

Soil Survey of the  
Poor Man Indian Reserve No. 88  
H.B. Stonehouse, J.G. Ellis

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MAP LEGEND

Soils

Dominantly Black Chernozemic Soils

- Balcarres - Ba - Dominant Black Chernozemic soils developed on variable, moderately fine to fine textured, calcareous glacio-lacustrine deposits. Ba/T - shallow deposits (less than 4 feet) overlying glacial till.
- Ba1 - Dominant<sup>\*</sup> Rego Black with significant Orthic Black.
- Ba4 - Dominant Orthic Black with significant<sup>\*\*</sup> Rego Black.
- Oxbow - O - Dominant Black Chernozemic soils developed on medium to moderately fine textured calcareous glacial till.
- 05 - Dominant Orthic Black with a significant occurrence of undifferentiated Gleysolic soils.
- 08 - Dominant Orthic Black with a significant combination of Rego and Calcareous Black and a significant occurrence of undifferentiated Gleysolic soils.
- Oxbow-Whitewood - OWh - Dominant Black Chernozemic soils with significant Dark Gray Chernozemic soils developed on medium to moderately fine textured calcareous glacial till.
- OWh5 - Dominant Orthic Black with significant Orthic and Eluviated Dark Gray and a significant occurrence of undifferentiated Gleysolic soils.
- Whitesand - Ws - Dominant Black Chernozemic soils developed on coarse to moderately coarse textured glacio-fluvial deposits.
- Ws1 - Dominant Orthic Black.

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<sup>\*</sup>Series which are Dominant occupy over 40% of the Map Unit.

<sup>\*\*</sup>Series which are Significant occupy over 15% of the Map Unit but less than 40%.

Dominantly Dark Gray Chernozemic Soils

Whitewood - Wh - Dominant Dark Gray Chernozemic soils developed on medium to moderately fine textured calcareous glacial till.

Wh5 - Dominant Orthic Dark Gray with a significant occurrence of undifferentiated Gleysolic soils.

Textural Groupings and Classes

Textural Group	Textural Class
Coarse textured	Sands (s), loamy sands (ls)
Moderately coarse textured	Sandy loam (sl), fine sandy loam (fl)
Medium textured	Very fine sandy loam (vl), loam (l), silt loam (sil)
Moderately fine textured	Sandy clay loam (scl), clay loam (cl), silty clay loam (sicl)
Fine textured	Sandy clay (sc), clay (c), silty clay (sic), heavy clay (hc)

Gravelly sandy loam (gsl) and gravelly loams (gl) are recorded where present.

Landforms

Name	Symbol	Description
<u>Glacial Till Landforms</u>		
Moraine	Ma	Gently to <b>strongly</b> rolling moraine with a knob and kettle pattern having no external drainage.
Ground Moraine	Ga	Gently to roughly undulating ground moraine with a knob and kettle pattern having no external drainage.
<u>Glacio-lacustrine Landforms</u>		
Glacial Lake Plain	La	Undulating plain of knolls and depressions without external drainage.
<u>Glacio-fluvial Landforms</u>		
Outwash Plain	Fa	Kettled or pitted plain without external drainage.

### Topography

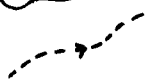
Description	Symbol	Percentage Slope
Gently sloping or roughly undulating	3	2-5%*
Moderately sloping or gently rolling	4	6-9%
Strongly sloping or moderately rolling	5	10-15%
Steeply sloping or strongly rolling	6	16-30%

\* A slope of 2% means a rise or fall of 2 feet for every 100 feet of horizontal distance.

### Other Map Symbols



Slough or depressional area which is periodically flooded.



Drainage way indicating direction of flow.



Soil boundary.



Township corner.

Tp

Township.

Rg

Range.



Not suitable for grain production.



Marginal for grain production.

### SOIL CAPABILITY FOR AGRICULTURE

Class	Soil Capability for Agriculture
1	No significant limitations.
2	Moderate limitations.
3	Moderately severe limitations.
4	Severe limitations.
5	Serious limitations - not suitable for annual crops but suitable for improved pasture.
6	Very serious limitations - suited only for permanent pasture.

