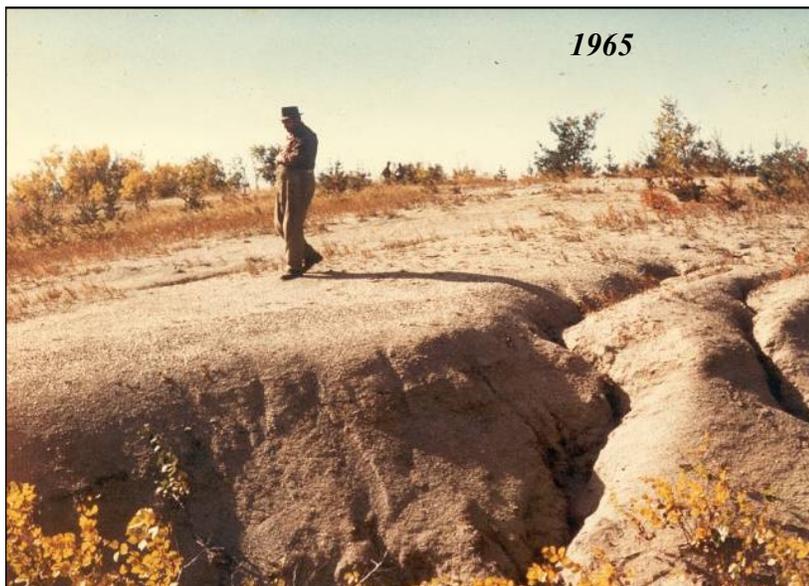


# ROSEDALE FARM CONSERVATION PROJECT



*A living  
example of  
sustainable  
soil and water  
management*

Rosedale Farm is perched on the eastern slope of Riding Mountain, five miles west of Eden, Manitoba on Provincial Road 265.

The 480-acre parcel of land is operated by the Whitemud Watershed Conservation District Board as a conservation demonstration project. The site exemplifies what can be accomplished through proper management of soil and water on escarpment lands.

To fully appreciate the success of the project, an understanding of the land and its history is necessary.



*The Board of the Whitemud Watershed Conservation District wishes to take this opportunity to thank the residents of the area, R.M. of Rosedale Council, and the Provincial Government for their foresight and commitment to the Rosedale Farm Conservation Project.*

# GEOLOGIC HISTORY

Riding Mountain is part of the Manitoba Escarpment which extends from the Pembina Hills near the United States border, to the Pasquia Hills some 300 miles to the northwest. The eastern slope of the mountain provides some of the most scenic landscape in Manitoba. Rising 1200 feet above the plains below, it remains a monument to an age when much of western Canada was covered by a subtropical sea.

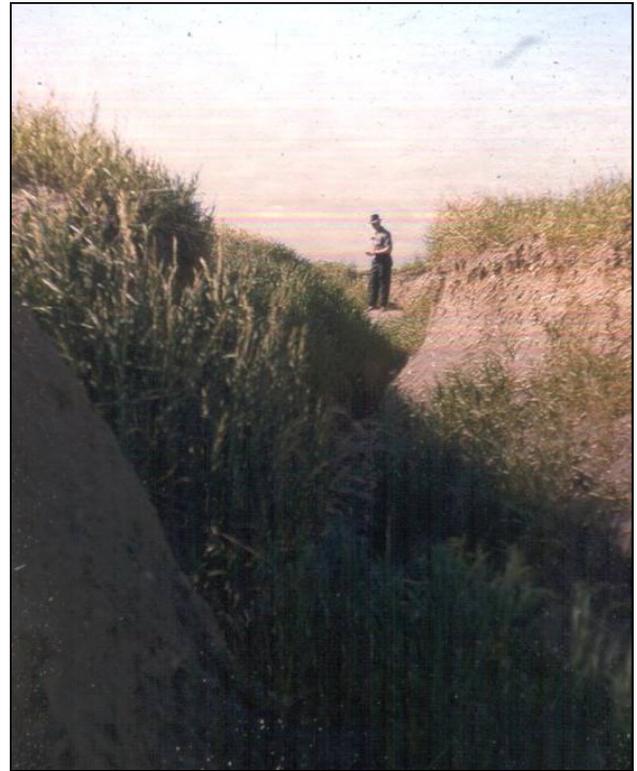
The shale bedrock which forms this feature was deposited as silt on the sea floor 100 million years ago during the Age of Reptiles. Through the eons the silt and clay settled, compacted and dried to form the layers of shale which appear exposed along most streams and valleys on the eastern slopes of the Mountain.

