public and individuals removing large quantities (truckloads) for personal use is common.

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10.3 Avian Botulism

Avian botulism can be seen as a naturally occurring threat to avifauna populations. botulism outbreaks have occurred at Oak Hammock Marsh in 1979 (800 dead birds), 1980 (7,000 dead birds) and 1981 (4,872 dead birds) resulting in close to 12,000 ducks being destroyed (Whaley 1985). Avian botulism results from "food poisoning" with a neurotoxin produced predominantly by the bacterium, *Clostridium botulinum* type C. The organism is a strict anaerobe which forms dormant spores in the presence of oxygen and other adverse environmental conditions. Spores of type C botulism are widely distributed in wetland sediments and in the tissues of aquatic insects, mollusks, and vertebrates. Despite the widespread distribution of type C botulism spores outbreaks of avian botulism are sporadic and unpredictable.

10.4 Exotic Invasive Weeds

Globalization has resulted in an accelerated rate of biota transfer between continents. Many of these alien introductions have had economic and ecological consequences. For example, the large scale introduction of Eurasian plant species into North America has had a negative effects on grassland bird populations (Robbins and Dale 1999). Invasive alien species are the greatest threat to the biological diversity of natural ecosystems second only to habitat loss.

Noxious weeds such as Canada Thistle (*Cirsium arvense*) have already had a deleterious impact upon habitat quality at Oak Hammock Marsh. Weeds of concern include Purple Loosestrife (*Lythrum salicaria*), Flowering Rush (*Butomus umbellatus*), Leafy Spurge (*Euphorbia esula*) and Salt Cedar (*Tamarix* species). Large stands of the invasive plant, reed canary grass, are also established on the east side of the WMA (Whaley 1995). Other exotic invasive species of concern include Eurasian water-milfoil (*Myriophyllum spicatum* L.) which was found in North Dakota along the Sheyenne River in 1996 and Salt Cedar (*Tamarix ramosissima*) which was introduced from Eurasia in the 1800's as an ornamental.

Purple Loosestrife. Purple loosestrife was originally introduced to the East Coast of North America in the 1800's, probably as a contaminant of ship ballast. Purple loosestrife aggressively invades wetland habitats. In Manitoba, Purple Loosestrife has Noxious Weed Status. Purple Loosestrife has been found in the ditches along Ammeter Road and is currently grown as a landscape perennial by nearby residents along PTH #220 just south of the marsh.

Flowering Rush. In North America Flowering Rush has been described as an aggressive plant that outcompetes native aquatic vegetation. Flowering Rush is an aquatic plant that most often grows as an emergent on wet soil or in shallow water to about one meter deep (Hroudova 1989). The species can also grow as a terrestrial plant (*B. umbellatus* forma *terrestris*) on drier areas,

but emergent and terrestrial plants are identical in appearance (Stuckey 1968). Dense stands of flowering rush may impede water recreational activities, and in turn may negatively impact local economies. Some studies suggest degraded water quality and/or habitat alteration result in loss of native plant species diversity. Flowering Rush infestations can be found to the east of Oak Hammock Marsh near the End of Main Street.

Salt Cedar. Salt Cedar is a deciduous or evergreen shrubs or small trees, usually 5 to 20 feet tall that can cause enormous damage to aquatic ecosystems. Damage by saltcedar includes the displacement of the extremely valuable cottonwood, willow, seepwillow baccharis, mesquite and other native plant communities, often by dense monotypic thickets of saltcedar. Also, it uses great amounts of groundwater and lowers water tables, causing springs to dry up and native plants to perish. It increases soil salinity and is highly susceptible to fires, both of which kill associated intolerant cottonwoods and other plants. Some 41 threatened or endangered species, especially birds and fishes, are severely impacted and many other species are declining in regions infested by Salt Cedar. Also, it causes sedimentation and narrowing of channels, increases flooding, interferes with recreational usage, and reduces agricultural production (DeLoach and Lewis 2000).

