

# **COMMUNITY CONSERVATION PLAN**

for the

## **Galloway and Miry Bays Important Bird Area**

November 2000

prepared by

Josef K. Schmutz  
Community Conservation Planner  
Important Bird Areas Program  
Nature Saskatchewan  
c/o Centre for Studies in Agriculture, Law  
and the Environment (CSALE)  
51 Campus Drive  
University of Saskatchewan  
Saskatoon, SK, S7N 5A8

Tel. 306-966-2410

FAX 306-966-8894

E-mail: [schmutzj@duke.usask.ca](mailto:schmutzj@duke.usask.ca)

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## Executive Summary

Galloway and Miry bays and surrounding area are used each fall by nearly a million Greater White-fronted Geese, as they migrate through the Great Plains from their Arctic nesting grounds to the southern United States and Mexico. Also, up to 162,000 Sandhill Cranes use the bays and a 55 km stretch of the river during fall migration. These bays are part of the South Saskatchewan River in southwestern Saskatchewan. The bays are a recent phenomenon as they are the result of river water held in the west end of Diefenbaker Lake by two dams.

The objectives in this plan draw attention to the importance of a relatively small area for 60-80% of the North American mid-continent population of Greater White-fronted Geese. The plan identifies the primary stakeholders involved, and summarizes ecosystem features including pertinent conservation opportunities and threats to birds and their ecosystem. No pressing conservation concerns have been identified at this time, but vigilance is needed with regard to disease, crop depredation and disturbance. Management strategies should maintain existing land use, and discourage excessive disturbance potentially arising from hunters, bird watchers and other sources.

This Community Conservation Plan for Galloway and Miry bays was prepared as part of Saskatchewan's Important Bird Area (IBA) Program. In this program, special areas are awarded an IBA designation for conservation

purposes if the areas are used by large concentrations of birds, if birds present are at risk, or if the sites represent intact biomes and their bird inhabitants. Galloway and Miry bays satisfy the IBA 'congregatory' criteria, and are considered 'globally significant.'

Conservation goals and objectives include:

- the continued monitoring of goose numbers and distribution
- hunting, boating and other restrictions to avoid excessive disturbance
- the development of facilities to enhance nature related tourism
- maintaining local awareness of the importance of the site for the IBA birds

The IBA Program was launched initially by BirdLife International in the UK. Today there are BirdLife Partners in over 100 countries. In Canada the national partners are the Canadian Nature Federation and Bird Studies Canada. In Saskatchewan, the conservation component of this program is being delivered by Nature Saskatchewan. Funding partners include Canadian Adaptation and Rural Development Saskatchewan (CARDS), the University of Saskatchewan, Saskatchewan Environment and Resource Management (SERM) and the Canadian Millennium Partnership Program.

## Vision

**To highlight the significance of Galloway and Miry bays  
as an Important Bird Area,  
and to encourage a use that will respect the birds  
and the interests of local people and visitors.**

## 1. Introduction

Bird conservation is not 'just for the birds.' In a widely acknowledged and visionary treatment of the causes, human uses, and the state of decline of diverse life forms on Earth, E.O. Wilson (1992) suggests that certain species will and should receive special attention. Wilson points out that individual species which may be large and colourful or otherwise charismatic, often are conservation favorites even though they represent a small fraction of living things. Such species, Wilson claims, can motivate conservation at many levels, from individual to government. Since no species exists in isolation from other species or its environment, such conservation efforts already in the first instance serve to protect elements of a functioning life support system. If human economic, cultural and social values are adapted in addition to species and ecosystem concerns, the conservation efforts will come 'full circle' and have gone well beyond the birds.

The purpose of this report is to add impetus for continued conservation. Toward this end, this report tries to:

- i) explain why the Galloway and Miry bays (Fig. 1) have been chosen as an Important Bird Area,
- ii) describe the bays' ecosystems,
- iii) outline opportunities and challenges for conservation,
- iv) list potential stakeholders and contact people (Appendix 1),
- v) provide a conceptual backdrop (biological, social and economic) in which conservation efforts may operate,
- vi) briefly review appropriate literature and thus suggest other resources,
- vii) consider what is known, but also speculate as to the potential impact of the unknown, and

viii) anticipate opportunities and concerns across as many sectors in society as possible.

**Fig. 1**

## 1.1 Why protect birds

Surveys of human values and economic impacts have shown that birds have attracted the attention of many people in Saskatchewan and around the World. In a 1991 survey, 83.3% of Canadians reported that "maintaining abundant wildlife is very or fairly important" (Filion et al. 1993). Globally, 62% of people surveyed in 1990 in 42 countries reported "strong approval" for the ecology movement (Nevitte 1996). These human values are more than wishful thinking to many people. A survey in Saskatchewan in 1996 showed that 74% of the population was involved in indirect nature-related activities (through media, visiting zoos, purchasing art and the like), and 15% of the population participated in trips specifically to view wildlife (<http://www.ec.gc.ca/nature.html>). These data signal a change in values by which we rank the worth of humans vs. wildlife, an expansion of the 'human-animal boundary' (Cartmill 1993). These changing world views represent both a responsibility and an opportunity. It will be the conservation planner's role to help formulate a scenario in which these new opportunities may be realized.

## 1.2 Possible approaches to bird protection

The special bird resources of Galloway and Miry bays clearly do not exist in isolation from aspects of human culture (how we view and

do things) and production (how we make a living). Effective prescriptions for conservation should include all elements, and in particular the human elements. A participatory, community-based research and management system might be adopted. Kramer's (1986) model of community-based research and action outlines several stages that cannot be skipped: need -> interest -> involvement -> ownership -> commitment -> collaboration. An important characteristic in this process is the sharing of power. Weeks and Packard (1997) have illustrated how several barriers arising from a top-down management style have hampered conservation success.

Every attempt will be made in this project to respond to local issues and to represent the aspirations of the local people, making this endeavor a community-based, and interactive process with wide stakeholder involvement. While local involvement is critical for achieving the plan's goals, 'stakeholder' should also be broadly defined. A local community may be a stakeholder with priority, however, in the case of a public good obligations extend eventually to all Canadians and in some small sense to all citizens on Earth. In many respects, Canada has a tradition of collective goals with both local and regional input in decision making (Raad and Kenworthy 1998). Furthermore, Canada as a nation participates in international agreements such as the Migratory Bird Convention Act (Sect. 3.1.1), and the Biodiversity Convention (Sect. 3.1.2).



## 2. The IBA Program

The IBA program is an international non-government initiative coordinated by BirdLife International, a partnership of over 100 countries seeking to identify and conserve sites important to all bird species worldwide. By encouraging the protection of birds and habitats, it also promotes the conservation of the world's biodiversity. There are currently IBA programs in Europe, Africa, the Middle East, Asia, and the Americas.

The Canadian BirdLife co-partners are the Canadian Nature Federation and Bird Studies Canada (Appendix 2). Bird Studies Canada is primarily responsible for site identification and designation under the IBA protocols. The Canadian Nature Federation facilitates conservation planning and implementation, working with its provincial partners.

The goals of the Canadian IBA program are to:

- identify a network of sites that conserve the natural diversity of Canadian bird species and are critical to the long-term viability of naturally occurring bird populations;
- determine the type of protection or stewardship that exists or is required for each site, and ensure the conservation of sites through partnerships of local stakeholders who develop and implement appropriate on-the-ground conservation plans; and
- establish ongoing local involvement in site protection and monitoring.

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

- Sites regularly holding significant numbers of an endangered, threatened, or vulnerable species.
- Sites regularly holding an endemic species, or species with restricted ranges.
- Sites regularly holding an assemblage of species largely restricted to a biome.
- Sites where birds concentrate in significant numbers when breeding, in winter, or during migration.

### 2.1 IBA Saskatchewan

Nature Saskatchewan (Appendix 2) is working with the Canadian Nature Federation and Bird Studies Canada to deliver the conservation planning component of this program in Saskatchewan. IBA Saskatchewan was launched on 1 Feb. 1999.

Given the province's rich bird resources, 123 IBA sites were originally nominated by knowledgeable Saskatchewan birders, biologists and conservationists. Of these, 53 have met the IBA criteria and have been approved by Bird Studies Canada.

A subset of 13 sites (Appendix 3) has been selected for conservation planning, and these plans will be completed by March 2001. At these sites, the state of the ecosystem and bird

conservation will be examined in light of the opportunities for sustainable human uses. In so doing, IBA Saskatchewan will work with and support the objectives of existing stakeholders, add some objectives of our own where needed, and enlist a local champion for the plan as a conservation contact and for monitoring. The goal is to maintain each site's ecological integrity for the distant future.

IBA Saskatchewan currently has two homes, one in Nature Saskatchewan's office in Regina (Appendix 2) and one at the Centre for Studies in Agriculture, Law and the Environment (CSALE), at the University of Saskatchewan in Saskatoon. CSALE is a newly formed strategic partnership integrating the disciplines of science, law and economics to conduct research into environmental issues related to agriculture. CSALE undertakes studies, provides education and develops policy options so as to enhance prairie and other agroecosystems.



### 3 IBA Site Information

The Galloway and Miry bays should be considered a 'dynamic' IBA from the point of view of goose numbers. Goose use varies in space and time. The bays are focal points for white-fronts during high water years, but the geese also rely on the river. We consider the IBA to be the bays themselves and a 55 km stretch of the river, from Antelope Creek to the Lancer Ferry (Fig. 1). This region was used in studies to document goose numbers and species. In addition, the geese use bodies of water near the bays when water availability allows it. Finally, studies of marked white-fronts showed that the geese rotate through the area, such that the cumulative number of individual geese ever having used the IBA in a season may be higher than counts on any one day.

The Galloway and Miry bays IBA is located at the west end of Lake Diefenbaker (50° 50' N, 108° 27' W; Fig. 1). This lake was created through the construction of Diefenbaker Dam on the South Saskatchewan River and Qu' Appelle dam on the Qu' Appelle River.

Construction of the Diefenbaker and Qu' Appelle dams began in 1959. Filling started in 1964 and the project was completed in 1967.<sup>1</sup>

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<sup>1</sup> A summary of a book "The dam the drought built: A history of the South Saskatchewan River Project" by Max Macdonald (Canadian Plains Research Centre, University of Regina, Regina, 2000) reads as follows: "Born out of the despair generated by the disastrous drought of the 1930s, the South Saskatchewan River Project was

The dam holds snow melt water running off the Eastern Slopes of the Rocky Mountains in late May and June. Galloway and Miry bays are filled during spring and summer, and usually by Mid-July. Prior to the dam, the bays would be dry all year except for a short period of flooding in June.

Most of the Saskatchewan portion of the South Saskatchewan River lies in the brown soil zone, except for a stretch near the confluence with the North Saskatchewan River. The river also lies in the heart of Palliser's Triangle, the driest portion of the Canadian Prairies. According to agricultural statistics at Swift Current, the nearest reporting station 75 km SE of the bays, total precipitation was 36 cm in 1998. The average frost-free period (1951-1980) was 118 days (range = 71-151 days). Average temperature extremes in January 1998 were -9° (high) and -19° (low), and in July, 27° and 13° C.

