

## **NWT Wild Rice Pilot Project**

### **2016 Observation Results**

During September 2016 Pat Bobinski and Bruce Green continued their wild rice research project. The following was done:

1. Collected seed from north adapted wild rice in Delancey Pond and transferred them to ponds at the Northern Farm Training Institute (NFTI) sites.
2. Made observations on the growth at the NFTI sites
3. Seeded Snye on Vale Island with wild rice seed from La Ronge, Northern Saskatchewan
4. Seeded lake 71 km North of Fort Providence
5. Seeded Polar Lake and 6 Mile Creek off Great Slave Lake



*Bruce Green pulls a wild rice plant closer to the canoe to inspect the seed head in the Snye on Vale Island, September 2016*

One of their main goals was to have a location where the north-adapted seed that they have developed over the course of their research, would grow alongside the wild seed from Northern Manitoba, which was seeded the previous year. With the two seed types growing side-by-side, they could visually see the difference. Unfortunately, where the two types of seed did grow, it was only spotty and quite hard to see. This will be something that they continue to work on. They want to make sure they do this in a way that they don't contaminate the NWT seed so we know we have protected the previous years' work to develop

that special seed because it does have some different qualities than the purchased seed.

### **Delancey Pond**

Unfortunately in this pond, which usually has the most robust wild NWT-adapted growth, no growth was found this year. Last year was a bumper crop from this location, and this is the seed that was collected and used to seed the NFTI sites. There were no harvestable seeds in this pond.

One theory for this is that there was too much rain in the spring and the smaller, more stunted, NWT-adapted rice may not have been able to cope with that amount of rain. This weather did not affect the Manitoba seed, which grew well in other areas. This pond will continue to be monitored and the weather and rain fall will be noted so that we can make further conclusions. Hopefully, the rice will come up in the 2017 season.

### **Northern Farm Training Institute Sites**

We were successful in having some wild seed growth at the NFTI sites. This helped us to understand the best type of growing conditions. We will continue to improve and monitor these sites into the future.

The best result was the front pond by the highway although the growth here was spotty. In the below photo, you can see the wild rice growth in this pond – they are quite sparse amongst the lily pads.



*Wild Rice grows sparsely among the lilies beyond the cattails at the highway pond at the Northern Farm Training Institute*



It appears that the NWT-adapted plants have naturalized by dwarfing, and do not grow as tall as the original stock. The seeds however, appear to be similar in size and yield as the parent stock, and so could potentially have a similar commercial value.



*Here is a closer look at the NWT-adapted wild rice seeds growing in the NFTI highway pond.*

At NFTI northern pond, the wild grew spotty as well here and not as tall. We have noticed muskrat in this pond, which may be a problem for the rice seeds as they might be eating them or adversely disturbing the growing conditions. We have found that the type of substrate on the floor of the ponds, makes a difference. The less debris, the better chance the rice seeds can find soil to establish in. If there is a lot of debris on the bottom, or a lot of algae growth and a build up of dead plant material, this may not allow the seed to penetrate to the soil.



*Here is a look at the stunted wild rice plants at the NFTI North Pond.*



*Feathery / spotty growth at the NFTI North Pond.*



*Pat assessing the wild rice growth at the NFTI pond site.*



## Snye on Vale Island

In the Snye junction with the small trail creek, the Manitoba seed grew very well. This was the most productive growth achieved this season, possibly due to the site it being well-seeded, a suitable depth as well as an ideal micro-climate because it was very sheltered. There are lots of cattails and other wild grass growing in this location.



*Here is the junction of the Snye and the Oxbow Trail creek, the best results were in this area and you can see how well the wild rice is doing in the centre.*



*Left: Pat Bobinski measures the wild rice and depth of the water.*



*Right: Even in late September, there were still some rice plants in flower, which is quite late.*

The other native grass was growing quite robustly in this area, and there may be the potential for it to out-compete the wild rice.



*A close-up of the wild rice mixed with the native grasses and cattail growth along the Snye on Vale Island.*



## Polar Lake

Unfortunately, the wild rice did not grow well at Polar Lake this year. This is strange, because this lake has nice sandy soil thought to be ideal for wild rice. There is mining activity in this region and so, there may be some type of mineral in the water or soil that is inhibiting the wild rice growth.

A lot of animal damage was found. Muskrat, beaver or moose may have been feasting on the wild rice and chopping it off. We are not sure if these plants had a chance to re-seed and will continue to observe them in upcoming seasons.

## Conclusions and Next Steps

There is potential for Wild Rice to be a productive crop in our region, but we need to continue to work with the north-adapted strain and keep experimenting with different growing conditions.



Some more investigation into the background of wild rice might be helpful, including traveling to Northern Manitoba or Saskatchewan and find out how successful wild rice harvesters select their sites and what conditions produce the best results.

We will be seeding other potential sites around the NFTI Farm Campus in the upcoming fall.

*Pat showing the rice is the length of canoe paddle*

## Sharing the Research Project Results

- Attached is a NWT Wild Rice info sheet that will be available on NFTI's website
- We will be doing a presentation at the Hay River Library on April 6<sup>th</sup>

## Project Background

Wild Rice is a valuable gourmet food item that grows naturally in North America as far north as northern Manitoba and Saskatchewan, but not as far north as the Northwest Territories (NWT). The NWT Wild Rice Project was initiated by Pat Bobinski who was interested in seeing if wild rice could be successfully introduced into the NWT. Over several years, Pat seeded a number of ponds and lakes around the South Slave Region using seed from northern Manitoba and Saskatchewan. He discovered that the plants could grow quite well in a number of locations, but not to the point that the plants would fully mature and reseed themselves on a sustainable basis.

At the suggestion of science teacher Bruce Green, Pat offered some seeds to local students who planted them in small ponds that could be more closely monitored near Hay River. Some plants flourished extremely well, but only in one pond. That rice has managed to sustain itself in that pond since the initial seeding nearly 30 years ago. The rice plants do better in some years than others, and this year the growth was particularly successful. More than the usual numbers of plants were producing seed by the end of August.

Seeds from this thriving pond are now being collected and introduced to other ponds in and around Hay River. We now have another pond that has supported successful rice growth for the past 3 years, and is sustaining itself through reseeded. This season, we have used the seeds harvested to seed an additional pond in Hay River, as well as 4 ponds at the Northern Farm Training Institute site.

The wild rice plants that have been thriving appear to have developed some properties that may have enabled them to adapt to the more arduous growing conditions of the South Slave Region. The plants we are now working with do not grow to the same height as the initial stock that was introduced, but appear to be considerably dwarfed. They also come to bear seed earlier than the original stock. However, the size and the quality of the seed seem normal, and do not appear to be reduced. We suspect that we may have developed a north-adapted strain of Wild Rice that may be better suited to the colder conditions and shorter growing season of the South Slave Region. By continuing to select seed from the earliest maturing plants for the purpose of reseeded, we may be able to continue to improve on those qualities.

To establish the extent to which our plants are north adapted, we are planning to bring in some seed from northern Saskatchewan to plant alongside some of our north-adapted stock. Comparing the growth rate and properties of the two plant varieties will enable us to confirm if we have developed a new strain of Wild Rice. In another aspect of our study, we intend to seed a few additional ponds and lakes to discover if climate changes over the past 30 years have improved the growing conditions for wild rice.