Kind of Limitations

Soil limitations - caused by unfavorable soil characteristics.

m: insufficient soil moisture holding capacity.

Landscape limitations

t: unfavorable topography.

w: excess water - applies to soils where excess water, apart from inundation, is a limitation in their use for agriculture.

Guiding Criteria for Capability Classes in Saskatchewan

Class	Degree of Limitations	Range of Adaptability	Productivity*	Other Characteristics
1	No significant limitations.	Wide range of field crops.	Moderately high to high, 20-25 bu/acre (30.0 to 35.0 bu/acre)**	Deep, well drained, good water holding capacity. Natural high fertility.
2	Moderate limitations due to climate, soil or landscape.	Fairly wide range of field crops.	Moderately high to high, 15.5-20 bu/acre (24.0 to 30.0 bu/acre)**	Good water holding capacity. Natural high fertility or highly responsive to fertilizer.
3	Moderately severe limitations due to climate, soil or landscape.	Moderate range of field crops.	Medium to moderately high, 11.0-15.5 bu/acre (19-24 bu/acre)**	Limitations adversely affect the timing and ease of tillage, planting, harvesting, and application of conservation practices.
4	Severe limitations due to climate, soil or landscape.	Narrow range of field crops.	Low to medium, 9.0-11.0 bu/acre (13-15 bu/acre)**	The high incidence of low yields or disastrous failures suggests that some of these soils be removed from continued cultivation.
5	Serious soil or landscape limitations make them unsuitable for the production of annual crops.	Suited for the production of adapted grasses and legumes.		Soils within this class are responsive to improvement practices through the use of farm machinery. Improvement of 25% of an area can double the carrying capacity.
6	Very serious soil or landscape limitations restrict their use to native grazing.	Suited only to native pasture.		Soils in this class are not responsive to improvement practice.
7	Prevent agricultural use.	Unsuited for agricultural use.		Bodies of water, townsites, parks, airports, railroads.

\* Estimated productivity of arable Classes 1-4 is expressed in terms of long-time (1932-1961) average wheat yields in bu/acre.

\*\* Estimated potential productivity.

## THE SOILS OF THE POOR MAN INDIAN RESERVE NO. 88

### Location

The Poor Man Reserve is located in the east central part of Saskatchewan about 4 miles north of the town of Quinton. The reserve is approximately 18,720 acres in extent and includes all or portions of Sections 4 to 9, 16 to 21 and 28 to 33 inclusive in Township 29, Range 17; Sections 1 and 2, 11 to 14, 23 to 26 and 35 and 36 in Township 29, Range 18; Sections 4 to 6 inclusive in Township 30, Range 17 and Sections 1 and 2 in Township 30, Range 18, all west of the 2nd Principal Meridian.

### INTERPRETATION OF THE SOIL MAP

A map and legend have been prepared and comprise the first portion of this report. The series of symbols which appear within each area, separated on the map by a soil boundary, are interpreted by means of the map legend.

There may be some terms in the legend which are unfamiliar to the reader. The booklet, "A Guide to Understanding Saskatchewan Soils"<sup>1</sup>, will familiarize the reader with the terms used to describe soils in the province. To properly interpret the legend it is essential that the above-mentioned booklet be used as a reference.

### Interpretation of Soil Symbol Sequence

The sequence of the soil symbols is always arranged in the same order in each separate area. This order is as follows: Association Map Unit: Texture:Landform:Percentage Slope. An illustration of this is the symbol sequence 08:1:Ma4 which occurs in Section 12, Township 29, Range 18.

By referring to the legend the symbols, 08:1:Ma4, are interpreted as follows. The letter O represents the abbreviation for the Oxbow Association which is described in the legend as being "Dominant Black Chernozemic soils developed on medium to moderately fine textured, calcareous glacial till".

Medium to moderately fine textures are described under the heading, "Textural Groupings and Classes". Glacial till soils are very seldom silty but the remainder of the textures in the two textural groupings under discussion could occur in the Oxbow Association. The number 8 indicates the Map Unit in the Oxbow Association, namely 08 which is described as "Dominant Orthic Black with a significant combination of Rego and Calcareous Black and a significant occurrence of undifferentiated Gleysolic soils". The letter l is the abbreviation for loam. All textural abbreviations are listed under the sub-heading "Textural Class". The letters Ma are described in the legend under the heading "Landforms" as "Gently to strongly rolling moraine with a knob and kettle pattern having no external drainage". The number 4 is the symbol for the Percentage Slope which is defined under the heading "Topography" as being between 6-9%.