When the dammed flood waters back up to create the largest body of fresh water in southern

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controversial from the very beginning. There were those who opposed the project as an unrealistic, uneconomical pipe dream. Others supported it as visionary, as a means of turning desert into an oasis. Politicians of all political parties wished to reap the benefits of its construction at the polls, and were unwilling to share the limelight with their opponents. Liberals, Conservatives and CCF/NDP - party loyalties were divided by the project, and it played a major role in both provincial and federal elections for decades. And, finally, after the dam was completed, there was an effort at reconciliation, as the contributions of men of all political persuasions were recognized: Gardiner Dam named for James G. (Jimmy) Gardiner, the Liberal premier who fought long and hard for the project, only to die before its completion; Lake Diefenbaker, for John G. Diefenbaker, the Conservative Prime Minister who made the construction of the dam one of his electoral platforms; and Douglas Provincial Park, for T.C. Douglas, the CCF premier who was also a long-time supporter of the dam. The principal players are all gone now, and history will be the ultimate judge of their legacies. Only the dam itself remains - the dam, and the controversy surrounding its construction."

Saskatchewan, there can be 3-9 m change in water levels depending on water flow in a given year. The lake is 225 km long, has 800 km of shoreline and reaches a maximum depth of 58 m. Waters are channeled so that more than one third of Saskatchewan's population derives water from Diefenbaker Lake. Benefits include recreation, rural and urban water supplies, hydroelectric power generation, irrigation and flood control.

The bays' nearest towns are Cabri and Lacadena.<sup>2</sup> Along the stretch of the South Saskatchewan River that includes the bays, the valley slopes are shallower than in parts east- or westward. This stretch of shallow valley with a large surface area of water affords safety and is therefore attractive to geese.

Galloway and Miry bays lie in the mixed-grass ecoregion. According to Padbury and Acton (1994),

"This ecoregion represents the driest area of the province as evidenced by the absence of native trees and scarcity of wetlands and permanent water bodies. Its diverse landscapes include level, glacial lake plains; dune-covered sandhill areas; the hilly, pothole country along the Missouri Coteau; and the rolling expanses

of native grassland and intermittent 'badlands' near the United States border. The native grasslands are characterized mainly by wheat grasses and spear grasses, and, to a lesser extent, by blue grama grass which gains prominence on extremely dry soils or under high grazing pressure. Shrub communities composed of snowberry and wolf willow are found in areas of favorable soil moisture. Aspen, which is characteristic in and around moist depressions in the Moist Mixed Grassland ecoregion [to the North], is generally absent here except in valley bottoms and sandhill areas. Pronghorn antelope, white-tailed and mule deer, coyote, jack rabbit, Richardson's ground squirrel, horned lizard, prairie rattlesnake and western painted turtle are typical of the region. About half of the area is cultivated, with the remainder used for extensive grazing of livestock on native or introduced grasses. Cereals are the main crop on cultivated land, although feed grains, forages and oilseeds are also grown."

### 3.1 Existing conservation measures

The ecosystems, geese and other birds at Galloway and Miry bays owe their persistence in large measure to their own ingenuity but also to past conservation values among people, and legal protection. Historic statutes have been complemented by many direct conservation initiatives which have gained the support of people. Some of the major initiatives that relate to the IBA are outlined below.

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<sup>2</sup> Saskatchewan Landing Provincial Park lies 35 km SE of the bays. According to the web-site description, "the park is a historic river crossing, where generations of Indian and Métis buffalo hunters forded the river. The site later became a stage-coach station and ferry landing, to service traffic over the Swift Current- Battleford Trail. Cart ruts are still visible in the park. A North West Mounted Police patrol station was established in 1885. Colonel Otter and his men crossed the South Saskatchewan River here on their way to Battleford during the NorthWest Rebellion.

Historic Goodwin House, a handsome stone building, was completed in 1900 by Frank Goodwin, former member of the NWMP. It is now designated as heritage property, and holds a Visitor Centre and Park Office."

**3.1.1 Federal and provincial acts.** In the late 1800s and early 1900s it became increasingly clear that migratory birds were on the decline. Market hunting was quickly identified as a cause, but the other major cause, habitat loss, was not well recognized. Legislated migratory bird protection passed the United States Senate in 1913. In 1916, Canada and the United States signed the Migratory Birds Treaty. The *Migratory Birds Convention Act* passed Parliament in 1917. Mexico signed the Migratory Birds Treaty in 1936 (Foster 1978).

The *Migratory Birds Convention Act* and its regulations give Environment Canada the authority to protect migratory birds, and control seasons and bag limits for hunted species. Soon after the act passed Parliament, the first Dominion ornithologist was hired. Bird management was under the Parks Branch until the section of the branch administering the act became the Canadian Wildlife Service in 1947.

The province of Saskatchewan brought its legislation quickly into line with the *Wildlife Act*, as did most of the other provinces. The *Canada Wildlife Act* of 1973 fostered a partnership in conservation between federal, provincial and territorial governments.

In addition to its traditional responsibilities in the area of fish, wildlife and parks management, the Government of Saskatchewan has recently passed the *Wildlife Act 1997* (replacing the *Wildlife Act*) to include Species at Risk. The province has also created

*The Conservation Easements Act* and introduced the Representative Areas Network program (Sect. 3.1.5).

**3.1.2 Canadian Biodiversity Strategy.** The authors of the Canadian Biodiversity Strategy defined "biodiversity" as "the variety of species and ecosystems on Earth and the ecological processes of which they are part" (Anonymous 1995). Diversity is broadly defined including genetic and species diversity, diversity in ecological function (e.g. ground water recharge, soil formation, nutrient cycling, primary production) and diversity among ecosystems (e.g. land-based, water-based).

The goals of the Canadian Biodiversity Strategy are to:

- conserve biodiversity and use biological resources in a sustainable manner;
- improve our understanding of ecosystems and increase our resource management capability;
- promote an understanding of the need to conserve biodiversity and use of biological resources in a sustainable manner;
- maintain or develop incentives and legislation that support the conservation of biodiversity and the sustainable use of biological resources; and
- work with other countries to conserve biodiversity, use biological resources in

a sustainable manner and share equitably the benefits that arise from the utilization of genetic resources (Anonymous 1995).

present one, are wish lists - but even wish lists can serve important functions if they mature. They can coordinate the will and strategies between different people/programs. The North American Bird Conservation Initiative is a 'super plan' that attempts to unify various bird conservation efforts that are narrower in scope (Fig. 2).

**3.1.3 North American Bird Conservation Initiative.** Conservation plans, including the

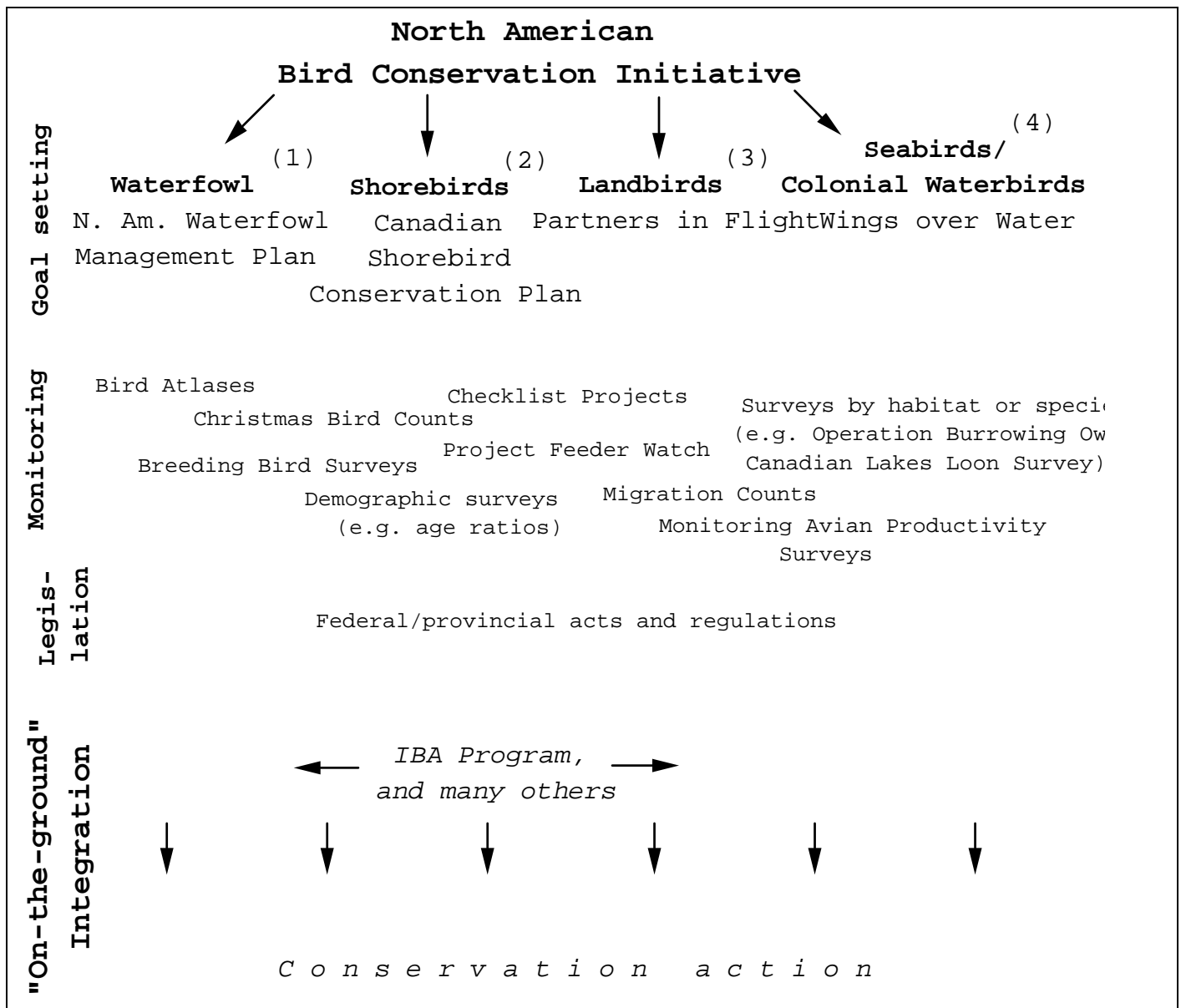


Fig. 2. A schematic diagram to show the relationships among bird conservation plans and strategies. Combined with monitoring strategies, these plans are intended to lead to meaningful action. References: (1) North American Waterfowl Management Plan Committee 1998, (2) Anonymous 1999, (3) Canadian Landbird Conservation Working Group 1996, (4) in preparation.

### 3.1.4 North American Waterfowl Management

**Plan.** This plan was approved in Canada in 1986 by the Minister of Environment, and in 1994 by Mexico. The plan was envisioned as an extension to the Migratory Birds Convention Act and to coordinate effective management between the three signatory countries, including the United States. The plan was intended to help restore waterfowl populations to 1970s levels, to perpetuate waterfowl habitats, to employ management strategies according to subpopulations or flyway populations, and to incorporate subsistence and recreational hunting into management strategies. The prairie Canada portion of this plan came to be known as the Prairie Habitat Joint Venture (Anonymous 1986, Dickson and McKeating 1993).

