Soil Survey of the

Sakimay and Shesheep Indian Reserves Nos. 74 and 74A

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Sakimay and Shesheep Indian Reserves Nos. 74 and 74A

Map Legend

Soils

Black Soils

Blaine Lake - B - A group of dominantly Black Chernozemic soils developed on medium to moderately fine textured, calcareous, silty, glacio-lacustrine deposits. B/T - Shallow deposits (less than 4 feet) overlying glacial till.

B2 - Dominant Orthic Black with significant Calcareous and significant Gleysolics.

B8 - Dominant Orthic Black with significant carbonated or saline Chernozemic soils.

Hamlin - Hm - A group of dominantly Black Chernozemic soils developed on medium to moderately fine textured sandy glacio-lacustrine deposits. Hm/T - Shallow deposits (less than 4 feet) overlying glacial till.

Hm1 - Dominant Orthic Black.

Hm8 - Dominant Orthic Black with significant carbonated or saline Chernozemic soils.

Meota - Me - A group of dominantly Black Chernozemic soils developed on coarse to medium textured sandy glacio-fluvial and glacio-lacustrine deposits. Me/Gr - Shallow deposits (less than 4 feet) overlying gravels.

Me1 - Dominant Orthic Black.

Me3 - Dominant Orthic Black with significant carbonated or saline Chernozemic soils.

Oxbow - O - A group of dominantly Black Chernozemic soils developed on medium textured, calcareous glacial till.

O1 - Dominant Orthic Black.

O5 - Dominant Orthic Black with significant Gleysolics.

O7 - Dominant Orthic Black with significant Calcareous Black.

Oxbow-Whitewood - OWh - A complex of dominantly Black Chernozemic soils, with significant Dark Gray Chernozemic soils, developed on medium textured calcareous glacial till.

OWh1 - Dominant Orthic Black with significant Orthic and Eluviated Dark Gray.

OWh5 - Dominant Orthic Black with significant Orthic and Eluviated Dark Gray and significant Gleysolics.

OWh6 - Dominant Orthic Black with significant Calcareous Black and significant Orthic Dark Gray and significant Gleysolics.

Whitesand - Ws - A group of dominantly Black Chernozemic soils developed on coarse to moderately coarse textured glacio-fluvial deposits.

Ws1 - Dominant Orthic Black.

Azonal Complexes

Alluvium - Av - A group of soils developed on variable textured alluvium deposits.

Av13 - Dominant saline and carbonated Chernozemic with significant saline and carbonated Gleysolics.

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 (gsl) and gravelly loams (gl) are modifiers of textural classes.

Landforms

Name	Symbol	Description
Glacial Till Landforms		
Ground Moraine	Ga	Associated with glacial till deposits. Slopes near 0% to 5% with a pattern of knoll and depression without external drainage.
	Gd	As above with external drainage.
Moraine	Ma	Gently to strongly rolling, with slopes of 6% to over 16%. Pattern of knob and kettle with frequent to many sloughs and ponds.
Glacio-fluvial Landforms		
Outwash Plain	Fa	Nearly level or pitted (with kettles) without external drainage.
	Fd	As above with external drainage or glacial drainage channels.
Glacio-lacustrine Landforms		
Glacial Lake Bed	La	Level to 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%
Moderately sloping or gently rolling	4	6-9%
Strongly sloping or moderately rolling	5	10-15%
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

n - excess soil salinity

s - accumulative adverse soil characteristics

t - adverse topography

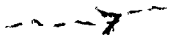
w - excess water

Soil Capability for Irrigation

Class	Description
I	Very good to good
II	Good to fair
III	Fair to poor
N.I.	Non-irrigable

Map Symbols


Slough or depressional areas which are periodically flooded.


Drainage way, indicating direction of flow.


Soil boundary.

The Soils of the Sakimay and Shesheep Indian Reserves Nos. 74 and 74A

(Crooked Lake Agency)

The Sakimay Reserve includes all or portions of Sections 3 to 10, 15 to 22, and 27 to 34 inclusive, Township 18, Range 6; Sections 3 to 10 inclusive, Township 19A, Range 6; and Sections 3 to 9, and 16 to 20 inclusive, Township 19, Range 6. All this area is west of the 2nd Meridian.

