

## **Wetland Conservation:**

### **Using the Orchid to Get the Public Involved**

**By: Doris Ames**

#### **INTRODUCTION**

Wetland conservation is an important environmental issue in the Province of Manitoba in Canada. Since the early 1900's, Manitoba has lost approximately 70% of our wetlands, along with the unusual plants and animals living in them, as a result of agricultural and housing development. This article documents the efforts of Native Orchid Conservation Inc. (NOCI) to save the species-rich calcareous Gull Lake Wetlands (aka Brokenhead Wetlands), by using native orchids to capture the interest of the general public.

#### **WETLAND DESCRIPTION**

The Gull Lake Wetlands, a calcareous fen, located in Section 34 Township 16 Range 7E in the Province of Manitoba, Canada, is a topographically raised bog with ponds, wet troughs or flarks and a marginal rich fen. A calcareous fen is a peatland characterized by a high water table with slow internal drainage by seepage down very gradual slopes. This slow moving groundwater is enriched by nutrients from upslope materials, notably calcium and magnesium, and thus fens are more mineral rich and less acid than bogs [Johnson and others 1995]. The pH of the groundwater in this fen is approximately 7.0 to 7.5. Many fens contain rare plants tolerant of associated calcium carbonate deposits. Plants in these fens are very sensitive to changes in hydrology that affect the rate of groundwater discharge. Once this wetland is altered, the vegetation may not recover even if water levels are restored [Almendinger and others 1998].

The Gull Lake wetlands support more than 350 vascular plant species including 28 native orchid species and eight species of insectivorous plants. Altogether, twenty-three species of rare plants have been found in the fen. Species rankings for the rare plants were obtained from the Manitoba Conservation Data Centre (MBCDC). The MBCDC systematically collects and distributes information about Manitoba's plants and animal species and plant environments. They use the Nature Conservancy's plant rarity ranking. The MBCDC is part of the National Heritage Network of Canada. Canada does not have a wetland plant indicator status scheme so the wetland indicator status for the native orchids refers to a type of wetland classification used in the U.S.A. Species-rich calcareous fens are themselves considered rare in North America and deserving of protection in adjacent areas to the south of Manitoba (e.g. Minnesota) [Jones and others 1999].

## **THE PROBLEM**

In 1992, a proposal to pump water from this wetland area to raise the level of a recreational lake nearby was submitted to the provincial government and feasibility studies were undertaken. Botanists and other scientists familiar with wetland ecology informed us that this plan, if implemented, would have a negative effect on the rare native flora and possibly the fauna located in the Gull Lake wetlands [Ewacha 1999].

## **ACTION PLAN**

Realizing quick action was needed; several concerned individuals formed Native Orchid Conservation Incorporated (NOCI), in order to protect these wetlands. NOCI obtained non-profit charity status to make it easier to get donations to help us with our work.

From the beginning, NOCI sought the help of the general public. NOCI members realized that this is the most effective way to get the cooperation of politicians in passing the necessary legislation, to protect the environment. NOCI also asked and obtained letters of support from some other conservation organizations such as Nature Saskatchewan and Ducks Unlimited. NOCI notified all orchid societies and conservation organizations in Canada about the threat to this wetland.

## **PUBLIC EDUCATION**

Next we prepared a portable 4-panel display board with photographs, and textual material about the fen and the rare plants that occur there and the need for its conservation and protection [Photo 1]. NOCI took the display around to horticultural societies, shopping centres, schools and conferences. It became readily apparent that most people have no knowledge of wetlands other than that they might be unpleasant, mosquito-ridden, and dangerous places! To counteract this narrow view, NOCI conducted field trips for our members, to bogs and fens in the area, with a special emphasis on the Gull Lake Wetlands. We advertised these trips as a good way to see native orchids of all kinds. We limited the number of people on these field trips to protect this fragile environment and to make these trips more personalized and interesting to the participants. NOCI did not want these trips to be just a walk through, with 20 people behind an interpreter. Field trip leaders were NOCI members with a great deal of experience in the field, enthusiastic and with good people skills. The response to these trips was overwhelming. NOCI conducted 11 field trips in the summer of 2000. More than 100 people took part in these field trips. The focus was kept on the beautiful native orchids found in Manitoba's bogs and fens, in order to capture the participant's interest and to educate them. Field trip leaders observed that people, who originally came out to see native orchids, quickly became interested and concerned about other wetland plants as well.

## **DEMONSTRATION PROJECTS**

Next, NOCI undertook several projects involving the conservation of wetland plants, particularly native orchids. One is a five year project funded by the Manitoba Department of Sustainable Development to assess the effects of selective cutting on the growth of native orchids, in an area of the Sandilands Forest Reserve in Manitoba. Sustainable development is an approach to daily decision-making that integrates probable consequences to the environment, economy, human health and social well-being. The Manitoba Department of Sustainable Development funds projects that provide data on the environment helpful to the decision making process of wetland conservation.

