

# **Lake Francis Wildlife Management Area: Management Plan**

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## **INTRODUCTION**

The name Wildlife Management Area (WMA) gives the impression that this area should have a comprehensive management plan in place, but that is not the case. The purpose of this project is to create a management plan that can be used for the Lake Francis WMA and a 5 mile buffer zone surrounding the WMA. Our overarching goal is to enhance protection of the ecosystems, while maintaining the economic viability of Lake Francis WMA and the surrounding area. The WMA consists of 3 distinct ecosystems: wetland, beach ridge, and tall grass prairie.

The tall grass prairie is also very significant in the buffer zone although it is much degraded. We have treated each of these ecosystems separately and have chosen unique management goals for each. In order to create a management plan we researched the background of Lake Francis WMA; set boundaries for our management plan; listed (and contacted) stakeholders; described and set management goals for each ecosystem, and set a rough timeline for implementation. There are a number of unknowns in our management plan such as availability of funding and what type of grazing practices are used by local ranchers in the buffer zone. Part of our management plan involves ongoing research and adaptation to the needs of stakeholders and the ecosystems.

## **LAKE FRANCIS WILDLIFE MANAGEMENT AREA**

Lake Francis Wildlife Management Area (WMA) is located at the base of Lake Manitoba and is a component of Delta Marsh. The WMA is 6,782 hectares composed of a variety of ecosystems including wetland, beach ridge, and tall grass prairie (Manitoba Conservation 2010). It is named after the lake that covers a large portion of the WMA (Figure 1). Lake Francis was named in 1878 by William Wagner, Dominion Land Surveyor, after his infant son. Wagner

represented the rural municipality of Woodlands in the Manitoba Legislature from 1883-86 (Manitoba Conservation 2001). The WMA was not established to protect ecosystems, instead it was established to preserve habitat for game. The Wildlife Act states “. . . that the wildlife resource of the province would be better managed, conserved or enhanced, it [provincial authority] may, by regulation, designate areas of the province in accordance with this section (Government 2010). The WMA is managed by the Wildlife and Ecosystem Protection Branch, and for the purpose of this management plan we will assume their role.

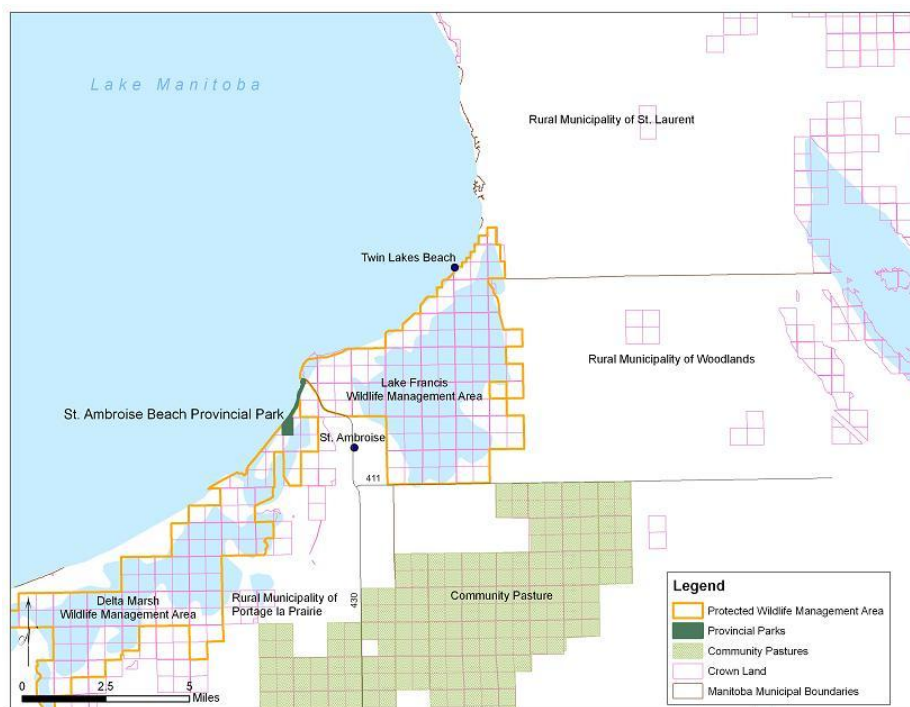


Figure 1. Map of Lake Francis WMA and surrounding area, depicting the various land uses and municipal boundaries.