Leafy Spurge. Leafy Spurge infestations in southwestern Manitoba has the potential to impact several vulnerable species protected under Manitoba

Protected Species Act including the Western Spiderwort, Baird's Sparrow and Small White Lady Slipper (Leafy Spurge Stakeholders Group 1999). A Leafy Spurge infestation would degrade significant habitats surrounding Oak Hammock Marsh such as the Brennan Prairie.

10.5 Habitat Damage

At Oak Hammock Marsh muskrats can be prolific resulting in substantial habitat damage through their foraging activities as well as damage to water retention dykes (Whaley 1995). On grassland habitats such as the Brennan Prairie, grazing and trampling of seeded grass cover by geese have similar results (Whaley 1995). Birds also pose a threat to landowners in the area through crop depredation. Whaley (1995) recommended trapping of muskrats and dispersing waterfowl through scaring techniques such as propane bangers. Currently, equipment is made available to landowners who wish to scare waterfowl off their fields. Lure crops are also planted by Manitoba Conservation in an effort to reduce waterfowl crop depredation (see section 3.6).

10.6 Pesticides

(Canadian Wildlife Service 2001)

The lands surrounding Oak Hammock Marsh are largely used for agricultural purposes. The use of pesticides on farmland has further reduced the amount of safe habitat available for birds that already have to make do with fragmented habitat including small woodlots, hedgerows, shelterbelts, and farm ponds for nesting or feeding. Even habitats bordering agricultural fields can become a liability if prey items are inadvertently poisoned by insecticides. In forested habitats, herbicide use, such as in forestry, may cause ground-dwelling birds to lose the leafy cover that protects them from predators and bad weather. The potential for the herbicides to drift through the air and contaminate wetlands through water runoff is also a concern.

Houston and Schmutz (1999) reported that after the widespread use of DDT, the Peregrine Falcon (*Falco peregrinus*) has disappeared from southern Alberta and that Merlin (*Falco columbarius*) populations declined with the extensive use of dieldrin in the late 1950s and early 1960s. The deleterious effects of the insecticide Carbofuran on Burrowing Owls is also well documented.

11.0 Conservation Goals and Objectives

The intent of this conservation plan is to:

- (1) maintain traditional waterfowl benefits for staging, moulting and breeding waterfowl,
- (2) foster awareness of the unique bird species and overall bird diversity present at Oak Hammock Marsh, and
- (3) further recognize Oak Hammock Marsh as a resource for public use.

The Oak Hammock Marsh IBA working group has identified a number of areas of conservation interest and these are described below. Some threats, including the impact of pesticides and agricultural practices will be addressed at a later point. Objectives are not ranked in any level of priority.

1. Research and Monitoring.

<i>Objective</i>	<i>Action Required</i>	<i>Key Partners</i>
<p>To increase shorebird habitats, two nesting islands will be leveled/sloped. Shorebird response will be monitored to evaluate management technique.</p>	<p>Level/Slope nesting islands to be attractive to shorebirds. Shorebird activity will be monitored to evaluate management strategy employed.</p>	<ul style="list-style-type: none"> • Manitoba Conservation will slope islands in the spring of 2001. • OHMIC staff will develop monitoring protocol and hire individual. <p>Lead Agency: MB Conservation. Timeframe: Spring 2001</p>

2. Bird Banding.

<i>Objective</i>	<i>Action Required</i>	<i>Key Partners</i>
Obtain information on song-birds using Oak Hammock Marsh for migration and breeding	Mist net program.	<ul style="list-style-type: none"> • OHMIC staff to continue to mist net songbirds. <p>Lead Agency: OHMIC. Timeframe: Annually.</p>
Obtain information on Canada Geese use of Oak Hammock Marsh.	Leg banding program.	<ul style="list-style-type: none"> • Manitoba Conservation to continue leg banding program. <p>Lead Agency: MB Conservation. Timeframe: Annually.</p>

2. Education.

<i>Objective</i>	<i>Action Required</i>	<i>Key Partners</i>
Develop IBA self-guided birding trail.	Establishing 15-20 signs to highlight IBA species.	<ul style="list-style-type: none"> • OHMIC <p>Lead Agency: OHMIC. Timeframe: Fall 2001</p>
Increase interpretive signs.	Replace "You Are Here" signs.	<ul style="list-style-type: none"> • Manitoba Conservation <p>Lead Agency: MB Conservation. Timeframe: Fall 2001</p>