In their 1993 analysis of the Prairie Habitat Joint Venture, Dickson and McKeating compliment the program for its achievements in waterfowl management, but they also conclude that more must be done to include species other than ducks. They point toward initiatives that were promising and suggest that multi-species management should be included more often than was usually the case in the early stages of habitat management.

In 1998, this plan was updated to recognize the "changing context of waterfowl conservation" (North American Waterfowl Management Plan Committee 1998). Aspects in need of adaptation include: i) more than 60 million people watch migratory birds and only 3.2 million hunt waterfowl, ii) the signatory countries

are also part of other alliances that create obligations (e.g. the biodiversity convention), iii) initiatives for migratory birds other than waterfowl exist (e.g. Western Hemisphere Shorebird Reserve Network), iv) an increasingly suburban existence and increasing demands for food globally brings new challenges.

Under this waterfowl management plan, Ducks Unlimited Canada operates some 10,000 wetland and upland segments within the Prairie Habitat Joint Venture. Habitat management for waterfowl and other birds is seen as complementary, not exclusive. Many properties are specifically managed for several species.

### 3.1.5 Saskatchewan's Representative Areas

**Network.** Text in this section was provided by Nancy Cherney, Fish and Wildlife Branch, Saskatchewan Environment and Resource Management.

Saskatchewan has established a network of ecologically important land and water areas across the province, through a system called the Representative Areas Network. This system started with a base of sites totaling nearly 3 million hectares (7.4 million acres) including national and provincial parks, wildlife refuges, ecological and other reserves in the province. Working from this solid foundation, Saskatchewan's Representative Areas Network expanded by about 50 per cent in less than three years!



One of the primary goals of the network is to protect biodiversity - the richness and variety of life - by selecting and designating areas representative of Saskatchewan's natural ecological diversity. An objective and consistent method for assessing this diversity was developed to guide representative area identification. Notably, an enduring features approach to define the range of diversity in Saskatchewan was selected. Enduring features, such as specific rock, soil and landform patterns, are considered to be very stable over long periods of time and are likely to contain characteristic plant and animal communities. Classifying the province into different enduring feature groupings and measuring the level of protection already afforded to specific landscape types (and associated plant and animal communities) highlighted deficiencies in terms of protection. Landscape types with little or no protection were rated a high priority for action in the network.

This scientific approach for selecting representative areas was blended with the wealth of local knowledge gathered through land use planning and other community based consultation processes. Suggestions and needs identified through these processes also help determine the kinds and levels of activity that may occur within designated sites. Regulations developed as a result govern activities in each site and are intended to reflect the diversity of goals and values that are meant to be protected.

Representative area designation is flexible, supporting many resource pursuits such as trapping, hunting, and fishing. However, site management seeks to curb activities like

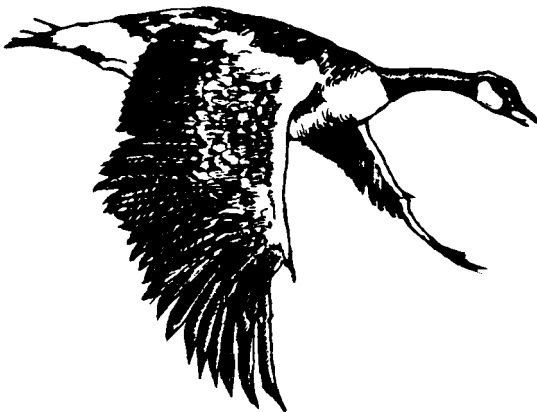
commercial logging, road construction and mining or petroleum exploration and development, particularly within Crown land sites. The intention is to ensure long-term resource protection within representative areas by minimizing disturbance and degradation.

Crown lands administered by Saskatchewan Environment and Resource Management may be designated according to any one of a number of legislative options. Depending on features/values to be protected and the level of use to be continued within a site, choices include Ecological Reserves, Provincial Parks (several categories), Protected Areas or Wildlife Refuges. From August, 1997 to March 31, 2000, about 500,000 hectares of Crown land were formally designated and added to the Network - 4 ecological reserves, several parkland reserves, 1 protected area, and 1 wildlife refuge.

Private lands and lands not under Environment and Resource Management's administration are also important within the network and can be managed or guided through the use of partnership agreements, memoranda of understanding or conservation easements. These types of arrangements enable the department to work closely with partners and private landowners to ensure maintenance of the long-term health of the soil, water, plants, animals, and other parts of the ecosystem. From August, 1997 to March 31, 2000, some 1.2 million hectares of private land and lands not administered by SERM were included in the Network through voluntary partnerships.

Government commitment to live up to the challenge of establishing a Representative Areas Network for the people of Saskatchewan remains strong. Public discussions for proposed representative areas are proceeding in order to bring together a mix of perspectives on the particular lands and to identify the full range of values that may need long-term protection. As these discussions conclude and site boundaries are finalized, the Network will continue to grow and offer opportunities for education, research and the enjoyment of Saskatchewan residents, today and for generations to come.

Galloway and Miry bays are included in this network as part the Crown land that extends along the South Saskatchewan River. This Crown land is also protected under the Critical Wildlife Habitat Protection Act (Anonymous 1997).



## 4 IBA species information

The purpose of this section is to provide the reader with a summary of the birds' (Table 1) natural history throughout the year, and to highlight those aspects that pertain to the time when the birds remain in the IBA. Where available, locally relevant information is provided at the end of each species' section.

Table 1. Birds satisfying the IBA criteria, their significance status (Global, Continental or National) and season of main use at Galloway and Miry bays. Numbers were estimated for the bays including a 55 km stretch of the South Saskatchewan River, from Antelope Creek to the Lancer Ferry (Fig. 1). Some other birds prominent in the IBA are also listed. Data are taken from the IBA database, and originally derived from surveys by federal and provincial biologists and other sources.

Species	Numbers	Status	Season
<b>IBA birds</b>			
Geese			
White-fronted	622,300 - 1,129,400 <sup>a</sup>	G	Fall migr.
Lesser Snow & Ross'	>25,000	G	Fall migr.
Canada	84,800	G	Fall migr.
Sandhill Crane	63,000 - 162,000 <sup>b</sup>	G	Fall migr.
<b>Other species</b>			
Waterfowl concentrations			Migration
Great Blue Heron	<10 nests		Breeding
Burrowing Owl	?		Breeding
Bald Eagle	>50		Fall migr.
<sup>a</sup> Estimated size of the mid-continent population based on counts in 1992 - 1999 (Warner and Nieman 1999). Approximately 80% actually use Galloway and Miry bays at some time.			
<sup>b</sup> Based on counts in 1989 - 1991 (Roy 1996).			

### 4.1 Natural History of IBA Species

The species of birds for which the Galloway and Miry bays are significant include Greater White-fronted Goose (*Anser albifrons*), Sandhill Crane (*Grus canadensis*). When White-fronted Geese depart characteristically in mid-October, Ross' (*Chen rossii*) and Lesser Snow Geese (*Chen caerulescens*) still use the region along with Canada Geese (*Branta canadensis*). in significant numbers. Other birds of local interest include Great Blue Herons (*Ardea herodias*), waterfowl and raptors.

**4.1.1 Greater White-fronted Goose.** The Greater White-fronted Goose, weighing 2400-2800 g, is the only North American representative of the grey goose group. Other species in this group include the Lesser White-fronted Goose, the Graylag Goose (*Anser anser*), and the Bean Goose (*A. fabilis*). The natural history of the Greater White-fronted Goose has been described by Ely and Dzubin (1994).

Greater White-fronted Geese from different regions differ in size and color which has led to attempts to subdivide the species. In North America, the American Ornithologists Union recognizes two subspecies, the Greater White-fronted Geese *per se*, *Anser albifrons frontalis*, and the Tule Goose, *A. a. gambeli*. These two types likely interbreed in nature, but this subspecies separation is facilitated by traditional breeding areas, wintering areas and migration

routes which keep the geese somewhat separate in geography and timing.

All members of the species breed in the permafrost areas of the Arctic Tundra, west of Hudson Bay to the Aleutian Islands of Alaska. The mid-continent population breeds from Alaska to Hudson Bay and winters in an area from the Mississippi Valley in Arkansas to Mexico. This population is the focus in this conservation plan.

The Pacific population of Greater White-fronted Geese breeds only in Alaska and winters west of the Rocky Mountains from southern British Columbia to southern Mexico, most commonly in California. The larger and darker Tule Geese breed primarily at Cooke Inlet in Alaska and winter in California.

Greater White-fronted Geese feed and store energy for their long migrations at traditional "staging" areas in both spring and fall. One leg of the migration in August through September extends from the breeding grounds in fall over 2000 km across the Boreal Forest to the grain fields of the northern prairies; the reverse occurs in spring. Among first arrivals in August adults without young predominate. Studies by Canadian Wildlife Service personnel using neck collars have shown that these early arrivals include adults and young from the Alaskan interior. As fall advances geese leave their prairie feeding ground and move south in stages. The last of the geese leave their prairie staging grounds when cold temperatures, high winds and snow signal the advance of fall, generally around mid-October but sometimes as late as early

November. On leaving the Canadian prairies, the geese stop only in modest numbers in the Great Plains states, until they reach Arkansas, Louisiana and Texas. Some move eastward along the coast, some inland west and north, and some southward. Formerly strongly tied to coastal areas in winter, the geese have shifted to use inland rice fields more frequently since the 1960s.

Depending on the severity of winter, Greater White-fronted Geese leave their wintering grounds between January and March, mostly in early February. Passage is influenced by spring melt. They pass through Saskatchewan from April to mid-May. Females gain 30% of body weight and double their fat reserves in preparation for spring migration. Although energy stored in winter and replenished on migration is very influential for breeding success, Greater White-fronted Geese also rely on food on the breeding grounds. Greater White-fronted Geese do not seem to "import" as much of their energy for breeding as do other Arctic-nesting geese.

Foods taken by white-fronts include seeds, grains and grasses in winter, and sedges, grasses, berries and underground plant parts in summer. These foods are taken in water or on land, with an increased use of agricultural fields in recent decades. Feeding takes place in daytime, often within a short distance (85% within 12 km) from predator- and disturbance-secure roosts. Feeding flocks spend 40-55% of the day in fields in spring, and 30-40% in fall.

Non-breeding yearling geese and failed breeders tend to remain in the southern portion of

the species' breeding range, where they moult. The sites chosen by this segment of the population tend to be low-lying deltas at mouths of rivers flowing into lakes. During this flight-impaired moulting period, the geese are especially apt to seek disturbance-free and predator-safe areas.

Greater White-fronted Geese generally remain paired year-round and as long as both members live. Young remain with the family well into spring migration. Even though some families, not all, break up during nesting, parent-offspring and sibling bonds seem to exist through life. First-time pairing geese in Greenland were 2.5 years old, and pairing is thought to happen in spring. Pairs and families are territorial, maintaining a neck-long individual distance between neighbors all year. The gander keeps other individuals away from the family but is particularly territorial prior to and during nesting.