### Justification of Boundaries

Lake Francis WMA will be incorporated into the West Interlake Integrated Watershed Management Plan that is in a two-year process of being created (Manitoba Water 2010). In the meanwhile we are creating a management plan for a smaller portion of the watershed which

includes the WMA and a five mile buffer around the WMA. We have chosen to create two boundaries because as the Wildlife and Ecosystem Protection Branch, we have control within the WMA, but we recognize that our management area is impacted by the land around it (and the surrounding land by our management). The 5 mile (8 km) buffer that we have chosen is an area where land use practices become a concern for our management area. This is a standard set by Manitoba Conservation for their management plans (Bergen, pers. comm.). Miles are used to delineate the secondary boundary because the land in Manitoba was originally surveyed using mile by mile sections. The 5 mile boundary includes a number of important stakeholders including three communities: St. Ambroise, Twin Lakes Beach, and St Laurent.

### **Stakeholders**

Stakeholder involvement is necessary for the creation and implementation of any ecosystem management plan. They help identify goals of the ecosystem management plan and contribute local knowledge about Lake Francis and surrounding area. Stakeholders who rely heavily upon the resources provided by Lake Francis, and those who are most likely to be active in management activities, are considered primary stakeholders (as per IUCN: The Ecosystem Approach 2004). Secondary stakeholders are those who may have an interest and position with respect to Lake Francis WMA and surrounding area. Most of the secondary stakeholders are either land owners within the buffer zone or are organizations whose goals include wildlife and/or habitat conservation. For the purposes of this report and our limited resources, not all stakeholders were contacted. A list of potential stakeholders within the area was developed (See Table 1). This management plan is intended to be adaptive and would change as new information is brought forward.

### ***Primary Stakeholders***

There are five First Nation communities found within Lake Manitoba. We had little contact with First Nations, but acknowledge that they used and heavily depended on the resources located within the area.

Manitoba Métis Federation (MMF) represents the Métis people of Manitoba, individual membership is managed by region. MMF issues its members Harvest cards that entitle them to hunt, trap or fish in their traditional pursuits for food. The Métis people heavily depend on the natural resources of the area for their livelihoods. The Métis people commercially fish on Lake Manitoba in the summer and in the winter. Métis people hunt waterfowl for food and trap furbearing animals, such as muskrat, to supplement their income.

St. Ambroise is a small community connected to St. Ambroise Beach Provincial Park. Community events held throughout the year, including the Saskatoon Festival, are held at the local community centre. A general store and gas station are located in the centre of town. Other communities near Lake Francis WMA include Twin Lakes Beach and St. Laurent (Bergen, pers. comm.).

Local ranchers use the lands within the WMA for hay. Much of the land surrounding the WMA is used for pasture or hay. Their co-operation, involvement, and local knowledge are vital to the success of the ecosystem management plan.

Manitoba Conservation, Wildlife and Ecosystem Protection branch administer The Wildlife Act. Therefore the land within the WMA is managed by the branch.

Outfitters, such as Crooked Creek Lodge, use the WMA as a hunting destination for tourism.

Lake Manitoba has a commercial fishing industry regulated by Manitoba Water Stewardship, Fisheries Branch. Winter fishing accounts for approximately 67% of yearly production on Lake Manitoba (MWS Fisheries Branch 2010)

Table 1. List of Primary and Secondary Stakeholders

<b>Primary Stakeholders</b>	<b>Secondary Stakeholders</b>
First Nations	Rural Municipality of Portage la Prairie
Manitoba Métis Federation	Rural Municipality of St. Laurent
St. Ambroise community	Rural Municipality of Woodlands
Twin Lakes Beach community	Lake Manitoba Stewardship Board
St. Laurent community	West Interlake Watershed Conservation District
Local Ranchers	Crown Lands Agency
Manitoba Conservation, Wildlife and Ecosystem Protection Branch	Manitoba Agriculture, Food and Rural Initiatives
	Department of Fisheries and Oceans
Manitoba Lodge and Outfitters Association	Ducks Unlimited
Manitoba Water Stewardship, Fisheries Branch	Delta Waterfowl
	Manitoba Habitat Heritage Corporation
	University of Manitoba, Delta Marsh Field Station
	Critical Wildlife Habitat Program
	Nature Manitoba
	Nature Conservancy of Canada
	Bird Studies Canada
	General Public

## **ECOSYSTEM MANAGEMENT PLAN**

### **Wetland Ecosystem**

#### ***Ecology & Economics***

Lake Francis and its surrounding wetlands are the largest component of the Lake Francis WMA. The wetlands are technically a component of Delta Marsh. The Delta Marsh ecosystem formed around 4,500 years ago, when the Assiniboine River still flowed into Lake Manitoba.

