

Big Lake

IMPORTANT BIRD AREA CONSERVATION PLAN

Fall 2000

by Bob Lane
for the
Alberta Important Bird Areas Program



Big
Lake
Environment
Support
Society



Alberta Conservation
Association

*Funded by Alberta Anglers, Hunters,
and Other Conservationists*



Ducks Unlimited Canada

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EXECUTIVE SUMMARY

Big Lake Important Bird Area

Measures to conserve natural bird populations succeed only where there is significant public support and involvement. It is clear from the historical development of government regulations, the evolution of special interests groups, the popularity of bird watching as a recreational activity, and other indicators that birds and birding hold a special place in the hearts of Canadians.

The IBA program is an international initiative coordinated by BirdLife International, a partnership of member-based organizations in over 100 countries seeking to identify and conserve sites important to all bird species worldwide. Through the protection of birds and habitats, they also promote the conservation of the world's biodiversity. The Canadian IBA program is being delivered by the Canadian Nature Federation (CNF) and Bird Studies Canada (BSC) at the national level, and by the Federation of Alberta Naturalists (FAN) at the provincial level.

The Canadian Important Bird Area program offers opportunities for local stakeholders to become involved in identifying and promoting effective conservation measures. Big Lake, Alberta, a "globally significant" Important Bird Area (Canadian IBA Database, 2000), can benefit in this way.

Big Lake is located in central Alberta, adjacent to the northwest corner of Edmonton. It is a feature of the Sturgeon River, which flows to it from the west and northwest, and from it eastward through the City of St. Albert. The river eventually drains to the North Saskatchewan River. The lake is shallow and supports considerable emergent vegetation. It has been recognized as a provincially significant waterfowl breeding and staging area, and some 221 species of birds have been verified on or around the lake (Demulder, 2000).

The identification of Big Lake as a globally significant Important Bird Area is due to the high numbers of Franklin's Gulls, Tundra Swans and the autumn migration of waterfowl, but the main

attraction is the great variety of birds of all types that use this site throughout the year. There is a recorded instance of 10,000 Northern Pintails during spring migration a few years ago. In recent years, Ospreys have increase and Eurasian Widgeons are now seen annually. Nationally threatened Peregrine Falcons, probably from the government recovery program in Edmonton, can be seen hunting around the lake.

For decades, interest has been shown in the proper protection of the lake for recreational and educational uses. The province is the owner of the lake proper, as well as two parcels of crown land adjacent to it. Most of the land ownership around the lake is private, and it is critical that landowners be a significant part of any management plan.

The site offers opportunities for long-term usage by schools and other organizations as an example of a prairie wetland ecosystem. Some ideas for eco-tourism have been advanced. Access to the lake is limited, which is helpful in terms of protection, but challenging in terms of usability.

Big Lake is subject to a variety of threats, including impacts from adjacent land uses. Appropriate agricultural, chemical management and industrial practices require promotion and acceptance by landowners. Purple Loosestrife has been encountered in the area.

The Province of Alberta has recently designated Big Lake as a "Conservation Natural Area", under its Special Places 2000 (SP2000) program (Big Lake Local Committee, 1999). This means that a local management committee will be formed to guide the processes deemed necessary for protection and management of the lake. The IBA program, which is accompanied by no managerial authorities, can therefore identify no long-term management recommendations at this time. It can, however, implement a program that benefits the profile of the lake without usurping the future management authorities of the SP2000 committee.

Initially, while Alberta is determining the establishment of its SP2000 management of Big Lake, the local IBA conservation plan will focus on education. The objective will be to heighten local awareness of the values of conserving Big

Lake's bird populations. Family-oriented programs at the lake will serve to publicize the IBA status and entrain the support of residents. Municipalities will be approached regarding establishment of appropriate signage for informing the public about the IBA site. At the same time, the Big Lake Environment Support Society (BLESS) and partners will continue to monitor the status of species that were significant in the identification of Big Lake as an IBA site.

The numbers of persons attracted to the shore-side educational programs will determine the success of the year-2000 IBA projects. The acceptance of a brochure that describes the IBA objectives for Big Lake will also help evaluate the program.

Contacts

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1. INTRODUCTION

Albertans traditionally have a strong relationship with their environment. Relying substantially on a resource-based economy, Alberta inevitably is confronted by environmental issues, both positive and negative. Many of the most newsworthy events in the province involve the environment.

The province contains some of Canada's best known national and provincial parks. Tourism is a major economic factor for Alberta. All the resource segments of the province either benefit from, or pose risks to, the natural environment. Alberta's environmental legislation has been trend setting. It was the first Canadian province to establish an environment department. It is small wonder then that Albertans are frequently exposed to information about all elements of the environment, including birds.

Birding is one of the most popular recreational activities in Alberta. The annual Christmas Bird Count in Edmonton is world-leading in terms of participation. In addition to that event, there are no fewer than nine additional formal Christmas bird counts in the Edmonton area, including one that focuses on Big Lake. Clearly, there is a hunger for opportunities to view and enjoy bird life in this area. The nearby annual Snow Goose Festival at Beaverhill Lake attracts some 5,000 visitors annually.

Big Lake is a eutrophic lake bordered by Edmonton on its southeast, St. Albert on the east, Sturgeon County on the north and Parkland County on the southwest (See map page ??). It is recognized as a major waterfowl moulting and staging area, and is also home to a multitude of other bird species.

