

The Flin Flon - Creighton Green Project

The Green Idea

In and around the communities of Flin Flon and Creighton¹, there are large areas with little or no vegetation. Old tree stumps show that these areas were once forested. The Green Project aims to restore these areas to their original forested condition.

The Problem

In the 1920s and '30s when our communities and the smelter complex were first established, many trees were cut for fuel and lumber. Others were cut to make fire breaks, or were burned in forest fires. As production from the Flin Flon and other mines increased, so did the amount of sulphur dioxide smoke from the smelter. The smoke is harmful to vegetation so the forest was not able to recover. The increasing acidity and metal content of the soil meant that only a very few hardy types of plant were able to survive. As the plants died, the thin topsoil washed away.

The Solution

Since the early 1970s, Hudson Bay Mining and Smelting Co., Limited has spent many millions of dollars to improve technology at the smelter complex with the result that emissions of sulphur dioxide and metal oxide dust are now significantly reduced. The natural vegetation is slowly starting to recover. The Green Project will accelerate this process by applying crushed limestone to the barren areas to counteract soil toxicity. Although we plan to do some grass seeding and plant some spruce seedlings, we will depend mainly on the wind to reseed treated areas naturally.

Does it Work? – Lessons from Sudbury

As a result of many years of nickel smelting, the Sudbury area was - until the mid 1970s - a barren “moonscape”. As smelter technology there improved, and sulphur dioxide emissions declined, botanists at Laurentian University decided to carry out some experiments to see what it would take to re-vegetate their area. They came up with the limestone treatment, and over the past twenty five years or so, large parts of the Sudbury area have been treated and transformed to healthy green bush. On his first brief visit here in 1994, Laurentian’s Professor Keith Winterhalder set up some small experimental plots south of Creighton. Today, the areas he treated have poplars and birches over a metre tall, as well as various other plants. The surrounding untreated areas remain quite barren.

The Science Behind the Project

(From information supplied by Professor Winterhalder).

High levels of metals such as copper and zinc in the soil are toxic to plants. This toxicity is accentuated by acidity, which makes the metals more soluble, and therefore more accessible. When seeds germinate in metal-contaminated soil, growth stops immediately on contact with the toxic soil solutions. The carbonate ion in the limestone tends to neutralize soil acidity, thus making the metals less soluble, and less toxic. Another component of the limestone, calcium, contributes to reducing soil toxicity by competing with zinc ions for uptake by plant roots. Calcium ions also have a strengthening effect on the plasma membranes in the root cells. This membrane is responsible for determining what is absorbed by the roots.

Background to the Project

In the early 1990s, Rena Gummerson and later Cathy Hynes of the Creighton / Denare Beach Economic Development Committee contacted Professor Winterhalder to see if he might be interested in helping to set up a revegetation program in our area. This resulted in his first visit up here in 1994. In 1999, Heather Acres and Clarence Pettersen of Flin Flon School Division thought that revegetation would be a good project for their Youth Mentor Program. Hudson Bay Mining and Smelting Co., Limited and the Flin Flon Economic Development Commission provided funding to bring Professor Winterhalder up here in October 1999. He spoke to a number of groups and generated a high level of interest and enthusiasm. As a result, the decision was made to establish the Green Project. A committee was formed, and planning meetings were held in March and April 2000. Since then, the Green Project has become an affiliate of the Flin Flon and District Environment Council.

The Committee

Flin Flon School Division - Youth Mentor Program,
Creighton School Division, City of Flin Flon, Town of Creighton,
Flin Flon and District Environment Council,
Hudson Bay Mining and Smelting Co., Limited,
Manitoba – Industry Trade and Mines, Manitoba – Conservation.

Our Partners

McKeen's Trucking, Flin Flon School Division, City of Flin Flon,
Hudson Bay Mining and Smelting Co., Limited,
Creighton School Division, Town of Creighton, Home Hardware,
Flin Flon Economic Development Commission,
Manitoba Hydro – Forest Enhancement Program, Manitoba Conservation –
Sustainable Development Innovation Fund.

Technical Support

Professor Winterhalder spent five days in August 2000 studying plant life and soil chemistry in our project area. A report containing the results of his work, together with his recommendations, is available for inspection at Flin Flon Public Library. We hope to continue to rely on Professor Winterhalder for advice, and expect to have him visit our area to monitor progress during each year of the project.

What do we do?

From maps and air photographs, we get a general idea of which areas might be suitable for treatment. We then walk over the ground, and once we decide which areas to treat, we mark out 50 x 50 metre squares. The crushed limestone is then trucked in and dumped as close as possible to the squares. We mark out the squares with rope. Our volunteers fill their pails at the dump, then spread the limestone in a strip between a pair of 'moving ropes'. As each strip is filled, we move the ropes and continue in this way until the whole square is covered. In 2000, approximately 800 people helped with the project. These included grades K – 12 students from Flin Flon and Creighton schools under the leadership of participants in the Youth Mentor Program, members of the general public, and the Flin Flon Bombers hockey team.

Results to April 2001

Approximately 4.5 hectares (11 acres) were treated in 2000. One month after start up, seedlings of Manitoba maple were noted in our Creighton area where previously there had only been a few tufts of metal-tolerant grass. A month later seedlings of alder, willow, birch, and poplar were noted.

Plans for 2001

We are now in the second year of an initial 5-year plan. We hope, with the continuing support of our communities and our partners, to treat at least five hectares during each year of the plan. This year, we expect our students to be at work again by mid May. If you and your friends / neighbours / club / team / business / or organization would like to be a part of the Green Project in 2001, please contact us.

Public Relations

In 2000, numerous articles in the 'Reminder' and 'Gazette' gave the Green Project a high profile locally. An item titled 'Flin Flon Residents Chase Green Dream' appeared in the Winnipeg 'Free Press'. An insert on the project appeared with the article 'Green Rebirth' in the May-June issue of 'Canadian Geographic' magazine. Our first 'Report of Activities' was produced in November 2000 – a copy is available for inspection at Flin Flon Public Library. Presentations on the project have been given by committee members to several local groups. Please contact us if you would like us to give your group a presentation. Our web site is at: www.ffsd.mb.ca/greenproject/

Additional Information:

Please contact any of the following committee members:

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Dave Price: (204) 687 4317 (work and home),
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Or contact our technical consultant:

Professor Keith Winterhalder: (705) 674 7905
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May 29, 2001.

ⁱ Flin Flon and Creighton are situated on either side of the Manitoba/Saskatchewan boundary about 600 kilometres north of the Canada/US border. A large copper-zinc ore body was discovered at Flin Flon in 1915, and production – which started in 1930 – continues to the present day.