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# **THE SUNCOR BOREAL HABITAT REPLACEMENT PROJECT**

**(2004-07 Boreal Habitat Strategy)**

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SUNCOR ENERGY  
FOUNDATION



**Alberta**  
COMMUNITY DEVELOPMENT

## Acknowledgements

The authors acknowledge the following individuals, agencies, and corporations for their contributions and assistance in delivering this project.

The Suncor Energy Foundation donated the funds that made this project possible. Ducks Unlimited Canada also contributed towards the purchase of a parcel of land at Winagami Lake.

Thanks to Trish Hill, Chad Sherburne, Dave Moyles, Brendan Kowalenko, Al Benson and Kari White of Alberta Sustainable Resource Development, who generously donated their time, maps and input to this project.

Photo credits go to Archie Landals, Cedar Chittenden, Ed Kolodychuk, John Hallett, David DeRosa, Leanne Osokin, Wayne Nordstrom and Mike Doran.



**Suncor, Parks and ACA representatives gather at Winagami Lake to celebrate the partnership**

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## Introduction

### Commitment to Sustainability

Suncor Energy is one of many oil sands mining operations in the Ft. McMurray region of Alberta. Suncor recognizes that mining operations have a significant impact on the terrestrial landscape. During the pre-mining, mining and early reclamation phases, disturbed lands do not have the capacity to support mammals or birds and thus cause a loss or displacement of wildlife. The cumulative effect of the mines along with associated developments such as roads, power lines and pipelines is resulting in the local boreal habitat becoming fragmented and losing ecological value. After reclamation is complete, the landscape is dramatically different in composition, with as much as 80% of previously existing wetlands (bogs, fens) being replaced by forest. Since these wetlands require hundreds of years and complex hydrology to form, it is unlikely that the landscape will regain its natural capacity.

As part of their commitment to sustainability, Suncor made the decision to help protect intact boreal forest and wetlands to ensure that the larger boreal forest ecosystem remains intact and that biodiversity is preserved.

### A Partnership

In 2002, Suncor approached Alberta Parks and Protected Areas to discuss options that they might pursue to help protect intact boreal forest and wetlands. One option was to secure lands associated with existing protected areas. There are a number of protected areas in the boreal forest where the purchase of privately owned lands could contribute to biological connectivity. This would significantly reduce the threat of future land use that could seriously compromise the ecological integrity of the protected area. Managing acquired lands in conjunction with existing protected areas will ensure the fulfillment of Suncor's goal of seeing boreal habitats preserved in perpetuity.

Suncor wished to pursue the protected areas option with the assistance of a non-government organization. To this end, a partnership involving Suncor Energy, Alberta Parks and Protected Areas, and Alberta Conservation Association has been formed. Alberta Conservation Association is a private, non-profit organization with a proven track record of working collaboratively to acquire lands and to conserve, protect and enhance Alberta's wildlife, fisheries and habitat.

### Habitat Replacement

Suncor's Oil Sands Operations will directly impact about 7,500 hectares, or approximately 30 square miles. This area, known as the "footprint" of the mine, will be taking place over the next 30 years. The goal of the current partnership is to purchase an area of land similar to the footprint over the next 10 to 15 years. The intent of the replacement habitat is to help offset the impact of the footprint well in advance of the complete disturbance.

In order to have value as an “offset”, the partnership is pursuing habitats that are ecologically similar to the mine footprint. The habitats that Suncor’s mining operation at Ft. McMurray will disturb are approximately 65% wetlands, 33% upland forests and 2% water (Table 1, Suncor 2002).

**Table 1: Approximate areas of habitat types associated with Suncor’s Oil Sands Operations in Ft. McMurray, AB**

| Habitat Type                       | % of Footprint | Area (ha) |
|------------------------------------|----------------|-----------|
| <b>Terrestrial Vegetation</b>      |                |           |
| Jackpine dominant                  | 1              | 75        |
| Jackpine-aspen dominant            | 2              | 150       |
| Aspen/aspen-balsam poplar dominant | 15             | 1125      |
| White spruce dominant              | 2              | 150       |
| Black spruce-white spruce dominant | 1              | 75        |
| Aspen-white spruce dominant        | 12             | 900       |
| <b>Wetlands</b>                    |                |           |
| Wooded fen                         | 41             | 3075      |
| Shrubby fen                        | 10             | 75        |
| Graminoid fen                      | 3              | 225       |
| Poor wooded fen/wooded bog         | 8              | 600       |
| Marsh                              | 2              | 150       |
| <b>Water</b>                       |                |           |
| Shallow open water                 | 1              | 75        |
| Deep water                         | 1              | 75        |

**Benefits of the Habitat Replacement Project**

1. Maintains availability and integrity of boreal habitat during Suncor’s disturbance (30-40 years). *“Paying interest on natural capital while we operate.”*
2. Habitats such as wetlands, which cannot be reclaimed, will be conserved.
3. Leaves a natural legacy to Suncor’s Oil Sands operations.
4. Preserves boreal forest biodiversity.
5. Secures recreational opportunities for Albertans and visitors.
6. Strengthens traditional land-use opportunities for aboriginal stakeholders.
7. Builds relationships and credibility between Suncor and environmental, non-government organizations.
8. Demonstrates Suncor’s commitment to sustainability to shareholders and public.
9. Enhances the long-term ecological integrity of existing protected areas.



## Habitat Securement

Securement of private lands will generally proceed through fee simple purchase by Alberta Conservation Association (ACA) and partners (Ducks Unlimited Canada, Nature Conservancy of Canada). Purchases will be on a willing basis and consistent with current market appraised values. In some instances conservation easements may be considered. Private lands may be donated to ACA with applicable tax credits accruing to the donor. Trades may be considered where these meet the interests of the involved parties. Where appropriate, purchased lands will be incorporated into adjacent protected areas. Some lands may require reclamation. Suncor may retain a role in reclamation activities as a part of the project costs. ACA may retain title to some of the lands if the long-term management regimen is more closely aligned to the mandate of ACA than to an adjacent protected area.

## Habitat Replacement Project Sites

Habitat replacement project sites have been selected such that over the life of the project that the lands acquired reasonably replicate the lands being disturbed by the footprint of Suncor's mining operation. It is recognized that an exact habitat match is impossible. Priority will be placed on those lands that have high ecological value, which will help create biological connectivity with existing protected areas, and habitats that support sensitive or endangered species. Special consideration will be given to those lands that have high educational or recreational value that can help strengthen Albertans commitment to sustainability and stewardship.

The following habitat replacement project sites encompass opportunities to pursue well in excess of the 7,500 hectares that will be disturbed by the footprint of Suncor's Oil Sands Operations. This is necessary as there will be landowners who have no interest in selling, and there will be other instances where negotiations do not reach a conclusion agreeable to both parties. The larger land base also provides the flexibility required to reach the overall objective. Some negotiations may take several years to conclude. In the early stages of the project it is desirable to contact a larger number of landowners and make them aware and garner their support for the initiative.