The Shesheep Reserve includes all or portions of Sections 3, 8 to 11, and 14 to 17, Township 19, Range 6. All this area is west of the 2nd Meridian.

Interpretation of Information on the Soils Map

A map and legend of these two Reserves has been prepared and is incorporated into this report. Only one report is being presented for both of these Reserves inasmuch as the Shesheep Reserve is too small to warrant a separate report. The ability to interpret the symbols on the map of one reserve will enable the reader to do the same for the other Reserve. The symbols which appear on the map can be interpreted by means of the legend given on pages 1-4. 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 32, Township 18, Range 6, West of the 2nd Meridian, the symbol sequence Hm8:1-B2:1-O1:1:La3 is a short hand form for indicating the Soil Associations, the Map Units, the surface texture and the landform[1] respectively 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 Hm8:1 is interpreted as follows. The letters, Hm, are the symbol for the Hamlin Association which is described as a group of dominantly Black Chernozemic soils developed on mediumt to moderately fine textured sandy glacio-lacustrine deposits. The number 8 indicates the Map Unit in the Hamlin Association, namely Hm8, which is described as dominant Orthic Black with significant carbonated or saline Chernozemic soils. The letter 1 is the textural symbol for loam. The symbol 1 is defined in the legend under the section Textural Class. Thus we now understand the sequence Hm8:1.

In a similar manner the next portion of the edit, B2:1, can be interpreted. The letter, B, is the symbol for the Blaine Lake Association which is described as a group of dominantly Black Chernozemic soils developed on medium to moderately fine textured calcareous, silty, glacio-lacustrine deposits. The number 2 refers to the B2 Map Unit which is described as dominant Orthic Black with significant Calcareous and significant Gleysolics. The 1 is the textural symbol indicating that the surface texture is loam.

In the same manner O1:1 is interpreted as the O1 Map Unit of the Oxbow Association having a loam surface texture.

It will have been noted that the edit Hm8:1-B2:1-O1:1 consists of three Associations and their Map Units. Where two or more Soil Associations and their Map Units occur in one edit the amount of each different Association decreases from left to right in the edit. For example, in an area edited as above the Hamlin soils occupy the largest portion with the Blaine Lake soils occupying the next largest portion and so on. The reason that some areas are indicated with a complex edit, 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. They could, however, be separated on the basis of different parent materials in a more detailed soil survey.

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 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 $2^{8}m\ 3^{2}s$ 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 $2^{8}m$ means that 80% of the area has moderate limitations due to the droughty characteristics of the soils or their lack of ability to store or hold moisture for crop growth. Likewise $3^{2}s$ means that 20% of the area has moderately severe limitations due to various adverse soil characteristics. The reader will therefore conclude from $2^{8}m\ 3^{2}s$ that this area, while it has some limitations it is still fairly well suited for the production of cereal 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 Sakimay and Shesheep Reserves are a slight modification of the Capability Classes being used in Saskatchewan under the Canada Land Inventory Program[2]. These classes were established by the National Soil Survey Committee and published in the report of the Work Planning Conference[3] 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. The reader will appreciate that this table is too large to include in the legend.

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 pew 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 can 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.

The portions of the two reserves which lie within the Qu'Appelle Valley, west of Crooked Lake are made up of soils which are alluvium in origin and occupy the Qu'Appelle River flood plain. These soils have been evaluated differently than the upland soils in the Reserves. The upland soils have a capability rating based on dry land farming. The soils in the valley are rated according to their irrigation potential. The rating is shown on the map by Roman numerals and the letters N.I., which are described in the legend under the heading Soil Capability for Irrigation. Due to the marsh-like nature of these soils around the west end of Crooked Lake they are not suitable for irrigation. They may, however, be of some value for hay production.

In summary the Sakimay Reserve, while it has some areas which are probably best left as permanent pasture, represents a considerable acreage well suited to the production of cereal crops. The Shesheep Reserve has at present only a few acres under cultivation. More of this Reserve could be cultivated and sown to cereal crops or forage.

