

GENERAL DESCRIPTION OF THE HECLA MAP SHEET AREA, 62P

The area covered by the Hecla map sheet comprises about 5900 square miles in east-central Manitoba between 51° and 52° north latitude and 96° and 98° west longitude. However, only the 4078 square mile land area west of Lake Winnipeg and the offshore islands in Lake Winnipeg have been classified. About 29 percent of the mapped area is organic soil, 50 percent mineral soil, 1 percent exposed bedrock, and 20 percent water, 9 percent of which is inland.

The entire area lies in the Manitoba Lowlands region and includes two physiographic subdivisions. The Interlake Till Plain is on the western edge of the area and the Lake Winnipeg Terrace covers the rest of the area. Paleozoic limestone and dolomites of the Silurian and Ordovician periods form the underlying bedrock. Precambrian granitic and volcanic rock occurs on isolated sites. Elevation ranges from 713 feet above sea level at Lake Winnipeg to 900 feet above sea level on the western edge. As a result of this low relief, drainage is generally poor.

The Interlake Till Plain has elevations from 800 to 900 feet and occupies about 10 percent of the area. This subregion is a strongly intersected, fluted, till plain, characterized by ridge and swale topography with various thicknesses of loamy textured, very stony, water-worked, ground moraines. Beach deposits are common. Limestone bedrock occurs as outcrops or is overlain by a thin mantle of glacial drift in a small part of the area. The Mantagao River drains this subregion.

The Lake Winnipeg Terrace is situated below the 800-foot contour and is divided into four physiographic units: Fisher River Plain, Lake Winnipeg - Sturgeon Bay Lowlands, Washow Bay Lowlands, and Icelandic River Lowlands. The Fisher River Plain is in the lower central part of the subregion and is a level to gently undulating unit of shallow lacustrine deposits over till. Strongly calcareous, medium textured lacustrine deposits are found along the Fisher River. Narrow, north-to-south oriented drumlins occur throughout this unit. Ridges consist mainly of thick, loam to clay textured, ground moraine. Thin, fine to moderately fine textured lacustrine deposits overlying strongly calcareous glacial till are found in the swales. Drainage is rapid on the drumlins and imperfect to poor in intervening swales. The soils along the eastern edge of the unit are extremely stony and calcareous. Limestone outcrops and beach deposits occur in the southern part of the subregion. This unit occupies about 25 percent of the area and is drained by the Fisher River.

The Lake Winnipeg - Sturgeon Bay Lowlands are situated below the 800-foot contour and extend south to the tip of Fisher Bay. This unit is level to gently undulating and characterized by drumlins. Lacustrine sediments over till occur in low-lying regions, whereas extremely calcareous till covers the drumlin ridges. A large part of the unit surrounding Sturgeon Bay has organic soil underlain by lacustrine clay. Drainage is poor except for the drumlin ridges and gravel beaches. This unit occupies about 35 percent of the area and is drained by the Mantagao and Jackhead rivers.

The Washow Bay Lowlands in the east also include the offshore islands on Lake Winnipeg. The unit is depressional to very gently sloping and contains deep organic deposits underlain by deep lacustrine clay. Extremely calcareous, water-worked ground moraine deposits occur in upland sites. Limestone bedrock outcrops occur in Biscuit Bay and in the southeastern part of the unit. Beaches on Black and Deer islands consist of siliceous sand materials originating from quartzose sandstone. This unit occupies about 30 percent of the area and is drained by Moose and Beaver creeks.

The Icelandic River Lowlands are in the extreme southeast corner of the area and have a level to deessional topography. Surface deposits are composed of fine and medium textured lacustrine materials. Low-lying regions are poorly drained and generally have a thin layer of peat covering the clay deposits. This unit occupies about 5 percent of the area and is drained by the Icelandic River.

The area lies in the southern part of the Boreal Forest Region. Pure stands of coniferous forest occur along the west shore of Lake Winnipeg south to Fisher Bay, south of Sturgeon Bay and west of the Mantagao River, and on the peninsulas in the vicinity of Washow Bay. The vegetation has more vigor in the northern parts of the area because of less lime content in the soil.