The following list of project sites also provides opportunities to involve other partners and to expand this initiative as conservation interest and support increases:

### 2004-07 Focus Areas

- Big Lake
- Kimiwan/Winagami/South Heart Area
- Lesser Slave Lake
- Beaverlodge Drainage
- Sturgeon Lake
- Cold Lake
- Athabasca River (Assiniboine, Hubert)
- Rochester/Newbrook/Tawatinaw Area

### 2008-19 Focus Areas

- Miquelon/Ministik Area
- Beaver/Sand Lakes
- Therien Lake
- Pembina River
- Flood/Helen Lakes
- Saskatoon Lake
- Lac Cardinal
- Kleskun Hills/Wetlands
- Peace/Smoky Point
- Notikewin River

# 1. Big Lake

## 1.1 Overview

Big Lake has the potential to be recognized locally and internationally as a model for the integration of residential development with the preservation and restoration of wetland environments for scientific research, and for the delivery of world-class education and heritage tourism programs. Ongoing management of Big Lake has the potential to serve as a model for partnerships that foster shared stewardship that can be applied across Alberta.

Located in Sturgeon County, Big Lake (Figures 1-3) is a large wetland that shares its lakeshore with three other municipalities –Edmonton, St. Albert and Parkland County. Big Lake offers a tremendous richness in terms of the number of plant and animal species it supports. Though inventories are incomplete, over 200 plant species have been identified including water plants, grasses, orchids, mosses, lichens, trees and shrubs. Over 40 species of mammals and a variety of reptiles, amphibians, butterflies and other insects add to this diversity. Big Lake, however, is most noted for its birds, including at least 235 species. On a single day during the fall migration as many as 26,000 ducks, geese and swans have been observed on the lake.

From the preservation of woodland and aquatic natural systems to the peace and serenity offered by a rich natural landscape in close proximity to busy urban communities, Big Lake is a natural asset to be protected, for the benefit of current and future generations. It is a rare region of a million residents that has a natural resource the calibre of Big Lake on its doorstep. Stanley Park in Vancouver comes to mind. Big Lake offers a substantial, as yet untapped, potential to serve local, regional, and even national demands for scientific research, outdoor education and enjoyment (Figures 4, 5).

As a learning environment, Big Lake is a natural, living classroom for school children studying nature, water, birds and animals, and learning how to care for our environment so it, in turn, can care for us. Lifelong education potentials abound, including nature appreciation, photography, plant studies, volunteering with a stewardship group, and the list could go on. The Big Lake area has the potential for an interconnected trail system with interpretive markers, viewpoints and bird blinds. An interpretive center for environmental education would also be ideal, to teach natural and cultural history and appreciation, complete with classroom space, exhibition space and an auditorium. Living exhibits such as naturalization initiatives or archeological sites add to this potential.

Big Lake has the potential to serve as a model for the delivery of nature oriented education opportunities in a residential landscape. Big Lake is less than half an hour of travel time away from the population center of over one million Albertans. It is readily available to schools and colleges in the region and is on the doorstep of the University of Alberta.

Big Lake provides an unparalleled opportunity for scientific research on wetland ecosystems, natural processes and wetland restoration. Big Lake could be the future home of a research institute, targeted toward the advancement of wetland sciences. Scientific research can provide the basis for Big Lake to serve as a model of excellence for the preservation of wetland landscapes and the provision of nature based educational and tourism opportunities in an urban setting.

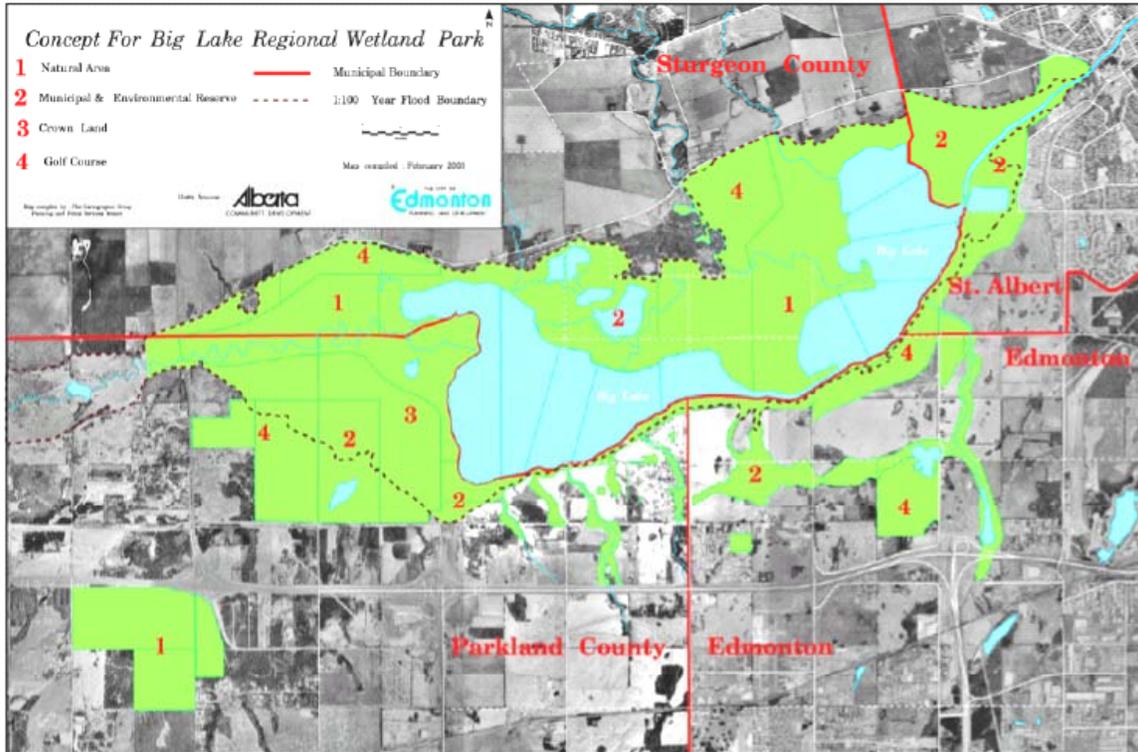


Figure 1: Map of Big Lake and surrounding area



**Figure 2: Aerial photograph of Big Lake**



**Figure 3: Narrows at Big Lake**



**Figure 4: Bird watching at Big Lake**



**Figure 5: Hikers enjoying some sunshine at Big Lake**

## 1.2 Progress to Date

Big Lake is evolving as a model for shared stewardship. In 1999, the lake and two upland pieces totaling 11.19 square kilometers were designated as the Big Lake Natural Area. Management of Big Lake depends upon the cooperation of four local governments and a number of provincial government departments. The private sector and non-government organizations are playing an increasingly important role in the stewardship of Big Lake. BLESS, the Big Lake Environmental Support Society, is a group of volunteer stewards of the Natural Area who bring a wealth of skills and knowledge to help manage the natural area and assist visitors to understand and appreciate this natural treasure. Ducks Unlimited Canada, as a major landowner on the lake, also plays a significant role in preserving the natural landscape and providing opportunities for nature appreciation. Current planning initiatives are working to integrate the preservation, education, outdoor recreation and heritage tourism interests of these partners.

## 1.3 Habitat Replacement Opportunities

There are about 20 parcels varying from about 80 acres to full quarter sections of potential interest for securement at Big Lake. Most of these parcels would replace Graminoid fens but there are also excellent parcels that represent aspen/aspen-balsam poplar dominated forests and marsh habitats.

In addition to habitat replacement, purchasing at least one parcel would enable Suncor and Alberta Conservation Association to become active partners in the developing stewardship arrangements at Big Lake. This partnership will continue to develop innovative tools that will serve as a model for other shared stewardship initiatives across the province and elsewhere. The potential to participate in world-class scientific research and education programs will also be secured.