Female geese select nest sites, lay their 4-5 130-g eggs and incubate for 25 days. The young can walk or swim as soon as down feathers are dry. They grow rapidly, grazing wherever parents lead them. Young gain flight at 42-49 days.

If found during the rare times when unattended by adults, eggs are subject to a variety of aerial and terrestrial predators. Adults are subject to predation by eagles and large mammalian predators. In addition to predation, mortality is caused by a variety of diseases including botulism. There have been serious outbreaks of avian cholera which killed large numbers of white-fronts, particularly on the spring staging grounds in Nebraska. This

mortality seems to be repeated each spring at varying levels (Dan Nieman, pers. communication). Additional threats include food shortages in winter due do increasingly efficient field harvesting practices, and these shortages can be exacerbated by crowding imposed by drought. Also, on the winter range in the United States and Mexico white-fronts experience increasing competition for food and space from growing numbers of snow geese. While staging in Canada, snow geese may displace white-fronts in some cases (Dan Nieman, pers. communication).

The abundance and distribution of Greater White-fronted Geese has been assessed by annual aerial surveys starting in the 1950s. Pacific populations of Greater White-fronted Geese have recovered from declines experienced prior to the 1970s. The Tule population is considered "at risk" by the International Waterfowl Research Bureau.

Aside from weather-induced fluctuation in reproduction, hunting is the major factor influencing population size of Greater White-fronted Geese. In the past, before nutrient-rich waste grain was abundantly available, numbers were likely limited by seed, shoot and tuber availability in grasslands, and by food quality.

Given the largely terrestrial and non-insect food chain, there is as yet no evidence that environmental contaminants are a problem. Low levels of organochlorines have been detected in eggs and carcasses. Before the requirement of steel shot, lead poisoning was perhaps the most severe factor. Habitat alteration and disturbance

on the Arctic nesting ground could cause substantial losses.

On the migration-staging and wintering grounds, water level fluctuations can affect geese negatively causing crowding. Freshwater marsh habitat is increasingly altered and this could represent a stress for winter residents.

White-fronts are present in large numbers in the Galloway and Miry bays IBA generally from the last week in September through early October. The concentrated use of this region is presumably an outcome of the creation of Diefenbaker Lake. In years of adequate runoff in the Rocky Mountains, enough water can be stored such that backwater floods the bays.<sup>3</sup> The increased use of the region by white-fronts can be deduced from the moderate use recorded by Canadian Wildlife Service personnel in the 1970s and early 80s, the increased numbers documented by Mike and Bernie Gollop starting in 1989, and the persistent use of the area by geese today as evident from results of the co-operative Canada-U.S. aerial surveys conducted each year. There was then a 20 year hiatus between the filling of the Diefenbaker reservoir in 1967 (Sect. 3) and the concentrated use by white-fronts in the late 1980s.

According to Mac Garrett, there are two prominent spots in the Cabri area where the geese stay most predictably outside of the bays. A

flooded flat locally known as Gossard Slough (west of Cabri, see Fig. 1) has been used by the geese for roosting during the day, between morning and afternoon feeding. This slough held water through fall for a few years in the 1990s, but often goes dry in late summer and fall. Another saline lake south of Cabri, Snakehole Lake, is a favorite roosting site where some white-fronts may remain the entire day and night. Depending on wetland availability, the geese can use many other sites in the area for roosting.

**4.1.1.1 Greater White-fronted Goose population counts.** When the geese arrive on the prairies in fall, they will have expended much energy on the approximately 2,000 km flight from the Arctic. For the young geese of the year this will be their first leg of migration. The energy for this flight will likely have been gained from Arctic grasses and sedges. The geese stop on the prairies to refuel, and unlike other species of geese, white-fronts choose a remarkably small area in which to feed on the energy-rich prairie grains and pulse crops.

According to Smith (1996), observations of white-fronts are scattered throughout southern Saskatchewan. However, the vast majority of white-fronts use only parts of southwestern Saskatchewan, with fewer in south-central Saskatchewan and parts of southeastern Alberta (Warner and Nieman 1999; Fig. 3).

For many years, biologists used the population counts south of the Platte River in

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<sup>3</sup> In the fall of 2000, a shortage of water in the region left the bays as mud flats. The geese persisted in using the area, crowded onto the narrow band of water of the river (Dan Nieman, pers. communication).

Nebraska to evaluate white-front population trends. Surveys by members of the Canadian Wildlife Service in the 1970s and early 1980s showed white-fronts present at the South

Saskatchewan River, and growing in number (Alex Dzubin and Dan Nieman, pers. communication).

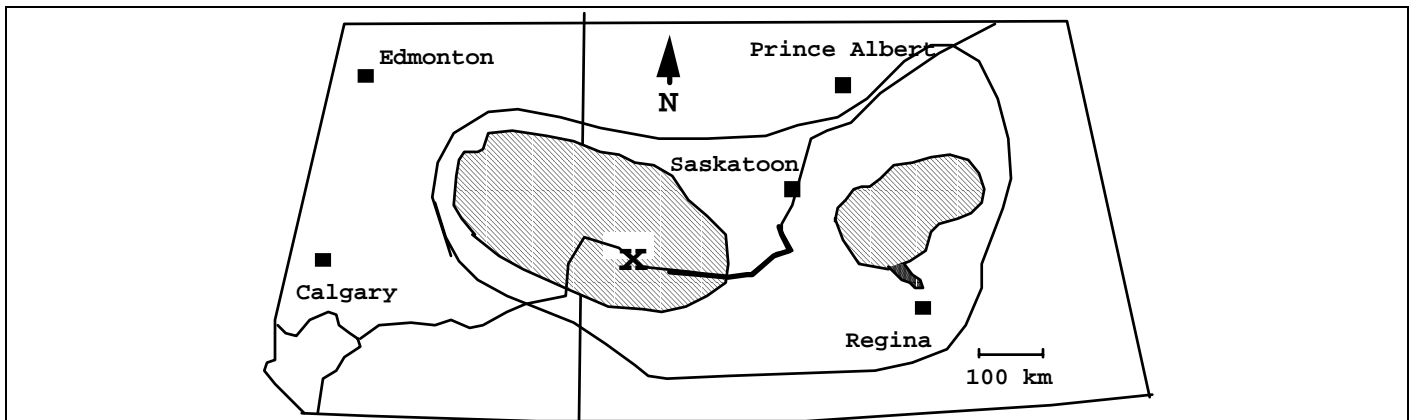


Fig. 3. Distribution of Greater White-fronted Geese in late September, with "X" indicating the location of Galloway and Miry bays. Hatched area represents high density areas, the line-bounded area represents low density (Warner and Nieman 1999).

From 1989-91, Mike and Bernie Gollop documented this increase in goose numbers with fall counts along the bays and river (Roy 1996). Mike Gollop (1995) summarized a three-year project to estimate the population size of White-fronted Geese in 1992-94, and to document the extent of population growth and enormous concentrations on parts of the South Saskatchewan River including Galloway and Miry bays. To include as many geese as possible in this survey area of manageable size, a 55 km stretch of river, from the mouth of Antelope Creek to the Lancer Ferry, was chosen for combined air and ground counts. The species composition of geese in late September at selected ground observation sites was 68% white-fronts, 29% Canada Geese and 3% white geese (Gollop 1995).

The above surveys and those that followed showed that by far the majority of the white-front population stops for fall-feeding in the Galloway and Miry bays, and a 55 km stretch of the South Saskatchewan River. Some geese (8.5% in 1998) can be found in eastern Alberta, in the Hanna, Coronation and Provost area. A smaller concentration of white-fronts exists north of Regina (1.3% in 1998) including Last Mountain Lake and Quill Lakes (Warner and Nieman 1999).

Population counts are now conducted each fall throughout the fall range of White-fronted Geese in Alberta and Saskatchewan, including Galloway and Miry bays. These surveys are carried out by Canadian Wildlife Service biologists with assistance by U.S Fish and Wildlife Service personnel. These fall counts

replace and combine two counts previously made, one in December and one in spring (Warner and Nieman 1999). The Canadian counts are assumed to include 95-99% of the white-front population (Roy 1996).

Counts over a series of years are presented in Fig. 4. Numbers vary, depending on the size of the breeding population, the production of young, the number of geese bagged by hunters and local wetland availability.

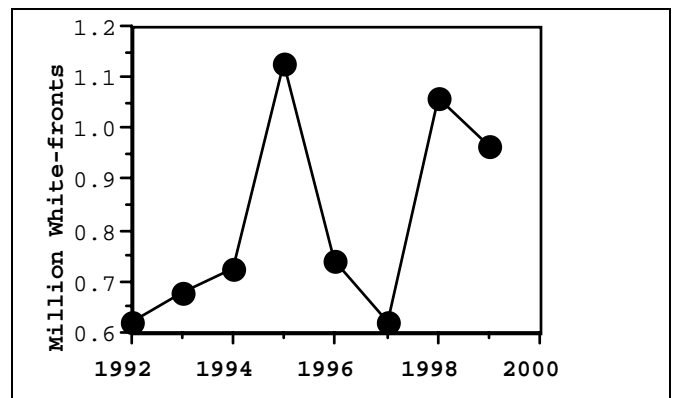


Fig. 4. Estimates of the number of Greater White-fronted Geese in the mid-continent population over time. Estimates are based on aerial surveys in Alberta and Saskatchewan, including Galloway and Miry bays (Warner and Nieman 1999, Fig. 3).

**4.1.2 Canada Goose.** As summarized by Cory Lindgren, Bellrose (1976) delineated numerous races or sub-species 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. According to range information provided by Bellrose (1976),



Galloway and Miry bays would be frequented by "hi-line plains" and "intermountain" races in summer, with an influx of the Arctic nesting short-grass prairie race on migration.

Canada Geese are the very first bird to nest in the spring. Most return to their breeding grounds as family units and yearlings leave shortly after arrival. The geese will nest in the same area of a marsh year after year and prefer the same nest foundation used in a previous year. Breeding pairs will defend a territory that will include the nest. Average clutches include 5 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.

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

**4.1.3 Lesser Snow Goose.** The Lesser Snow Goose is a 2.0-2.5 kg goose with white and blue color forms. It is apparently one of the most abundant species of waterfowl in the world. The natural history of this species was summarized by Mowbray et al. (2000).

Lesser Snow Geese nest in large and dense colonies north of the tree line in three fairly

discrete breeding populations. These range from Wrangle Island in northeastern Russia to Greenland. Populations do not mix throughout their range, giving rise to three regions: the western population ranges from Alaska to Queen Maud Gulf in the central Canadian Arctic, the mid-continent population from Victoria and other Arctic Islands to the Hudson Bay, and the eastern population from northeastern Ellesmere Island and Greenland south to Bathurst Island, with isolated reports from Quebec.

