

Report on examination of waterfowl food plantings on the Grand
River Marshes near the City of Grand Haven

On November 30, 1945, I met with Mr. J. Nyhof Poel, City Clerk of Grand Haven at request of the North Ottawa County Rod and Gun Club. I was introduced to Mr. J. Walter Boyd and a short discussion followed of what the Club had done in attempting to establish wild rice and also what they hoped to do to improve waterfowl hunting on the Grand River Marshes. Following discussion field trips were made to the planting sites. I visited the planting site on Poel Island SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 36 T 8N, R 14W with Mr. Boyd and Mr. William Poel. Then returned to Grand Haven and went with Mr. Kenneth King and Mr. Deitz to visit the other two sites in the S $\frac{1}{2}$ Sec. 22 T 8N, R 16W. The men mentioned were all members of the Club and had taken an active part in the planting program.

History of Plantings

During the spring of 1945 the North Ottawa Rod and Gun Club put in experimental plantings of wild rice at three sites where wild rice formerly had grown. The earlier rice beds were thought to have resulted from plantings put in years ago by local hunters. Although rice had disappeared they wished to re-establish the plant with the thought of improving the hunting. Approximately two bushels of rice seed and a thousand transplants were purchased by the club and planted.

The transplants were set out and a portion of the seed sown directly. Part of the seed was sown into transplant beds. Later the transplants from these beds were also set out.

Success of Plantings

Inspection of the three planting sites revealed only a few scattered surviving plants on a limited area of one planting site. It appeared very doubtful whether enough seed was produced from these few surviving stocks to reseed itself. No evidence of the plant was found at the other sites. In general the results of this planting have been similar to those of a majority of other attempted wild rice plantings in other parts of the state.

Objective of Examination

The objective was to determine, if possible, the reason for the failure of these plantings. Soil samples from the three sites were taken to determine the chemical likeness or difference of the soils at this site to the soils of existing rice beds on Houghton and Tawas Lakes. These samples were taken to the Soils Department of the Michigan State College and their comparative analysis will be included as a supplement to this report. The pH of the water and soils checked at the site gave a slightly alkaline reaction which is considered favorable.

One factor that may have been responsible for failure, especially at Peol Island was the depth of water in which the plantings were made. Rice grows best in water about two feet deep. The water depth at the planting site at the time of my visit was approximately six inches.

Discussion

Wild rice is an annual, self-sowing grass which bears the inflorescence on a tall erect stem. Its roots are slender, fibrous, and do not penetrate deeply into the soil; thus soft muck for anchorage is essential. Female flowers that produce seed are on top of the stem with the male flowers immediately below. Germination of the seed normally starts in May. In a month the shoots are at the surface, loosely anchored and extremely vulnerable to wave action or rooting by fish such as carp which are prevalent at that time of year. In July the plants send up an erect stem that is also vulnerable to fluctuating waterlevels. A sudden extreme drop in waterlevels permits the flowering parts to break over and become immersed so that fertilization may be inhibited. Likewise a sudden rise in waterlevels may prevent pollination. It is obvious that many physical factors in addition to the chemical composition of the soil are involved. Also, that several of these adverse factors such as the presence of carp and fluctuating waterlevels exist at this planting site. The Department has made experimental plantings on sites that appeared to meet every requirement of this plant, yet the results have been very discouraging. Partly because of these failures the Department has not encouraged sportsmen's organizations to participate in waterfowl food plantings. The main reason, however, is that in most instances there is no apparent lack of waterfowl food plants. Although wild rice is considered a valuable food and cover plant recent findings have demonstrated there are many other aquatics having a higher preferential rating as waterfowl foods. In the Grand Haven Marshes an abundance of the more important food plants such as rice cutgrass (*Leersia oryzoides*), smart weed (*Polygonum mihlenbergii* and *P. amphibium*), duck potato (*Sagittaria latifolia*) several forms of potamogetons and other less important species were observed. Seeds and tubers of these plants were found in abundance even after they had been available to the birds throughout the fall. Available food following the fall flight strongly indicates that there is no lack of food. Hence, it appears questionable whether additional plantings would attract more waterfowl, with other conditions remaining the same.