## 2. Kimiwan - Winagami - South Heart Area

### 2.1 Area Overview

Conserving critical wildlife, waterfowl, and fisheries habitat from the Kimiwan lakeshore to the Winagami and Lesser Slave Lake Parks (Figure 1) would create landscape continuity, effectively restoring riparian areas, reducing habitat fragmentation, and stabilizing water levels in the area. This area lies in the Winagami Lake Plain, a wetland sub-region ranked as being of national importance for colonial nesting species, and staging waterfowl and shorebirds (Poston et. al, 1990). The South Heart river drainage supports critical spawning areas for walleye and northern pike, which makes it important habitat for sport and commercial fisheries in both Winagami and Lesser Slave Lakes.

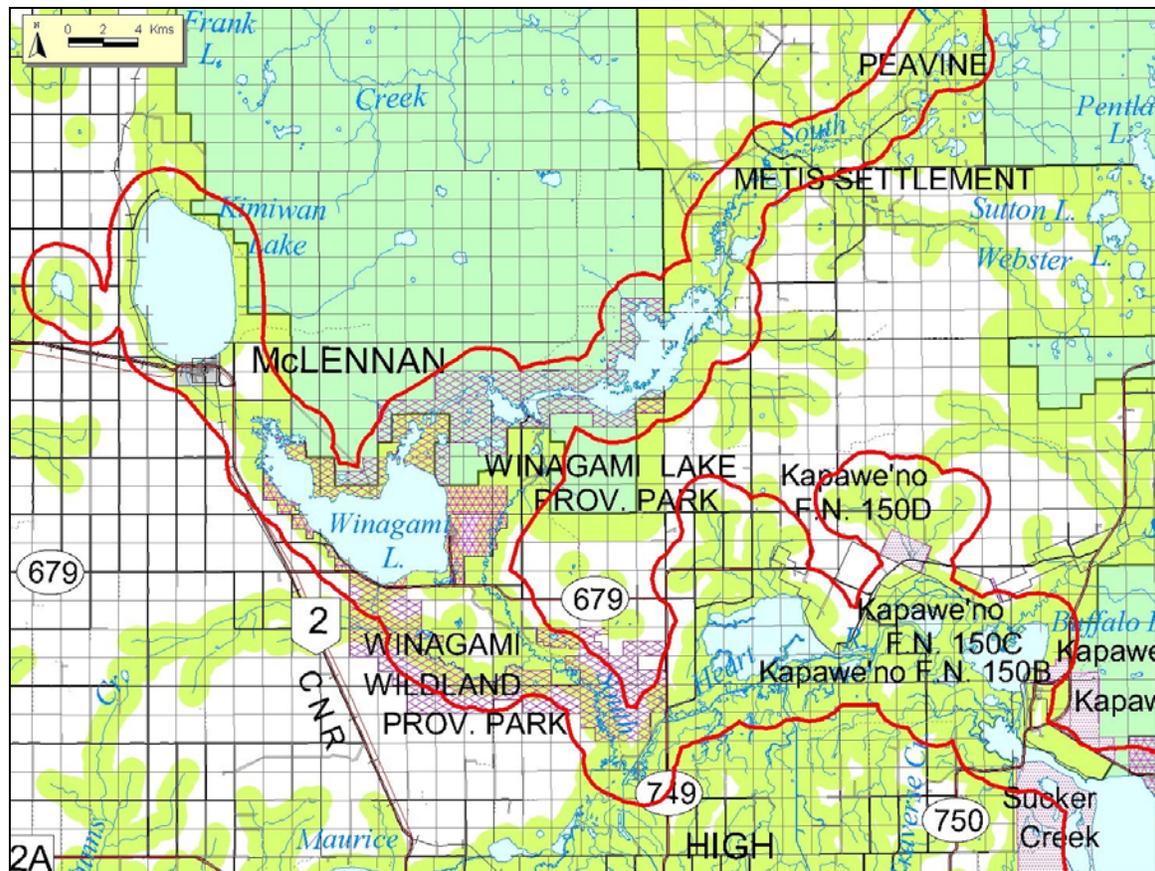


Figure 1: Map of the Kimiwan-Winagami-South Heart corridor; focus area in red.

### 2.1.1 Kimiwan Lake Overview

Kimiwan Lake is a Ducks Unlimited Canada (DUC) habitat priority area; a great deal of lakeshore conservation work has been done there by both DUC and ACA. Situated at the junction of three main North American avian migratory paths, Kimiwan is a tourism and birdwatcher’s paradise, with over 200 species making the area their summer home. Three thousand geese (Snow, Canada and White-fronts,) and Trumpeter Swans have been reported to stage on the lake during summer and fall migrations, and on the south shore next to the town of McLennan, is an interpretive center with 300 meters of path and boardwalk (Figures 2-4).