The river flow created a sandy delta and 2,000 years later a barrier beach emerged that isolates the marsh from the lake (Shay 2000). Marshes are a type of wetland characterized by the fluctuation in water levels (daily, seasonally and/or annually) (Warner and Rubec 1997). The marsh continues to exist today due to the variation of water levels.

There are two connections between Lake Francis and Lake Manitoba. One connection is located in the northeast corner of Lake Francis and was built in the 1940s. It was used to divert water from Lake Manitoba into Lake Francis after the drought of the 1930s had local residents worried that the marsh was drying up. Another connection was excavated towards the end of Twin Lakes Beach Road in 2005 after residents became concerned about high water levels in the marsh. Both connections exclude adult common carp, an invasive species. The outlet built in the 1940s uses water logs to control water levels. The logs have a bar on top of them to prevent common carp from jumping over. The second outlet has two culverts with two inch spaced bars to prevent common carp from entering the marsh. This outlet only functions when Lake Francis rises above 812.5 feet and tends to fill up with sand when not in use (a 2010 Nov 4 e-mail from Suggett).

The flora species composition of the marsh is dependent upon the water depth at a specific place and time. Vegetation such as pondweed, hornwort and algae are found in areas where the water depth is one metre. Characteristic cattails and bulrushes of the marsh are located in areas where the water level begins to decrease. Sedges, whitetop grass and sandbar willow appear in wet meadows that are capable of withstanding dry periods. If water levels did not fluctuate, ecological succession would fill in the marsh, and it would become permanently dry land supporting Ash and Maple trees (See Figure 2) (Shay 2000).



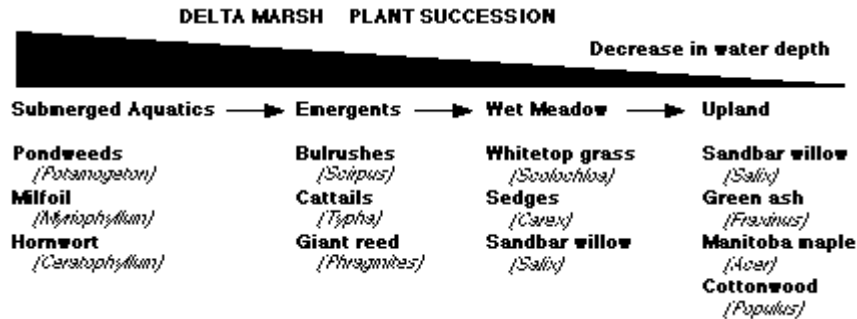


Figure 2. Plant succession in Delta marsh from submerged aquatics to upland (Shay 2000).

Lake Francis WMA is known as a very productive waterfowl staging and breeding area. Delta Marsh is recognized as an Important Bird Area (IBA) due to the large number of neotropical birds that migrate to nest in the marsh vegetation. Many other animals utilize the marsh ecosystem, including beavers and muskrats.

People have utilized the marsh for centuries. Spear points, arrows and hammer stones are evidence of Aboriginal people in the area (Protected Areas 2010). The Métis people have been attracted to the area for the hunting, trapping and fishing opportunities. Wetlands provide valuable ecological goods and services including a place for carbon storage, water purification and flood and drought prevention. Manitoba Water Stewardship created Lake Manitoba Stewardship Board in 2007 to provide advice regarding water levels and water quality. Since water levels are now artificial, research into what historical water levels were is critical to determine management practices.

### ***Management***

Fluctuating water levels is the most important disturbance in the marsh ecosystem. Managing the water levels of Lake Manitoba and Lake Francis is an area of contention between stakeholders. Hunters and trappers do not want the marsh to dry up while residents along Twin

Lakes Beach Road and cattle ranchers are concerned about the impact of flooding on property and haying lands. Due to the residents along Twin Lakes Beach Road and the associated property that would be damaged by higher waters it is not possible to allow a natural connection between Lake Francis and Lake Manitoba. The two connections between Lake Francis and Lake Manitoba artificially control water levels. Decisions regarding the regulation of water levels in the marsh should be based on science but will have to incorporate the concerns of local stakeholders. More research is required to determine if the current regulation of water levels in the marsh is mimicking the historical range. Through stakeholder consultation it may be beneficial to provide compensation to stakeholders who are affected by artificial water regulation.