Coniferous forest on the well-drained mineral soils is dominantly white spruce (*Picea glauca*). Trembling aspen (*Populus tremuloides*), balsam fir (*Abies balsamea*), black spruce (*Picea mariana*), and white spruce (*Betula papyrifera*) are found in association with the white spruce. Hazel (*Corylus cornuta*) and snowberry (*Symphoricarpos albus*) compose the shrub layer. Feathermosses (*Hylocomium spp.*) generally form the ground cover.

Black spruce is the dominant tree species on wet mineral sites on organic soils, and on drier sites in the northern parts of the area. Labrador-tea (*Ledum groenlandicum*), bog-rosemary (*Andromeda glaucophylla*), bog-laurel (*Kalmia polifolia*), and dwarf birch (*Betula glandulosa*) compose the shrub layer. The ground cover is mainly feathermosses (*Hylocomium*, *Pleurozium*, and *Hypnum spp.*) and sphagnum mosses (*Sphagnum spp.*). Tamarack (*Larix laricina*) and alder (*Alnus rugosa*) are the dominant species found along drainage channels.

As a result of fire, deciduous forest occurs on the fresh mineral soils in the southern parts of the area. Trembling aspen is the dominant species on burned sites, in association with balsam poplar (*Populus balsamifera*), white birch, and balsam fir. Red-osier dogwood (*Cornus stolonifera*) and hazel form the understory. Bedstraw (*Galium spp.*) is the dominant forb.

Jack pine (*Pinus banksiana*) is the dominant tree cover on the well-drained beach ridges. Trembling aspen is found in association with jack pine throughout the area, whereas bur oak (*Quercus macrocarpa*) and jack pine are found on ridges in the southern regions. Creeping juniper (*Juniperus horizontalis*), bearberry (*Arctostaphylos uva-ursi*), and rose (*Rosa spp.*) form the understory.

The well-drained soils along the rivers have a forest cover of white elm (*Ulmus americana*), green ash (*Fraxinus pennsylvanica* var. *subintegerrima*), Manitoba maple (*Acer negundo*), and balsam poplar.

Open fens covered by sedges (*Carex spp.*), rushes (*Juncus spp.*), and feathermosses occur in northern parts of the area.

CLIMATE

The area has a continental subhumid climate, characterized by short, warm summers and long, cold winters. The presence of Lake Winnipeg has a moderating effect on local climate. The greatest difference in temperature between the lake surface and the inland occurs in May. Summer temperatures are lower around the edge of the lake. Cloud cover and fog occur frequently in spring and autumn as cold and warm air masses meet over the lake.

The mean date of the last spring frost is May 25 and the mean date of the first fall frost is September 13, which provides a frost-free period of 112 days. The growing season (2400-2500 degree-days) occurs between April 30 and October 10.

January, the coldest month, has a mean temperature of -2°F, and July, the warmest month, has a mean temperature of 66°F. The mean annual temperature is 32°F.

Annual precipitation is 20 inches, 50 percent of which falls during the growing season.

SOILS AND AGRICULTURAL CAPABILITY

Two climatic subregions are found in the area. In the southern subregion (1 Ch), Chernozemic, Organic, and Brunisolic soils are dominant. The northern subregion (II Ch) is comprised of mainly Organic, Brunisolic, and Luvisolic soils. Gleysolic soils occur in both subregions. Climatic conditions range from mild in the south to moderate in northern parts of the area.

Organic soils, the majority of which are Mesisols and Fibrisols, comprise about 36 percent of the area. Mesisols are associated with very poorly drained fen peat and poorly drained forest peat. The poorly drained fen peat is derived from sedges, mosses, and some tamarack plant materials, whereas the poorly drained forest peat is derived from black spruce, tamarack, ericaceous shrubs, and feathermosses. Fibrisols are relatively undecomposed materials mainly associated with poorly drained sphagnum peat. Organic soils in this area have not been rated for agricultural capability and are designated by the letter 'O' on the map.

Chernozemic soils have dark surface horizons rich in organic matter underlain by B or C horizons, which have high base saturation with calcium usually being dominant. Chernozemic soils comprise 32 percent of the area and are rated Class 2 or 3 for agriculture. The main limitations in their use are wetness or stoniness.