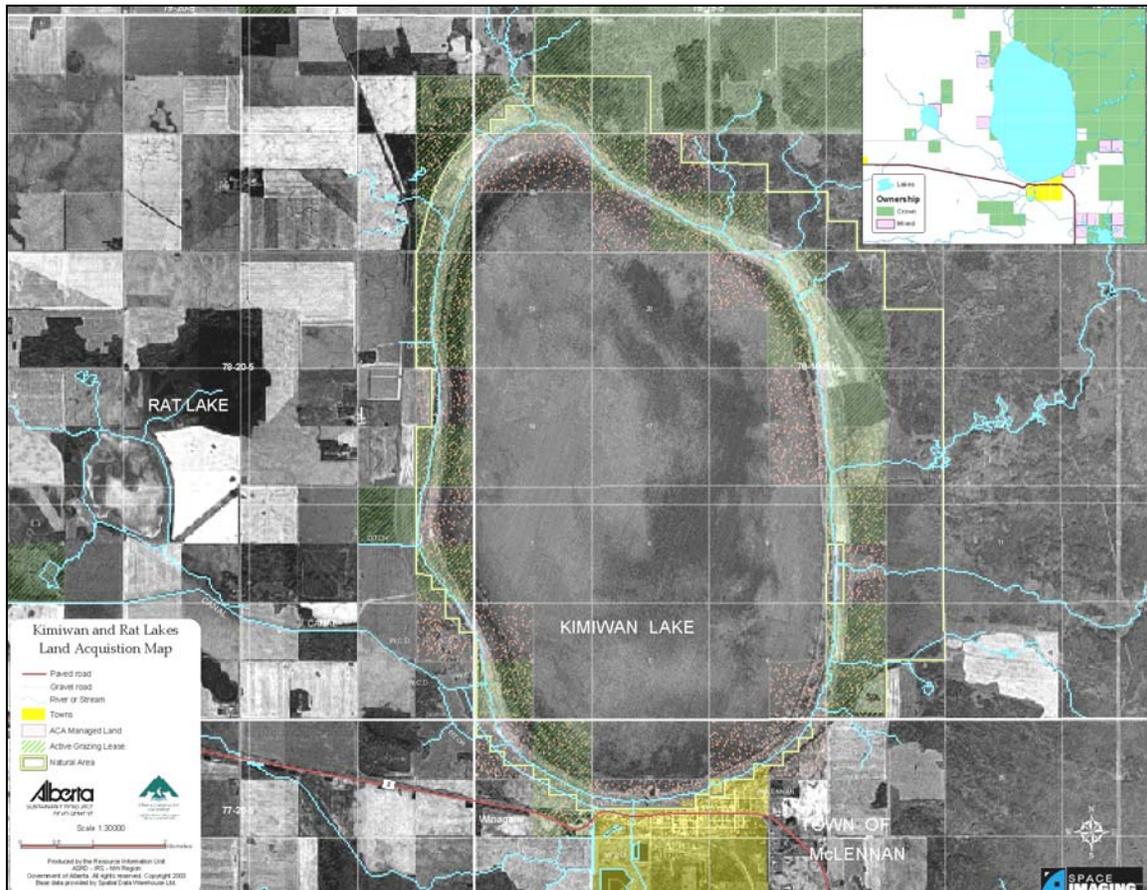


Figure 2: Landsat imaging map of Kimiwan and Rat Lakes, Town of McLennan



**Figure 3: Kimiwan Lake, view from south shore**



**Figure 4: “Birdwalk” at Kimiwan Lake**

### 2.1.2 Winagami Overview

To the southeast and connected by a canal to Kimiwan, is Winagami Lake (Figures 5, 6). Comprising important sport fisheries, as well as valuable wildlife and waterfowl habitat, Winagami is a true conservation success story. Only fifteen years ago, most of the shoreline was grazed to the lake's edge. Water levels were critically low and riparian areas were in poor condition. After years of combined efforts from ACA and Alberta Sustainable Resource Development (ASRD), Winagami's shoreline is almost completely protected in Winagami Lake Provincial Park (Figure 7).

The lake was stocked with walleye in 1991 and from 1994 to 1996 by ASRD, and ACA constructed spawning beds in 1992 and 1995; fish populations and angling pressures are monitored regularly at the lake. Winagami, like Kimiwan, now sees over 200 species of birds each year, including western grebes, bald eagles and white pelicans (Figure 8).

Winagami Lake Wildland Provincial Park, created in 2000, encompasses over 30,000 acres of wetland/wooded fen. The existing park was also expanded in 2000; together, Winagami's protected areas now include over 160 square kilometers.

During 2003, Suncor Energy Foundation funded the Winagami Lake Project, an effort aimed at securing the remaining parcels of freehold and crown land around the lake. All landowners, lessees and land managers of Winagami lakeshore parcels were contacted and met with. Three land deals were made, concerning 5 quarter sections of land; in total, 470 acres of lakeshore were conserved and will become part of the Winagami Lake Park system. Management plans were created for the three parcels as well as a final report, summarizing the year's activities (Chittenden and Kolodychuk, 2004). The 2004-07 project will expand on this Winagami Lake pilot project to include Kimiwan Lake and the South Heart River, as well as five other focus areas in Alberta's boreal region.

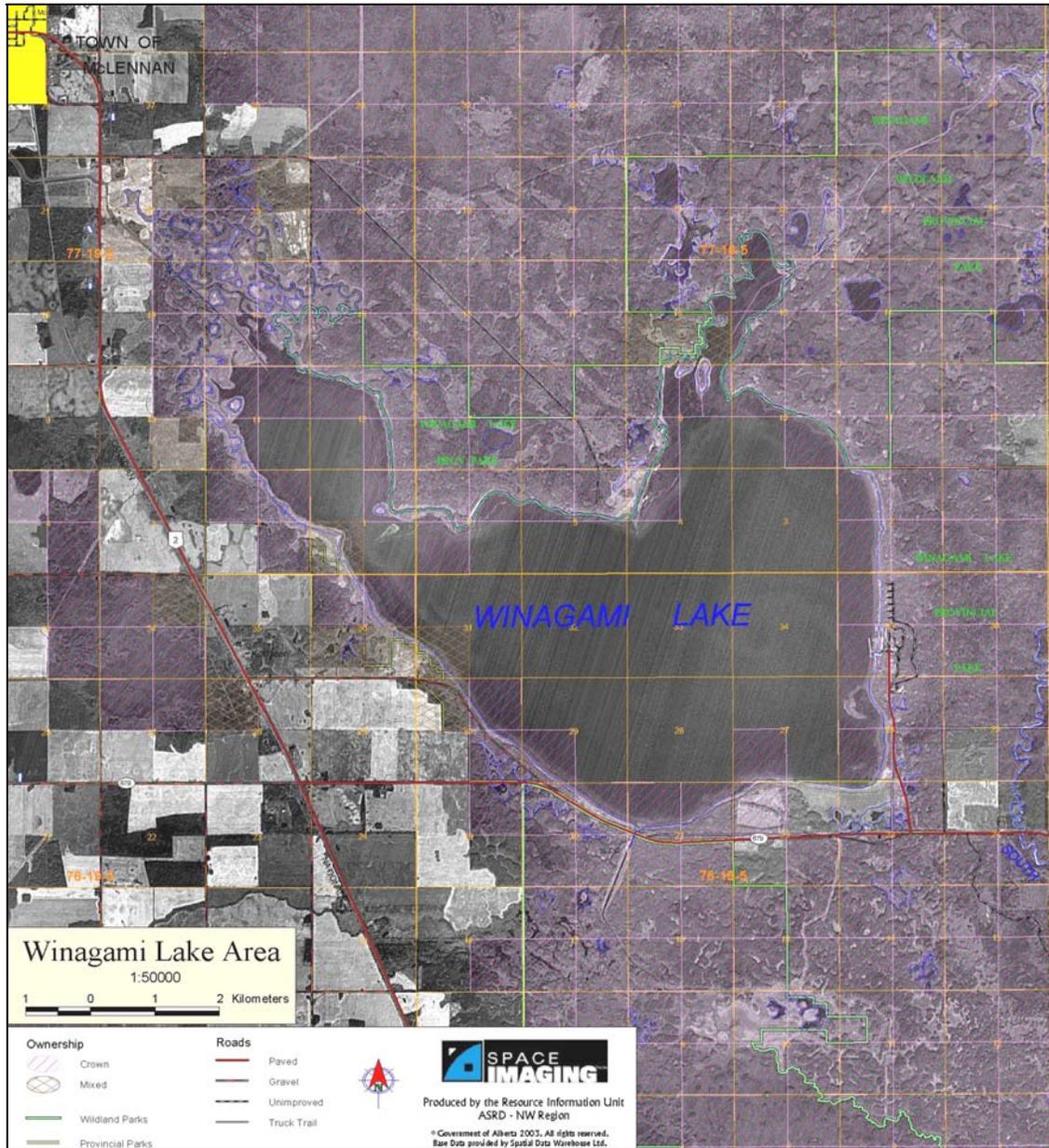


Figure 5: Landsat imaging map of Winagami Lake



**Figure 6: View of Winagami Lake from east shore**



**Figure 7: View of Winagami Lake Provincial Park from breakwater**



**Figure 8: Bald eagle on south shore of Winagami Lake**

### **2.1.3 South Heart Overview**

The South Heart River is the main stem into Lesser Slave Lake, and contains most of the spawning grounds for the lake's walleye. Extensive grazing and agricultural activities along the river—where little to no buffer zones exist—are suspected to have significant impacts on the quality of wildlife and fish habitat (Figures 9, 10).

ACA is currently using aerial telemetry surveys to elucidate the locations of the primary walleye spawning areas for Lesser Slave Lake; once these sites are determined, habitat conservation tools such as fencing, off-site watering areas, and more importantly, land protection or securement, will be implemented to prevent the complete collapse of Alberta's #1 walleye sport fishery.

Buffalo Bay, part of the South Heart system, is also an area of great concern, as water levels are dropping, temperatures are increasing, no native vegetation exists, and agriculture is being carried out to the water's edge annually (Figure 11).