During the past 60 million years the natural processes of erosion and glaciation have chewed into the bedrock, pushing the wall of shale westward to its present position. This retreat continues today, imperceptible to the human eye. What was eons ago a huge blanket of shale over prehistoric Manitoba now forms the canyons and wooded slopes of Riding Mountain.

Where has all this fine-grained eroded material gone? It has crept downslope to form fertile soils at the foot of the escarpment. It has been washed and carried by glacial streams and lakes and deposited around Gladstone, Portage la Prairie and Winnipeg to form rich farmlands. Some is carried along rivers into Hudson Bay where it settles to form beds of shale for landscapers millions of years in the future.

# SETTLEMENT

The Age of Man represents a fleeting moment in geologic history. When man was learning to use fire in the Tigris-Euphrates Valley, Riding Mountain was already several millions years old and by the time the first explorers arrived it appeared as it does today. Explorers in the area during the 1800's described the escarpment as having a lush vegeta-



tion of fir, spruce, poplar and birch. The terrain was rugged and travel up the slopes difficult.

By the 1890's the best, most easily farmed land of the lower plains had been claimed. Extensive areas of marsh and bog throughout the lowland required drainage before they would produce agricultural products. An individual could not afford to drain these areas. On the other hand, the slopes of the escarpment afforded a liberal supply of wood for construction and warmth and a reliable supply of good water. Many new settlers chose homesteads on the lower slopes of Riding Mountain.

Although a few meadows were scattered along the escarpment, much of the land needed clearing before it could be cultivated. Since only small areas were flat, a great deal of the clearing occurred on steep slopes. Most settlers in the area depended on cereal crops for a livelihood. Fields were generally tilled without regard for the degree or direction of slope. The common practice of the day was a two-year crop rotation: one year crop and the next summer fallow. This practice exposed the soil to heavy erosion every second year.

# LAND USE DILEMMA

Problems were bound to occur. Snowmelt and rainfall runoff encountered no obstacles to their flow and coursed down hillsides in sheets, removing tons of topsoil. From the first crop, productivity of the land declined with continued soil erosion, until field after was rendered useless for grain production. Loss of productive land only brought more

clearing but farmers found they were engaged in a losing battle for survival and faced a disastrous end.

Eventually the supply of new land ran out and many landowners were unable to farm the depleted soil of old fields. Many sought outside work to supplement their meager incomes.

Many residents of the denuded lands would have moved had they been able to find willing buyers. Predictably, no one wanted the washed-out farms and many families finally left without selling, abandoning their dreams with their useless land.

Although problems directly related to farming imposed hardships on people who tilled the land, other problems affected the community as a whole. With land clearing, runoff from heavy rains and spring snowmelt caused increased flooding and flood related problems. Unimpeded water rushed downhill carrying with it shale and debris. Flash floods destroyed crops and filled drainage channels below the escarpment with silt and shale, rendering them ineffective. Streams leaving the area ran high and fast in the spring or after a heavy rain but later subsided or dried up completely, causing water shortage problems.

The cost of maintaining services to residents of the area escalated each time torrents of water washed away roads and other services. Replacing washed out bridges became common and costly. It was evident that clearing and farming land on the Riding Mountain escarpment was an expensive proposition, not only for farmers on the stricken lands but for the entire community.

## THE SOLUTIONS

The Rural Municipality of Rosedale was the hardest hit by the problems generated from farming the escarpment. In 1966 the municipal council approached provincial authorities for assistance.

In June 1967 the municipal council presented a brief to the Province outlining its problems with the area. In addition to problems of erosion, flooding,



siltation of drains and the high cost of servicing the area, councilors also expressed their concern for the future of their young people. No future existed locally for the young people of the afflicted area and if trends were to continue the older generation would soon become dependent on welfare. The solution was to purchase the land where necessary and to institute soil conservation programs.