It will be noted, for example, in Section 13, Township 29, Range 18, that the symbols 05:1-Wsl:sl(g):Ga3 represent two Associations and their Map Units. Where two or more Associations and their Map Units occur in the one sequence the first mentioned Association is dominant. The reason that some areas are indicated as a complex, such as the one above, is that at the present scale of mapping and the expected land use it was not considered practical to separate these soils.

When glacial till soils and glacio-lacustrine soils occur in complex, the usual sequence is that the glacial till soils occur above the glacio-lacustrine soils. However, this sequence does not always occur. In areas where there has been ice collapse the sequence is unpredictable, as is the case on the Poor Man Reserve. In areas mapped as Oxbow-Whitewood-Balcarres in Township 29, Range 17, for example, the glacio-lacustrine soils were found to occur above the glacial till soils in some instances.



### Interpretation of Soil Capability<sup>2</sup> Symbol Sequence

Each area separated on the map by a soil boundary, contains not only the soil symbol sequence already described but also a soil capability sequence. In the area containing the symbols 08:1:Ma4 (which have been described above) the symbols  $3t \overset{8}{5} \overset{2}{w}_m$  occur and are interpreted as follows. The lower numbers are the capability class, the small letters indicate the "limitation" or adverse soil features which relegate the soil area to its particular capability class. The upper numbers indicate the percentage of the soil area designated to specific capability classes. By referring to the heading in the legend designated as "Soil Capability for Agriculture", it can be seen that  $3t \overset{8}{5} \overset{2}{w}_m$  means this is an area made up of 80% Class 3 soil which has moderately severe limitations due to insufficient moisture holding capacity (m) as well as unfavorable topography (t), and 20% Class 5 soil which has serious limitations due to excess water (w) in the depressions. It can, therefore, be concluded that while this area has certain limitations it is still suitable for the production of annual crops.

### EVALUATION OF THE AGRICULTURAL POTENTIAL OF THE POOR MAN RESERVE

An evaluation of the agricultural potential may be made of any portion of the map area by interpreting the map symbols by means of the legend.

The areas with the best potential are the areas of Balcarres in Sections 4, 5, 8 and 17 in Township 29, Range 17. These two areas represent approximately 675 acres of Class 1 soils which are very well suited to the production of annual seeded crops. Another area with a good potential for annual crop production is the area of Oxbow-Whitewood-Balcarres in Sections 9, 16, 17, 20 and 21 in Township 29, Range 17. This area represents about

1,200 acres of Class 1 and 2 soils along with a small percentage of Class 5 soils. Other areas with a lower potential but still suitable for cultivation are the areas of 05 and 08 on Class 3 topography in Townships 29 and 30, Range 18. These represent about 1,400 acres of mainly Class 2 soils. Still other areas with greater limitations but still suited to the production of annual seeded crops are the areas of 08 on Class 4 topography, the areas of Oxbow and Whitesand, the areas of Whitesand and Oxbow and the area of Oxbow-Whitewood-Whitesand in the western half of the reserve. These areas represent approximately 9,200 acres of mainly Class 3 soils which have moderately severe limitations to cropping.