While Lake Francis does not have common carp, there is a need to monitor and assess current enclosure methods. Common carp pose a serious threat to the productivity of the waterfowl who utilize the marsh within Lake Francis WMA. The Delta Marsh field station operated by the University of Manitoba does important research to understand the marsh ecology. The research of students contributes to the assessment and monitoring of the invasive common carp.

The management of the marsh ecosystem must address the effects of hunting. Monitoring the number of waterfowl, muskrats, and other wild game will ensure sustainable harvests. The government administering hunting regulations requires the cooperation of hunters to gather information and assess game populations. Developing adaptive management plans will reduce the uncertainty in the decision making process of adjusting bag limits outlined in hunting regulations. The enforcement of hunting regulations by Conservation Officers should recognize and incorporate Métis hunting rights.

## **Beach Ridge Ecosystem**

### ***Ecology & Economics***

The beach ridge within the WMA, known as Twin Lakes Beach, is a thin stretch of sandy beach that lies between Lake Francis and Lake Manitoba. Twin Lakes Beach Road runs along the south side of the beach for almost its entire length, and there is a small community of permanent residents and cottage owners along the road. The length of the entire beach ridge is 25 km long, and continues outside of the WMA including St Ambroise Beach, and Delta Beach (Hamel 2002).

The beach ridge, while only a small component of the Lake Francis WMA, provides a very important habitat for a number of flora and fauna. Two species of concern that are found on this beach ridge are the Piping Plover (*Charadrius melodus*) and common Hackberry (*Celtis occidentalis*). Both are ranked as S1 species, which is defined as “very rare throughout its range or in the province (5 or fewer occurrences, or very few remaining individuals). May be especially vulnerable to extirpation” (a 2010 Nov 18 e-mail from Firlotte). Both of these species rely on sandy habitats, making the sandy dunes an ideal location for them. It also means that management of the beach ridge has an impact on the conservation of these two species.

The Piping Plover makes its nest on sandy or gravelly surfaces, which Twin Lakes Beach provides. This nesting habitat is also close to a food source for the Plovers, who forage for small insects and worms along shorelines (Manitoba Conservation 2010). Piping Plover were last observed by surveyors in August of 2004 (a 2010 Nov 18 e-mail from Firlotte), but there are still protective measures in place during nesting season including fencing off part of the beach during springtime when the birds breed (Bergen pers. comm.).

Plovers are at risk mainly from disturbance of nests and predation by cats and dogs. Plover eggs are also eaten by gulls and raccoons if they are attracted to the area by other food found in garbage or left behind on the beach. Horseback riding in nesting areas can also be problematic because horses trample nests, and chicks can fall into hoof prints and get trapped (Species 2010). Since one of the primary economic functions of the Twin Lakes Beach is recreational, management of human related disturbances has the potential to have a negative impact on the economics of the area.

The common Hackberry is found only in two locations in Manitoba: along the beach ridge south of Lake Manitoba, and in the Lauder Sandhills. Hackberry generally have a low resistance to decay and pathogens but according to Dr. Norm Kenkel (Department of Biological Sciences, University of Manitoba) the Hackberry that grow along the Twin Lakes Beach are relatively disease-free (Hamel 2002). In our management area the greatest threat to Hackberry is recreational activities. ATV use along the dunes can be extremely damaging to plants by causing them physical harm, and also by spreading the seeds of invasive species.

### ***Management***

Our management within the beach ridge ecosystem revolves around protection of the aforementioned endangered species, and management of recreational activities. There are already some Piping Plover protection initiatives in place such as fencing around nesting grounds and education about Plovers at community events (Bergen pers. comm.). We will continue fencing off areas for Piping Plover during spring nesting and put predator exclusion cages around established nests. These cages allow the birds to move freely to and from the nest, while protecting the eggs and chicks from cats, dogs, and other predators. We will also continue educating the public about the Piping Plover, and encourage any birders to report sightings. In

addition to education programs at events, we would like to increase signage in the beach ridge ecosystem to educate visitors and encourage them to respect the fences, keep their pets leashed and remove all garbage and food from the beach.