In winter, western Lesser Snow Geese can be found from the Fraser River Delta in B.C. south to the coastal lowlands of the Gulf of California. Mid-continent geese most commonly range from Louisiana through Texas to northern Tamaulipas but also westerly and northwesterly. Eastern populations range from Massachusetts to the Carolinas. Thus, the Lesser Snow Geese of the Canadian prairies are from the mid-continent population and some from the western population.

Lesser Snow Geese nest among low shrub when available or on exposed upland, but generally near moist-meadow brood-rearing areas, near lakes, inland or along the coast. Main foods taken include grasses and sedges, below-ground tubers and roots, and grain.

Pairs are monogamous and mate for life. Territories are vigorously defended around nests and around small young. Snow geese arrive on their breeding ground with enough energy to lay an average clutch of four eggs, from mid May to July depending on latitude and advance of spring. After a 24 day incubation and 43 day fledgling

period the young take their first flight and continue to feed to store energy for their southward migration.

Threats to individual geese include starvation; avian cholera; ingestion of lead, plastics and pesticides consumed as part of grazing; and striking powerlines. An estimated hunting mortality of 97% and even with liberal seasons and bag limits has not curtailed the 5% annual rate of population growth.

With increasing numbers, the geese exert considerable pressure on their brood-rearing habitats. In one study 59% of plant communities within one area had been denuded to the extent that peat or mineral soil is exposed. There is concern that this habitat degradation by the geese will impact other vulnerable species detrimentally.

Spring arrivals at Galloway and Miry bays may be in early April with peaks in Late April and early May. In fall, early migrants may arrive in late August but peaks not until mid- to late September (Roy 1996).

**4.1.4 Ross' Goose.** The Ross' Goose is the smallest of three species of white geese in North America. It was first mentioned in the European literature by Samuel Hearne in the late 1700s. Its natural history is summarized by Ryder and Alsisauskas (1995). This 1.3-1.5 Kg goose is white with black wing tips, similar to the Greater Snow Goose and to the white form of the Lesser

Snow Goose. The Ross' Goose can be distinguished also by a shorter neck and by the parallel lines on the bill, without the upturned sides or "ginning patch" of the Lesser Snow Goose. Males and females are similarly coloured, but males attain only 67% of weight of females. Ross' Geese are pale grey in their first fall.

The core of the Ross's breeding distribution (95% of breeding pairs) is the Queen Maud Gulf area of the central Canadian Arctic, where an estimated 187,000 Ross' Geese nested in 57 colonies in 1988. Small numbers nest along the Hudson Bay coast, on Arctic islands and on the northern coast of Alaska. Most Ross' Geese winter in California, with increasing numbers on the southern Great Plains including the north-central highlands of Mexico, and the Gulf of Mexico coast.

In comparison to other geese, the Ross' Goose is late in its migration. On their return south once the young fly well, Ross' Geese are concentrated in western Saskatchewan and eastern Alberta between the North and South Saskatchewan rivers. Here they stay on shallow lakes in agricultural areas where they feed in fields. Their main food includes grasses, sedges, legumes and grain.

The female of the monogamous pair is the primary builder of a nest on the ground on islands. On average four eggs are incubated by the female for 22 days, whereafter the family departs from the nest site to low-lying feeding areas nearby. Eggs and young are subject to a variety of bird and mammal predators.

Ross' Geese were hunted and sold before the Migratory Bird Convention Treaty abolished market hunting. The loss of native winter habitat through agriculture throughout the winter range was offset by an increasing availability of waste grain in agricultural fields. In 1930, less than 6,000 Ross' Geese were thought to exist, with increases starting in the 1950s, an estimated 7.7% between 1965-1988.

Reported threats to the geese, aside from the unregulated hunting of the past, include: unintended poisoning resulting from mouse control; organophosphate poisoning resulting from weed and aphid control; avian cholera particularly with synergistic effects from pesticides; ingestion of lead steel and plastics; and loss or deterioration of habitat on breeding and wintering grounds.

Earliest sightings in spring along the south Saskatchewan River were late April with maximum numbers in mid-May (Roy 1966). Some Ross' Geese can arrive in fall as early as late August, but peaks are generally not seen until late September. Some Ross' stay as late as early November. Mike Gollop (in Roy 1996) suspects that a high proportion of white geese at Galloway and Miry bays are Ross'.

**4.1.5 Sandhill Crane.** The natural history of this 3.5-4.0 kg, 1.2 m tall descendant of a Pleistocene goose ancestor (2.5 million years before present)

has been described by Tacha et al. (1992). Sandhill Cranes nest in Siberia, Alaska, northern and western Canada and some northern, mid-west and western states. The cranes migrate to the southern states, Mexico and Cuba. Non-migratory populations exist in Cuba, Florida and Mississippi. Differences in body form and color exist between the cranes of different regions, and hence this species has been divided into five subspecies.

Sandhill Cranes feed by probing for subsurface plant foods, picking seeds and other items off the soil surface, and capturing various live animals (5-10% by volume). When available, grain in fields can be a major food item.

The spectacular courtship display of Sandhill Cranes has special appeal. Of eight different courtship displays, three, the pre-copulatory bill-up, copulation and the unison call, are exhibited only by paired adults. These displays synchronize reproductive development. The others, upright wing stretch, horizontal head pump, bow, vertical leap and vertical toss, are part of the dance repertoire. Pair bonds are formed during spring migration, and normally last for life. In addition to pairs and family units that remain intact well into March, unmated individuals also form socially stable aggregations.

Sandhill Cranes lay 1-3 eggs in nests floating on water, resting on marshy substrates or on land. Males and females share the 30-day incubation duties equally. Newly hatched young leave the nest within hours and feed on their own within a day. Family home ranges vary from 10-

85 ha. Sibling aggression usually leads to only one surviving chick, the other being killed within days.

Loss of eggs and young occur from predators when parents are not nearby. Adults defend themselves from predators by lunging toward them and striking with bill or feet. Additional mortality occurs from bacterial, fungal and viral diseases, but the major factor controlling the Great Plains population is hunting.

Special cases of disease leading to mortality in some cases have arisen from fungal toxins in waste peanuts eaten by cranes. Pesticides are a problem locally.

The total population has been estimated at 652,500-715,300 individuals. Of these, 560,000 belong to the mid-continent population to which Saskatchewan Sandhill Cranes belong. The Cuban and Mississippi populations are considered endangered by the U.S. Fish and Wildlife Service, with estimates of <200 and 120-130 respectively.

Sandhill Cranes are highly selective of wintering and staging habitats. Protecting such habitats is essential for species conservation, a protection which is urgent in some areas. For instance, approximately 80% of the mid-continent population winters in western Texas. Here, only about 20 salt lakes are used by the cranes and should be a focus for protection.

At Galloway and Miry bays, cranes depart from their water roost later than geese, and in staggered groups. Hence, some cranes can be

seen at the river throughout the day. Estimates of Sandhill Cranes are as high as 162,000 (Table 1).



## 4.2 Other species

In addition to geese and cranes, many other bird species use Galloway and Miry bays. The cranes and white-fronts mix with Canada Geese, Lesser Snow Geese, Ross' Geese and ducks, mostly Mallards on the bays and river. Additional species include several raptors. Golden Eagles, Prairie Falcons and Ferruginous Hawks nest on the steeply eroded river banks. Bald Eagles scavenge crippled geese during the hunting season. Shorebirds and songbirds, including Violet-green Swallows and Rock Wrens, frequent the willows on the shore, wooded draws and grassy uplands. Many Burrowing

Owls have been recorded over the years (Fig. 1), but if these followed a widespread declining trend their persistence is in doubt.

**4.2.1 Great Blue Heron.** The natural history of this 2.1-2.4 Kg, 0.6 m tall, patient fisher has been summarized by Butler (1992). Despite its reliance on an aquatic food chain, the Great Blue Heron is widely distributed in North, Central and even northern South America. Although up to seven subspecies have been recognized by some authors, the main blue form and a white form that occurs in Florida, are most distinctive. The herons use southern Canada and the northern Great Plains states for breeding only, and southward occur year-round as far as southern Mexico and Cuba. Only non-breeders frequent South America. The Great Blue Heron is at home on the coasts and on islands in freshwater habitats, but is absent in the Rocky Mountains and the Mexican plateau.

The Great Blue Heron migrates alone or in groups up to 12, rarely up to 100. Remarkably little is known about this species' habits on migration. The herons feed in still or slowly moving fresh or estuarine water, occasionally in surf along the coasts and in fields. The main food taken is fish, but also other vertebrates. Prey is located by sight, night or day, and taken with a thrust of the pincer-like bill.

A mostly life-long pair bond is maintained with elaborate courtship. Feeding territories are vigorously defended, but nesting is mostly

colonial and up to 6 km from feeding areas. However, some radio-monitored adults fed as much as 104 km from the colony. For nesting, Great Blue Herons prefer tall trees that are difficult to reach by mammals and snakes. In some cases the herons will nest on the ground but usually only on predator-free islands. Sticks are usually collected by males and woven into a nest by females. Both adults alternate incubating the 2-6 eggs for 27 days. Young depart from the nest after 81 days on average, during which time they are fed by both parents and brooded in the first weeks. Fledglings will fly back to the nest to be fed for another three weeks, until they gradually learn to hunt on their own by following and learning from adults. Once they approach two years of age, most Great Blue Herons breed each year.

Between 1967-1972, 4,000 nests were counted on the Canadian prairies in 56 colonies. Severe winters reduce northern populations when feeding sites unexpectedly freeze up. In the south, hurricanes can eliminate colonies.

Because of their strong tie to an aquatic food chain, Great Blue Herons were impacted by organochlorine contaminants (DDE). Thinning eggshells broke and young grew slower than before. Road building, logging and other disturbances sometimes caused entire colonies to be abandoned. When disturbed, the herons leave the nest most readily before laying, less so during incubation and least while tending young. Loss of wetlands has probably affected this species severely. Colonies that had been destroyed by

shooting have not been re-populated when shooting stopped, suggesting that the overall population is not sufficiently healthy to reoccupy former nesting areas.

Roy (1996) documented several small colonies (up to 12 nests) of Great Blue Herons at or near Galloway and Miry bays. Some rookeries disappeared while others were formed anew. The herons were nesting in flood-killed cottonwood trees. These trees may be in a state of flux due to the comparatively recent creation of the lake.

**4.2.2 Burrowing Owls.** The Burrowing Owl is an unusual creature in the way it combines diurnal and nocturnal activity, nests in burrows below ground and inhabits treeless plains. Its somewhat comical appearance has attracted the attention of people once they see them. The natural history of the Burrowing Owl was reviewed by Haug et al. (1993).

The Burrowing Owl is a brown and buffy-white owl, weighing approximately 150 g and standing stilt-like on sparsely feathered lower legs. Burrowing Owls occur only in the Americas. In North America, the northernmost populations are migratory, mid-continent populations exhibit shorter distance seasonal movements, and in the southwestern United States, Florida and northern Mexico the owls are non-migratory.

Burrowing Owls occupy dry, grassy and treeless plains where they are almost invariably

associated with burrows mainly of badgers, prairie dogs or ground squirrels. The owls can grow tolerant of human activity and often nest near farms or on vacant ground in cities or towns. Burrowing Owls are monogamous and both participate in the rearing of up to 12 young.