In 1990, a group of concerned citizens formed a registered non-profit organization dedicated to promoting the protection and conservation of Big Lake. The Big Lake Environment Support Society (BLESS) has been successful in many ways (see Section 8.0), including the establishment of facilities (shelter, viewing platform, trail), hosting of festivals and other events, coordination of cleanup activities, promotional brochures, collection of field data, advocacy positions regarding developmental issues, field trips and

lectures, and annual environmental education programs.

There is a long history of efforts to determine how to protect Big Lake. These are provided in more detail in Section 7 and elsewhere in this Plan. The most recent is the successful recommendation of a local committee to have the lake designated a Conservation Natural Area under the Alberta Special Places 2000 program (SP2000) (Big Lake Local Committee, 1999). There is an opportunity to influence the next phase of that program, and to encourage authorities (such as the municipalities) to develop appropriate long-term conservation plans for Big Lake.

Many other stakeholders contribute to the conservation goals for Big Lake: Ducks Unlimited Canada, federal and provincial environment departments, Federation of Alberta Naturalists, Edmonton Bird Club, Edmonton Natural History Society, service clubs and both provincial and local Fish and Game associations. Landowners are a vital part of any concerted effort to achieve conservation goals, as they are in a position to voluntarily take significant steps.

The Important Bird Areas (IBA) program (Section 2) provides an opportunity for all stakeholders to build on the efforts of the past. The IBA Conservation Plan can provide one of the tools needed by the forthcoming SP2000 management committee. It can provide focus for the birds and birding elements of the total management scenario.

The numbers of two individual species, and the autumn migration of waterfowl through Big Lake, qualify the site as an Important Bird Area. The two qualifying bird species are Tundra Swans and Franklin's Gulls. Details about these species and also the autumn migration of waterfowl are found in Section 4. The recorded number of species have led to the identification of Big Lake as a "globally significant" Important Bird Area.

It is therefore fair to state that birds and birding are of highest interest to Albertans. The conservation of Big Lake for birds and the multitude of plants and animals within this area will also benefit Albertans. The proximity of Big Lake to several large urban populations should be seen as an opportunity to provide education and managed access to a world-class natural site.

2. THE IBA PROGRAM

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

The Canadian BirdLife co-partners are the Canadian Nature Federation (CNF) and Bird Studies Canada (BSC) (see Appendix A for information about these partners). The Canadian IBA program is part of the Americas IBA program that includes the United States, Mexico, and 17 countries in Central and South America.

The goals of the Canadian IBA

program are to:

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

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

- 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.

The lead partner for the Alberta Important Bird Area program is the Federation of Alberta Naturalists (FAN). The Alberta program was launched in the spring, 1999, with the hiring of a Community Conservation Planner, (a.k.a. IBA Coordinator). Instrumental to the success of the Alberta program is the Alberta IBA Advisory Committee, animated by members from the Federation of Alberta Naturalists, the Alberta Conservation Association, the Provincial Museum of Alberta, the Canadian Wildlife Service, and the province's Natural Resource Services.

The Alberta IBA Program puts a premium on the voluntary and participatory nature of IBA conservation planning. In this regard, the Program seeks the cooperation and participation of the site's landowners and/or land managers and bird or wildlife agency personnel with an interest in the site. The Program is particularly interested in identifying, supporting, and empowering local, grassroots birders and bird clubs. By supporting these local bird interests, both financially and technically, and by facilitating the participation of local conservationists in the formulation, writing, and implementation of conservation plans for their favourite sites, FAN is working to build local buy-in, ownership, and a commitment to long-term stewardship of the site.

To this date, Bird Studies Canada has identified 31 Important Bird Areas in Alberta. Others will follow. At this time, local stakeholder groups are writing IBA conservation plans at over a dozen sites. If you are curious about any of these sites, one-page site summaries for many sites are posted on the IBA Canada website:

<www.ibacanada.ca>. Additional sites will be listed as they receive the requisite approvals. For more information, please telephone the Alberta IBA Community Conservation Planner at (780) 422-5582, or the FAN office at (780) 427-8124.

3. IBA SITE INFORMATION

Big Lake (53° 36' N, 113° 43' W) is a wetland ecosystem located in central Alberta, Canada, bordered by the municipalities of Edmonton, Parkland County, Sturgeon County and St. Albert (please see map, page ??). The 1996 population of the Edmonton Census Metropolitan Area was over 860,000 (Statistics Canada, website). Edmonton, the Capital City of Alberta, provides the largest population.

The habitats encountered in the site area include: freshwater lake, freshwater marsh, deciduous and mixed woods, improved grasslands and cultivated lands.

The lake has a relatively fixed boundary on the south side, which supports large stands of mature aspen, birch and white spruce, and where the shoreline rises steeply in some places. On the other sides, the gentle slope of the shoreline results in a much larger surface area in times of flooding and a much smaller surface area during dry periods. During low water years, mudflats are present along the north shore.