There is currently no formal, species-specific protection for Hackberry in Manitoba (Hamel 2002), so our management will mainly focus on restricting ATV use on the dunes. This type of management could potentially lead to economic loss if it discourages tourists from coming to Twin Lakes Beach, so we plan on creating a trail that can be used by ATVs. This will minimize the direct damage to Hackberry, and it will minimize the area over which invasive species may be spread by ATVs. If we are able to receive funding for research in this area, we would also like to research and monitor Hackberry populations on the beach ridge so that we can have a greater understanding of why this species has become so rare.

The beach ridge ecosystem is dependent on natural disturbances. Flooding brings nutrients in the form of seaweed and other organic materials onto the sand, but it also prevents succession by periodically killing the established vegetation (Lake Manitoba 2003). Large wind storms also play a part by blowing away topsoil and pushing back the vegetation. Our management plan does not focus on these disturbances because they are not something that we can replicate, but it is important for us to understand the role that they play in the health of this ecosystem.

## **Tall Grass Prairie Ecosystem**

### ***Ecology & Economics***

The tall grass prairies are among the most endangered ecosystems in North America with less than 0.01% of the historical tall grass range remaining in Manitoba. The majority of native prairie habitat has been converted for agricultural purposes with the richest areas used as

cropland to grow wheat, canola, and soy and the less desirable land being used as forage for cattle (Koper et al. 2010). In the 1970s a large portion of the upland Lake Francis WMA (tall grass prairie) was seeded with alfalfa in attempt to prevent local farmers from haying in the wetlands by increasing the production value of the uplands. As a result there is only one quarter section (approximately 80 hectares) that is considered to be ‘good’ quality native prairie (a 2010 Nov 4 e-mail from Suggett).

The tall grass prairie is a disturbance dependent ecosystem and quickly degrades if disturbances are removed. Buffalo grazing, wildfires, and drought are the historic forms of disturbance which have been largely removed from the landscape. Cattle grazing, haying (wild hay), and prescribed burning can all be used as management tools to re-introduce some form of disturbance that is critical in maintaining a healthy ecosystem. Without frequent disturbances the tall grass prairie will quickly transition into a forested ecosystem with aspen stands becoming established within 3 years of a disturbance (Penfound 1964, Collins and Barber, 1986).

While there have been no studies conducted in Lake Francis to determine which plant, animal, and bird species are present, a typical patch in southern Manitoba can have over 200 plant species (i.e. big bluestem, western prairie fringed orchid), 90 bird species (i.e. Baird’s sparrow, western meadowlark), and 20 butterfly species within a patch (i.e. Poweshiek skipper) (Manitoba Conservation 2010). Only small fragments dispersed throughout southern Manitoba remain. Remnant habitat patches are rarely ‘good’ quality and suffer from edge effects. Edge effects generally result in a loss of sensitive, native species and an increase in invasive species with smaller patches being especially vulnerable to invasion. Small patches surrounded by agricultural and/or urban land will generally act as a sink habitat and be unable to support the diversity of species required for a healthy, functioning ecosystem (Koper et al. 2010).

The tall grass prairie within the WMA could be an important source of tourism if a larger area could be restored. The tall grass prairie represents a rare and unique ecosystem and has significant historical and aesthetic values. The prairie in the buffer zone is also economically important for local land owners due to the forage that it provides for cattle as pasture and hay land.

### ***Management***

We could not find any specific data on the tall grass prairie either within the WMA or the surrounding buffer zone since there have never been any monitoring or assessment projects. The lack of information makes it is very difficult to make management recommendations when we are unsure of current land uses, management practices, or ecosystem health. Currently, the only management practices within the WMA for tall grass are limited to occasional prescribed burns and haying leases. The prescribed burns are limited to the ‘good’ quality quarter section along with occasional mowing to suppress aspen encroachment (a 2010 Nov 4 e-mail from Suggett). Since the natural disturbances that are critical in the maintenance of a healthy prairie ecosystem have been removed through human intervention we are recommending that management within the WMA increase the amount of land burned each year and assign haying leases to the remainder. Ideally, the land that is burned, hayed, or left fallow would be rotated on a 2 to 3 year schedule to mimic a more natural disturbance regime and increase the overall diversity of the landscape.

As there have been no studies conducted in the area we cannot know which plant and animal species are present. After a species inventory has been conducted for the area, specific management plans will have to be established to deal with whichever invasive and/or endangered species that are present. Since funding for monitoring and assessment programs are not currently

available these management steps will most likely have to be established when the entire management plan is re-evaluated in 5 years (and baseline data has been gathered). Research investigating the impact of various haying and grazing regimes will be critical as we cannot recommend an 'ideal' grazing technique (rotational, seasonal, continuous, and/or intensive grazing) until we know what the current practices are and what the possible benefits/consequences will be if we change them.