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References

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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.

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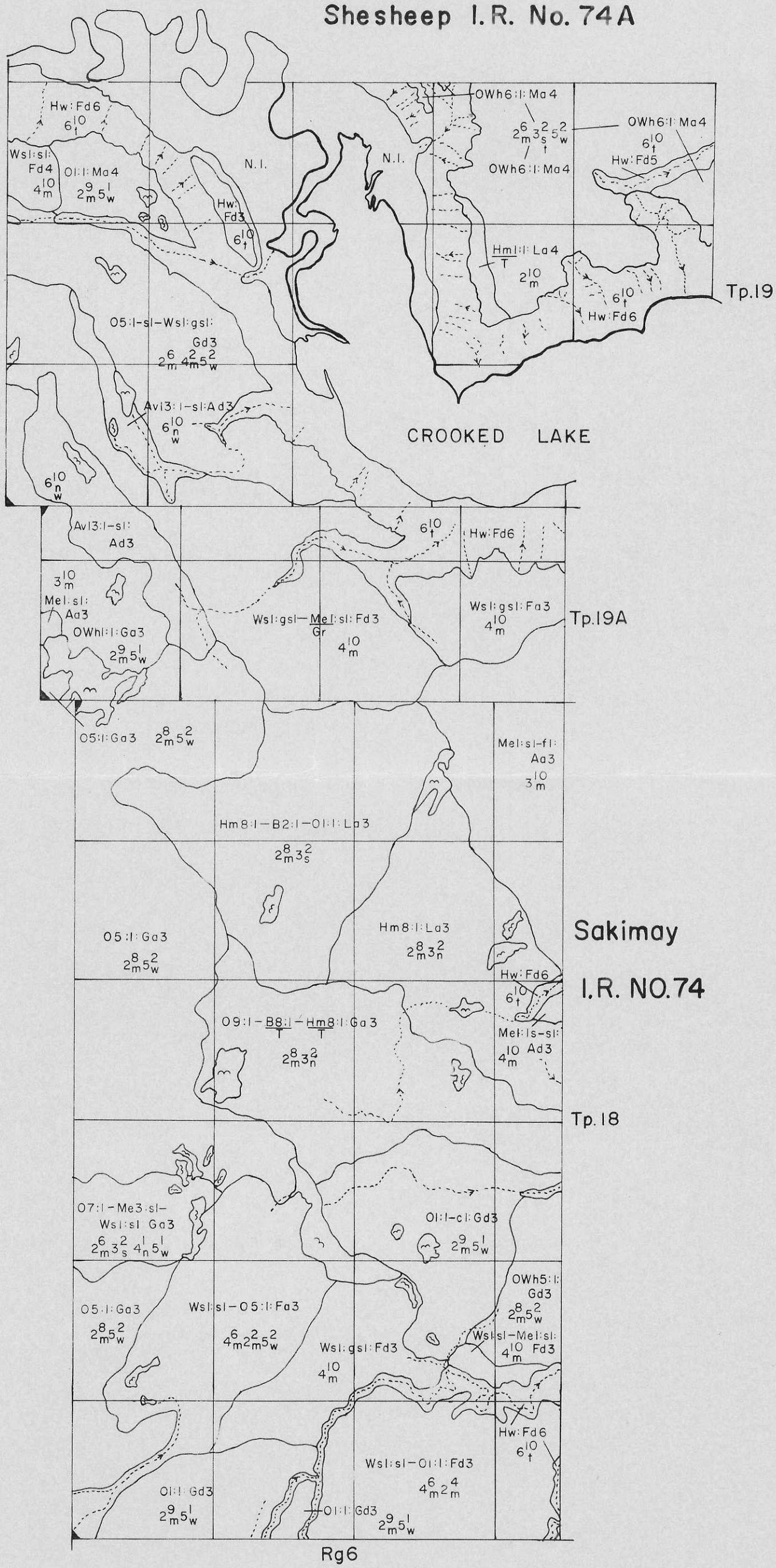
Shesheep I.R. No. 74A



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

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