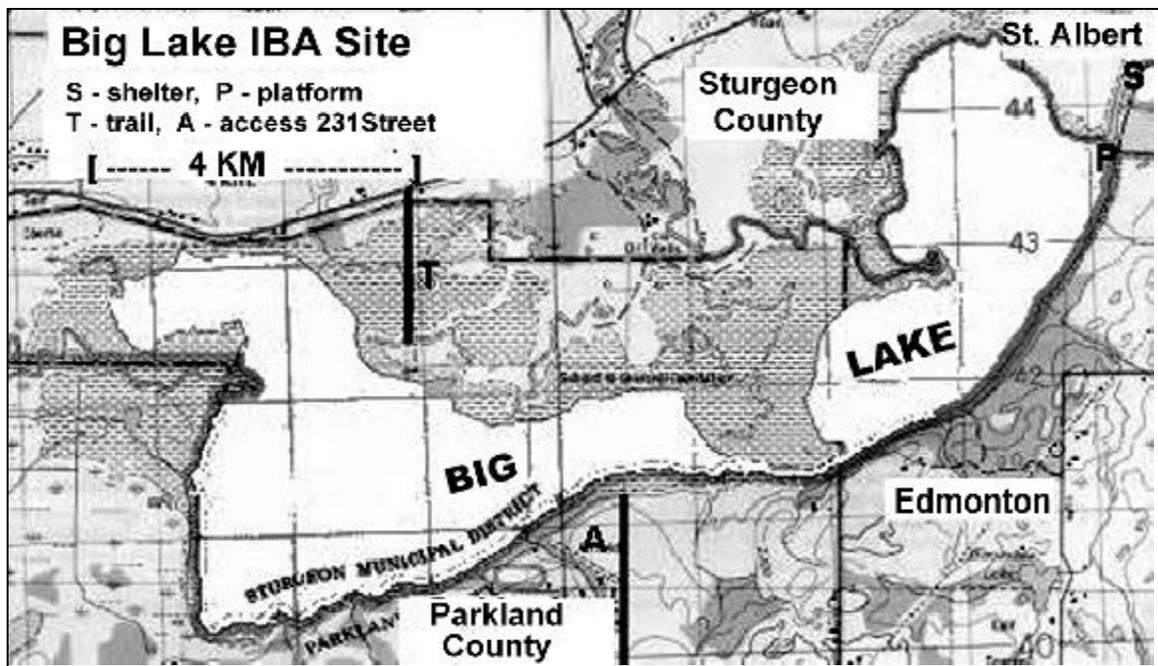
As a result of these hydrologic characteristics, the lake functions as a natural reservoir and flood control system for the city of St. Albert. Governments have completed Flood Damage

Reduction programs downstream of Big Lake, illustrating the location of the 100-year floodplain (Canada-Alberta Flood Damage Reduction Program, 1991).

The lake supports extensive stands of emergent vegetation. The depth in the central portions of its two basins is generally less than 4 metres. The area determined for the designation of Big Lake to the Alberta Special Places program is 21.4 sq. km.

The lake is a feature of the Sturgeon River, which flows eastward to the North Saskatchewan River, entering the basin occupied by Big Lake in a classic delta pattern on the north central side of the lake. The Sturgeon River flows from the lake at its eastern edge, passing into and through the City of St. Albert, one of the oldest communities in Alberta.

Although the Big Lake wetland hosts a broad variety of plant and animal species, much of the attention has been given to its bird life. Both Ducks Unlimited Canada and the North America Waterfowl Management Plan (NAWMP) have declared it to be a significant nesting and staging area for waterfowl (North America Waterfowl Management Plan, 1989). Ducks Unlimited has recognized the Lake as a "Wetlands for Tomorrow" site.



In 1997 Big Lake was nominated by BLESS for the Alberta Special Places 2000 program. At the request of the provincial Minister of Environmental Protection, a local committee comprised of the 4 municipalities, private landowners, BLESS, St. Albert Fish and Game Association, Fletcher Challenge Energy Canada and the Off Highway Vehicles Association developed recommendations for the adoption of Big Lake to the SP2000 program (Big Lake Local Committee, 1999). The Minister agreed and in 1999 Big Lake was declared an Alberta Conservation Natural Area. At the ceremony, the Alberta Minister challenged BLESS and others to pursue the objectives of the SP2000 program through education and information programs.

The four municipalities have generated a variety of reports pertaining to Big Lake. St. Albert has conducted most, although for the most part the St. Albert studies have been directed at usage of its lands adjacent to Big Lake. The stimuli for these have been the development of the Red Willow Park trail system within the city, and the proposed construction of a highway (St. Albert West Bypass) close to the eastern edge of Big Lake.

4. IBA SPECIES INFORMATION

4.1 IBA Species

Recognition of Big Lake as an IBA site is due to globally significant numbers of two individual bird species, as well as large congregations of migrating waterfowl through the lake. The two species singled out for detailed descriptions are Tundra Swans (*Cygnus columbianus*) and Franklin's Gulls (*Larus pipixcan*). Brief accounts are also included in this report for a few other species, to provide a broader flavour of the ornithological significance of Big Lake.

Tundra Swan (*Cygnus columbianus*)

The statistical information about this species that qualifies Big Lake for IBA status includes reported numbers of 1,000 in 1999 (fall migration) from P. DeMulder (pers. comm. to Steve Wilcox) and 12,000 in 1998 (fall migration) from P. DeMulder and A. J. Doberstein (pers. comm. to Steve Wilcox). The 12,000 number is probably exceptional, and it was derived from a carefully planned survey of the lake by the reporting naturalists. Migrating swans are usually seen in the central portions of both the major sections of the lake.

The population estimates for the whole species are summarized below (Chaundy, pers. comm.):

Tundra Swan - The 1997 mid-winter estimate for the eastern population was 86,120 swans (Dilworth-Christie and Dickson, 1997). There has been no apparent trend over the last ten years of the survey (USFWS, 1997). The 1998 midwinter index was 96,500, and 109,000 in 1999 (CWSWC 1999). A 1% threshold, therefore, is about 860 birds. This is the minimum number of birds needed to qualify a Tundra Swan site as globally significant.