3. Habitat Enhancement.

<i>Objective</i>	<i>Action Required</i>	<i>Key Partners</i>
Tall-grass Prairie: Habitat enhancement.	<ul style="list-style-type: none"> • Prescribed Burns • Educational Signs • Mow existing Trails • Modify existing Trail to highlight key prairie plant species. • Develop Prairie Tour 	<ul style="list-style-type: none"> • Manitoba Conservation OHMIC Staff <p>Lead Agency: MB Conservation & OHHIC. Timeframe: Fall 2001</p>
Willow Bluff Restoration.	Planting Willow Posts.	<ul style="list-style-type: none"> • Manitoba Conservation • OHMIC Staff <p>Lead Agency: MB Conservation & OHHIC. Timeframe: Fall 2001</p>
East Side Oak Bluff.	Habitat Improvements Possible Woodlot Demonstration Project	<ul style="list-style-type: none"> • Manitoba Conservation • OHMIC Staff <p>Lead Agency: MB Conservation & OHHIC. Timeframe: Fall 2001</p>
Native Grass Plantings.		<ul style="list-style-type: none"> • Manitoba Conservation <p>Lead Agency: MB Conservation Timeframe: Fall 2001</p>
Thistle Control.	Obtain corporate sponsorship - providing chemicals necessary to control thistles	<ul style="list-style-type: none"> • Manitoba Conservation <p>Lead Agency: MB Conservation Timeframe: Fall 2001</p>

4. Landowner Stewardship.

<i>Objective</i>	<i>Action Required</i>	<i>Key Partners</i>
Establish landuse demonstration projects.	Possible managed grazing project to increase shorebird habitat along northside of Wavey Creek on WMA land.	<ul style="list-style-type: none"> • Ducks Unlimited • Manitoba Conservation • Manitoba Agriculture <p>Lead Agency: Ducks Unlimited. Timeframe: Fall 2001</p>

12.0 Evaluating Success

The Oak Hammock Marsh IBA community conservation plan will be reviewed on an annual basis by the present working group comprised of community stakeholder groups.

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Appendix I: Contacts for Oak Hammock Marsh IBA.

<i>Name</i>	<i>Organization</i>	<i>Contact Numbers</i>
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Appendix II: IBA Canada Partners

BirdLife International

A pioneer in its field, BirdLife International (BL) 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. BirdLife operates as a partnership of non-governmental conservation organizations, grouped together within geographic regions (e.g. Europe, Africa, 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 web site: <<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 our 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 web site 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, staff and the interested public. Bird Studies Canada 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.

Bird Studies Canada is recognized nation-wide as a leading and respected not-for-profit conservation organization dedicated to the study and understanding of wild birds and their habitats. Bird Studies Canada's web site is <<http://www.bsc-eoc.org/>.

Appendix III: Bird Species and Population Data.

Species	Season	No. of birds	Peak Day	References
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Shorebirds

Shorebirds	SM	16,759	(1981, North Cell)	Morrison (1995)
Shorebirds	SM	12,578	(1983)	Morrison (1995)
White-rumped Sandpiper		7,000		Morrison (1989)
Short-billed Dowitcher		5,000		Morrison (1989)
Hudsonian Godwit		600		Morrison (1989)
Yellowleg	B	5,400	(July 29 1976)	Morrison (1989)

Waterfowl

Ducks / Geese	FM	2,105 / 136	(Sept 13 1974)	Beacham & Brace 1975
Ducks / Geese	FM	3,414 / 1,887	(Sept 17 1974)	Beacham & Brace 1975
Ducks / Geese	FM	6,793 / 33,918	(Sept 26 1974)	Beacham & Brace 1975
Ducks / Geese	FM	1,677 / 11,186	(Oct 1 1974)	Beacham & Brace 1975
Ducks / Geese	FM	3,818 / 33,052	(Oct 9 1974)	Beacham & Brace 1975
Ducks / Geese	FM	19,685 / 73,318	(Oct 17 1974)	Beacham & Brace 1975
Canada Goose	SM, FM	100,000 +		DNR
Geese	FM	300,000	(1979)	Whaley 1995
Ducks	FM	100,000	(1979)	Whaley 1995
Snow Goose	FM	250,000 +		DNR
American Coot	FM	30,000+		D. Hatch