**Figures 9, 10: Agriculture on the banks of the South Heart River**



**Figure 11: Buffalo Bay**

## **2.2 Progress to Date**

Winagami Lake Provincial Park was established November 13, 1956, and expanded on November 15, 2000 to include 6,542.28 ha. From 1985 to 2000, ASRD's Buck for Wildlife Program, and Alberta Conservation Association put Protective Notation Agreements on most of the western shoreline and the Berry Lakes Complex to the south of Winagami (Figure 12). These areas were all formerly grazed and are being left to revert back to natural habitat. The Winagami Lake Wildland Provincial Park was created to protect these lands and more (12,666.63 ha) on November 15, 2000. In 2003 the Suncor initiative was announced; 470 acres of lakeshore have been purchased to date and will be incorporated into the Winagami Lake park system.



**Figure 12: Berry Lake Complex, part of the Winagami Lake Wildland Provincial Park.**

### **2.3 Habitat Replacement Opportunities**

There are approximately five parcels of land to be purchased around Kimiwan Lake, including all of the lakeshore lands within the town of McLennan. The Kimiwan Lake Naturalists, Ducks Unlimited and the Nature Conservancy of Canada have all expressed interest in contributing funds to assist this project.

Three titled parcels and three leased parcels remain to be secured on the shoreline of Winagami Lake. All landowners and lessees have expressed that they are unwilling to sell at this time. From Winagami to Lesser Slave Lake, there are over 30 parcels of land along the South Heart River that would be of interest. In many areas, large quantities of land are owned by only a few people; working with these individuals would be the first step to preserving this sensitive area. From Kimiwan to Lesser Slave Lake, the natural habitat type is primarily boreal wooded fen.

### 3. Lesser Slave Lake

#### 3.1 Overview

The largest whole lake in Alberta and Alberta's #1 walleye sport fishery, Lesser Slave Lake (Figure 1) is an invaluable resource to the province. Nesting shorebirds line the lake by the thousands, and where native forests still exist, large populations of black bears and ungulates inhabit LSL's upland and riparian zones. Lesser Slave Lake Provincial Park (Figure 2,) home of the LSL Bird Observatory (Canada's northernmost migration monitoring station,) the 7 kilometre-long sandy Devonshire Beach (Figure 3,) and old growth forest on Marten Mountain, also contains a popular campground with interpretive programs.

Conservation groups, including Alberta Conservation Association, Ducks Unlimited, Prairie Farm Rehabilitation Administration, Alberta Sustainable Resource Development, Municipal District of Big Lakes, Department of Fisheries and Oceans, and Cows and Fish are working together on a Riparian Action Team (RAT) to create strategies that will protect riparian zones at Lesser Slave Lake and its drainage (High Prairie Riparian Action Team, 2002). Increasingly, it is being found that habitat loss due to agriculture and development around the perimeter of the lake (Figures 4, 5) is having detrimental effects on the wildlife and fish populations at LSL.

The Lesser Slave Lake Watershed Committee was created by concerned area residents, municipalities, and interested stakeholders to address low lake water levels and water needs for municipalities, industry, and tourism. This group will be a strong advisor for the Lesser Slave Lake and River Basin Water Management Plan.

ACA has also been involved at Lesser Slave Lake with the Researching Amphibian Numbers in Alberta (RANA) program (Chittenden 2002,) and the Cooperative Fisheries Inventory Program (Osokin 2002,) collecting data about amphibian and fish populations in the area. ACA also completed a LSL habitat and land use inventory on the 241km of shoreline in 2003 (Osokin 2003).

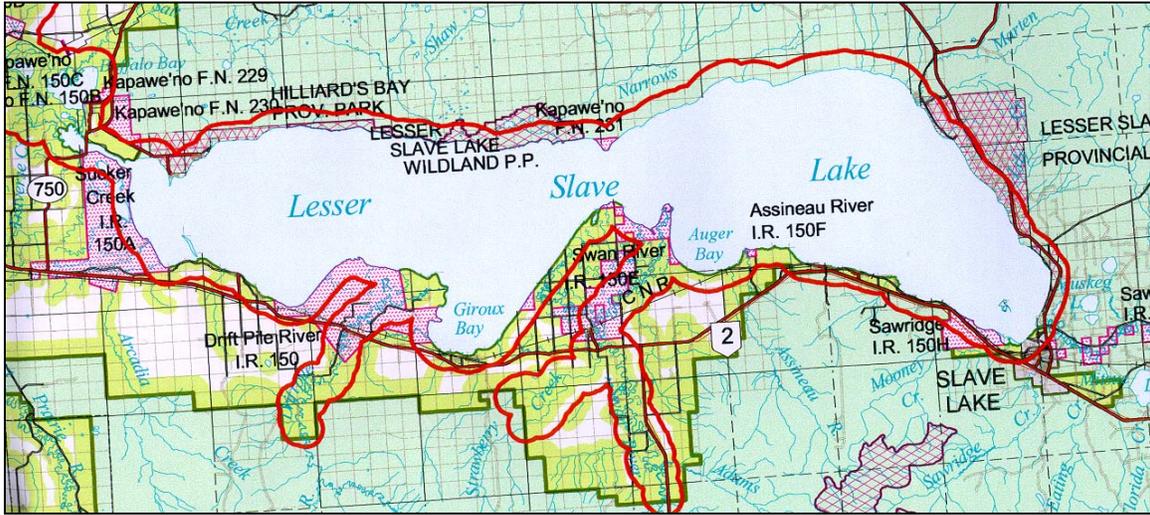


Figure 1: Map of Lesser Slave Lake



Figure 2: Native habitat on Dog Island, Lesser Slave Lake Provincial Park



**Figure 3: Sand dunes on Devonshire Beach, Lesser Slave Lake Provincial Park**



**Figure 4: Agriculture on the shoreline at Little Grassy, Lesser Slave Lake**



**Figure 5: Grazing cattle on the shores of Lesser Slave Lake**

### **3.2 Progress to Date**

Lesser Slave Lake Provincial Park was established on June 29, 1966, encompassing 7,617 ha. Hilliard's Bay Provincial Park (2,323.42 ha) was established on October 24, 1978 and Lesser Slave Lake Wildland Provincial Park (3,581.45 ha) was established February 8, 2001.

### **3.3 Habitat Replacement Opportunities**

Five parcels of land around Lesser Slave Lake have been identified as top priority for land acquisition, including one quarter that is completely surrounded by Hilliard's Bay Provincial Park. The entire shoreline will be assessed and ranked according to priority in collaboration with ACA's South Heart River and Lesser Slave Lake Riparian Conservation Project leader and the High Prairie Riparian Action Team.

## 4. Beaverlodge Drainage

### 4.1 Overview

The Beaverlodge drainage (Figures 1-3,) once home to one of the largest known grayling runs in Alberta, has been extremely degraded by grazing and agriculture (Figure 4) on its banks. In many places, the banks are eroding, no riparian buffers exist (Figure 5,) there is increased nutrient loading, and alterations have been made to the stream (Figures 6, 7). Groundwork with landowners, and stream bank improvement projects such as fencing, alternative livestock watering systems and alternative land use practices, are greatly needed if any change is to be seen.