The western population breeds along the coastal lowlands of western Alaska and migrates through western Canada along the Pacific Coast. The 1997 mid-winter estimate for the western population was 122,521 swans, which was about 25% larger than the 1996 mid-winter estimate of 98,100 (Wyndham and Dickson, 1996). The 1998 midwinter index was 70,000, and 119,800 in 1999 (CWSWC 1999). Dilworth-Christie and Dickson (1997) suggested that over the last ten years this population has increased by about 8% per year. The 1% threshold for the western population is

	Season	Number
Tundra Swan	Fall Migration	>1,000
Franklin's Gull	Breeding	500 to 3,000 nests
Waterfowl	Spring, Fall Migration	>20,000

Table 1: Numbers of globally significant IBA species at Big Lake, Alberta (data from Canadian IBA Database, 2000)

therefore approximately 1220 birds.

The global threshold is therefore 2080 birds. Therefore, the recorded numbers using Big Lake in migration are acceptable for qualification.

Franklin's Gull (*Larus pipixcan*)

This species qualifies Big Lake for IBA status due to recorded numbers of nests (500-3000 nests; equals possibly 6,000 individuals breeding), from Poston, et al, 1990. The colony of this species has been located at the far western and northwestern portions of Big Lake. The recurrence of this colony prompted authors of a recent field guide (Fisher and Acorn, 1998) to cite Big Lake as one of 3 well-known colonies in Alberta. The total population estimates for Franklin's Gulls are summarized in the following paragraph (Chaundy, pers. comm.):

Franklin's Gull - Rose and Scott (1997) cited a population estimate of 100,000 to 1,000,000 (based on Schlatter pers. comm. 1996). del Hoyo et al. (1996) provided a population estimate of c. 350,000 pairs. And Burger and Gochfeld (1994) compiled a population estimate of about 500,000 individuals. Using the latter estimate, the global threshold becomes 5,000 individuals. No Canadian estimate is known.

A provincial biologist took note during the summer of 1999 that there was an absence of Franklin's Gulls on Big Lake at the breeding colony. This has raised some questions about the future of the colony. Specific monitoring will be commenced during 2000 to determine the status of the colony.

Staging Waterfowl (ducks), Fall Migration

Big Lake is a well-known staging area for waterfowl. In fact, there is some hunting on the lake, restricted due to limited access. One official count from the Canadian Wildlife Service (Kemper and Doberstein, 1977) recorded 24,000 waterfowl at Big Lake. An earlier survey is reported to have ~26,000 in a one-day count (Ducks Unlimited Canada, 1986). Waterfowl observed at these times includes at least 2 species of geese and numerous species of ducks, as well

as the Tundra Swans and occasional instances of Trumpeter Swans. The migrating flocks are found in all portions of Big Lake, mostly at distances from hunters that use the lake on the north side.

This meets the criterion for a global level site, which is 20,000 or more individual congregatory birds.

4.2 IBA Species Accounts

Tundra Swan (*Cygnus columbianus*)

As one of the largest and most spectacular birds of North America, Tundra Swans have been featured in the "classic" waterfowl bird books (e.g. Hochbaum, 1955; Bent, 1962; Kortright, 1942). The Lewis and Clark expedition found and named this species near the Columbia River. These early accounts use the name "Whistling Swan" and frequently refer to the severe impacts of hunting on populations of the species. In Europe (and until recently in North America) it is called the Whistling Swan. All swans have been protected from hunting in North America for many years.

In Alberta, this species is commonly seen at Big Lake and other locations in April and early May, migrating northward. During the spring migration, Tundra Swans move into and through areas that are still experiencing early forms of spring breakup. They typically reach their Arctic breeding grounds before thaw (Fisher and Acorn, 1998).

Fall migration through this area occurs mainly in October. Interestingly, Tundra Swans are often seen during the autumn located on many small sloughs. Concentrations at Big Lake vary but reports have cited as many as 12,000 in October, 1998 (Demulder and Doberstein, 1998). Occasionally young birds remain behind, become trapped and perish in the winter ice.

Unlike the Trumpeter Swan, this species does not nest in Alberta. When feeding, it "tips up, dabbles and surface gleans for aquatic vegetation and aquatic invertebrates; grazes for tubers, roots and waste grain." (Fisher and Acorn, 1998).

Swans pair for life and remain inseparable

through their life cycle (Kortright, 1942). The breeding area is along the west coast of Alaska and the north "continental" coast of the Yukon and Northwest Territories.

Franklin's Gull (*Larus pipixcan*)

Franklin's Gulls are best known on the prairies as the gull one sees following farm implements in large flocks, scrounging food from the freshly disturbed soil. Their characteristic cries are described as "mewing, shrill weee-ah weee-ah while feeding and in migration" (Fisher and Acorn, 1998).

This species nests in large colonies. The colony at Big Lake is well known but remote, so that it has not been monitored regularly. There is some indication that the colony was reduced significantly in 1999, but this is unconfirmed. If this was the case, then the reasons for that change should be examined, as the colony has been a long tradition at Big Lake (Fisher and Acorn, 1998).

The following has been para-phrased from "The Atlas of Breeding Birds of Alberta" (Federation of Alberta Naturalists, 1992):

'This species arrives in Alberta during April. From late July to late September, they are found in large numbers on lakes; they have usually left Alberta by end of October.

Franklin's Gulls frequent larger, reedy lakes and marshes and forage over water, grassy fields, meadows, ploughed land and other open areas. They have been observed at landfill sites.

Since the 1950s and 1960s, the species has extended its range northward from southern Alberta to more northern sites. The present status in Alberta is unclear but may be declining. Pesticide use has been cited as a possible cause for declining populations. The large colonies that typify the species can change locations, according to water levels.'