Colonial Waterbirds

Sora	B			Cleveland et al. 1988
Virginia Rail	B			Cleveland et al. 1988
American Avocet	B			Cleveland et al. 1988
Willet	B			Cleveland et al. 1988
Franklin's gull	B	5,500 pairs		Hatch, Cleveland et al
Forster's Tern	B			Cleveland et al. 1988
Black Tern	B			Cleveland et al. 1988
Eared Grebe	B	120 pairs		D. Hatch, Cleveland et al
Black-crowned Night-Heron	B	70+ pairs		D. Hatch, Cleveland et al

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Other Birds

Yellow-headed Blackbird	B	2800+ pairs	Hatch, Cleveland et al
Marsh Wren	B		Cleveland et al. 1988
Bald Eagle	FM	35	Stilwell 1997

Breeding Birds (Gardner 1981)

Red-necked Grebe	Redhead	Upland Sandpiper
Horned Grebe	Ring-necked Duck	Marbled Godwit
Eared Grebe	Canvasback	American Avocet
Western Grebe	Lesser Scaup	Wilson's Phalarope
Pied-billed Grebe	Ruddy Duck	Franklin's Gull
American Bittern	Red-tailed Hawk	Forster's Tern
Mallard	Swainson's Hawk	Black Tern
American Black Duck	Northern Harrier	Rock Dove
Gadwall	American Kestrel	Mourning Dove
Northern Pintail	Sharp-tailed Grouse	Great Horned Owl
	Virginia Rail	Long-eared Owl
Green-winged Teal	Sora Rail	Short eared Owl
Blue-winged Teal	American Coot	Northern Flicker
American Wigeon	Piping Plover	Eastern Phoebe
Northern Shoveler	Killdeer	Horned Lark
Wood Duck	Common Snipe	Barn Swallow

Tree Swallow	Brown Thrasher	Yellow-headed Blackbird
Cliff Swallow	American Robin	Red-winged Blackbird
Black-billed Magpie	European Starling	Brown-headed Cowbird
Common Crow	Warbling Vireo	Brewer's Blackbird
Black-capped Chickadee	Yellow Warbler	Savannah Sparrow
Marsh Wren	Common Yellowthroat	Chipping Sparrow
Sedge Wren	House Sparrow	Chestnut-collared Longspur
Gray Catbird		

Appendix IV: Recent Bird Surveys

Bird Surveys conducted in 1999 and 2000 by the Oak Hammock Marsh Interpretive Centre staff - Paula Grief.

Species	1999		2000	
	Species	No. Birds	Species	No. Birds
Pied-billed Grebe	1	18	1	58
Horned Grebe	1	14	1	35
Red-necked Grebe			1	2
Eared Grebe	1	186	1	477
Western Grebe	1	23	1	6
American White Pelican	1	136	1	287
Double-crested Cormorant	1	3		
American Bittern	1	2	1	2
Great Blue Heron	1	7	1	10
Black-crowned Night-Heron	1	15	1	9
Canada Goose	1	197	1	207
Wood Duck	1	7	1	3
Green-winged Teal	1	63	1	74

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American Black Duck	1	4	1	4
Mallard	1	417	1	290
Northern Pintail	1	40	1	34
Blue-winged Teal	1	263	1	360
Northern Shoveler	1	105	1	729
Gadwall	1	208	1	184
American Wigeon	1	7	1	124
Canvasback	1	24	1	20
Redhead	1	30	1	136
Ring-necked Duck	1	7	1	39
Greater Scaup	1	2		
Lesser Scaup	1	116	1	171
Bufflehead	1	1	1	2
Hooded Merganser	1	13		
Ruddy Duck	1	83	1	135
Duck sp.		13		61
Bald Eagle	1	1	1	4
Northern Harrier	1	30	1	27
Swainson's Hawk	1	2	1	1
Red-tailed Hawk	1	5	1	3
Merlin			1	1
Peregrine Falcon			1	1
Gray Partridge	1	3		
Sharp-tailed Grouse			1	1

