

# Wetlands in Manitoba

A Publication of the Manitoba Eco-Network

2009

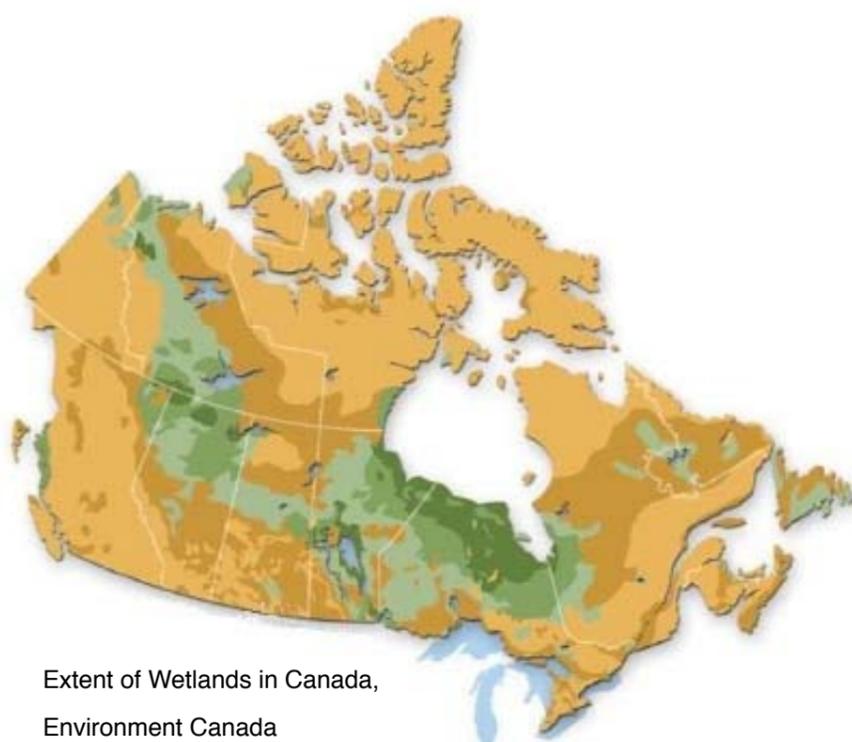
## Canada has over 127 million hectares of wetlands, one quarter the world's total.

Twenty-two million (17%) hectares of these are in Manitoba. Wetlands such as marshes, bogs, swamps and fens are essential for a number of environmental services including: flood and drought prevention, storing carbon to prevent global climate change, water purification, and helping to replace groundwater. Wetlands are also important as habitat for countless species. They have long been important to the wild rice growing, fishing and hunting cultures of the Aboriginal Peoples of the province. Wetlands play an important role in Manitoba's economy, culture and environment, providing services to Canadians valued at over 20 billion dollars annually.

Unfortunately, pollution, urban encroachment, industrial activity, and artificial drainage are taking their toll on the resource. Wetlands are regions that are covered with water at least part of the time. Some may be subject to seasonal flooding while others cycle through periods of drought and flood over years. As transitional ecosystems, they are important reserves of biodiversity. The saturation of the land promotes unique organic processes, and supports plants and wildlife adapted to them, providing rich habitat for a wide range of both permanent and migratory species. By slowing the flow of water, they not only prevent flooding downstream, they help keep pollutants and excess nutrients from contaminating our lakes and rivers. Wetlands are fragile, and depend on regular flows and changes in the local water table. Once disrupted they may be difficult to repair. In Manitoba, important initiatives to restore and protect wetlands need more support.



Photo Karla Zubriki



Extent of Wetlands in Canada,  
Environment Canada

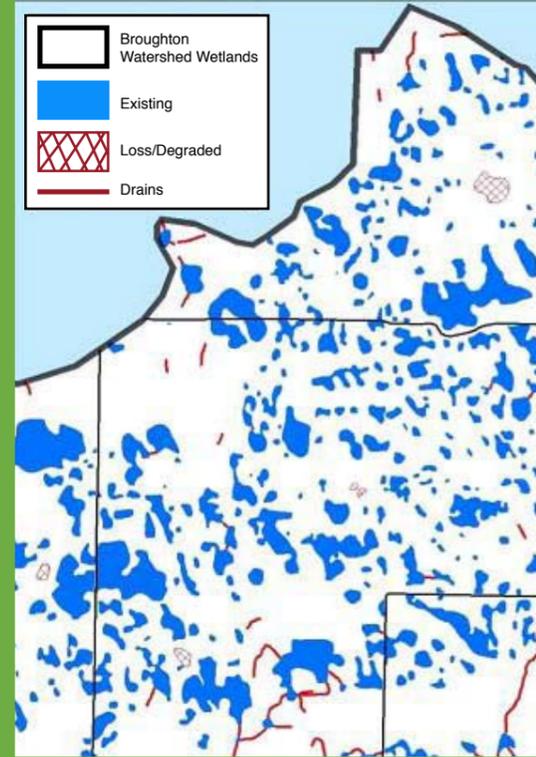
map legend: percent covered by wetlands

	0-5%		26-50%
	6-25%		51-75%
			76-100%

# Wetlands and Biodiversity

Wetlands are uniquely productive ecosystems that support a wide range of plant and animal species. Wetlands often provide all three components of wildlife habitat: food, water and cover. As many as 80 per cent of prairie species depend on wetlands for at least part of their lifecycle. These include mammal species great and small from lemmings and voles to moose and cougars, not to mention our province's many snakes, frogs and salamanders, and countless insects and invertebrates. Wetlands are crucial bird habitat, with over one hundred nesting species in Canada.

Vegetation in wetlands varies according to category. In bogs and fens, sedges and grasses, mosses, shrubs or black spruce predominate. Manitoba swamps are characteristically woody with stands of maple, ash and elm. Marshes are treeless, but contain lush growth of cattails, rushes and reeds. The unusual, and often harsh, soil and water chemistry of different wetlands make them home to many rare species that are adapted to these niches. The Gull Lake Wetlands southeast of Lake Winnipeg contains at least 28 rare species of orchids. Wetland ecosystems are threatened by invasive plant species including saltcedar and purple loosestrife. With increased global trade, vigilance and transboundary cooperation is needed to protect our local native plant species.

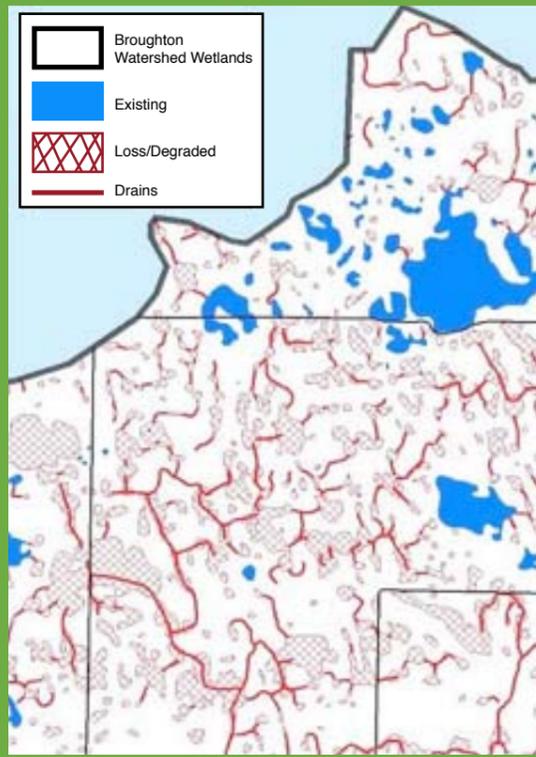


Swamps are large areas of land temporarily or permanently flooded by shallow water. Typically, swamps also contain areas of higher, drier ground called hummocks. North American swamps are characterized by woody vegetation and other plants able to withstand periodic flooding.

Marshes are subject to frequent or continuous flooding and have less areas of open water than swamps. The water is shallow and features grasses, rushes, reeds and other low lying plants.

Bogs are acidic wetlands that accumulate deposits of plant material called peat, made from decaying mosses and lichens. Bogs are fed by local rainfall.

The map above depicts the Broughton Creek Watershed Wetlands. The map below shows the extent of wetlands in 1968-2005. Wetlands collect and store water during rain or snowmelt. When wetlands are drained, the local drainage area is increased. This causes water carrying nutrients to flow through the former wetland area and into streams, rivers, lakes and drinking water.



Wetlands in Broughton Creek Watershed 1968-2005

# Wetlands: The Environment's Kidneys

If the boreal forests are the lungs of our region, then wetlands are the kidneys. They filter out toxic chemicals and nutrients from our water systems. Between 87 and 98 percent of nitrogen and phosphorus may be absorbed by wetlands. As a result of wetland deterioration, an extra 114 tonnes of phosphorus are estimated to reach Lake Winnipeg every year from southwest Manitoba, equivalent to 10 semi-trucks loads of commercial fertilizer being dumped into the lake each year. These nutrients are responsible for the growth of toxic algae blooms in Manitoba lakes and rivers. Wetlands also prevent pesticides and other chemicals from being released into the wider environment.

At the same time, wetlands slow erosion and prevent sediment from clogging waterways or disrupting ecosystems downstream. Wetlands keep water on the land for longer periods of time, keeping drought at bay and floodwaters out of the main stream and river channels of watersheds. The maps in the middle show a portion of the Broughton Creek watershed in southwestern Manitoba over the period of 1968 to 2005. As wetlands are drained, more water is able to flow directly into the creek during flood season. Manitobans know well the difficulty and costs of flood control. Wetlands provide this important

service free of charge, at a scale that no human-made infrastructure could match. Without wetlands, southern Manitoba's costly floods of 1997 and 2009 would have been much worse. Indeed, the loss of our wetlands in recent decades is a contributing factor to many large flood events in this province.

Hundreds of billions of tonnes of carbon are also stored in wetlands, slowing the effects of global warming. Over the centuries, as plant matter has decayed, it has accumulated in swamps, marshes, fens and bogs. The high water table prevents oxidation, so instead of being released as carbon dioxide, it is stored as peat or soil. Globally, there is as much carbon dioxide held in wetlands as there is in the atmosphere. When a wetland is drained, much of the stored carbon is released, accelerating climate change. For the Prairies, global warming will mean increased severity of drought and flood events, so wetland protection is key to adaptation.

# Threats to Wetlands

## Agriculture

During the twentieth century, large swaths of wetlands were destroyed to make way for agriculture. As early as 1895, wetlands in Manitoba were being drained by 5795 kilometres of irrigation ditches. By the 1930s, approximately 810,000 hectares of land had been drained. Those who tried to protect their wetlands found it costly and time consuming to maneuver their equipment around irregularly shaped water bodies. Government policies often penalized farmers who practiced wetland conservation by taxing entire properties as potential farmland. As a result, as little as 30 per cent of the original wetlands remain in many regions. In southern Manitoba, the situation is even more extreme, where we have lost 98 per cent of the original wetlands of the Red River Valley.

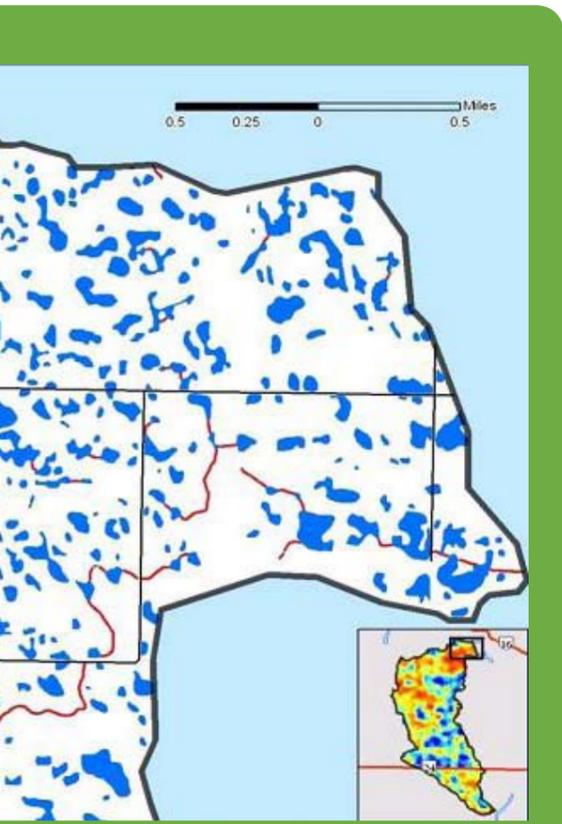
Recently, farmers have become more aware of the importance of preserving wetlands, not just for protecting biodiversity and the environment, but also for the productivity of their own

fields. Wetlands protect against erosion, and seasonal flooding. Programs to encourage wetland restoration and conservation are beginning to have effect. Incentive programs like this must be easy and profitable for farmers to access.

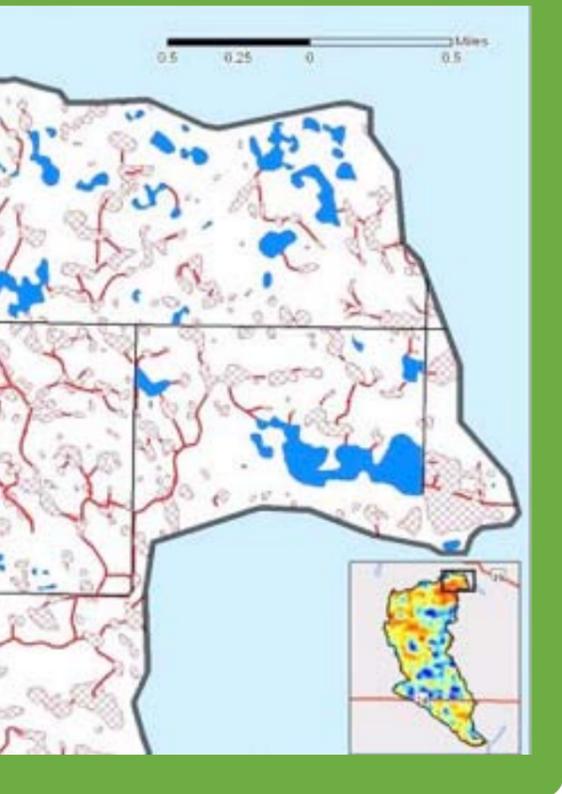
**Agricultural expansion is the major cause of 85 per cent of Canada's wetland losses:**

- since European settlement, wetland conversion to agriculture is estimated at over 20 million hectares
- 71 per cent in the Prairie Provinces

Source: Atlas of Canada, Natural Resources Canada



ton Creek watershed in 1968. The land loss and degradation by 2005. Wetlands are drained, or even partly disconnected to downstream flows. Sediments and nutrients move rapidly and directly to downstream ditches, affecting water supplies.



2005, Source: Ducks Unlimited Canada

## Hydro-Electricity

Wetland loss is not just a problem in the more populated southern part of the province. Industrial development, particularly from hydro-electric generation has also had an impact. Since the 1960s, Manitoba has become a hydro-electric powerhouse exporting billions of kilowatt hours to neighbouring provinces and states. Although hydroelectricity is much cleaner in terms of greenhouse gas emissions than coal or oil fired plants, it nonetheless has a large footprint on the landscape. Wetlands are particularly susceptible to damage by the raised and controlled water levels created by hydro dams. Even a single metre can make huge difference in the ecology of a wetland area. Sediment that builds up behind a dam can also affect wetland habitats. Most wetlands depend on seasonal or periodic flooding. The controlled environment of a reservoir is highly disruptive to sensitive ecosystems. Some of the dangerous effects include: loss of ecosystem productivity; increased emissions of methane from rotting peat, and higher levels mercury in the ecosystem leached from newly

inundated land. Moreover, there have been significant social impacts on the Aboriginal and Northern Manitoba communities that depend culturally and economically on wetland ecosystems.



## Residential Development

Manitoba has become increasingly urban and suburban. According to the most recent census, 71.5 per cent of us live in cities. Urban development leaves little room for nature. Developers often prefer to build on land that is already cleared because it is seen as cheaper and more efficient. The costs of incorporating natural ecosystem elements into development plans frequently do not pay off in the short term. Long term land use planning and regulation at the municipal and provincial level is important to ensure wetland conservation can go hand in hand with urban development.



# Protecting Wetlands

**Local residents** often see wetlands as wastelands or barriers to agricultural or residential development. European cultural bias against these transitional zones, where order is difficult to maintain, goes back many generations, as the countless marshland myths since Beowulf attest. Only recently, as our society recognizes the valuable role wetlands play both for our environment and economy, are new strategies to conserve and restore wetlands developed.

Activists working to save a wetland area northeast of Winnipeg found that many residents saw the local fen not as an important resource but as “a bloody swamp”. A plan was in place in the late 1990s to drain the area, raising water levels at another lake deemed to have higher recreational value for nearby cottagers. Researchers with Native Orchid Conservation Inc. working with the Brokenhead Ojibway Nation discovered that far from being just another swamp, the area was a unique geological formation, one of only a few dozen fens with lime-based sediment in North America.

The group organized educational tours of the area, pointing out the rare flora and fauna the wetland supports. Also, a trail is being built along the edge of the fen to allow residents to get to know it better. Newly appreciative of its value, many have become strong advocates for its protection. In 2005, Manitoba Conservation established the 563 hectare Brokenhead Wetland Ecological Reserve to safeguard the area.

**Farmers** have long been stewards of the land protecting resources where possible. The need for funding is often a major barrier to farmers interested in best management practices and setting land aside for preservation. Since 2005, a program called Alternative Land Use Services (ALUS) has paid farmers up to 15 dollars per acre for signing contracts to ensure that their wetlands are maintained. Areas protected under ALUS help to maintain biodiversity, prevent erosion and regulate water levels and quality – all services that help the farmer in the long run. Since 2006, a Manitoba Water Stewardship incentive has offered \$200 per acre to landowners who restore wetlands of at least 40 acres that were previously drained. “The Manitoba Habitat Heritage Corporation also works with farmers and to protect and restore fish and wildlife habitat, including wetlands and riverbanks.” The development of carbon markets as a result of greenhouse gas emission reduction agreements like the Western Climate Initiative or the Kyoto Agreement may provide further opportunities for landowners who preserve wetlands in the future.



**Urban Dwellers** Our wetlands are our joint heritage. Urban and rural residents can play a role in protecting them. There are many ways to become involved. The first is by learning more about the importance of wetlands and the benefits they provide all Manitobans. Connecting with farmers and appreciating how your food gets from the farm to your fork can help promote better environmental management, like wetland conservation. Consider joining a Community Supported Agriculture program, where you can get to know, and have a voice in, how your food is produced.

**Non-profit organizations** have a big role to play in restoring wetlands. Ducks Unlimited Canada has had the longest running program of wetland conservation, and has helped protect or conserve over five million hectares since 1938. Recently, Wildlife Habit Canada announced plans to restore as many 30 wetlands across Manitoba. Education is a key element to wetland preservation. The Manitoba Eco-Network Water Caucus works with organizations across the province which raise awareness about the importance of wetlands and how they can be protected. Consider getting involved, by volunteering or joining one of the many organizations working to preserve wetlands in Canada.

## Manitoba Eco-Network

3-303 Portage Ave., Winnipeg, MB R3B 2B4  
www.mbeconetwork.org



### Sign me up as a member of Manitoba Eco-Network

Enclosed is a cheque for:

\$30 Supporting Member (individuals)

\$50 Group Membership\*

\$60 Other Organizations (businesses, government departments and corporations that do not otherwise qualify for group membership)

Enclosed is a donation of \$\_\_\_\_\_. (charitable tax receipts available)

Total enclosed \$\_\_\_\_\_.

Name(s)\_\_\_\_\_

Group (if applicable)\_\_\_\_\_

Telephone # ( )\_\_\_\_\_

Email\_\_\_\_\_

Mailing address\_\_\_\_\_

Postal Code\_\_\_\_\_

Area(s) of interest\_\_\_\_\_

Volunteer skills\_\_\_\_\_

\*Group membership is open to any non-governmental, non-profit group which has as one of its objectives the enhancing or furthering of environmental quality, protecting the environment, or environmental education.

I'm interested in volunteering for the Eco-Network. Please call me!

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## Resources

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These are just a few of the many Manitoba Eco-Network member groups working to preserve wetlands:

Assiniboine Watershed Network

Bird Studies Canada

Canadian Parks and Wilderness Society

Debwendon Inc.

Fort Whyte Alive

International Institute for Sustainable Development

Native Orchid Conservation Inc.

Nature Manitoba

Oak Hammock Marsh

Red River Basin Commission