The Alberta Government's Fish Conservation Strategy (2003) states that one of their primary objectives is habitat maintenance –including fish habitat protection and rehabilitation. Alberta Conservation Association and other conservation partners have studied the area extensively, and will be working on a project in 2004 to work with landowners to conserve the riparian habitat of the Beaverlodge and its tributaries.

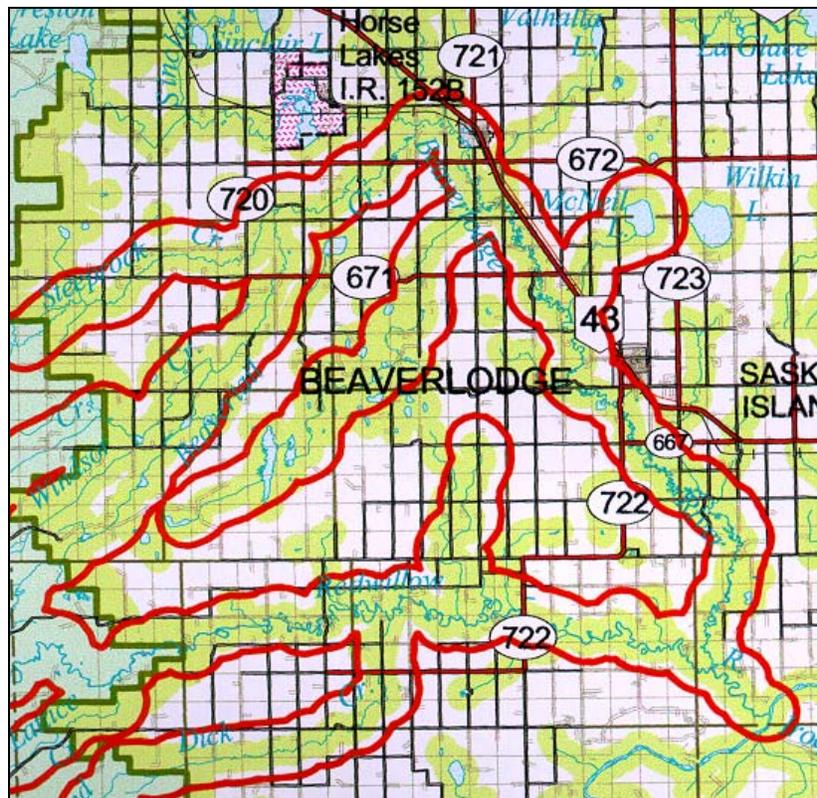


Figure 1: Map of the Beaverlodge drainage



**Figure 2: The Red Willow River (tributary to the Beaverlodge)**



**Figure 3: Red Willow Falls, one of the few pristine areas left in the drainage**



**Figure 4: Intensive farming practices along the Beaverlodge River**



**Figure 5: Lack of riparian buffer on the Beavertail River, once arctic grayling spawning site**



**Figure 6: Cattle watering pens built into the Beaverlodge River**



**Figure 7: Illegal stream crossings through the Beaverlodge River**

## 4.2 Progress to Date

In 2002, ACA completed a watershed study (Tchir et al. 2002) and an aerial survey of the drainage to better understand fisheries concerns in the area (Hallett, 2003). It was found that bank-side livestock feeding and watering, vehicle fording and in-stream alterations have damaged the riparian zones extensively. Two meetings have been held with landowners, government, and conservation groups to discuss the problems and try to figure out some proactive strategies. ACA, with support from the Prairie Farms Rehabilitation Administration (PFRA) and the County of Grande Prairie, will be working in the area in 2004-05 to begin rehabilitation work.

## 4.3 Habitat Replacement Opportunities

Increased collaboration with landowners and watershed groups involved in the area would be a great benefit to rehabilitation work in the Beaverlodge drainage. ACA plans to work with landowners of approximately 33 sites of concern to discuss remediation projects and good riparian stewardship practices. Suncor funding would also make it possible for ACA to purchase parcels on the river, providing much-needed protection for this watershed. This would improve the chances of a returned fishery by reverting the riparian areas back to their natural state, grazing lands could be relocated to less sensitive areas, and the water quality for all of the towns downstream would improve.

The drainage habitat type is comprised of upland mixed boreal and some fen.

## 5. Sturgeon Lake

### 5.1 Overview

Young's Point Provincial Park and other protected areas around Sturgeon (Figure 1) could be consolidated and joined to conserve a large proportion of the lakeshore and tributaries to this booming sport fishery. With an 80,000kg quota, Sturgeon currently boasts strong commercial, domestic and sport fisheries. Alberta Sustainable Resource Development and Alberta Conservation Association are currently working together to monitor fish populations and angling pressure on the lake (Figures 2, 3). Sturgeon Lake riparian areas also provide bald eagle nesting sites, songbird and waterfowl habitat, and ungulate and predator travel corridors.

A total of 158 species of birds have been observed at Sturgeon Lake, including sensitive species such as the bay-breasted warbler, the Cape May warbler and the trumpeter swan. Twenty-seven species of mammals, three species of amphibians and two types of reptiles have also been recorded in the Sturgeon Lake parks (The Young's Point Provincial Park and Williamson Provincial Park Management Plan, 2002).

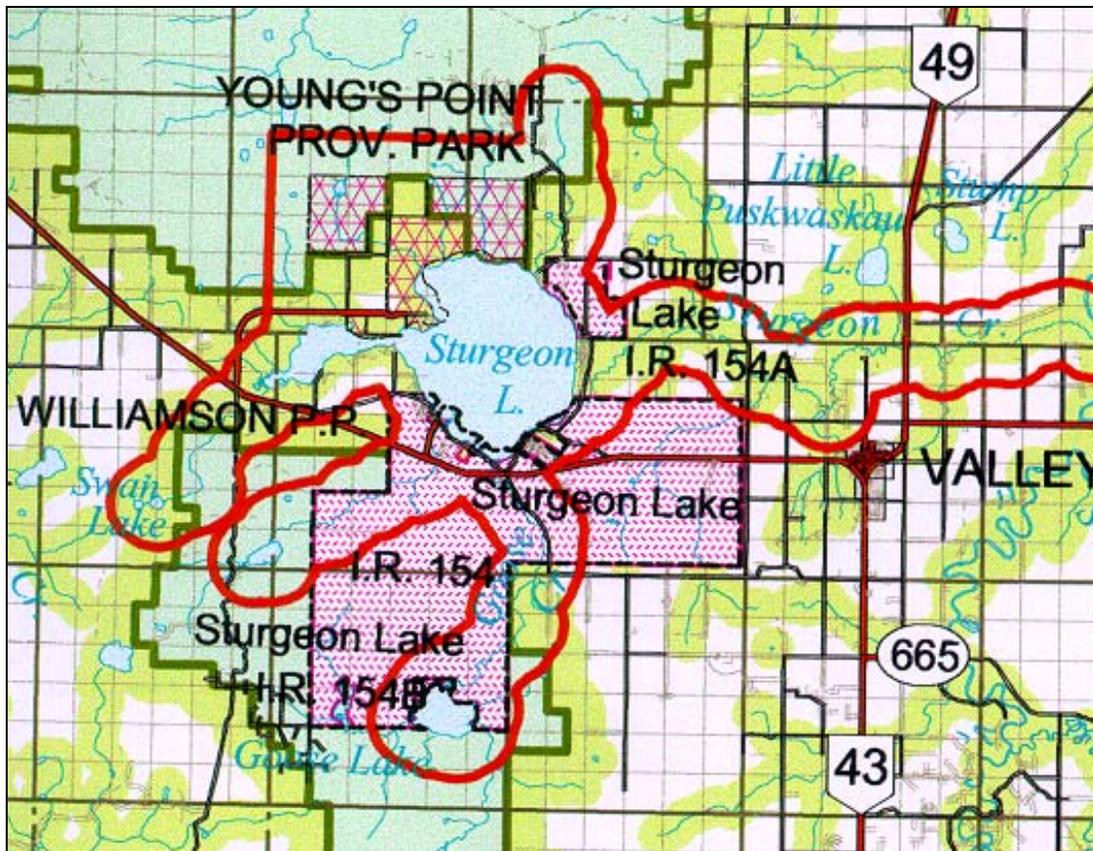


Figure 1: Map of Sturgeon Lake and tributaries



**Figure 2: Putting out nets, test netting at Sturgeon Lake**



**Figure 3: Giant northern pike are found in this lake, like the one seen here**

## 5.2 Progress to Date

Williamson Provincial Park was established on November 7, 1960 (17.35 ha). Young's Point Provincial Park, established in 1971, was expanded on August 26, 1998 to encompass 3,072 ha. The Sturgeon Lake Natural Area was created in 1988 (4.49 ha).

## 5.3 Habitat Replacement Opportunities

Consolidation of the parks and the purchase of key lakeshore and tributary parcels would be instrumental to conserving Sturgeon's invaluable fishery and wildlife habitat. Opportunities to purchase lands exist already for two parcels on the west shore of the lake.

## 6. Cold Lake

### 6.1 Overview

Cold Lake is located on the eastern boundary of Central Alberta, in the Central Mixedwood sub-region of the Boreal Forest Natural Region. It straddles the Saskatchewan/Alberta border with Meadow Lake Provincial Park on the Saskatchewan side of the border. The original town of Cold Lake is situated on the south shore of the lake with the former Grande Centre being south of the lake. The city of Cold Lake was amalgamated in 2000 and now includes the former towns of Cold Lake, Grand Centre and the residential portion of 4 Wing Canadian Forces Bases called Medley (Figure 1).

Land use in the surrounding area is comprised of heavy oil extraction and processing, national defense, forestry, tourism and agriculture. The Cold Lake First Nations occupy three Indian Reservations (IR) in the area and use the area for traditional hunting, trapping, fishing and other purposes. IR 149 B is on the west side of Cold Lake, just south of English Bay and includes approximately 3.5 miles of shoreline. Cold Lake Provincial Park and the Provincial Recreation Areas include areas on the south end, north end and along the western shore of Cold Lake (Figures 1-3). The Cold Lake fish hatchery is located on English Bay adjacent to the Provincial Recreation Area.

Cold Lake is the deepest ice scorn lake in Alberta and is almost 100m deep at its deepest point. It supports one of the largest numbers of fish species of any lake in Alberta. The 24 species include lake trout, lake whitefish, northern pike, yellow perch and walleye. There is also a commercial fishery for whitefish on the lake. The complex of bays on the south end of the lake contains the most important spawning and rearing areas in the lake.

Cold Lake is one of the top three birding spots in Alberta with over 250 species recorded, including 20 species of wood warblers, waterfowl and shorebirds. The largest western grebe colony in Alberta is located in Center Bay (Figures 3, 4) where emergent aquatic plants serve as nesting and foraging habitat for the birds, providing them with the fish and invertebrates they eat (Figures 5, 6).

Mammals in the area include fisher, lynx, marten, mink, otter, beaver, muskrat, wolf, red fox, black bear, mule deer, white-tailed deer and moose.

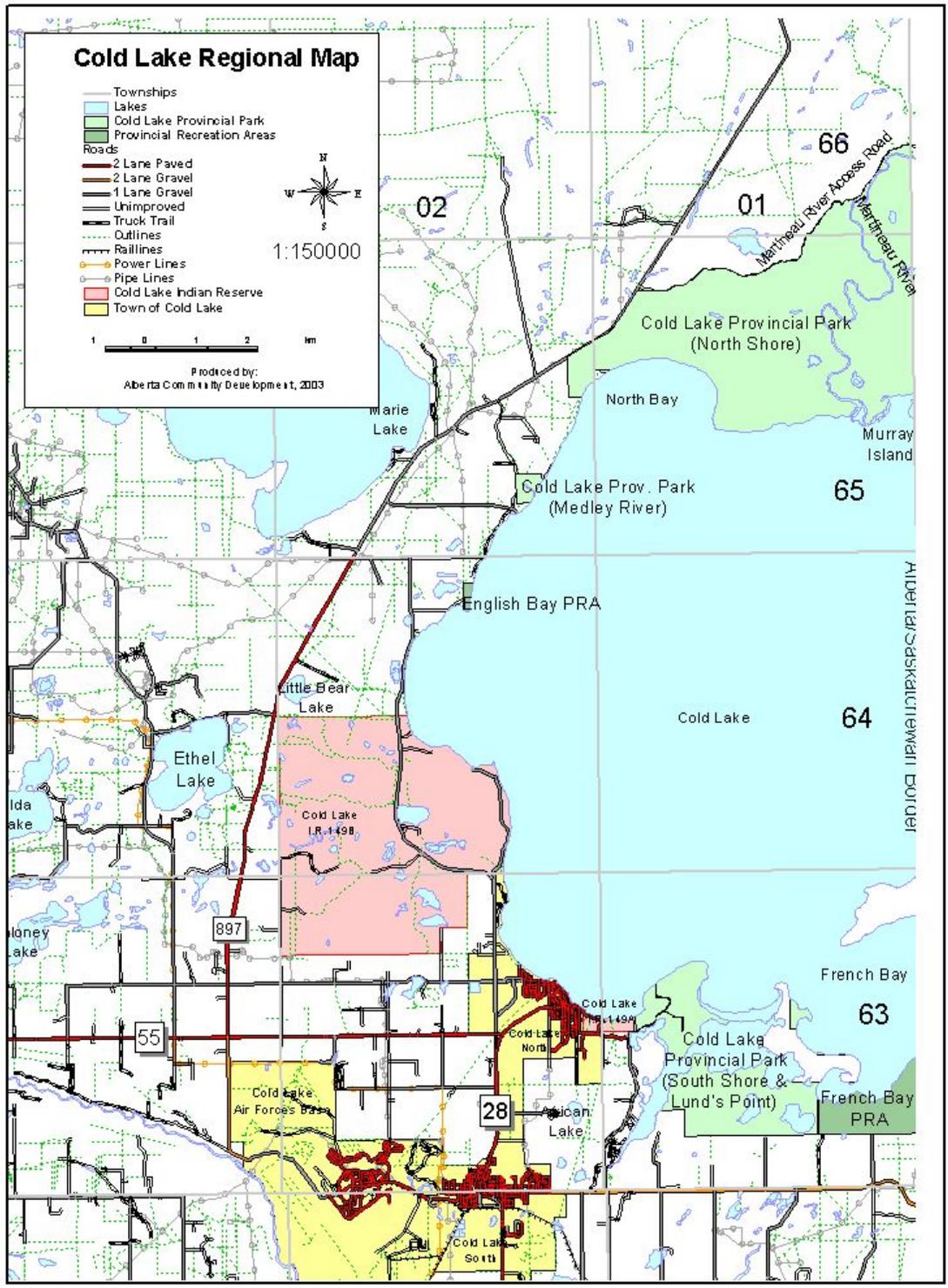


Figure 1: Map of Cold Lake

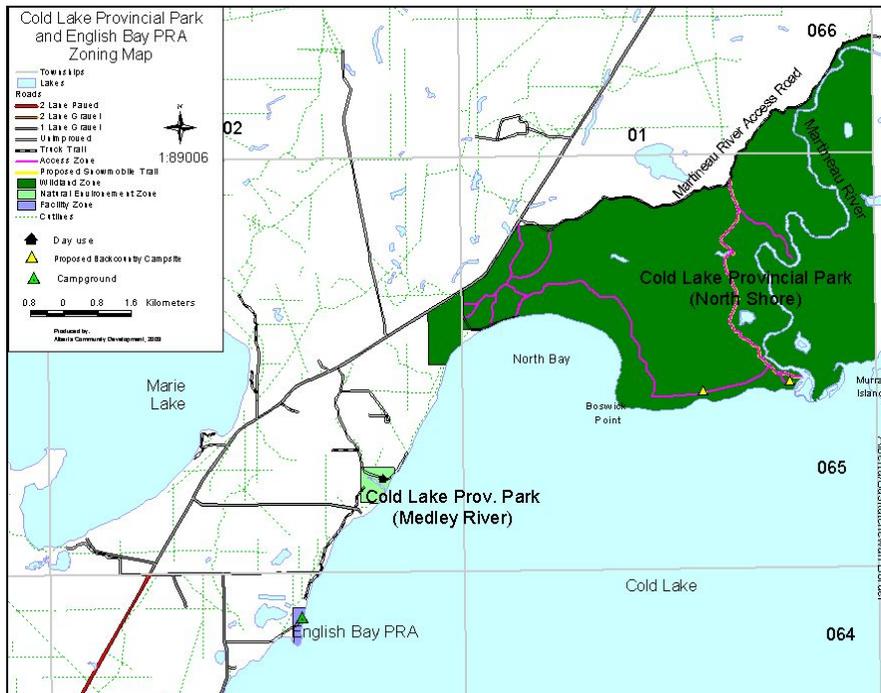


Figure 2: Map of Cold Lake north shore

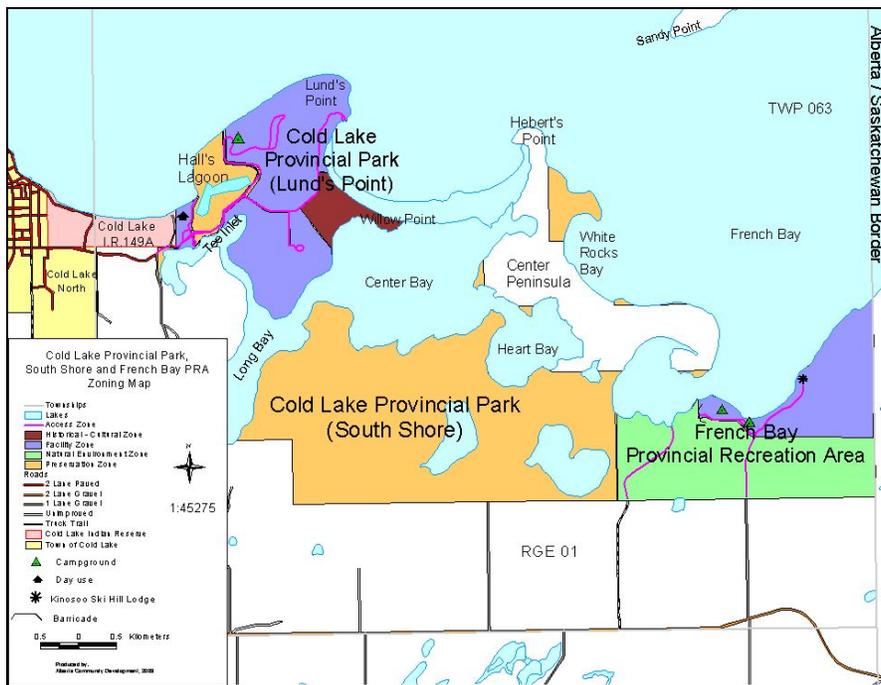


Figure 3: Map of Cold Lake south shore



**Figure 4: Center Bay, Cold Lake**



**Figure 5: Western Grebe Colony, Cold Lake**



**Figure 6: Western Grebes at Cold Lake**

## **6.2 Progress to Date**

In 1976, Cold Lake Provincial Park was established and encompassed a small peninsula of 395 ha on the southern shore of Cold Lake (Figure 7). In 1981, French Bay (450 ha) and English Bay (18 ha) (former Alberta Transportation lands) were designated as provincial recreation areas (Figures 8, 9). In 1995, through the Special Places program, the park was expanded to 5,855.62 ha. This included land along the north shore (Cold Lake North Shore), the Medley River mouth (Figure 10,) land south of Center Bay (Cold Lake South Shore,) and some small parcels of land on Hebert's Point (Center Peninsula) (Figure 3). Meadow Lake Provincial Park in Saskatchewan is adjacent to French Bay Provincial Recreation Area on the south shore, and Cold Lake North Shore on the north shore. No other known areas of protected land exist.



**Figure 7: Lund's Point, Cold Lake**



**Figure 8: English Bay Beach, Cold Lake**



**Figure 9: Hikers enjoying the trails at Cold Lake**



**Figure 10: Medley River Beach, Cold Lake**

### **6.3 Habitat Replacement Opportunities**

Adjacent land to the Parks and Protected Areas is a mixture of private and public lands. There are about 5 parcels of private land occurring on Center Peninsula (Hebert's Point) that are of interest for securement (Figure 3). This would complete the Cold Lake South Shore preservation zone and buffer Center Bay and Heart Bay from all directions.

Another four parcels of private land occur on the west shore of Long Bay and south of Tee Inlet that are also of interest and would complete the protection of the bay areas. The bay areas provide critical habitat for a variety of wildlife species. The Western grebe colony depends on Center Bay exclusively for nesting habitat. The bay/wetland ecosystem is recognized by Canadian Wildlife Service, Ducks Unlimited Canada, Wildlife Habitat Canada, World Wildlife Fund, Canadian Wildlife Federation and Canadian Nature Federation as Nationally Important Priority Migratory Bird Habitat. The bay area provides the most important spawning and rearing areas in the lake. By securing all of the shoreline and associated uplands, these important wildlife areas will be protected from future development. The majority of habitat identified for securement is wooded fen with shrubby fen, marsh, shallow open water and aspen upland also occurring.

Four additional parcels of private land, adjacent to and south of Cold Lake South Shore and French Bay Provincial Recreation Area, could be secured with a lower priority than the above nine identified parcels.

There are a total of 13 parcels that could be targeted in the south area.

Along the western shoreline of Cold Lake, there are approximately five crown land parcels and three private land parcels occurring between the northern boundary of the Cold Lake IR and the Cold Lake North Shore Provincial Park boundary. Within Cold Lake North Shore, the Medley Canadian Forces Base Society holds a recreation lease of 4.9 ha, which expires in 2011. Parks is working with the Society to ensure compatible use. The Cold Lake North Shore extends to the Saskatchewan border where it hooks up with the Meadow Lake Provincial Park. We will investigate all crown and private land parcels along the west shore to determine their potential for securement.

Suncor Energy holds subsurface oil sands agreements in Cold Lake North Shore Provincial Park that pre-date park designation in 1995.

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