Responding to the request for assistance from the RM of Rosedale and other councils in the area, the Provincial Government began to purchase the denuded lands. Government acquisition of the farms allowed owners to recover most of their investment and relocate. Although this action resulted in some families leaving the area, it also removed the need for continued municipal services to many farmsteads. There was a reduction in the municipal tax base but this was offset by a reduction in service and maintenance costs to the municipality.

As each parcel of land was purchased, land conversion projects were implemented. These projects consisted primarily of re-establishing vegetative cover on the land. Trees and shrubs were planted on the most severely eroded areas to stop erosion. Other areas were seeded to forage crops. The establishment of forage not only served as a deterrent to soil erosion, but also enhanced productivity of the land. Forage crops were leased to nearby farmers, providing a source of high quality hay for cattle operations.

# THE ROSEDALE EXPERIMENT

As part of the land acquisition program, two quarters of land located five miles west of Eden were purchased in 1966. This land was to serve as a demonstration project and outdoor laboratory for research into soil erosion control. The southwest and northwest quarters of Section 23-16-16W became known as The Rosedale Soil and Water Conservation Project, or "The Rosedale Farm".

From the beginning of the project it was believed that most of the eroded land could be reclaimed for agriculture, while some sites were unsuitable for farming. Resource specialists from the Province designed site plans for the farm. The general approach was to plant trees or shrubs on the most severely eroded sites and forage on more manageable areas. In 1967 work began by planting 75,000 trees on the eroded slopes of the southwest quarter while the majority of the northeast quarter was seeded to forage. In 1968, 41,700 more trees and some forages were planted on the southwest quarter.

In 1969 two dams were built and shelterbelts planted on the southwest quarter while 62,000 trees were planted on the northeast. That year the first crop of hay was harvested. From 159 acres, 10,600 bales were taken, proof that through proper management the land could be productive.

In 1971 the northwest quarter of the section was purchased and added to the Rosedale Farm. The original landowner had planted 7,000 red pine on severely eroded knolls on this land as a result of the example set by the erosion control program implemented on the other two quarters.

Activities since 1970 have included replacement of dead trees and fertilizing and re-establishment of forage stands. Each year the hay has been leased to neighboring farmers, providing an income for the project.

In March 1977 the management of the Rosedale Farm was turned over to the Whitemud Watershed Conservation District Board. The Board continues to operate the project in a fashion that demonstrates to the residents of the area what can be done if proper management and care is used on severely eroded lands.

## THE RESULTS

The most obvious result of this project has been income generated by sale of forages grown on the farm. Many farmers from the surrounding area have applied the Rosedale example to their farms.

A drive through the area shows fields of lush forage where sparse crops of cereal grains once struggled.

In addition to the Rosedale Farm, many other parcels of similar, badly eroded land have been purchased by the Province. Similar conversion works have been implemented on these lands. The restoration effect of this rehabilitation has been felt economically throughout the area.

Soil erosion has been greatly reduced. Spring snowmelt has been slowed because of tree and forage cover shading the snow from the spring sun. The amount of shale and silt carried into drainage channels has been dramatically reduced, thus reducing the need for costly drainage maintenance. The runoff from summer rains has been distributed over a longer period, reducing the occurrence of localized flash flooding. Streams leaving the area run longer and with less violence, providing a more reliable source of water. Flood damage to roads and bridges in the area has been reduced and costs of municipal services have been lessened.

Through hay leases let on the rehabilitated land, a source of high quality hay for the surrounding farmers has been assured. The farm has also produced a wildlife haven providing habitat for over 35 bird species, small mammals and big game.

The Rosedale Farm is there for all to see. It is proof that by respecting the nature of the land and by working with it rather than against it, man can profit and the land can remain healthy for future generations. The Rosedale example is the key to a new approach in land management along the Riding Mountain escarpment.

## TOUR THE FARM

The following map is a guide to the Rosedale Farm. Drive along the route indicated and imagine the ridges and hillsides as the bare shale slopes they once were. Watch for signs indicating various types of tree plantations and their date of establishment. You are invited to walk through the site if you wish.

For further information contact the Whitemud Watershed office in Neepawa.

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