Burrowing Owls are opportunistic feeders, but their main prey includes insects, small mammals and birds. In prairie Canada, small mammals may be an important food source immediately upon arrival in April and through egg laying, at a time when insects are sparse and often inactive. In this way, the availability of mammals can influence clutch and eventually brood size. Owl families remain together near their home burrow until late August when males tend to disperse to alternate feeding/roosting grounds, followed by females and then by juveniles.

Prairie Burrowing Owls depart in October, apparently migrating at night during favorable weather. They may short-stop for one to several days, before they migrate on, eventually reaching their wintering grounds in Texas and presumably adjacent areas in the United States and Mexico.

Once common on the Canadian prairies and in parts of the interior of British Columbia, the owls have gradually declined throughout the second half of the 20th Century. The major factors implicated in this decline, in part by contributing to an inadequate food supply and reduced reproduction in recent years, include habitat degradation, insecticides, road kills and

predation. This owl was listed as threatened in 1978 and endangered in 1995.

In a study of owl survival using radio-telemetry (Clayton and Schmutz 1999), owl mortality was 45% among adults and 55% among juveniles in the 5-month study period alone. Interestingly, mortality rates were approximately the same in the two study areas in Alberta and Saskatchewan. In the Alberta area, where a variety of grasslands existed in a ranching area with only 20% cultivation, deaths were largely due to mammalian and avian predators; in Saskatchewan, where grasslands existed in small patches and 90% of the land was cultivated, a similar mortality rate was due to collision with vehicles and presumed starvation.

In addition to habitat loss, two major habitat changes were apparently exerting a negative influence on Burrowing Owls. The owls rely on burrows in sparse vegetation for escape habitat. Burrowing mammals, notably prairie dogs, have been eliminated from large tracts of the Great Plains to the owls' detriment. Also, a reduction in prairie fires and fenced areas protecting trees from grazing has allowed trees to expand into what was formerly treeless plain. This has been favorable for avian predators that nest in trees and mammalian predators as concealing cover. A synthesis suggests that these kinds of changes are widespread throughout the Great Plains ecosystem and impact the owls year-round. These changes may be largely irreversible.

Figure 1 shows several locations for Burrowing Owls that have been accumulated over

time. Gradually fewer owls have been recorded in this as in other regions of Saskatchewan and Prairie Canada, despite stewardship efforts by local land owners (e.g. Hjertaas 1997).



**4.2.3 Bald Eagles.** Bald Eagles frequent the South Saskatchewan River in fall, as they migrate from their boreal Forest and forest fringe breeding grounds to the southern United States and Mexico. Once threatened by DDT and habitat loss, eagle populations have recovered in western North America after the use of DDT was abolished. In eastern North America, populations are still threatened by habitat loss and perhaps other factors.

According to a study by Miller (1999), Bald Eagles were attracted by the large populations of waterfowl along the river, including Galloway and Miry bays. Judging from marked eagles, their minimum residency in the area was 5-7 days, some staying much longer. Eight percent of captured eagles showed  $>0.2$   $\mu\text{g/L}$  of lead in the blood; 9% of eagles had pellets in their digestive tract. Despite this exposure, Miller (1999) concluded that the levels are small and should not affect the eagles negatively.

## **5 Other elements of high conservation value**

In addition to the bird value in the Galloway and Miry bays IBA, there are many other elements of biodiversity. The river valley itself represents rare, beautiful habitat with ongoing erosion accelerated by slope. Rare species which have been recorded in the region are shown above in Figure 1. These include mammals, birds and plants.

A band of native habitat (Sect. 6) bordering the river is remote and inaccessible and thus experiences low disturbance. The land is used for grazing and includes some of the largest ranches in Saskatchewan. The landscape includes steep rugged hills, razorback ridges and wooded coulees. The connectivity of this natural landscape represents a conservation corridor for several species. Some spectacular and secretive species that exist there include moose, elk, cougar and black bear.



## **6 Land ownership and use**

The responsibility of managing the river and the mud flats up to the high water mark, including Galloway and Miry bays, lies with the provincial government. In the case of this inter-provincial river, management also includes a federal involvement.

Beyond the high water mark, the South Saskatchewan River valley is composed of numerous small creeks, most with no officially recorded name. Nearly all of the land immediately adjacent to the high water line is also Crown owned (Fig. 5). The boundaries of these lands are the boundaries of quarter sections. Thus, the band of Crown land is very irregular in shape ranging from a few metres to several kilometres from the shore. This provincial Crown land is leased to farmers and ranchers.

**6.1 Historical land use.** The South Saskatchewan River is part of a large block of land covered under Treaty No. 6 which was signed in 1876. Peter Fidler and expedition members apparently were the first EuroCanadians to use the river as a fur trading route in 1800-1802. This was over 100 years later than some of the first routes established farther north in Saskatchewan (Fung et al. 1999).

Fig. 5

Before Saskatchewan became a province in 1905, the Canadian government administered the prairies for 35 years. Grazing leases were granted on the 'open range,' but these were subject to cancellation when lands were opened for settlement. The Matador Ranch was a major ranch whose headquarters was farther east, but its grazing land included lands northeast of Galloway Bay. Most lands adjacent to the South Saskatchewan River near the bays were settled for homesteading between 1901-1931. The railway reached the area by 1917.<sup>4</sup>

**6.2 Current land use.** Galloway and Miry bays lie at the extreme western edge of Statistics Canada's Census District 3-BN. Prevailing crops grown and livestock held on farms/ranches are reported in Table 2.

The Miry Creek Irrigation project is located upstream of Miry Bay in the valley bottom of Miry Creek. This project covers approximately 5 km<sup>2</sup>. Alfalfa is the common crop that is irrigated from a series of ditches that channel water from the river. Plots are leased by farmers/ranchers, where with the help of irrigation

<sup>4</sup>A Cairn north of Eston Regional Park reads "The old cart trail from Saskatchewan Landing to the Red Deer forks crossed here. Its ruts were worn deep by Nineteenth Century traders and hunters before settlers arrived in 1906.

The principal link with the Battleford Trail and the trading centre of Swift Current, it was widely used by ranchers, homesteaders, realtors, Royal NorthWest Mounted Police and mailmen, to whom this cairn is dedicated.

It gradually fell into disuse after 1910 as railways and surveyed roads superseded it.

several cuts of hay for winter feed can be harvested in a year.

Table 2. Percent of acreage in various crops, and livestock held in Census District 3-BN, including Galloway and Miry bays. Taken from agricultural statistics 1998.

Crop	% area
Winter wheat	<1
Spring wheat	11
Durum wheat	20
Oats	<1
Barley	2
Rye	<1
Flaxseed	<1
Canola	1
Summerfallow <sup>1</sup>	15
Total <sup>2</sup>	52
Livestock <sup>3</sup>	Number
Milk cows <sup>4</sup>	1,341
Beef cows <sup>4</sup>	55,932
Pigs	37,360
Sheep	4,827
<sup>1</sup> Extrapolated from provincial average, likely an underestimate.	
<sup>2</sup> Not including specialty crops (e.g. peas, lentils, canary seed), or tame pasture	
<sup>3</sup> Not including specialty livestock (e.g. elk, llama)	
<sup>4</sup> As of 1 July 1998 and not including bulls, heifers or calves.	

Pocket gophers are a common agricultural pest in alfalfa fields. These are dealt with using strychnine<sup>5</sup> which can be mechanically injected into the ground.

<sup>5</sup> As of 1993, the federal government introduced a license requirement for the purchase of liquid strychnine which was freely available before. Without a permit, only pre-coated bait continued to be available which is more expensive and according to local perception mixed at too low a concentration to be effective. Petitions are now circulating

There is little if any resource extraction in the area. Natural resources located in the area include potash and salt (Fung et al. 1999). Commercial salt extraction has taken place at Snakehole Lake (Fig. 1) at different times. A major gas field is located in the Great Sandhills more than 50 km WSW.

## 7 Conservation management achieved at the IBA site

Protection and conservation of geese, other birds and related ecosystem functions at Galloway and Miry bays, are achieved through the regular wildlife-related regulations and various forms of environmental protection (e.g. Section 3.1). What is often forgotten and perhaps far more important, is the willingness of a people to abide by these regulations. Some people go well beyond the limited regulations and legal requirements and 'go out of their way' to protect nature; others do not. The 'social capital' of the

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in R.M. offices to lift this permit requirement by the government for this non-selective nerve poison (e.g. Schmutz et al. 1989).

former group is perhaps a nation's greatest asset, and is itself in need of protection.

**7.1 Regulation of hunting.** Hunting of migratory birds is regulated by the federal government, and hunting of other game birds, fishing and trapping by the provincial government. The nearest provincial conservation officer is stationed at Saskatchewan Landing, 40 km ESE of the bays (Appendix 1).

Hunting season dates vary for different species, but in 2000, a season opened on 1 September and closed on 16 December. Hunting takes place between 0.5 hr. before sunrise and 0.5 hr. after sunrise Monday through Saturday. Hunting for geese must cease at noon prior to 23 October, to afford the geese undisturbed feeding time after noon.

Prior to 10 November, game bird hunting is prohibited in, on or within 500 m of the South Saskatchewan River from the Alberta boundary to the bridge at Saskatchewan Landing Provincial Park. This includes Galloway and Miry bays. Hunting is prohibited in provincial and regional parks, recreation sites and wildlife management units unless otherwise specified (Saskatchewan Hunting and Trapping Guide).

According to regulations in 2000, the daily bag limit for white-fronts is 5, increased from 3 in the past. In comparison, the daily bag limit for dark geese is 8 of which no more than 5 may be

white-fronts, and for white geese (Snow & Ross') 20. Possession limit is twice the daily limit for dark geese and three times for white geese. Non-toxic shot is required for hunting migratory birds. It is illegal to waste birds. Hunters must make every effort to recover dead birds or cripples, and have the means at their disposal to do so.

Common trespass law holds a person liable for entering another person's land, or allowing something a person controls (e.g. a dog, chemical spill) to enter another person's land (Buckingham et al. 1997). A common practice by hunters and bird watchers alike in the sparsely populated landscape of Saskatchewan is to walk or hunt on land when it is not "posted." If a person is asked to leave and refuses, or hunts within 500 m of a building occupied by people or livestock, s/he could face charges under the Saskatchewan Wildlife Act 1997.

First Nations people are exempt from some of these regulations (e.g. season dates and bag limits), respecting their traditional rights to hunt and fish according to the original treaties signed. Saskatchewan Environment and Resource Management has worked closely with native peoples to encourage hunting regulation for First-Nations. In this way, an agreement was reached to abolish hunting with lights at night. Another example of cooperative management are moose hunting regulations devised by First Nations based on Saskatchewan Environment and Resource Management's moose surveys and related management data.

Some First Nation hunters hunt at Galloway and Miry bays on occasion without observing the 500 m no-hunting zone. If this currently low-level activity were to increase in future, First Nation Elders should be sought for advice on how a compromise might be reached. The number of geese taken is not a major issue, but the disturbance factor is likely much more serious.