Other Bird Species

Big Lake has been a favourite place for bird watching for decades, despite limited public access. BLESS has compiled a bird checklist of 221 species that has benefited from formal bird

counts, plus the records of reputable birders. Care has been taken to ensure the validity of rare sightings. For example, reports of a Black-necked Stilt have not been verified, so that species has not been included in the records.

Big Lake has traditionally been a resting place for northward migrating Northern Pintails. A major embayment in the northwest part of the lake is locally called Pintail Bay. A few years ago, the Canadian Wildlife Service estimated 10,000 pintails at Big Lake en route north during May. The Alberta population of pintails at that time was estimated at 100,000.

In years when water levels are low, a variety of migrating shorebirds can also be observed at the north end of the lake. Common species include yellowlegs, dowitchers, Pectoral Sandpipers, American Avocets, and a variety of small peeps. Nesting colonies of Eared Grebe and Black Tern are also present. There are many breeding species in the adjacent lands.

In recent years, the numbers of Bald Eagles and Osprey using the lake seem to have increased. Nationally threatened Peregrine Falcons, probably from the government recovery programs in Edmonton, can occasionally be seen hunting over Big Lake. Eurasian Widgeon now appear annually and may be nesting there.

5. OTHER ELEMENTS OF HIGH CONSERVATION VALUE

The wetlands areas of Big Lake, and the adjacent woodlands, are home for several species of fish, including Northern Pike; numerous species of mammals such as deer, moose, coyotes; and many species of amphibians, plants and insects. Species occurrence and abundance are relatively well known due to twice-annual bird counts sponsored by BLESS (Demulder, pers. comm.) for the past 9 years, as well as the records of reputable birders from the Edmonton Bird Club and elsewhere. However, inventories of other elements, including vegetation are lacking.

The Big Lake wetlands have been subject to many studies. A report by the Canadian Wildlife Service of Environment Canada (Canadian

Wildlife Service, 1969) examined: "An Integrated Land Use Concept for Big Lake, Alberta". That report pointed out that recreational use on Big Lake for "scientific study groups (university), bird clubs, natural history clubs, Boy Scouts, High School science classes, boaters, picnickers and sightseers" was restricted by "limited access". The report stated "the location of Big Lake to Edmonton is comparable with that of Waskana Lake to Regina and Stanley Park to Vancouver". The report also contains the following:

"In all of western Canada, no city or centre of population has such a potential beauty spot on its door step and it is my [the CWS author] feeling that this fact should be driven home to the people both in this area and in the government departments which will be called upon to foot part of the [integrated land use] bill."

Big Lake is seen as a valuable example of a prairie wetland ecosystem. Although birds and larger mammals attract most of the attention, efforts have always been made to present Big Lake as a complex ecosystem containing many elements requiring preservation.

6. LAND OWNERSHIP AND USE

"Ownership" of Big Lake can be viewed as being of two distinct entities. The body of the lake, and two parcels of crown land on the north side belong to the province of Alberta. Other lands bordering Big Lake are either privately owned, or belong to one of the municipalities. The most private land is used for farming and golf courses.

The history of formal land ownership extends back to the St. Albert Settlement when river lots extended from the shoreline in parallel strips. Even now, individual titles must be consulted to determine how ownership at the edge of the lake is defined.

There is an archaeological as well as historical interest in Big Lake (Edmonton Metropolitan Regional Planning Commission, 1989). Artifacts found on St. Albert lands along the eastern edge of the lake suggest that a primitive community

used the area about 5,000 years ago. The recorded histories of St. Albert and other communities in the area are replete with references to the importance of Big Lake.

Access to the lakeshore is quite limited due to extensive private land holdings. At the eastern edge of the lake, there is access from St. Albert. A major viewing platform (built by BLESS and partners) is located at the point where the Sturgeon River flows from Big Lake. The Red Willow Park Plan for St. Albert includes the possibility of future trails and even an interpretive center close by. Those plans are under review by the City of St. Albert.

Along the northern side, the St. Albert Rotary Club and Ducks Unlimited Canada (DUC) have established a nature trail with parking lot. This trail is through the flat area that contains marsh vegetation and is subject to annual and seasonal variations in water level. The lake is also accessible by canoe from St. Albert or along Atim Creek at the western side of the lake. Elsewhere, access is enabled only from road right-of-ways at a few locations.

It is fair to state that some landowners are concerned about efforts to "manage" Big Lake. They quite rightly are wary of new regulations that might have impacts on land values and their uses of the land. On the other hand, both commercial and private landowners are potential allies in ensuring the security of the lake, and will be consulted as this plan develops.

One growing land use is the development of lands for residential housing along the south shore (Edmonton and Parkland County). There is reason to believe that new residents are attracted to the area partly because of the beauty of the lake and its ecosystem. These residents are also potential allies.

The future local management committee (SP2000) will be charged with long range planning based on the wishes of all land owners and other stakeholders.

7. CONSERVATION MANAGEMENT ACHIEVED AT BIG LAKE

Although the municipalities have demonstrated interest in the Big Lake wetlands from a conservation point of view, there has to date been no formal concerted conservation management of the entire wetland area, other than provided by provincial and federal environmental laws.

Some municipalities have offered protection through bylaws, such as an Edmonton Bylaw that requires an environmental impact assessment of proposed projects in the ravines of Big Lake.

In 1989, the local municipalities, acting through what was then called the Edmonton Metropolitan Regional Planning Commission (EMRPC), completed a broad range of studies of the lake. This resulted in a report called the "Big Lake Plan" (EMRPC, 1989).

The Big Lake Plan set out a number of very specific guidelines for land use planning around the lake, and attempted to set the stage for comprehensive land use management of the wetlands. Included in a matrix of participants was a yet unformed organization for environmental advocacy. In part, that recommendation stimulated the formation of the Big Lake Environment Support Society.