When funds become available we would like to implement several incentive and education based programs that are aimed towards local land owners specifically within the buffer zone. The land surrounding the WMA is primarily used for cattle ranching and is privately owned. Engaging local stakeholders, especially ranchers, in tall grass prairie management will be critical for the successful implementation of any new management protocols. The tall grass prairie is a complex system that requires large, connected habitat patches to function as a healthy ecosystem. Since most of the remaining habitat is found on private land, positive incentives will be used to promote specific haying and grazing practices and possibly to promote prescribed burning. As stated before these specific practices cannot yet be recommended as there is not sufficient information available. Along with positive incentives, education will play an important role in our management plan. We will introduce signage (within the WMA) and distribute brochures/pamphlets (within the buffer zone) to explain any changes or restrictions inside the WMA and the importance and consequences of various land uses (i.e. specific grazing practices). Education is also important for invasive and/or endangered species management on private property. Significant stakeholder involvement will be necessary for any management in the buffer zone, and as such we would like to begin holding stakeholder meetings to determine local attitudes towards certain practices and goals.



ATV use within the WMA will be restricted to a designated trail, which will not pass through the good quality patch. Restricting off road vehicle access will help control the spread of invasive species and reduce the negative impacts associated with human induced disturbances.

### **Implementation**

Our management plan has goals which are diverse in the effort needed to implement them, and in the time it will take to achieve them. We have divided our plan into projects that are already underway and we would like to continue; projects that are in place but are not effective and need to be expanded; and projects that we would like to introduce. The timelines for implementing these projects depend on what is in place already, and how much funding is available. The management plan as a whole will be monitored on an ongoing basis and revisited every five years to assess its successfulness and reassign available funding if required.

Projects that are underway and we would like to continue include Carp exclusion, hunting regulation, lake level monitoring, and Piping Plover recovery. These projects do not have a start and end date since they have already been implemented and we are simply continuing them. They will need to be monitored and adapted if necessary.

Projects that we would like to expand include monitoring and assessment programs, and education. We are particularly interested in researching and monitoring waterfowl and muskrats, common Hackberry, and ecosystem health in the tall grass prairie. These projects will not begin until funding becomes available, at which time we will assign funding to projects in order of priority. Some of the funds will come through the government since the land is managed by the Wildlife and Ecosystem Protection Branch. We also hope to gain funds through haying leases within the WMA, and we will encourage students to apply for research grants to do graduate

projects in the area. Expanding education is important especially in connection with projects that we will introduce. We would like to increase the interpretive signage in the WMA and send out brochures in conjunction with changes in management.

Projects that we would like to introduce include ATV trails and incentive (within the buffer zone). We would like to create one major ATV trail within the next year, with 3 additional trails to be completed by 2015. Incentives to landowners will be given for protection of endangered species, control of invasive species, and for optimal grazing and haying practices. Incentives may be linked to research that is conducted in the area as well, especially as it relates to grazing and haying practices. These are long-term projects and may not begin for a while. We will assess on a 5 year basis to see if there is enough funding for ongoing incentives.

## **CONCLUSION**

The Lake Francis WMA is an area of significant natural value that currently has no management plan. Our management plan divides the WMA into 3 separate ecosystems and surrounding buffer zone and develops a unique protocol for each. Many of our long term goals require that more research be conducted before a plan can be properly developed. Increased funding, especially with regards to monitoring and assessment, will be essential for the long term management of the area. With proper management the Lake Francis WMA will continue to provide economic, ecological, and recreational value to stakeholders.

## **ACKNOWLEDGEMENTS**

Special thanks to Nicole Firlotte, Biodiversity Information Manager with Manitoba Conservation, and to Glen Suggett, WMA Land Manager with Wildlife and Ecosystem Protection Branch, for their willingness to provide us information for this project. Much of the work in this project was done as a joint effort between Alexis, Lisa and Megan. Brainstorming and researching about the boundaries, stakeholders, management goals and implementation was done as a group. Rough drafts for the presentations were done as a group. Alexis researched and wrote the section on tall grass prairie and put together the final touches on our final presentation slides and paper. Lisa researched and wrote the section on the marsh put together the first and second presentation slides, and created all of the maps. She was also a valuable source of information as a local resident within the buffer zone. Megan researched and wrote the section on beach ridge and formatted the final paper.

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