**7.2 Outfitting.** Guiding and outfitting for fishing has a long history in Saskatchewan's north. Guiding for big game hunting which is limited to the forest fringe and northward has seen an expansion in the last decade. Growth in this "industry" has caused growing pains and is in search of a solution. Concerns revolve largely around baiting and bait stations from the point of view of ethical hunting, wildlife conservation, and recreation by cottage owners, and people camping and hiking.

Guiding is regulated under the Outfitter and Guide Regulations 1996, and in southern Saskatchewan largely involves out-of-province waterfowl hunters and only a portion of these. The large number of decoys required for a successful waterfowl hunt, the advance 'scouting,' and need for obtaining permission for uninterrupted hunting early in the morning, justify the assistance of a local guide. Many visiting hunters also do this on their own. Guides are

licensed and thus the number of guides in a region is limited. In southern Saskatchewan, the conflicts that arise are apparently minor.

There are at least four outfitters that operate in the area and specialize on goose hunting (e.g. Appendix 1). Guiding and outfitting is a welcome source of additional income for rural people. If properly practiced and regulated, guiding for hunting can represent an opportunity for conservation in the sense that additional people will care for a resource and participate in its conservation. In principle, wildlife is a public good for which, according to the Wildlife Act 1997, no individual can sell hunting rights directly or indirectly. However, a person can charge for equipment used, logistical services, accommodation and so on. These benefits are not necessarily limited to hunters, but can include bird watchers and vacationers.

By current regulations, non-residents of Canada do not require the service of an outfitter to hunt geese, as is required for big game for example. Roughly one quarter of non-resident

hunters use outfitters anyway. The Saskatchewan Outfitters Association has proposed a change in the regulation that would require an outfitter's service in future.

**7.3 Research and monitoring.** Galloway and Miry bays now represent the primary site where white-fronts are counted annually, in cooperation with the U.S. Fish and Wildlife Service. On the basis of these counts and data on reproductive success in the Arctic, bag limits and hunting season length are determined. As a result of these surveys, several biologists are present in the area at some time of the year.

Judging from conversations with local residents, the biologists have good rapport with the local community. These local people look out for the birds and report threats and unusual circumstances.

## 8 IBA stakeholder group activity

The following groups can be identified as having an important stake in the IBA.

<u>Group</u>	<u>Location</u>	<u>Interest/Concerns</u>
Owners/leasees of adjacent land	Local	Knowing geese undisturbed, and managing traffic and damage to property and crops
Canadian Wildlife Service, and its Environmental Conservation and Enforcement Branch	Saskatoon	Cooperative management with U.S. and Mexico Wildlife regulation
Sask. Env. & Resource Manage - Env. Protection	Sask. Landing Prov. Park	Wildlife management Wildlife regulation
Hunters/bird watchers		Interference with activities

## 9 Opportunities

Conservation in the Galloway and Miry bays IBA has a series of spin-off benefits. These are of a general or specific nature and will be highlighted here.

### 9.1 Birds in the landscape and in rural life.

When white-fronts, other staging waterfowl and Sandhill Cranes are at their peak, the fall skies are alive with birds. The incessant calling, especially early in the morning, can be disconcerting at times, but judging from

conversations with local people, the birds are an expected and welcome presence. A many-times-larger-than-life replica of a White-fronted Goose adorns a small park in Cabri (see cover). The spectacular moments which these birds provide are easily taken for granted, but can represent a cornerstone in conservation.

### 9.2 Hunting and outfitting.

In 1999, 19,154 Saskatchewan residents purchased game bird licenses, compared to 7,964 non-residents. Because geese are hunted through the grain belt including major areas where white-

fronts are rare or absent, only a fraction of these hunters will have bagged white-fronts.

Rural economies benefit from hunting through the added revenues arising from meals, accommodation and travel. In addition, hunters purchase outfitters' services and pay selected local people for cleaning and freezing of game prior to transport.<sup>6</sup>

### 9.3 Bird watching and nature tours.

Frank Roy (1996) offers advice to bird watchers on how to approach the valley without spooking the birds and where to stay when visiting the region. He recommends visits on Sundays and weekday afternoons if hunting is a concern. He calls the view a "spectacular show."

By some standards, Galloway and Miry bays are remote. This no doubt takes away from its obvious bird watching potential. Both bays are located at least 10 km from secondary highways. For this reason, guided trips may be most promising.<sup>7</sup>

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<sup>6</sup> As an example, "Mac" Garrett has been hosting U.S. hunters to capacity during the past five years without great advertising effort. Hunters reside in small cabins on the farm near Pennant. Goose hunting is permitted only in AM during the early part of the hunting season, which allows the geese undisturbed feeding in PM. In the afternoon, the visiting hunters may practice their aim shooting clay pigeons on the Garrett farm, they may hunt ducks at local ponds, visit the river valley and other local sites, or help Mac Garrett check his cattle on a ranch in the river hills N of Portreeve, NW of Cabri.

<sup>7</sup> On 21 July 1999, I encountered a group of 20 chuck wagons with over 40 outriders on a several day trip from

Galloway and Miry bays lie just inside the northern border of the Southwest Tourist Region. The closest motel is in Kyle, 35 km NE. There are hotels in Cabri and Abbey but with only limited conveniences which may not appeal to all tourists. Two regional parks are very popular in summer for fishing and boating. Eston Regional Park lies on the north side of the river, south of the town of Eston. Cabri Regional Park is located on the south side of the river, 20 km NE of Cabri. Both have facilities for camping.



## 10 Threats

Potential threats for White-fronted Geese arise from natural or human-caused events that can occur at different times and places. Threats include weather or other factors reducing breeding success in the north, consumption of

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Saskatchewan Landing Provincial Park, past Galloway Bay to Eston.



agrochemicals and other pollutants, water level changes affecting roosting sites, salt marsh habitat loss and disturbance (Sect 4.1.1). Some of these threats also affect Sandhill Cranes. The section below addresses threats that pertain to the geese when they reside in the IBA.

### 10.1 Disturbance by people.

Disturbance can negatively affect the geese themselves, and interfere with the public use and enjoyment (Sect. 9).

The flock-flight behaviour of geese and cranes is so infectious that a small disturbance of a few geese can send hundreds of thousands into flight. Human disturbance, particularly during night roosts, should be avoided because it causes the geese and cranes to waste energy in flight, and may cause them to leave an area prematurely. Disturbance can also interfere with the activities of others planning to watch birds or to hunt them.

Strategies to minimize disturbance must include education and a respect for wildlife, as it is encouraged now. Local residents have taken an active role in minimizing disturbance by reporting incidents to the authorities and by talking to people involved. More restrictive approaches are available (e.g. designation as a Wildlife Sanctuary<sup>8</sup>). A 500 m hunting restriction on lands

bordering the river is already in place during the crucial time and it is important to remember that there are usually costs associated with restrictions on people; a cost paid in lowered morale and lowered cooperation by local people and visitors -eroded 'social capital' generally.

### 10.2 Disease

Where white-fronts frequent lakes with repeated and intense botulism outbreaks (e.g. Pakowki Lake, AB, Old Wives Lake, SK, Whitewater Lake, MB), the geese do so in late summer or early fall, after bacterial growth has declined. Hence, the threat of white-fronts ingesting the toxin is lessened and the geese seem to be largely safe from this concern. Ely and Dzubin (1994) do mention cases of diseased geese, but major outbreaks at Galloway and Miry bays have not been recorded.

Any population of wildlife that is so concentrated at some stage of its life is vulnerable to easily transmitted diseases. If cases occur, these should be reported immediately to the Canadian Cooperative Wildlife Health Centre at the Western College of Veterinary Medicine in Saskatoon (Tel. 306-966-5099; <http://wildlife.usask.ca>).

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(Nieman and Isbister 1973, Anonymous 1994). The relevant regulations prevent disturbances while the birds are actually present including hunting and egg collecting. This designation does not protect habitat directly, but the Canadian Wildlife Service works closely with other organizations, industry and landowners to achieve this protection.

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<sup>8</sup> The Canadian Wildlife Service manages a network of Migratory Bird Sanctuaries under the Canada Wildlife Act

## 11 Conservation Goals and Objectives

Based on discussions with local area residents, conservation officers and biologists, it appears that there are no major threats to the birds at this time. It is rewarding to recognize that a site that is important to so many birds is functioning quite well, allowing monitoring and to maintain the birds there for recreational benefits. Conservation goals should maintain the management in place now, encourage education of people to avoid future conflicts, and be alert to future threats that may not be anticipated at this time. Any future management actions should be cognizant of the importance of the area for geese.

### 11.1 Management Goals

**Goal 1.** Continue to monitor goose numbers and distribution.

**Goal 2.** Maintain current hunting restrictions near the shore and prevent other disturbances (boating, viewing) if they present a problem for the birds.

### 11.2 Infrastructure Goals

**Goal 3.** Improve the region's non-consumptive uses as these appear to be underutilized.

**Action 1.** Coordinated promotion by Sask. Tourism in this region could be increased.

Local entrepreneurs should receive help in developing their ecotourism options and coordinating these with other opportunities to strengthen the region's tourism package.

**Action 2.** Viewing opportunities and disturbance could be better managed if sites were identified for specific purposes. Some of the most appropriate viewing sites should be developed by the Rural Municipalities of Lacadena and Riverside, and visitors could be directed to them through signs.

### 11.3 Educational Goals

**Goal 4.** Maintain or raise awareness among local people and visitors. This area's importance may be relatively small in the lifetime of an individual White-fronted Goose or Sandhill Crane, but the cumulative population impact is enormous.

**Action 1.** Offer to send a biologist/naturalist to local functions (agricultural fairs, sports days, various banquets) to relay recent goose count and other data to the local community and to answer any questions that may arise.

**Goal 5.** Encourage local people, hunters and bird watchers alike to consider the birds a resource that is shared by many people throughout North America, and to be tolerant of each other's activities. Bird watchers should be able to enjoy the birds without undue disturbance to birds and local people (Appendix 4). Hunters should be sensitive to non-hunter sensibilities and refrain

from littering the countryside with shot shells, carcass parts or feathers.

## 12 Evaluating Success

This IBA program is a new conservation program in Canada. In its current form, it was designed with a ten-year vision, to 2008. The participants of the Important Bird Area program in Saskatchewan and nationally will support this conservation process (Appendix 2). The persons listed in Appendix 1 represent important stakeholders and may be a first-level defence for the area. A local "champion" will accept some ownership for this conservation initiative and be vigilant for threats and encourage new conservation opportunities as they arise. Nature Saskatchewan will work with the local champion to review the status of the IBA and prepare a brief report annually.

Sig Jordheim (Appendix 1) has agreed to be the local champion for the Galloway and Miry bays IBA.

## 13 Acknowledgments

This conservation plan owes its existence to BirdLife International, and to the joint initiative by the Canadian Nature Federation and Bird Studies Canada for launching this program in

Canada. The Important Bird Areas Program is part of the Natural Legacy 2000 program, a nationwide initiative to conserve wildlife and habitats on private and public lands. We gratefully acknowledge the financial support of the government of Canada's Millennium Partnership Program.