Virginia Rail			1	2
Sora	1	16	1	8
American Coot	1	320	1	3242
Sandhill Crane	1	3		
Killdeer	1	61	1	23
American Avocet	1	10	1	16
Greater Yellowlegs	1	26	1	3
Lesser Yellowlegs	1	41	1	60
Solitary Sandpiper	1	1		
Willet	1	12	1	6
Stilt Sandpiper			1	1
Short-billed Dowitcher	1	6	1	13
Marbled Godwit	1	8	1	2
Least Sandpiper	1	3		
Peep sp.		26		
Common Snipe	1	1	1	1
Wilson's Phalarope	1	1	1	3
Franklin's Gull	1	35	1	681
Ring-billed Gull	1	6	1	11
Herring Gull	1	2	1	2
Gull sp.		1		2
Caspian Tern	1	5		
Common Tern	1	1	1	3
Forster's Tern	1	51	1	200

Black Tern	1	637	1	753
Mourning Dove	1	6	1	9
Great Horned Owl			1	3
Short-eared Owl	1	6	1	6
Eastern Wood-Pewee			1	2
Least Flycatcher			1	1
Great Crested Flycatcher			1	1
Western Kingbird	1	6	1	16
Eastern Kingbird	1	13	1	12
Horned Lark	1	2		
Purple Martin	1	14	1	17
Tree Swallow	1	170	1	120
Bank Swallow	1	103	1	58
Cliff Swallow	1	26	1	65
Barn Swallow	1	52	1	67
Black-billed Magpie	1	7	1	8
American Crow	1	3	1	12
Common Raven	1	29	1	14
House Wren			1	2
Sedge Wren	1	105	1	55
Marsh Wren	1	83	1	202
American Robin			1	2
Gray Catbird			1	1
European Starling	1	1	1	1

Warbling Vireo			1	5
Red-eyed Vireo			1	1
Yellow Warbler	1	8	1	19
Common Yellowthroat	1	96	1	131
Bobolink	1	34	1	36
Red-winged Blackbird	1	931	1	1297
Western Meadowlark	1	12	1	32
Yellow-headed Blackbird	1	1004	1	650
Brewer's Blackbird	1	108	1	29
Common Grackle	1	14	1	19
Brown-headed Cowbird	1	204	1	116
Orchard Oriole	1	3	1	1
Northern Oriole	1	2	1	1
American Goldfinch	1	22	1	16
American Tree Sparrow			1	1
Savannah Sparrow	1	374	1	487
Le Conte's Sparrow	1	8	1	24
Sharp-tailed Sparrow	1	1	1	5
Chipping Sparrow	1	1	1	1
Clay-colored Sparrow	1	54	1	97
Song Sparrow	1	65	1	108
Swamp Sparrow	1	5	1	8
House Sparrow	1	2	1	12
Sparrow sp.		16		4

TOTAL	89	6908	96	12303

Appendix V: IBA Population Thresholds

Species or Group	IBA Threshold	Nos. Observed	Significance
American Coot	13,500	30,000	Globally Significant
Waterfowl	20,000	269,000 (2000)	Globally Significant
Lesser Snow Goose	20,000	250,000 (1996)	Globally Significant
Canada Goose	20,000	200,000 (1995)	Globally Significant
Ducks	20,000	100,000 (2000)	Globally Significant
Mallard	20,000	70,000 (1993)	Globally Significant
Shorebirds	15,000	16,759 (1981)	Continental Significant
White-rumped Sandpiper	500	7,000	Globally Significant
Short-billed Dowitcher	1,000	5,000	Globally Significant
Hudsonian Godwit	500	600	Globally Significant
Black-crowned Night-Heron	80 *	140	Nationally Significant
Lesser Yellowlegs	2,500	5,400	Globally Significant
Greater Yellowlegs	200		
Forster's Tern	60	200 (2000)	Nationally Significant
Black Tern	50	753 (2000)	Nationally Significant
Franklin's Gull	5,000	11,000	Globally Significant

* No figures provided for continental or Global Significance for this species.