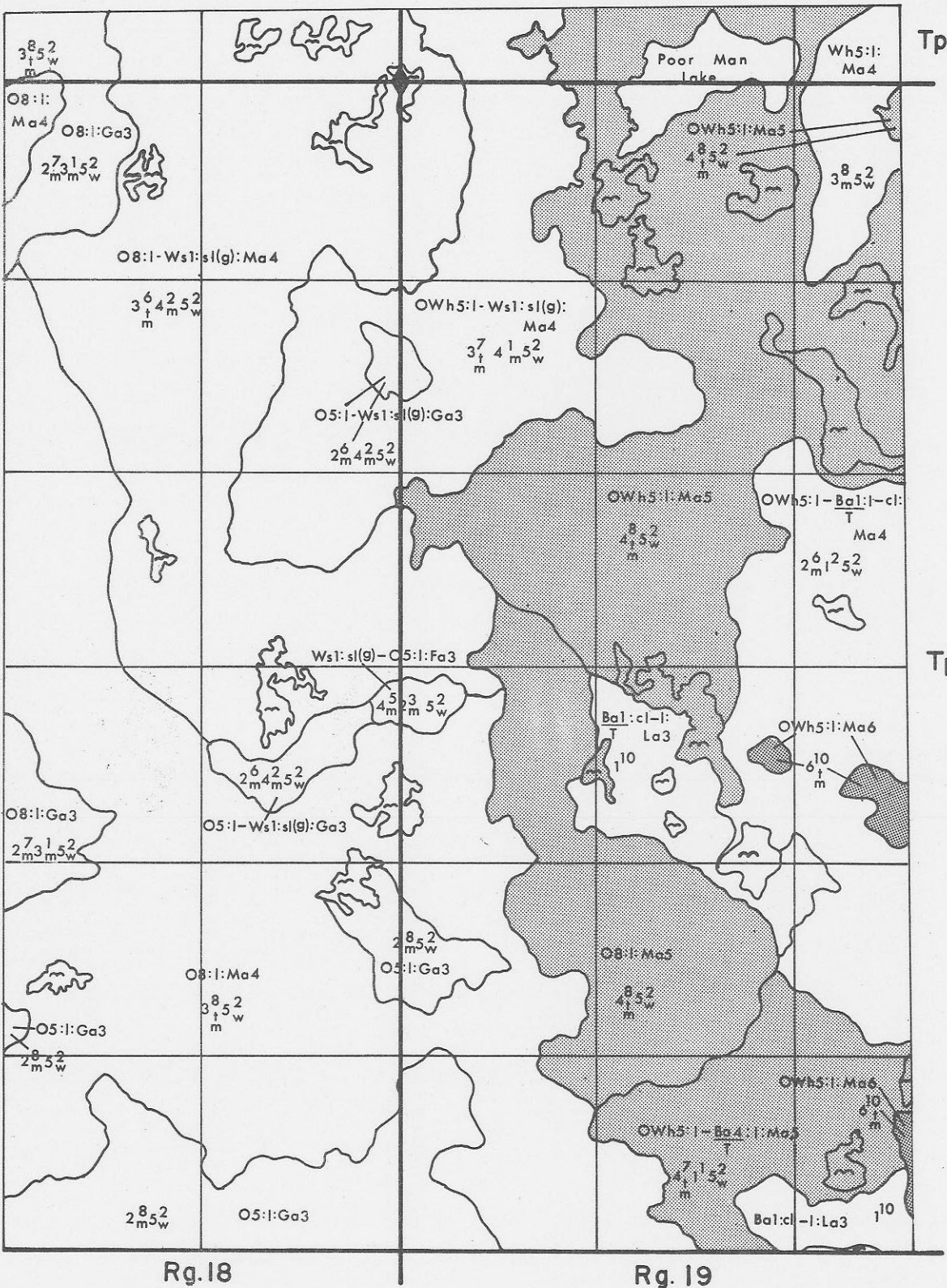
The remainder of the reserve is made up of Black and Dark Gray Chernozemic soils on moderately rolling topography, which are marginal for grain production. This area should not be considered for grain production as a forage and a livestock type of farming operation is recommended in areas which are classified as marginal for continuous crop production.

#### Acknowledgments

The authors wish to acknowledge the assistance of Mr. J.A. Shields who reviewed the soil capability of the reserve, and Mr. G. Shaw who assisted with the field work.

#### References

1. A Guide to Understanding Saskatchewan Soils. H.C. Moss. 1965. Saskatchewan Institute of Pedology Publication M1. Extension Publication 175. Distributed by Extension Division, University of Saskatchewan, Saskatoon.
2. A Guide to Soil Capability and Land Inventory Maps in Saskatchewan. Saskatchewan Institute of Pedology Publication M2. Department of Soil Science, University of Saskatchewan, Saskatoon. 1966.



Scale - 1.25 inches to 1 mile or 1:50,000

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