Not many of the other specific recommendations of the Big Lake Plan became enshrined in municipal bylaws. However, municipal interest in the wetlands has been reaffirmed by their participation in the SP2000 program.

Big Lake has also attracted the interest of Ducks Unlimited Canada (DUC), the North America Waterfowl Management Plan (NAWMP), and both local and provincial Fish and Game bodies. DUC has acquired about 250 acres of land along the north side of Big Lake, so is counted among the landowners.

The Special Places 2000 designation enables conservation guidance, but actual regulatory management pertaining strictly to Big Lake is less

likely than the evolution of good practices from voluntary efforts of the landowners. As of January 2000, the formation of a management committee stemming from SP2000 is on hold until Alberta completes revisions to appropriate legislation.

8. IBA STAKEHOLDER GROUP ACTIVITY

The Big Lake Environment Support Society (BLESS) was formed in October 1990. A group of approximately 30 concerned citizens met to discuss the formation of an advocacy group to support the conservation objectives outlined for Big Lake in the Big Lake Plan and in the Red Willow Urban Park Plan. All four of the jurisdictions around Big Lake were represented in the initial membership. Membership since that time has reached more than 300. BLESS received its charter as a registered non-profit organization on January 6, 1991 and has been active since then in promoting the following objectives:

- habitat enhancement
- promotion of conservation objectives
- development of interpretative trails
- development of interpretative facility and programs

In the initial years, BLESS pursued its goals through the raising of funds and development of partnerships to construct facilities at the lake, and draw people to the lake through festivals and education programs. A shelter was constructed in partnership with the City of St. Albert; a major viewing platform structure was built in partnership with Alberta Environmental Protection, Ducks Unlimited Canada and the City of St. Albert; and a series of Winterfest festivals was held in lands adjacent to the lake. After 3 years, the latter were abandoned after extreme weather conditions resulted in financial losses to the society.

The society in recent years has been involved in the promotion of conservation of lands that appeared threatened by a highway proposal close to the eastern shores of Big Lake. This issue has received considerable publicity, in part due to BLESS's efforts, and appears close to resolution.

These, and many other accomplishments by BLESS on behalf of Big Lake earned it recognition through the awarding of the prestigious Alberta Emerald Award for Environmental Excellence, in 1996.

Naturally, there are many other "stakeholders" involved, or with the potential to get involved in the conservation of Big Lake. These can be divided into "formal" decision makers that have legal authorities to implement measures, decision makers who may be encouraged to voluntarily take conservation measures, and "advocates" who work to influence the decision makers.

The formal decision making stakeholders include the provincial government and the four municipalities. The federal government could also be included because of its authorities under the Migratory Birds Convention Act, the Navigable Waters Protection Act and the Fisheries Act.

Alberta Environmental Protection maintains a program of monitoring water levels (actually conducted by BLESS on behalf of the province) and has recently conducted a study of water quality of Big Lake. Alberta Agriculture maintains a watching brief on the Purple Loosestrife situation and has (with the federal government) recently produced a report on impacts of agricultural practices on Atim Creek, which drains to Big Lake.

The many and varied kinds of landowners around Big Lake are a vital component of any conservation plan. Private individual landowners are understandably concerned about increasing regulatory restraints on their businesses and lives. The IBA stakeholder group will work constructively with these landowners, as well as those owners that are companies, associations, etc. At this time, it is not possible to list all the individual landowners that are relevant to Big Lake.

The advocates include provincial and local Fish and Game organizations, Ducks Unlimited Canada, some service clubs (e.g. the St. Albert Rotary Club), natural history clubs (e.g. Edmonton Bird Club and Edmonton Natural History Club) and larger organizations like the Federation of Alberta Naturalists.

- Ducks Unlimited Canada has supported other organizations such as the St. Albert Rotary Club and BLESS with their projects at Big Lake. DU has also acquired lands on the north side of the lake, and so is a landowner stakeholder.
- The Rotary Club project entailed development of a trail with parking lot, signage, resting benches and viewer area, located on the north side of Big Lake.
- The Edmonton Bird Club, the Edmonton Natural History Club and other naturalist organizations frequently use Big Lake for field trips.
- The St. Albert Fish and Game Association has installed goose-nesting sites on Big Lake.

9. OPPORTUNITIES

Big Lake offers opportunities for many conservation and protection measures, as well as opportunities for research. These and an appropriate monitoring program can contribute strongly to the following opportunities for the general public. Success in any of these areas depends on the formation of partnerships among the various stakeholders.

9.1 Educational

The large population of the Metropolitan Edmonton area has a unique opportunity to make use of Big Lake as a "classroom" for studies related to the environment. School, church, scouting and other organizations are keenly interested in opportunities for educational field trips.

Education also serves to heighten public awareness and gain support for protection and conservation measures.

9.2 Recreational

Birding and other natural history pursuits are obviously well served by the availability of Big Lake. For example, the Edmonton Bird Club regularly has field trips to these wetlands. Ducks

Unlimited and the Musee Heritage Museum (St. Albert) have also held annual birding trips to Big Lake.

The St. Albert Rotary Club, with Ducks Unlimited, has developed a trail system with signage on the north side of Big Lake. Additional trail systems are being planned by BLESS and its partners.

The BLESS viewing platform and shelter structures, and an improved trail in the area, are used for recreational and educational purposes alike.

9.3 Commercial

There has been occasional mention of promoting eco-tourism in the Big Lake area. These have received mild support from BLESS, although there is concern that any tourism venture be operated in an environmentally secure fashion.

9.4 Other

BLESS believes that there is strong emotional support for the protection of Big Lake and its bird life by persons who may never visit the lake personally. It is quite difficult to assess such values and the support that exists for them. Nevertheless, opponents to the Bypass highway mentioned earlier succeeded in obtaining more than 11,000 names on a petition of persons eligible to vote in St. Albert. The population of St. Albert was about 44,000 at the time. This amazing feat seemed to illustrate strong local support for the protection of Big Lake. Just knowing that the lake is there and is protected is important, and constitutes a "use".

10. THREATS

Threats to the Big Lake wetlands can be classified as those that can directly affect the lake and its ecosystem, and those that can affect access to the lake.

The former category includes land use impacts that can adversely affect water quality and water quantity, which could in turn affect birds that forage and breed at Big Lake. These impacts can

be from agriculture, oil and gas, and golf course operations. They can also occur as a result of large-scale municipal waste management operations, such as the sewage pipeline that lies along the southern edge of Big Lake.

A major study has been initiated to evaluate the effects of future development in Parkland County that could have negative impacts on the quality of Big Lake waters, due to changes in erosion patterns.

Purple Loosestrife has been identified as a potential threat to Big Lake. Unfortunately, this attractive garden plant can grow rapidly and expansively in wetlands, to the detriment of other species required by waterfowl. Several organized "pulls" have been organized near the lake and along the Sturgeon River.

Disturbance by motorized boating has been a concern on Big Lake, particularly during nesting season. Many species of birds nest along all of the edges of Big Lake, and in the patchy vegetation in shallow areas. BLESS has commenced an initiative with City of St. Albert to encourage greater restrictions on the Sturgeon River. This initiative could be expanded to include the lake.

One of the major factors that influence bird populations is the nature of the hydrology of the Sturgeon River. In "wet" years, where large snow-pack results in high flows, Big Lake floods extensively. In "dry" years, with little snow-pack and low summer precipitation, the lake withdraws and nesting habitat for many species, including Franklin's Gull is affected. There have been no studies on the specific impacts of these events on bird populations, or even on the impacts on vegetation.

Big Lake has potential for eco-tourism activities, but access to the lake is more limited, due to considerable private land ownership around the lake. In some ways, this limited access serves to protect the lake from potentially irresponsible tourism activities. In other ways, limited access presents a myriad of potential threats to the lake, if private land uses should happen to impair recognition of the natural history values of the lake.

11. CONSERVATION GOALS AND OBJECTIVES

Long-term conservation planning and management for Big Lake requires commitments from the key stakeholders. At this time, the most probable formal approach would be through the management phase of the Albert Special Places 2000 program, which awaits legislation changes. This IBA conservation plan cannot and should not attempt to foresee the directions to be taken by the SP2000 committee. However, IBA conservation planning can proceed in a benign way to elevate the educational programs already underway at Big Lake.

A major bird monitoring program is planned by BLESS, Alberta Environmental Protection, Canadian Wildlife Service, Ducks Unlimited Canada, Edmonton Bird Club, Edmonton Natural History Society, St. Albert Fish and Game Club, Spruce Grove Fish and Game Club and Stony Plain Fish and Game Club. A recent meeting of all parties successfully developed a 3-year monitoring plan that commenced this fall (2000) with periodic surveys of Tundra Swan populations. Other aspects include special shorebird surveys, using techniques developed by the Canadian Wildlife Service.

For the year 2000, BLESS proposes an enhancement of its environmental education programs at Big Lake through the IBA program, particularly in view of the challenge presented by the Alberta Minister of Environmental Protection. The Minister, at the ceremony designating Big Lake to SP2000, promoted the notion that BLESS and others must work to entrain the support of land owners, in part through educational programs.

Through its internal planning processes, BLESS also intends to consider additional programs of trail and structure designed to encourage the use of the wetlands by the public in responsible recreational activities.

On a long-term basis, there is clearly a need for more information about the ecosystem and the factors that affect it. Inventories of all components of the wetlands should be planned.

At this time, the bird inventory is a good start, but other plant and animal inventories are needed. Better information about land use is also needed.

For 2001, Alberta Environmental Protection proposes to coordinate field surveys by its staff, Ducks Unlimited Canada, Canadian Wildlife Service and BLESS of the status of uses of Big Lake by Franklin's Gulls and Tundra Swans.

In summary, the following activities are proposed:

- Produce accelerated educational programming aimed at elevating the profile of the lake, birds and other biodiversity, as well as generating an improved information base for residents and visitors.
- Consult other stakeholders with a view to identifying existing and potential activities that contribute to the major objective of conserving birds and bird habitats in the Big Lake wetlands. These can include inventories, monitoring and research work; expanded trail and platform projects; festivals and other attractions; regulatory (bylaw) development/amendment; additional educational and information programs; and others.
- Conduct specific surveys of the key IBA species for Big Lake (Tundra Swans and Franklin's Gulls, migrating waterfowl), coordinated by Alberta Environmental Protection.
- Conduct surveys of shorebirds, using specialized techniques.
- Refine the IBA Conservation Plan for use by the future Special Places 2000 management committee, as a means for promoting and continuing programs of mutual interest. Included in this should be plans for additional inventories of the wetland and adjacent land uses.
- Produce an evaluation of the first year's IBA work, together with a proposal for a second year's program that more completely entrains other stakeholders.

12. EVALUATING SUCCESS

Program evaluation is an essential management tool. BLESS will conduct a formal evaluation of its 2000 program by identification of measurable goals. The intention is to learn from activities completed while awaiting the more specific planning activities of the SP2000 management committee.

