

MANOOMIN (WILD RICE) ENHANCEMENT AND RESEARCH IN THE CEDED TERRITORIES - 2008

INTRODUCTION

The Great Lakes Indian Fish and Wildlife Commission (GLIFWC) conducts a wild rice (*Zizania palustris*) enhancement and research program in the territories ceded in the Treaties of 1836, 1837, and 1842. Most wild rice management projects are conducted cooperatively with other natural resource agencies. This report summarizes activities carried out under this program in 2008.

BACKGROUND

Manoomin has been a staple in the diet of native people in the upper Great Lakes region for over 1000 years (Johnson 1970). It has been an important component of the diet and the culture of the Ojibwe people since their immigration into the heart of wild rice range nearly 3 centuries ago (Vennum 1988). With the arrival of Europeans, wild rice also became an important economic commodity, providing critical nutrition to the fur-trappers and traders moving into the area. Today, manoomin retains extraordinary significance to the Ojibwe, and is considered sacred food. The September moon is still referred to as Manoominike Giizis (the Rice Making Moon), and the harvest season is still celebrated with traditional pow-wows.

In addition to its value to Native Americans, wild rice provides a valuable food source for wildlife, and its presence increases the biological diversity of wetlands. Wild rice can also improve water quality by tying up nutrients and by decreasing the wind action across lakes that can suspend particles and lead to water clarity and quality problems. Unfortunately, wild rice is much less abundant than it was historically.

The reaffirmation of off-reservation treaty rights has restored the tribes' opportunity to cooperatively manage wild rice in the ceded territories. The general objective for the enhancement program is to increase the amount of wild rice in the ceded territories through the reestablishment of historic beds and the development of new beds. In 1985, GLIFWC and the Wisconsin Department of Natural Resources (WDNR) cooperated in the first attempt to inventory wild rice beds in Wisconsin. In 1987, GLIFWC began off-reservation seeding activities by planting 200 pounds of seed in Pat Shay Lake, Vilas County, Wisconsin in cooperation with the Nicolet National Forest (NNF), and providing approximately 100 pounds of seed to the WDNR for seeding on a state wildlife area. The seeding program grew gradually over the next several years, until it expanded significantly in 1991 (Figure 1) with support of funding from the Bureau of Indian Affairs Circle of Flight Program. Restoration efforts continue to be an important part of GLIFWC's manoomin management program.

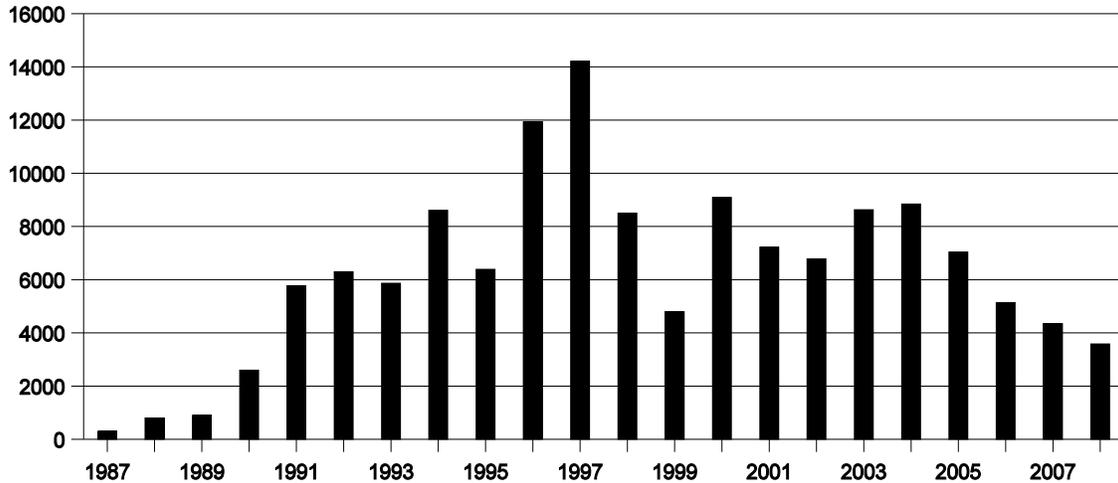


Figure 1. Pounds of wild rice purchased by GLIFWC and seeded by GLIFWC, its member tribes, or cooperators, 1987-2008.

ENHANCEMENT

Seeding Summary

In 2008, as in other recent years, GLIFWC concentrated its management efforts on purchasing locally harvested rice and distributing it to cooperators (listed below) who conducted the majority of the seeding. Seeding sites were selected by GLIFWC staff, member tribes, cooperators, or some combination of the three. With the assistance of these cooperators a total of 3,583 pounds of wild rice was seeded in 21 waters in 7 Wisconsin and 5 Michigan counties.

GLIFWC's wild rice seeding program is a highly cooperative effort. Without the strong financial and manpower support of numerous partners, this important undertaking would be far less successful. Tribal interest in this resource has acted as a catalyst, stimulating effective partnerships with other agencies sharing a concern for this resource. Cooperators in 2008 included three GLIFWC member tribes: the Keweenaw Bay Indian Community, the Bay Mills Indian Community, and the Lac du Flambeau Band; the Ottawa National Forest; the Wisconsin Department of Natural Resources (WDNR); the Michigan Department of Natural Resources (MIDNR); and the Gordon Flowage Association. The contributions of each of these cooperators are summarized by project below.

Seed purchasing in 2008 was hampered to some degree by a relatively poor crop and a declining pool of harvesters willing to sell rice for the price (\$2.00 per pound) GLIFWC was

offering. Nevertheless, GLIFWC was able to purchase nearly 3,600 pounds of seed (Figure 1). Seed purchased was harvested from 6 different waters, with the largest amounts coming from the Mississippi River (Crow Wing County, MN, 1,851 pounds), Little Rice Lake (Forest County, WI, 777 pounds), and Long Lake (Burnett County, WI, 588 pounds). All other waters supplied less than 150 pounds of seed.

Seeding Locations

Eleven Wisconsin and 10 Michigan waters received 3,583 pounds of seed under cooperative seeding ventures in 2008. Seeding was done at a rate of approximately 40 pounds per acre, so nearly 90 acres were seeded. Figure 2 displays the locations of seeded waters. All sites were seeded in the fall. Sites seeded were:

- 1) **Name:** St. Croix (Gordon) Flowage (Wisconsin WBIC 2740300)
Location: Douglas County, WI
Cooperator: Gordon Flowage Association
Seed Source: Long Lake, Burnett County, WI (331 pounds); Mississippi River, Crow Wing County, MN (108 pounds); Little Rice Lake, Forest County, WI (81 pounds).
Summary: 520 pounds of seed was planted by GLIFWC in the second planting of several bays on the northwest and southwest side of the flowage. A bed of rice already exists on the east end of this very large flowage, where the St. Croix River enters, as well as a small bed east of the boat landing on the north side. However, this large body of water reportedly once supported much more rice, which the local flowage association is interested in re-establishing.

- 2) **Name:** Wiggins Flowage, Augusta Wildlife Area
Location: Eau Claire County, WI
Cooperator: WDNR
Seed Source: Mississippi River, Crow Wing County, MN (60 pounds).
Summary: The WDNR seeded 60 pounds of rice into this flowage in the second annual seeding effort.

- 3) **Name:** Wood Duck Pool, Augusta Wildlife Area
Location: Eau Claire County, WI
Cooperators: WDNR
Seed Source: Mississippi River, Crow Wing County, MN (150 pounds).
Summary: The WDNR seeded 150 pounds of rice into this flowage the second annual seeding effort.

- 4) **Name:** South Beaver Creek Wildlife Area
Location: Jackson County, WI
Cooperator: WDNR
Seed Source: Mississippi River, Crow Wing County, MN (58 pounds).
Summary: The WDNR seeded 58 pounds of rice into this wildlife area in an initial seeding attempt.

- 5) **Name:** Upper 17 Flowage (Wisconsin WBIC 1718500)
Location: Jackson County, WI
Cooperators: WDNR
Seed Source: Mississippi River, Crow Wing County, MN (119 pounds).
Summary: The WDNR seeded 119 pounds of rice into this flowage on the Dike 17 Wildlife Area in the second annual seeding attempt on this water.

- 6) **Name:** Partridge Crop Flowage
Location: Jackson County, WI
Cooperator: WDNR
Seed Source: Mississippi River, Crow Wing County, MN (58 pounds).
Summary: This site was seeded by the WDNR with 58 pounds of rice in an initial seeding attempt at this location.

- 7) **Name:** Little Bear (Sugar Bush) Creek Flowage (Wisconsin WBIC 237200)
Location: Iron County, WI
Cooperators: Lac du Flambeau Band
Seed Source: Long Lake, Burnett County, WI (110 pounds); Briggs Lake, Burnett County, WI (98 pounds); Kakagon Sloughs, Ashland County, WI (33 pounds).
Summary: The Lac du Flambeau Band planted 241 pounds of seed in this on-reservation flowage in an effort to restore previously established beds that had been lost following a dike failure.

- 8) **Name:** Pokegama Lake (Wisconsin WBIC 2320800)
Location: Vilas County, WI
Cooperator: Lac du Flambeau Band
Seed Source: Long Lake, Burnett County, WI (46 pounds); Briggs Lake, Burnett County, WI (46 pounds).
Summary: The Lac du Flambeau Band planted 92 pounds of seed in this on-reservation lake in the second seeding of a small bay on the northwest side of the lake.

- 9) **Name:** Legerski's (Unnamed) Pond (Wisconsin WBIC 656500)
Location: Florence County, WI
Cooperator: WDNR
Seed Source: Little Rice Lake, Forest County, WI (65 pounds).
Summary: WDNR seeded 65 pounds of rice on this rice water which had previously been seeded in 2004 but not since.
- 10) **Name:** Halls Creek Flowage (Wisconsin WBIC 652100)
Location: Florence County, WI
Cooperator: WDNR
Seed Source: Little Rice Lake, Forest County, WI (151 pounds).
Summary: WDNR seeded 151 pounds of rice on this site this year. An initial seeding in 2006 did not appear to be successful, but this site was tried again following a drawdown in 2007.
- 11) **Name:** Robago Lake (Wisconsin WBIC 674100)
Location: Florence County, WI
Cooperator: WDNR
Seed Source: Little Rice Lake, Forest County, WI (137 pounds); Kakagon Sloughs, Ashland County, WI (116 pounds).
Summary: The WDNR seeded 253 pounds of rice in the second annual seeding attempt on this water.
- 12) **Name:** Presque Isle Flowage
Location: Gogebic County, MI
Cooperator: MIDNR
Seed Source: Little Rice Lake, Forest County, WI (85 pounds); Long Lake, Burnett County, WI (54 pounds); Rice Lake, Todd County, MN (53 pounds).
Summary: An additional 192 pounds of seed was planted in an effort to expand successful seeding that has taken place over the past several years following reconstruction of the dikes.
- 13) **Name:** Lake Thirteen
Location: Houghton County, MI
Cooperators: Ottawa National Forest
Seed Source: Mississippi River, Crow Wing County, MN (285 pounds); Little Rice Lake, Forest County, WI (30 pounds).
Summary: 315 pounds of seed purchased by GLIFWC with WDNR and USFS funds was seeded by GLIFWC, USFS and the WDNR in the second annual seeding of this water. Several sparse beds resulted from the initial seeding.

- 14) **Name:** Kunze Lake
Location: Houghton County, MI
Cooperator: Ottawa National Forest
Seed Source: Mississippi River, Crow Wing County, MN (56 pounds).
Summary: This lake was seeded with 56 pounds of rice by the Ottawa National Forest. A limited amount of growth was observed from the initial seeding done in 2007.
- 15) **Name:** Lake St. Kathryn
Location: Iron County, MI
Cooperator: Ottawa National Forest
Seed Source: Mississippi River, Crow Wing County, MN (59 pounds); Long Lake, Burnett County, WI (47 pounds); Little Rice Lake, Forest County, WI (35 pounds).
Summary: This lake was seeded with 141 pounds of rice by the Ottawa National Forest. A limited amount of growth was reported by the Forest Service from the initial seeding done in 2007.
- 16) **Name:** Clear Lake
Location: Baraga County, MI
Cooperator: Keweenaw Bay Indian Community
Seed Source: Little Rice Lake, Forest County, WI (13 pounds).
Summary: This small on-reservation lake was seeded by the Keweenaw Bay Indian Community in a small initial test seeding.
- 17) **Name:** Gomanche Creek
Location: Baraga County, MI
Cooperator: Keweenaw Bay Indian Community
Seed Source: Mississippi River, Crow Wing County, MN (53 pounds).
Summary: This on-reservation site was seeded by the Keweenaw Bay Indian Community in at least the second annual seeding of this water.
- 18) **Name:** Kelsey Creek
Location: Baraga County, MI
Cooperator: Keweenaw Bay Indian Community
Seed Source: Mississippi River, Crow Wing County, MN (110 pounds); Little Rice Lake, Forest County, WI (70 pounds); Rice Lake, Todd County, MN (21 pounds).
Summary: This on-reservation site was seeded with 201 pounds of rice by the Keweenaw Bay Indian Community in at least the second annual seeding of this water.

- 19) **Name:** Laughs (Lost) Lake
Location: Baraga County, MI
Cooperator: Keweenaw Bay Indian Community
Seed Source: Mississippi River, Crow Wing County, MN (64 pounds); Little Rice Lake, Forest County, WI (38 pounds).
Summary: This on-reservation site was seeded with 102 pounds of rice by the Keweenaw Bay Indian Community in at least the second seeding of this water.
- 20) **Name:** Menge Creek
Location: Baraga County, MI
Cooperator: Keweenaw Bay Indian Community
Seed Source: Mississippi River, Crow Wing County, MN (301 pounds); Little Rice Lake, Forest County, WI (45 pounds).
Summary: This on-reservation site was seeded with 346 pounds of rice by the Keweenaw Bay Indian Community in at least the second seeding of this water.
- 21) **Name:** Back Bay, Lake Superior
Location: Chippewa County, MI
Cooperator: Bay Mills Indian Community
Seed Source: Mississippi River, Crow Wing County, MN (365 pounds) and Little Rice Lake, Forest County, WI (27 pounds).
Summary: This on-reservation site was seeded by the Bay Mills Indian Community. This bed, which has been seeded for many years, continues to persist but has expanded only slowly on its own. This seeding is intended to expand the bed, and add genetic diversity to the existing seed bank

RESEARCH

The year 2008 marked the first field year of a two-year effort to inventory as many ceded territory rice beds as possible. This work was largely funded by the WDNR and an Administration for Native Americans grant. The first step required was to pull together as much existing information as possible for Wisconsin and Minnesota. (The Upper Peninsula of Michigan will be surveyed in 2009).

For Minnesota, this step was simplified when the Minnesota Department of Natural Resources published, in February of 2008, the report *Natural Wild Rice in MN*, which included a summary of all wild rice abundance information for the state. Thus focus shifted to compiling similar information for Wisconsin, where available records had not been compiled. To this end, the following information sources were reviewed and mined for applicable data:

Existing List of WDNR Recognized Rice Waters	This existing list includes 167 waters in the ceded territory currently considered wild rice waters by the state. A number of errors were found in the list, and it was determined that the presence of rice on 20 of these waters was also questionable. In addition, Water Body Identification Codes (WBIC) were added to each water on the list, and GLIFWC's library of wild rice water air photos was searched to find which documented sites had air photos available. Where good photos were available, hot-links to these photos were added to the data base. The WDNR web-viewer which displays these sites was also reviewed for mapping errors, a number of which were found, particularly where multiple lakes with the same name existed in a county.
GLIFWC Records	GLIFWC's files were reviewed to find any references to undocumented or poorly documented rice beds. These included old survey records, seeding records and a mix of other sources, such as old published articles, newspaper clippings, miscellaneous observations reported by the public, etc.
Harvest Records	Annual harvest surveys were also reviewed to find locations where harvest was reported from otherwise undocumented locations.
Herbarium Records	A student at the University of Wisconsin Green Bay had recently compiled a list of Wisconsin wild rice herbarium samples. This data base was reviewed to determine which locations were in the ceded territory, and which of these were lacking other recent verification.
Natural Heritage Inventory Records	WDNR Natural Heritage Inventory Records were reviewed to determine the existence of any otherwise undocumented rice beds.
WDNR Sensitive Area Reports	These reports recognize sensitive areas on selected water-bodies, sometimes due to the presence of rice. Sensitive Area reports from ceded territory waters were reviewed for mention of rice beds.
WDNR Aquatic Plant Survey Records	Each year since 2005, the WDNR has conducted aquatic plant surveys a small number of lakes. These records were reviewed for the presence of rice.
St. Croix Tribe	The St. Croix Tribe has been conducting surveys of known or suspected rice lakes in their area since 2006. These records were also reviewed.
Knowledgeable Individuals	Tribal and non-tribal members known to have significant knowledge of rice beds were consulted.

Once all of these data sources were reviewed, two lists were prepared: one of waters where existing documentation was sufficient to immediately add the location to the list of recognized sites, and one of suspected or possible rice locations which needed verification. These lists included 98 and 117 waters, respectively, from Wisconsin. In addition, 20 Wisconsin waters currently considered rice waters, but with questionable verification, were also identified.

Field Surveys

After possible but undocumented rice waters were identified, field surveys were conducted in an effort to confirm the presence or absence of manoomin at these sites. Field surveys were conducted in July and August, when the plants are typically in the emergent stage, and most easily visible and identified. However, field surveys were hindered by unusual growing conditions in 2008. Likely as a result of very cool spring conditions, plant development on many sites was about two weeks behind normal. In addition, on some sites - especially lakes in northwest Wisconsin - the unusual weather conditions appeared to have caused the seed of this annual plant to remain dormant for the year. Rice beds on some well known sites were greatly reduced in size, and this phenomenon likely occurred on some of the poorly documented sites as well.

GLIFWC's abundance surveys, based on 40 waters that are monitored annually, indicated that 2008 was among the poorer years since we began surveys over two decades ago. Thus, it is good that the inventory project was designed to allow field surveys in 2009 as well as 2008.

Attempts were made to visit all "suspected" but unverified rice waters. Rice was documented to be "present" at 33 sites, and minor trace amounts were found at another 18 sites. No rice was found on 35 waters. GLIFWC was unable to conduct ground surveys at 31 sites, usually due to a lack of public access. Most of these are small waters.

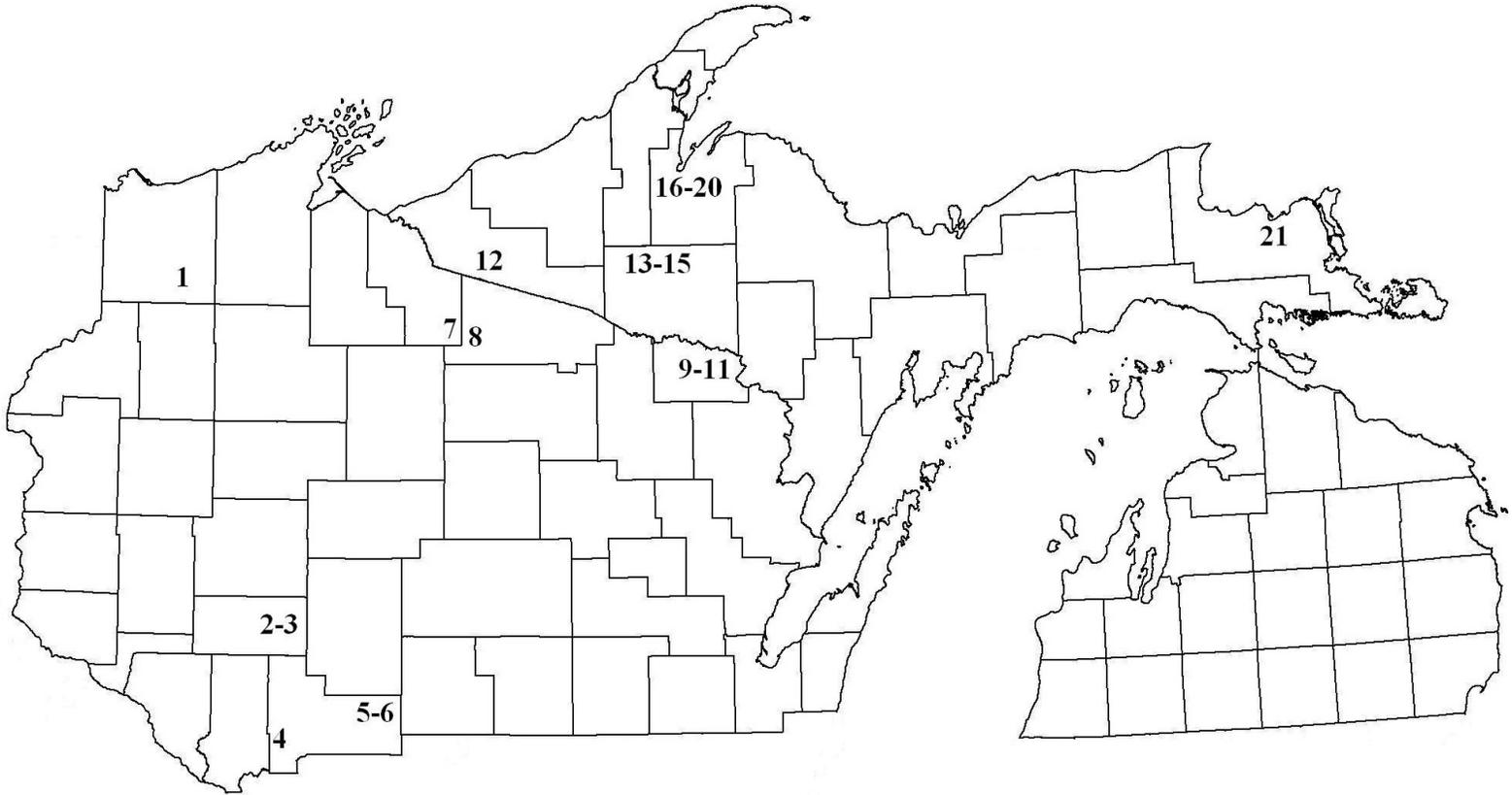
Among waters on the "existing" list where it was felt that better documentation was needed, rice was present in appreciable amounts on only 4 waters, with trace amounts found on 4 others. No rice was observed on 11 sites, and GLIFWC was not able to survey one water in 2008 for logistical reasons.

GLIFWC intends to revisit as many remaining suspected sites in 2009 as possible, while adding surveys in the Upper Peninsula of Michigan as well.

LITERATURE CITED

Johnson, E. 1970. Preliminary notes on the historic use of wild rice. *The Minnesota Archaeologist*, Vol XXX, Number 2.

Vennum, T. 1988. *Wild rice and the Ojibwa people*. Minnesota Historical Society Press. 357 pp.



1) St. Croix (Gordon) Flowage	9-11) Legerski's (Unnamed) Pond , Halls Creek Flowage and Robago Lake
2-3) Wiggins Flowage, and Wood Duck Pool, Augusta Wildlife Area	12) Presque Isle Flowage
4) South Beaver Creek Wildlife Area	13-15) Lake Thirteen, Kunze Lake and Lake St. Kathryn
5-6) Upper 17 and Partridge Crop Flowages, Dike 17 Wildlife Area	16-20) Clear Lake, Gomanche Creek, Kelsey Creek, Laughs (Lost) Lake and Menge Creek, KB Reservation
7-8) Little Bear (Sugar Bush) Creek Flowage and Pokegama Lake, LDF Reservation	21) Back Bay, Bay Mills Reservation

Figure 2. Waters seeded in 2008 GLIFWC cooperative ventures.