Sportsmen's Club Objective

Attracting waterfowl to these marshes and providing better hunting is the objective of the sportsmen's club. Whether this end can be gained by planting wild rice appears questionable, since an adequate food supply is available. Judging from observations, together with information from the men whose names were previously mentioned, excessive disturbance and overshooting are mainly responsible for the decreased numbers of waterfowl frequenting this marsh.

Factories and residential districts from both Grand Haven and Spring Lake border the river. Highways parallel and cross the river and many boats traverse the waterways. While local birds may become accustomed to these disturbances, migrants will avoid such marshes and at best make their visits of short duration.

Recommendations

Reducing the amount of disturbance may produce better results than the planting of additional food producing species. Following through on this thought two suggestions are offered.

1. Establish a moderate sized sanctuary to provide protection from the gunner.
2. Isolate the sanctuary area as much as possible by careful selection of the site and by planting a screening wall of cover plants and trees to cut off the visual disturbances of habitation.

Summary

Whether wild rice can be successfully established and whether it would materially improve conditions if it were established remains questionable.

Providing a protected resting and feeding area may prove valuable in attracting and holding waterfowl on these marshes.

MICHIGAN STATE COLLEGE
East Lansing

Soil Science Department

December 31, 1945

Mr. Herbert Miller
Game Division
Department of Conservation
Lansing, Michigan

Dear Mr. Miller:

We have tested the three samples of soil which you recently brought us from the mouth of the river near Grand Haven. These three samples are adequately supplied with lime with pH values running from 7.0 to 7.2. The active phosphoric acid and potash are quite low and the reserve tests show a reasonable supply of these nutrients. The calcium test is satisfactory. There is sufficient magnesium and we find nothing in the soils that would be detrimental to the growth of wild rice.

All told, it would seem to me that in a proper situation these soils should grow wild rice satisfactorily.

There are so many factors concerned in the satisfactory growth of wild rice, however, aside from the composition of the soil that I would not venture any opinion as to whether this is a suitable location for wild rice or not. Variations of height of the water, wind movements and numerous other factors would effect very radically the establishment and satisfactory growth of wild rice beds. It is my opinion that the only satisfactory way of determining whether wild rice will do well in a given location is to plant it experimentally and see what the results are. These experiments might cover several years. A plantation might do well for a year or two and then changes in water level and other factors would result in the entire uprooting of these plantations. Under the circumstances I can only report that these soils seem suitable for the growing of wild rice if other factors are favorable.

Very truly yours,

G. E. Millar
Professor of Soil Science

GEM:RG
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Results of tests made of soils at M. S. C. Oct. 21, 1941

Samples from Houghton Lake, Roscommon County, and Tawas Lake, Iosco County were taken from existing wild rice beds.

Samples from Devils Lake, Alpena County, was taken from a proposed experimental planting site of wild rice.

Note: Four separate plantings over a period of three years failed to establish a good stand of wild rice at Devils L

Location of Sample	pH	Active							Reserve						
		P	K	Ca	Mg	Fe	SO ₄	C/2	P	K	Ca	Mg	Fe	SO ₄	C/2
Houghton Lake, Roscommon Co.															
Top	7.3	1/2	-	125	-	-	-	-	5	5	600	5	-	-	2400
Sub	7.8	1/2	-	-	-	-	-	-	10	10+	600	6	-	-	2400
Devils Lake, Alpena Co.															
Top	8.0	Trace	-	100+	1	-	-	-	2 1/2	5	350	5	-	-	2450
Sub	8.0	-	-	100	3	-	-	-	5	Trace+	600	3+	-	-	
Tawas Lake, Iosco Co.															
Top	7.3	Trace	-	150	-	-	-	-	10	-	175	1			2400
Sub	7.5	Trace	-	150	-	-	-	-	10		175	1			2400

Soil Samples from Grand River Marshes near Grand Haven Tested at M. S. C. December 22, 1945

Site No. 1 SW 1/4, SE 1/4 Sec. 36 T 8N, R 16W.	7.2	Trace	Trace	150	4	3	-	-	2 1/2	5		1	6	-	
Site No. 2 SE 1/4, SE 1/4 Sec. 22 T 8N, R 16W.	7.0	3/4	Low	125	4	-	-	-	5	5			2	-	
Site No. 3 NE 1/4, SE 1/4 Sec. 22 T 8N, R 16W	7.0	1/2	5	175	4	5	-	-	2 1/2	15		Trace	4	-	