

Soil Survey of the
Standing Buffalo Indian Reserve No. 78

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Map Legend

Soils

Black Soils

- Cudworth - Cd - A group of dominantly Black Chernozemic soils developed on medium to moderately fine textured, moderately to highly calcareous, silty, glacio-lacustrine deposits.
- Cd2 - A combination of Calcareous and Rego Black with significant Orthic Black and significant Eluviated Gleysols.
- Hamlin - Hm - A group of dominantly Black Chernozemic soils developed on medium to moderately fine textured sandy glacio-lacustrine deposits.
- Hm2 - Dominant Orthic Black with significant Calcareous Black.
- Hm10 - A combination of Rego and Calcareous Black with significant Orthic Black and significant Gleysolics.
- Meota - Me - A group of dominantly Black Chernozemic soils developed on coarse to medium textured sandy glacio-fluvial and glacio-lacustrine deposits.
- Me3 - Dominant Orthic Black with significant carbonated or saline Chernozemic soils.

Azonal Complexes

- Alluvium - Av - A group of soils developed on variable textured alluvium deposits.
- Av4 - A combination of Orthic and Rego Chernozemic.
- Hillwash - Hw - A mapping complex of Regosolic and weakly developed Chernozemic and Podzolic soils developed on variable deposits of valley slopes and eroding escarpments.

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 (gs1) and gravelly loam (gl) are modifiers of textural classes.

Landforms

Name	Symbol	Description
Glacio-fluvial Landforms		
Outwash Plain	Fd	Gently sloping or roughly undulating with external drainage or glacial drainage channels.
Glacio-lacustrine Landforms		
Glacial Lake Bed or Basin	La	Level or very gently sloping or low mound and depressions or low ridge and swale without external drainage.
Glacial Lake Delta and Post Glacial Alluvium Deposits	Aa	Very gently sloping or smooth to undulating without external drainage.
	Ad	As above with external drainage.

Topography

Description	Symbol	Slope Class
Gently sloping or roughly undulating	3	2-5%
Steeply sloping or strongly rolling	6	16-30%

Soil Capability for Agriculture

Class	Limitations for Agricultural Use
1	None to slight.
2	Moderate.
3	Moderately severe.
4	Severe.
5	Serious - not suitable for annual crops but suitable for improved pasture.
6	Very serious - suited only for permanent pasture.

Kind of Limitations

- m - adverse soil moisture holding capacity due to droughtiness and deficiencies in soil moisture holding capacity as expressed in a combination of textural characteristics of the top 4 feet and the organic characteristics of the surface horizon
- s - accumulative adverse soil characteristics
- t - adverse topography
- w - excess water

Map Symbols

-  Slough or depressional areas which are periodically flooded.
-  Drainage way, indicating direction of flow.
-  Soil boundary.

The Soils of the Standing Buffalo Indian Reserve No. 78

(File Hills - Qu'Appelle Agency)

The Standing Buffalo Reserve includes all or portions of Sections 3 to 6 inclusive, Township 22, Range 14; and Sections 20 to 21, 27 to 29 and 32 to 34, Township 21, Range 14. All this area is west of the 2nd Meridian.

Interpretation of Information on the Soils Map

A map and legend has been prepared and comprises the first portion of this report. The symbols which appear on the map can be interpreted by means of the legend, given on pages 1-3. There are some terms in the legend which perhaps may be unfamiliar to the reader. The booklet, "A Guide to Understanding Saskatchewan Soils", which accompanies this report will familiarize the reader with the terms used to describe soils in this province. To properly interpret the legend it is essential that the above-mentioned booklet be used as a reference.

The following is a guide as to how to translate the symbols used on the map by means of the legend. An understanding of this procedure will enable the reader to interpret any area on the map.

In Section 34, Township 21, Range 14, West of the 2nd Meridian, the symbol sequence Cd2:1:La3 is a short hand form for indicating the Soil Association, the Map Unit, the surface texture and the landform¹ respectively, which occur within this area. The extent of the area is delineated by the black solid line which is referred to as the soil boundary.

By referring to the legend, the edit Cd2:1 is interpreted as follows. The letters, Cd, are the symbol for the Cudworth Association which is described as a group of dominantly Black Chernozemic soils developed on medium to moderately fine textured, moderately to highly calcareous, silty, glacio-lacustrine deposits. The number 2 indicates the Map Unit in the

Cudworth Association, namely Cd2, which is described as a combination of Calcareous and Rego Black with significant Orthic Black and significant Eluviated Gleysols. The letter l is the textural symbol for loam. The symbol l is defined in the legend under the section Textural Class. Thus we now understand the sequence Cd2:l.

The next portion of the sequence is La3. The letters La are a symbol for the landform which in the legend is described as a glacial lake bed or basin having gently sloping topography with a pattern of low mound and depression without external drainage. The number 3 is the symbol for the slope class which is defined under the heading Topography in the legend, and refers to a gently sloping or roughly undulating landform with slopes between 2 and 5%.