Our selective cutting area in the Sandilands Forest reserve contains 13 species of native orchids growing in a climax cedar forest. We are now doing yearly measurements of light levels, height and diameter of trees, species and number of plants; and, with native orchids, number that flower, number of leaves, and number of seedpods. These measurements will be done over a five year period to assess the effects of selective cutting on understory growth. NOCI members are encouraged to participate in this study by taking part in recording the number of orchids, light levels, and photography in the test plots. Those that do, quickly become strong advocates of wetland conservation. We are also doing pollination studies and pathology in cypripediums studies in the Gull Lake Wetlands because we need to protect the plants as well as the wetlands and work for their conservation on several levels.

## **CHOOSING A FOCAL POINT**

We have found during the past two years that the best way to preserve and promote the conservation of wetlands is to get the public involved. This can be accomplished in a number of ways. The first method, of course, involves a careful assessment and gathering of biological data on the area. This is the traditional method of the scientist and is vitally important to the success of the project. However, psychology and an understanding of some of the ways people relate to the natural world can also be helpful in capturing the attention and support of the general public. One of the ways this can be done is by focusing on a particularly beautiful or exotic part of the ecosystem such as native orchids [Photos 2, 3, 4, 5, 6]. (This idea is not new and has been used with great effectiveness for instance, to preserve Arctic ecosystems by using the cute baby seal and the polar bear.) This serves as "the hook" to attract people. Second, take them on field trips. Third, engage people in working on research projects in the field, instead of being passive observers. Their personal involvement will help to build their commitment to conservation goals. While working on these projects, the beauty of the environment will capture their hearts, engage their minds and start or increase their conservation activity. Since each person goes on to influence many others, soon a large block of conservation-minded citizens is actively supporting your preservation goals. Third, write articles about your focus

plant or animal and your conservation work in order to reach a larger audience. We have had people write us letters full of encouragement and advice from all over the world.

## **RESULTS**

The wetland conservation approach outlined in this article works because NOCI was successful in having several other areas in the province set aside from clear cutting. These areas contain orchids and other rare native plants. As a result of our efforts including lobbying, a proposal to declare a large portion of the Gull Lake Wetlands an ecological reserve is now before the Minister of Conservation. NOCI members and other members of the general public are behind this idea. Any plans to drain this wetland are on indefinite hold. Nature Saskatchewan and Ducks Unlimited have expressed an interest in helping us conserve this wetland. The Centre for Indigenous Environmental Resources is willing to try to secure funding for some aspects of the project especially boardwalks. Installation of boardwalks is especially important in order to provide access while protecting the fragile environment. Suggestions will be sought from stakeholders as to the best use of this wetlands for education, teaching and enjoyment. NOCI now has over 200 members, is working on several other conservation projects, and is on the way to becoming a more effective wetland conservation group. The beautiful native orchids made it all possible.

## **FUTURE PLANS**

NOCI members plan to continue to work for the conservation of the Gull Lake wetlands. As well we intend to conduct botanical surveys in other wetlands in the province of Manitoba to enhance the data base on these plants. No general botanical survey has been conducted in the province since Scoggan in 1957, and available data is very out of date. We feel sure we will find more species of native orchids and other rare plants and we intend to publicize our results and secure the protection of these plants. We will continue to carry out projects relating to the conservation of orchids and other rare and endangered plants in Manitoba.

For further information on all our projects and our organization, you can view our website at [www.nativeorchid.org](http://www.nativeorchid.org), or contact us by mail at PO Box 40057 Lagimodiere PO, Winnipeg, MB R2C 4P3 Canada, or by phone at (204) 223-8209 (leave message).

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**TABLE 1. PROVINCIALY AND NATIONALLY RARE VASCULAR PLANTS AT GULL LAKE WETLANDS**

<b>Scientific Name</b>	<b>Common Name</b>
<i>Arethusa bulbosa</i> L.	Dragon's Mouth Orchid
<i>Calopogon pulchellus</i> (Salisb.) R. Br.	Swamp-pink; Grass-pink
<i>Carex gracillima</i> Schwein.	Slender Sedge
<i>Carex sterilis</i> Willd.	Sterile Sedge
<i>Ceanothus herbaceus</i> Raf.	New Jersey Tea
<i>Cladium mariscoides</i> (Muhl.) Torr.	Twig Rush
<i>Cypripedium arietinum</i> R.BR.	Ram's-head Lady's-slipper
<i>Drosera anglica</i> Huds.	Oblong-leaved Sundew
<i>Drosera linearis</i> Goldie	Slender-leaved Sundew
<i>Goodyera tessellata</i> Lodd.	Tesselated Rattlesnake Plantain
<i>Malaxis monophyllus</i> (L.) Sw.	White Adder's-mouth
* <i>Malaxis paludosa</i> (L.) Sw.	Bog Adder's-mouth
<i>Malaxis unifolia</i> Michx.	Green Adder's-mouth
<i>Platanthera hookeri</i> (Torr.) Lindl.	Hooker's Orchid
<i>Pogonia ophioglossoides</i> (L.) Ker	Rose Pogonia

Potentilla gracilis Dougl.	Graceful Cinquefoil
Primula egaliksensis Wormsk.	Greenland Primrose
Pyrola rotundifolia L.	Round-leaved Wintergreen
Rhynchospora alba (L.) Vahl.	White Beak-rush
Rhynchospora capillacea Torr.	Slender Beak-rush
Solidago uliginosa Nutt.	Marsh Goldenrod
Utricularia cornuta Michx.	Horned Bladderwort

\* nationally rare species

Also observed was: Chara sp., a rare alga which grows in wet areas high in calcium and magnesium.

**TABLE 2. THE 28 ORCHID SPECIES AT GULL LAKE WETLANDS**

Scientific Name	Rare <sup>1</sup>	Common Name	Wetland Indicator Status <sup>2</sup>
Amerorchis rotundifolia (Banks) Hulten		Small Round-leaved Orchid	Not listed
Arethusa bulbosa L.	x	Dragon's Mouth Orchid	OBL
Calopogon pulchellus (Salisb.) R.Br.	x	Swamp-pink; Grass-pink	Not listed
Calypso bulbosa ( L.) Oakes		Fairy or Venus-slipper	FACU, FACW
Coeloglossum viride Hartman		Long-bracted Orchid	FACU, FACW
Corallorhiza maculata Raf.		Spotted Coralroot	UPL, FACU
Corallorhiza striata Lindl.		Striped Coralroot	UPL, FACU+
Corallorhiza trifida Chat.		Early Coralroot	FAC, FACW
Cypripedium acaule Ait.		Moccasin-flower	FACU-, FACW
Cypripedium arietinum R.Br.	x	Ram's-head lady's-slipper	FACW+
Cypripedium calceolus L. var.parviflorum (Salisb.) Fern.		Small Yellow Lady's-slipper	FAC-, FACW
Cypripedium calceolus L. var.pubescens (Willd.) Correll		Large Yellow Lady's-slipper	FACU, FACW
Cypripedium reginae Walt.		Showy Lady's-slipper	FAC-, FACW
Goodyera repens (L.) R.Br. Fern.		Lesser Rattlesnake Plantain	UPL, FAC

Goodyera tessellata Lodd..	x	Tesselated Rattlesnake-orchid	FACU-, FACU
Liparis loeselii (L.) Richard		Loesel's Twayblade	FACU-, FACU
Listera cordata (L.) R.Br.		Heart-leaved Twayblade	FACU, FACW+
Malaxis monophyllus (L.) Sw.	x	White Adder's-mouth	Not listed
Malaxis paludosa (L.) Sw.	x	Bog Adder's-mouth	OBL
Malaxis unifolia Michx.	x	Green Adder's-mouth	FAC, FAC+
Platanthera dilitata (Pursh) Lindl. ex Beck		Tall Leafy White Orchid	FACW, FACW+
Platanthera hookeri (Torr.) Lindl.	x	Hooker's Orchid	FAC, FAC+
Platanthera hyperborea Lindley		Tall Leafy Green Orchid	FACW, FACW+
Platanthera obtusata Lindley		Blunt Leaf Orchid	FACW
Platanthera orbiculata (Pursh) Lindley		Large Round-Leaf Orchid	FACU, FAC
Pogonia ophioglossoides (L.) Ker	x	Rose Pogonia	OBL
Spiranthes lacera Raf.		Slender Ladies'-tresses	FACU-, FAC+
Spiranthes romanzoffiana Cham.		Hooded Ladies'-tresses	FACW, OBL

<sup>1</sup>Provincially rare species ranking by the Manitoba Conservation Data Centre.

<sup>2</sup>U.S. Fish and Wildlife Service 1997 National Wetlands Inventory wetland indicator status as follows:

OBL - only in wetlands (more than 99% of occurrences are in wetlands);

FACW - usually in wetlands (67%-99% of occurrences are in wetlands);

FAC - in both wetlands and non-wetlands (34%-66% of occurrences are in wetlands);

FACU - usually in non-wetlands (1%-33% of occurrences are in wetlands);

UPL - only in non-wetlands (less than 1% of occurrences are in wetlands).



Figure 1. The Gull Lake Wetlands in the province of Manitoba, approximately 80 km (50 miles) northeast of Winnipeg. (See box insert below Lake Winnipeg.)



Photo 1. This educational display plays an important part in NOCI's efforts to get the public involved. The display tells the story of the orchid, and provides the participant with all the information needed to become actively involved with the NOCI organization.





Photo 2. Large yellow lady's-slipper



Photo 3. Round-leaved rein-orchid



Photo 4. Ram's-head Lady's Slipper



Photo 5. Fairy Slipper



Photo 6. Showy Lady's-Slipper

**ABOUT THE AUTHOR**

Doris E. Ames was Vice President of Native Orchid Conservation Inc. from 1998 to 2002 and President from 2002 to 2014 and has written widely on native orchids and wetland conservation.

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