- For the year 2000, measurable results include:
- Evaluate the success of the on-site educational programs, by setting a target attendance figure of 500.
- Produce a new published brochure regarding the IBA status of the lake, and modify existing brochures for the same purpose.
- Produce new data about the numbers of Franklin's Gulls nesting on Big Lake and the numbers of Tundra Swans that use the lake during migration.

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14. REFERENCES

Big Lake Environment Support Society, various years. Position papers concerning the proposed St. Albert West Bypass highway.

Big Lake Local Committee, 1999. Big Lake - A Special Place. Recommendations of the Big Lake Committee to the Minister of Environmental Protection and the Special Places Provincial Coordinating Committee on the Big Lake candidate site. 12 pp. and appendices.

Burger, J. and M. Gochfeld. 1994. Franklin's Gull (*Larus pipixcan*). In: *The Birds of North America*, No. 116 (A. Poole and F. Gill, Eds.). Philadelphia: The Academy of Natural Sciences; Washington, D.C.: The American Ornithologists' Union.

Canada-Alberta Flood Damage Reduction Program. 1991. Flood information map, City of St. Albert. Map issued January 16, 1991.

Canadian IBA Database 1998. IBA Site Summary - Big Lake (CAAB068G). Bird Studies Canada/Canadian Nature Federation.

Canadian Wildlife Service, Environment Canada. 1969. An Integrated Land Use Concept for Big Lake, Alberta. (Unpublished report).

del Hoyo, J., A. Elliot, and J. Sargatal eds. 1996. *Handbook of the Birds of the World*. Vol. 3. Lynx Edicions, Barcelona.

Demulder, P., 1998. Personal communication re estimate of migrating Tundra Swans in 1998.

Demulder, P., 1999. Personal communication re estimate of migrating Tundra Swans in 1999.

Demulder, P., 2000. Personal communication re BLESS bird checklist for Big Lake.

Dilworth-Christie, P. and K.M. Dickson. 1997. Status of Migratory Game Birds in Canada. November 3, 1997. Canadian Wildlife Service Unpublished Report.

Ducks Unlimited Canada (DU). [1986?] Proposal for a five-year co-operative waterfowl habitat program emphasizing key wetlands in Alberta. A joint proposal by Ducks Unlimited Canada and Alberta Energy & Natural Resources, Fish and Wildlife Division, Edmonton, AB.

Edmonton Metropolitan Regional Planning Commission. 1989. The Big Lake Plan. (summary report and several technical reports).

Federation of Alberta Naturalists, 1992. The atlas of breeding birds of Alberta. Edited by Glen P. Semenchuk, FAN, Edmonton. 391 pp.

Fisher, C. and J. Acorn, 1998. Birds of Alberta. Lone Pine Field Guide. Lonepine Publishers, Edmonton, 384 pp.

Hochbaum, H. A., 1955. Travels and traditions of waterfowl. The University of Minnesota Press, Minneapolis, 301 pp.

Kemper, J.B. and A.J. Doberstein. 1977. Migratory bird resources of Big and Manawan Lakes in relation to the water management of the Sturgeon Basin. Prepared for Canadian Wildlife Service and Alberta Environment, Planning Division, Edmonton, AB.

Kortright, F. H., 1942. The ducks, geese and swans of North America. The Stackpole Company, Harrisburg, Penn. and Wildlife Management Institute, Washington, D.C. 476 pp.

North American Waterfowl Management Plan, 1989. Implementation of the North American Waterfowl Management Plan in Alberta.

Peterson, R. T. 1990. Western Birds. Peterson Field Guides. Houghton Mifflin Press. 432 pp.

Poston, B., D.M. Ealey, P.S. Taylor, and G.B. McKeating. 1990. Priority Migratory Habitats of Canada's Prairie Provinces. Canadian Wildlife Service, Conservation and Protection, Western and Northern Region, Edmonton, AB.

Rose, P.M. and D.A. Scott. 1997. Waterfowl population estimates 1997: Second Edition. Wetlands International Publication 44.

USFWS, 1997. Waterfowl population status, 1997. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Branch of Surveys and Assessments.

Wyndham, M. and Dickson, K.M. 1995. Status of Migratory Game Birds in Canada - November 30, 1995. Canadian Wildlife Service, Unpublished Report

APPENDIX A: IBA CANADA PARTNERS

BirdLife International

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

For further information about BirdLife International, check the following web site:

<http://www.birdlife.net/>.

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

The Canadian Nature Federation (CNF)

The Canadian Nature Federation is a national conservation organization with a mission to be Canada's voice for the protection of nature, its diversity, and the processes that sustain it. The CNF represents the naturalist community and works closely with our provincial, territorial and local affiliated naturalists organizations to directly reach 100,000 Canadians. The strength of our grassroots naturalists' network allows us to work effectively and knowledgeably on national conservation issues that affect a diversity of ecosystems and human populations in Canada. The CNF also works in partnership with other environmental organizations, government and industry, wherever possible.

Our approach is open and cooperative while

remaining firm in our goal of developing ecologically-sound solutions to conservation problems. CNF's web site is <http://www.cnf.ca>.

Bird Studies Canada (BSC)

The mission of Bird Studies Canada is to advance the understanding, appreciation and conservation of wild birds and their habitats, in Canada and elsewhere, through studies that engage the skills, enthusiasm and support of its members, volunteers, staff and the interested public. Bird Studies Canada believes that thousands of volunteers working together, with the guidance of a small group of professionals, can accomplish much more than could the two groups working independently. Current programs collectively involve over 10,000 volunteer participants from across Canada.

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