For making IBA possible in Saskatchewan, we acknowledge the participation of our funding partners. Financial support for this publication has been provided by the Canadian Adaptation and Rural Development Fund in Saskatchewan (CARDS). Funding for the CARDS Program is provided by Agriculture and Agri-Food Canada. Saskatchewan Environment and Resource Management has provided both financial and "in kind" support. The Centre for Studies in Agriculture, Law and the Environment (CSALE) has provided office space and other services. Information from the Canadian IBA Database was provided by the Canadian BirdLife International co-partners, Bird Studies Canada and the Canadian Nature Federation. Updated information can be obtained by contacting Bird Studies Canada.

The IBA Advisory Committee members helped select IBA sites for conservation planning: Gregg Brewster, Stephen Davis, Frank Roy, Margaret Skeel and Alan R. Smith.

This specific plan also owes its existence to the local people who have cared and employed good judgment, enabling the birds are able to reside at the bays today. We are grateful to the persons listed here who have agreed to participate

in this conservation planning in their professional or private capacity (Appendix 1).

This report has been greatly improved by the following people, who have provided input over the telephone, by attending meetings and by reviewing versions of the manuscript: Calvin Fiala, Mac Garrett, Mike Gollop, Wayne Harris, Sig Jordheim, Dan Nieman, Frank Roy and Margaret Skeel, Ron Thistlewaite.

Darrel Cerkowniak, Sask. Land Resource Centre, Univ. of Sask., and Bill Sawchyn, Sask. Environment and Resource Management, produced the maps used in this report. Jeff Keith, Saskatchewan Conservation Data Centre, provided data and the map of threatened species.

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**Appendix 1.** Names, affiliation, contact information and general interests of individuals in connection with the Galloway and Miry bays IBA. By letting their name appear here, these individuals have made no commitment beyond agreeing to be contacted when their participation is requested.

**Gregg Brewster**, Ducks Unlimited Canada, Box 4465, 1606 4th Avenue, Regina, SK, S4P 3W7; 306-569-0424 g\_brewster@ducks.ca

Interests: Gregg is a wetland and waterfowl biologist familiar with the region.

**Nancy Cherney**, Sask. Environment & Resource Manage., 3211 Albert Street, Regina, SK, S4S 5W6; nancy.cherney.erm@govmail.gov.sk.ca

Interests: Nancy is a primary participant in directing SERM's Representative Areas Network.

**Calvin Fiala**, Sask. Environment & Resource Manage., 350 Cheadle Street W., Swift Current, SK, S9H 4G3; 306-375-5525

Interests: Calvin is the Conservation Officer responsible for the region. His office is located at Saskatchewan Landing Provincial Park.

**Mike Gollop**, Sask. Env. & Research Management, 112 Research Drive, Saskatoon, SK, S7K 2H6; 306-933-5767 mike.gollop@innovationplace.com

Interests: Mike is a Wildlife Biologist with SK Environment and Resource Management. He and his late father Bernie participated in the original surveys that demonstrated the use of the bays and river by the geese.

**Wayne C. Harris**, Sask. Environment & Resource Manage., 350 Cheadle Street W., Swift Current, SK, S9H 4G3; 778-8218 wayne.harris.erm@govmail.gov.sk.ca

Interests: Wayne is the Provincial Biologist for the grassland ecoregion and a naturalist with broad knowledge of species and ecosystems.

**Sig Jordheim**, Box 544, Kyle, SK, S0L 1T0; 375-2821

Interest: Sig, his wife Ruby and son Darrel farm NE of Galloway Bay. Sig not only enjoys watching wildlife, but he has also published many of his valuable observations in the *Blue Jay*.

**Dan Nieman**, Canadian Wildlife Service, 115 Perimeter Road, Saskatoon, SK, S7N 0X4, 306-975-4098 dan.nieman@ec.gc.ca

Interests: Dan is a Wildlife Biologist with the Canadian Wildlife Service. He is a principal representative for Canada in the international management of White-fronted Geese.

#### **K&P Outfitters**

Interests: K&P Outfitters is a partnership between Sam van Buskirk (, Box 212, Kyle, SK, S0L 1P0; 306-375-2270) and Stuart ("Mac") Garrett (Box 117, Pennant, SK, S0M 1X0; 306- 626-3249). Their main business is guiding U.S. goose hunters.

**Frank Roy**, 650 Costigan Way, Saskatoon, SK, S7J 3R2; 306-374-8571

Interest: Frank is a naturalist and author who, after retiring from teaching school, has spent many days watching and recording birds in the area. Frank also serves on the IBA Advisory Board

**Margaret Skeel**, Nature Saskatchewan, 1860 Lorne Street, Regina, SK, S4P 2L7; 306-780-9273 Fax 306-780-9263 mskeel@unibase.com

Interests: Margaret is the Program Coordinator for Nature Saskatchewan. In this role and with her strong interest in conservation, she helps deliver IBA-Saskatchewan.

**Thistlewaite Outfitters**, Ron Thistlewaite, Box 123, Stewart Valley, SK, S0N 2P0; Tel./Fax 306-778-2348 thisr@sk.sympatico.ca

Interests: Ron farms near Stewart Valley, and in fall and winter offers hunting and fishing tour-packages in Saskatchewan and in Venezuela.

**Earl Wiltse**, Sask. Environment & Resource  
Manage., 3211 Albert Street, Regina, SK, S4S  
5W6; 306-787-2889 or 2464 earl.wiltse.erm@  
govmail.gov.sk.ca

Interests: Earl is SERM's Species at Risk  
Specialist. He also serves on the IBA  
Advisory Board.



**Appendix 2:** Information on the lead organizations of the IBA Program

**BirdLife International** (Wellbrook Court, Girton Road, Cambridge, CB3 0NA, UK; [birdlife@ECNET.ec](mailto:birdlife@ECNET.ec))

A pioneer in its field, BirdLife International is the first non-government organization dedicated to promoting world-wide interest in and concern for the conservation of all birds and the special contribution they make to global biodiversity. 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 the Americas BirdLife Program, check the following web site:  
<<http://www.birdlife1.org.ec/ingles.html>>.

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

**The Canadian Nature Federation** (1 Nicholas Street, Ottawa, ON, K1N 7B7; <http://www.cnf.ca>)

The CNF 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** (P.O. Box 160, Port Rowan, ON, N0E 1M0; <http://www.bsc-eoc.org>)

The mission of BSC 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. BSC believes that thousands of volunteers working together, with the guidance of a small group of professionals, can accomplish much more than could the two groups working independently. Current programs collectively involve over 10,000 volunteer participants from across Canada.

BSC 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. BSC's web site is "<http://www.bsc-eoc.org/>"

**Nature Saskatchewan** (1860 Lorne Street, Regina, SK, S4P 2L7; [www.unibase.com/~naturesk](http://www.unibase.com/~naturesk))

Nature Saskatchewan is one of the largest conservation organizations in Saskatchewan whose vision is "Humanity in harmony with nature." Nature Saskatchewan was founded in 1949 and has been a reasoned and respected voice in conservation. Nature Saskatchewan's major accomplishments are in the area of education, conservation, research and publication.

Nature Saskatchewan's educational programs include delivery of the *Living by Water Project* in Saskatchewan and Manitoba, BirdQuest and PlantQuest workshops for youth and adults, a scholarship for graduate studies at universities, and sponsorship of nature camps for youth. In the conservation area, Nature Saskatchewan owns and maintains six nature sanctuaries, negotiates and refers conservation

easements, and fosters conservation through working with governments and industry.

Research conducted or facilitated by Nature Saskatchewan is through support for monitoring at high priority sites and for threatened species. Nature Saskatchewan is conducting inventories of flora and fauna at its nature sanctuaries. The organization co-manages the Saskatchewan Conservation Data Centre and operates a landowner stewardship program *Operation Burrowing Owl*.

Nature Saskatchewan quarterly publishes an internationally known journal *Blue Jay*, releases special publications on an irregular basis (22 to date), and publishes a quarterly newsletter *Nature Views*.

**Appendix 3.** At the inaugural **IBA-Saskatchewan** workshop in Saskatoon on 22 October 1997, 123 candidate areas were nominated by several dozen Saskatchewan naturalists. On 10 January 2001, the data compilation and assessment by outside reviewers was completed, which yielded 53 Important Bird Areas for Saskatchewan approved by Bird Studies Canada.

This number of approved IBAs may yet grow as more information becomes available. However, current priorities in this program involve the conservation planning and the implementation of actions flowing from the community conservation planning process. The 13 sites for which conservation plans have been completed or are in various stages of completion, are shown in the figure below. Two of these sites focus on grassland birds (Govenlock, Nashlyn and Battle creek IBA, and Colgate IBA) and the remainder focus on aquatic species. In cases where lakes are the focus, the adjacent upland is usually equally important in the ecology of the IBA birds. In some cases the IBA has been expanded to include the entire watershed (Redberry Lake, Chaplin, Old Wives and Reed lakes) or varying sizes of subsets thereof.

#### **Appendix 4.** Codes of conduct for nature viewing and hunting

As **wildlife viewers**, our goal is to watch animals behaving in natural ways in their natural habitats. We respect the needs of wild animals for space, natural vegetation, and ecological community. We recognize our responsibility to know the consequences of wildlife viewing .

We follow these guiding principles:

We will view or photograph from a distance that respects the needs of the wildlife, using proper equipment such as binoculars, spotting scopes and telephoto lenses. Before approaching wildlife we will first learn the spatial needs of each species and to recognize their alarm signals.

We will avoid noises or actions that might stress wildlife or cause animals to waste energy in unnecessary flight.

We will be patient, remembering that we are guests in wildlife habitat.

We will not trample or damage vegetation, both for the sake of the wildlife it supports, and for its intrinsic values.

We will not approach animals that are breeding, nesting, brooding or raising young, because parents and young are especially vulnerable at these times. We will learn the places and times to avoid these situations. We will not approach young or baby animals.

We will not feed wildlife, recognizing that feeding usually leads to problems such as unnatural food dependency, habituation to humans, disease or even death.

We will keep pets on a leash around any wildlife, and avoid bringing pets into sensitive wildlife habitat.

We will respect the rules and regulations of protected areas. Trails, roads, closure areas and

other management features are designed for safety and welfare of visitors, natural vegetation and wildlife.

We will be respectful of others including property owners, and other wildlife watchers.

We will give back to nature for the gifts of wildlife viewing we receive, through conservation work for wildlife and native vegetation and through helping others learn the ethics of wildlife viewing.

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**A hunter's code of conduct.** Drafted by private conservation organizations (the main proponent was the Izaak Walton League) and wildlife management agencies. Hunters are considered a backbone of wildlife conservation, but they must also safeguard the future of their sport by behaving responsibly.

- Respect the environment and wildlife
- Respect property and show consideration for non-hunters
- Hunt safely at all times
- Know and obey the law
- Support wildlife and habitat conservation
- Pass on an ethical hunting tradition
- Strive to improve outdoor skills and understanding of wildlife
- Hunt only with ethical hunters

*Ethical hunting is the true measure of the hunt.*

Notes: