



U. of Florida, Center for Aquatic Plants (Gainesville)



# CHAPTER 12. WILD RICE COMMUNITY RESTORATION

**R**eintroduction of the native plant community is an important component of wetland restoration. This chapter explores the restoration of the wild rice plant community and highlights a restoration at Crex Meadows Wildlife Area because this plant community: 1) has historically occurred statewide, 2) has sustained extensive habitat loss, and 3) is often requested by landowners. Wild rice can be restored when reintroduced into its former habitat; however, it has particular habitat requirements and will not grow if these requirements are not met on a site.

Historically, wild rice provided an important food and cultural component for Native American tribes including the Dakota, Menomonee, and Ojibwa. Early Wisconsin explorers described abundant wild rice beds that hindered their travel on many waterways. Wild rice is also a source of nutrition to various mammals and bird species. Besides nutritious food, the rice beds provide roosting and loafing areas to adult birds and essential brood cover for their young. Declines in historic wild rice beds have occurred statewide due to many factors, including dams, pollution, large boat wakes, and invasive plant species. Renewed interest in the wild rice community has led to large-scale restoration efforts to reintroduce wild rice in Wisconsin's landscape.

☀  
 "Wild rice has always been regarded by the Ojibwa as the sacred gift of their chosen ground. Wild rice has always been generous to those who gather and use her in a respectful way."

— Edward Benton-Banai,  
*The Mishomis Book.*



Jim McEvoy



## RESTORATION OF WILD RICE: A CASE STUDY

### Crex Meadows Wildlife Area, Burnett County

**C**rex Meadows Wildlife Area, originally part of 1,500 square miles of shallow sedge marsh and gently rolling sand plain, was intensively drained in the 1890s for farming. In 1912 the Crex Carpet Company purchased the property and harvested native sedges to weave into grass rugs. Restoration efforts began in 1945 after the state purchased several thousand acres. Acquisitions are ongoing and 26,000 of the targeted 30,000 acres are now protected as public land.

The construction of two water control structures and a 1.5-mile-long dike in 1952 created Phantom Flowage. "Flowage" describes the water gathered, or impounded, behind a dike or dam with structures that control water levels. While constructing a flowage is not feasible for a private landowner, it serves as an example to guide you in evaluating your site for the suitability of wild rice restoration.

Wild rice restoration began on Phantom Flowage in 1991 when 100 pounds of rice seed was sowed using canoes. The Great Lakes Indian Fish and Wildlife Commission and the State of Wisconsin shared the costs. In the photo taken the first summer after seeding (middle right), the planted rice bed appears in bands. After two additional years of seeding 200 pounds each year, the photo shows successful reintroduction of rice. Once established wild rice will reseed itself annually and form dense beds. The best results for wild rice germination and growth have been when water is between 1 to 2 feet deep, allowing sunlight to reach the underwater emerging plants.



*Wild rice is sowed by hand from a canoe.*



*Phantom Flowage at Crex Meadows. Center, the first year of wild rice restoration. Note bands of sown rice. Bottom, four years after successful restoration of wild rice.*

Photos: Peter David

## Did Your Site Historically Support Wild Rice? . . . .



“The first Nation that we came to was That of the folle avoine . . . The wild oat [wild rice], whose name they bear because it is found in their country, is a sort of grass, which grows naturally in the small Rivers with muddy bottoms, and in Swampy Places.”

– Father Marquette’s Journal, 1673-1675



The Anishinabe (also known as Ojibwa or Chippewa) who traveled from the eastern seaboard to this region ended their journey when the words of their prophets were fulfilled with the finding of Manoomin—“the food that grows on water” —wild rice.



Mary Hollinger, NOAA

In Wisconsin wild rice has historically ranged from the mouth of the Menomonee River in Southeastern Wisconsin, to Ashland on the shore of Lake Superior, and west to the Mississippi River.

Determining whether or not wild rice has historically existed on your site can be very difficult. The existence of remnant plants is a positive sign. You may want to ask historians or long-time residents who may be able to point to its occurrence. Local colleges or universities may also have wild rice specimens listing the location where the plants were collected. You may be able to collect a sediment core sample and search for old seeds, which can persist for a long time under the right conditions.

Wild rice seed may remain viable in the sediment for five years or more. You should not seed wild rice if the historic stand has been absent less than five years or if remnant stands still exist. Instead, use the existing seed from the site to replenish the remnant stands or ask for help in figuring out why the wild rice is not expanding and work to control those factors. The most common problems affecting wild rice stands are changes in water levels or turbidity (suspended sediment in the water). High turbidity can prevent light from reaching the plants under the water.

## Will Your Site Support Wild Rice? . . . .



If you do not know whether wild rice occurred historically on your site, you need to be certain that present site conditions can support rice. To thrive and become established, wild rice has specific requirements. These requirements are listed in the following sections.

### Water Flow

Wild rice seems to require the presence of flowing water. Rivers, sloughs, shallow lakes, wetlands with inlets and outlets, and flowages may provide optimal habitat. Some success may also be possible on ponds with seasonal flow. Generally, the less flow through a wetland, the more the crop will vary from year to year. Getting a poor crop on occasion should be no cause for concern since having good and bad years is natural for annual plants that seed each year. In most cases the rice should come back on its own if the rice bed was previously well established.

### Water Depth

This is perhaps the most critical element. Rice grows in depths of a half-foot to 3 feet, with 1 foot to 2 feet being optimal.

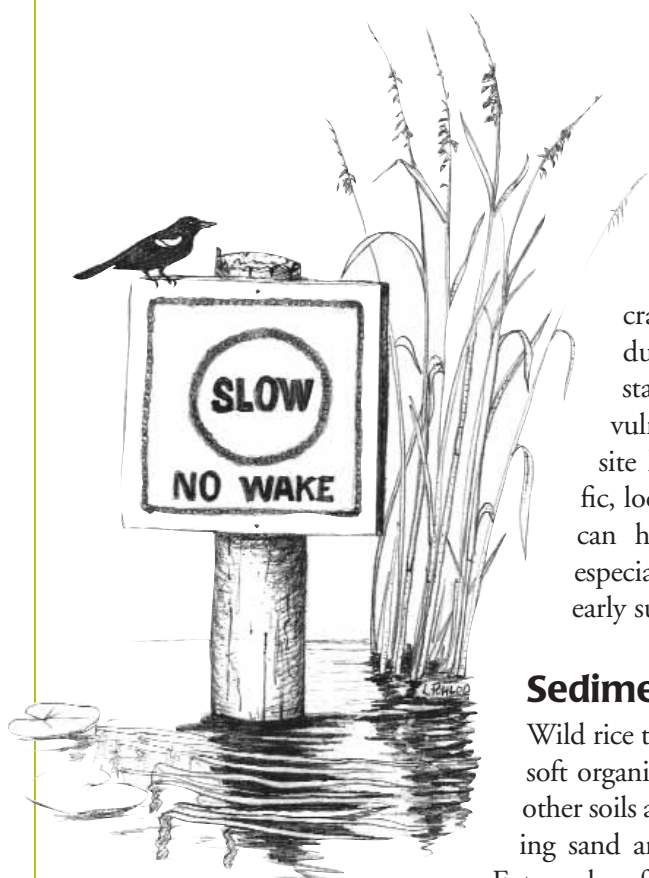


## Water Clarity and Color

Wild rice prefers clear water since very dark or turbid water will not allow sunlight to reach the young plant. Rice beds can grow in moderately stained waters, particularly where water depths are limited to 2 feet or less.

## Water Fluctuations

Generally, wild rice prefers minimal annual fluctuations in water level and stable or gradually receding water levels during the growing season. Plants are most susceptible to damage during the stage in early summer when the leaves float like ribbons on the surface of the water. Some natural fluctuations in water level are important to keep perennial plants from taking over, even if it means an occasional bad year for rice.



## Boats

Boat wakes are a serious contributor to the decline of wild rice. Seeded areas subject to high wave action from boats or personal watercraft may fail, especially during the floating leaf stage when the plant is very vulnerable. If the restoration site has significant boat traffic, local “no wake” regulations can help protect these beds, especially in the late spring and early summer.

## Sediment Type

Wild rice thrives in several inches of soft organic muck, but will tolerate other soils and bottom types, including sand and gravel in some cases.

Extremely soft bottoms may be unsuitable, but moderately soft or flocculent sites are a preferred habitat.

## Competing Vegetation

If dense vegetation already exists, wild rice may have difficulty establishing itself. Heavier than normal seeding rates may help in these instances.



**“Ricing gets in your blood. It’s the hunter-gatherer instinct. I freeze venison and harvest wild rice; it’s deeply satisfying to collect something from the land to feed your family.”**

—Paul Kooiker, Wildlife Biologist,  
Wisconsin DNR, Grantsburg



**We left this bay [Green Bay] to enter the river [Fox River] that discharges into it; it is very beautiful at its Mouth, and flows gently; it is full Of bustards, Ducks, Teal and other birds, attracted thither by the wild oats of which they are very fond.”**

Father Marquette’s Journal,  
1673-1675



Sandy Engel

*Muskrat damage to wild rice plants.*

## Negative Wildlife Impacts

Well-established rice beds can survive being eaten by various wildlife species; small, sparse beds may not. Large goose or muskrat populations may pose significant challenges to wild rice. Temporary control of these species may be beneficial. Carp can also cause problems by uprooting plants and increasing water turbidity that limits early plant development.



## How to Obtain Seed . . . . .



There are a number of options for obtaining native wild rice seed. For all approaches, keep in mind that plants in the wild have good and bad years, and seed can vary in its germination rate from year to year.



### WHERE TO GET MORE HELP:

The Great Lakes Indian Fish and Wildlife Commission (GLIFWC) has information available on restoring wild rice and can be of assistance for private projects.

### CONTACT:

Great Lakes Indian Fish and Wildlife Commission  
Wildlife Biologist  
P.O. Box 9  
Odanah, WI 54861  
(715) 682-6619  
[www.glifwc.org](http://www.glifwc.org)

- ✓ Get a permit and go harvest it! Hand harvesting seed means fresher seed from a known location, and the experience will expand your knowledge of the plant and perhaps provide a little extra for the pantry. The Great Lakes Indian Fish and Wildlife Commission (GLIFWC) or the local Wisconsin DNR office may have information on harvest techniques and locations. GLIFWC may help you obtain seed and generally will cost share the price of seed for projects that occur on public lands within the ceded territory (those lands upon which Wisconsin tribes have hunting and gathering rights). If you are interested, please contact GLIFWC by June of the year of collection.
- ✓ Go to a harvest site and purchase the seed directly from a harvester. You will be assured of fresh seed from a known source.
- ✓ Purchase it from a Wisconsin-based commercial wild seed nursery. Contact the Wisconsin DNR or local nurseries to determine which nurseries sell wild rice. Try to purchase the seed from as local a source as possible.

## How to Plant the Rice Seed . . .




Seeding wild rice is a simple matter of dispersing seed by hand in the fall. Although some references say to pack the seed in mud balls, it is unnecessary and extra work. More extensive seeding recommendations are available from GLIFWC. The following are general guidelines.

- ✓ Begin with a test seeding of three to four acres, at a rate of 40 to 50 pounds per acre.
- ✓ Use locally harvested seed, if possible, and match growing conditions. For example, plant seed collected from a river into a river wetland, or seed from a shallow lake or wetland habitat into a similar community.



## Planting the Rice Seed, Continued

- ✓ Obtain freshly harvested seed, and seed it as soon as possible. The harvest season generally begins in late August and runs through September. If you are unable to sow the seed within two to three days from harvest, store the seed wet or cold to ensure that the seed does not heat up, dry up, and spoil. One easy way to do this is to soak the seed bags in a stream. While soaked rice rapidly develops a strong odor; it does not alter viability.
- ✓ Monitor progress several times during the growing season. This is important in helping evaluate detrimental impacts from water levels or wildlife eating the plants.
- ✓ If you get poor results, do not give up on the site, but try again. Although some seedlings will show immediate response, it may take three to five years to determine if a population can be established. No results during the first year could mean poor seed or poor environmental conditions during the critical spring growth period. The lack of first year response does not mean the site is unsuitable.
- ✓ As some positive results are observed, seeding can be expanded. Because seed generally does not disperse far from the mother plant, even well established beds may not spread to a significant degree without additional planting. The objective of all seeding sites should ultimately be to establish self-sustaining populations. 



U. of Florida, Center for Aquatic Plants (Gainesville)