The second set of symbols in the area is a series of numbers and letters which describe the Soil Capability of the area. The series sequence is edited as $2^8s\ 5^2w$ and is interpreted as follows. The lower numbers are the capability class, the small letters indicate the most adverse feature which puts the soils in this class and the upper number is the percentage of the area which is occupied by the capability class. Thus by reading that portion of the legend under the heading Soil Capability for Agriculture it can be seen that 2^8s means that 80% of the area is class 2 soil and has moderate limitations due to adverse soil moisture conditions but is still well suited to the production of cereal crops. Likewise 5^2w means that 20% of the area is class 5 soil and has serious limitations because these areas are periodically excessively wet or inundated by water and thus their agricultural use is limited to forage crops which are tolerant to periodic wet conditions. The reader will therefore conclude from $2^8s\ 5^2w$ that this area, except for the 20% wet areas, is suitable for the production of

cereal or forage crops.

An explanation of the entire criteria used to determine the capability of soils would be too voluminous to insert into this report. Suffice it is to report that the Capability Classes placed on the soils mapped on the Standing Buffalo Reserve are a slight modification of the Capability Classes being used in Saskatchewan under the Canada Land Inventory Program².

These classes were established by the National Soil Survey Committee and published in the report of the Work Planning Conference³ which was sponsored by A.R.D.A. (Agricultural Rehabilitation and Development Act).

It will be noted that in a previous section dealing with the interpretation of the Soil Capability for Agriculture that the limitations are listed on the legend but not described. The following table is presented to explain what is meant by the degree of limitations.

TABLE 1. 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 effect 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.	Moderately high to high, >160 lbs. T.D.N. per acre or carrying capacity <3 acres per cow month.†	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.	Low to moderate <160 lbs. T.D.N. per acre of carrying capacity or >3 acres per cow month.†	Soils in this class are not responsive to improvement practice.
7	Prevent agricultural use.	Unsuited for agricultural use.	Non productive.	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.

† Estimated forage productivity. T.D.N. = Total Digestible Nutrients.

By following the above procedure the reader is able to interpret any area on the map. He is now in a position to determine the best use which can be made of the land available to him. If the use is to be for agricultural purposes there are many other factors which also must be considered, some of which are the type of farming, e.g. grain, livestock, mixed, etc., economic investment involved to develop the type of farming desired, economic gains expected from this expenditure, costs of preparing uncultivated lands for cultivation, type of seed, type of fertilizer, and so forth. However, every portion of land can be evaluated and every portion has an optimum use.

In summary most of the soils on the Standing Buffalo Reserve are suited to the production of either cereal or forage crops. At present only a portion of the Reserve is under cultivation, however, much of the area presently under tree cover could be developed for agriculture.

Acknowledgments

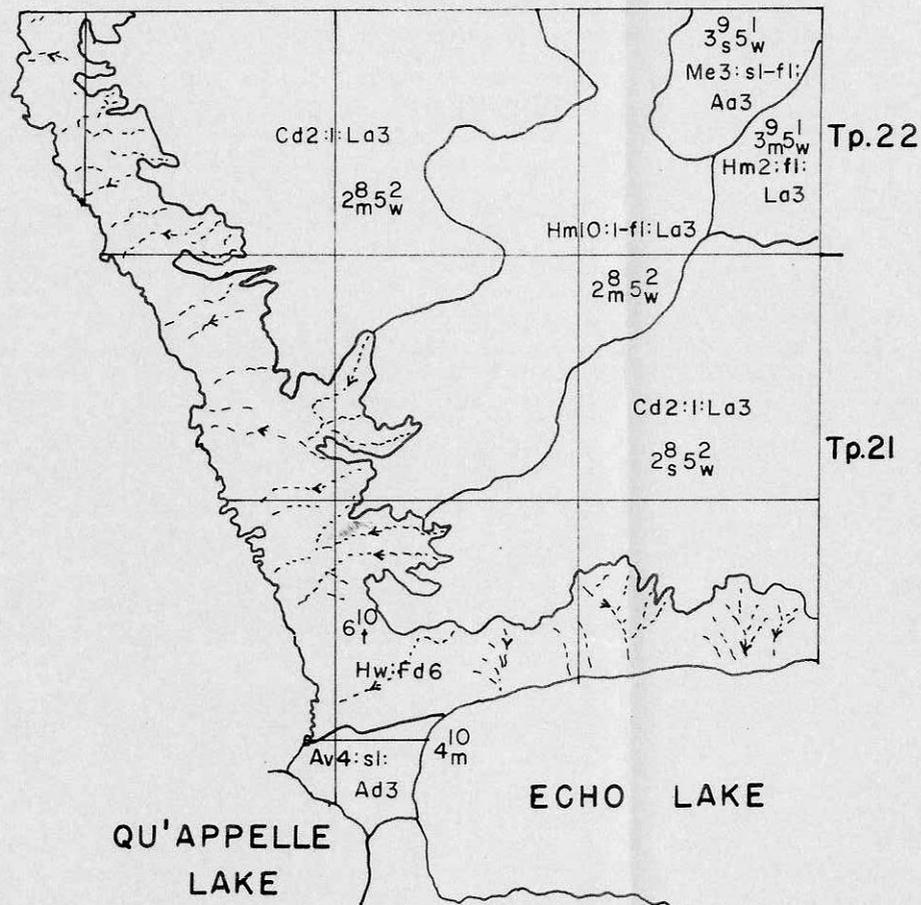
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References

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, Sask., 1966.
3. Outline of the Canadian Soil Capability Classification for Agriculture. Issued by the National Soil Survey of Canada and Canada Land Inventory, A.R.D.A. June, 1964.

STANDING BUFFALO I.R. NO.78



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