Brunisolic soils comprise 21 percent of the area, are well to imperfectly drained, and characterized by organic surface horizons underlain by a thin leached horizon and a brownish-colored horizon, which is base saturated. These soils have developed on extremely calcareous, medium textured till and sandy deposits. These soils are rated Class 4, 5, and 6 for agriculture and are limited by coarse texture, stoniness, low fertility, wetness, and shallow depth to bedrock.

Gleysolic soils comprise 8 percent of the area and are saturated with water for part or all of the year. They are characterized by a very thin, dark, surface mineral horizon, which is high in organic matter and sometimes overlain by less than 16 inches of moderately decomposed fen or forest peat. Gleysols have developed on all parent materials occurring in the area. The agricultural capability of Gleysols is Class 4, 5, and 6 and the main limitation is wetness.

Luvisolic soils comprise less than 5 percent of the area and are mainly Gray Luvisols. They are well to imperfectly drained soils with organic surface horizons, light-colored eluvial horizons, and brownish-colored illuvial horizons in which clay is the main accumulate. Gray Luvisols are found mainly on fine textured lacustrine deposits and are rated Class 3 for agriculture because of limitations of soil structure and wetness.

Bedrock outcrops of Precambrian granitic and volcanic origin and Ordovician dolomite limestone comprise less than 5 percent of the area. Bedrock outcrops have less than 4 inches of extremely stony surface materials and are frequently associated with thin Brunisolic soils. Bedrock outcrops are not important for agriculture and are rated Class 7R.

SETTLEMENT AND LAND USE

Before the turn of the century, the area was inhabited by Indians who derived a living by hunting, fishing, and trapping. Presently, there are three reserves in the area: Jackhead, Peguis, and Fisher River.

The first settlers homesteaded in the vicinity of Shorncliffe between 1901 and 1915. Fisher Branch was first settled in 1907 by Ukrainians and French Canadians. The first school opened in 1910. A branch of the Canadian National Railways was extended to Hodgson from the south on December 14, 1914. Hecla Island, which was established as an Icelandic fishing community in 1870, had a population of 300 families in 1954. However, as a result of poor fishing conditions, the population had decreased to 25 families by 1969. Hecla Island is now a provincial park.

The Washow Bay Land Settlement Project was initiated in 1946. About 127,000 acres of land have been improved by the installation of 155 miles of drainage ditches.

At present, there are four villages in the area: Fisher Branch has a population of 444, Hodgson has a population of 191, and Matheson Island and Pine Dock have populations of 122 and 112 respectively.

Provincial Highway 16 provides road access to the area from the south to Fisher Branch. Provincial Road 233 connects Fisher Branch to Hecla Island and services Sylvan and Shorncliffe. Provincial Road 224 connects Fisher Branch to the Fisher River Indian Reserve and services Hodgson, Dallas, Koostatak, and the Peguis Indian Reserve. A gravel road, which runs north from Dallas to Jackhead, services Red Rose, Lake St. George, and a provincial campsite. Provincial Road 325 extends east from Hodgson to join Provincial Road 234, which runs north along Lake Winnipeg to Pine Dock and Matheson Island. An airstrip is under construction on Matheson Island.

Agriculture has been confined to the soils in southern parts of the area. Most of the soils are used for pasture and tame hay production. Wheat, oats, flax, barley, rapeseed, and rye can be grown successfully on the Chernozemic and Luvisolic soils. Brunisolic, Gleysolic and shallow organic soils are more suited to forage production because of stoniness or wetness. Since 1967, about 14,000 acres of land have been cleared for agricultural use.

In 1965, development commenced on a community pasture at Sylvan under the Prairie Farm Rehabilitation Act. Of the 9600 acres fenced, 3365 acres have been cleared and seeded with tame grass mixtures.

Mixed farming, dairying, and beef production have the greatest potential in the area.

Capability classification by T. H. Lamont and G. C. Jenkins, Canada Land Inventory (Manitoba) and Charles Tarnocai, Manitoba Soil Survey.

REFERENCES

Chapman, L. J., and D. M. Brown. 1966. The climates of Canada for agriculture. Rep. No. 3. Queen's Printer, Ottawa, 23 pp.

Ellis, J. H. 1964. Land use problems in the Interlake and Westlake high-lime region in Manitoba. Unpublished manuscript. Soils and Crops Branch, Manitoba Dep. Agr. and Lands Branch, Manitoba Dep. Mines and Natur. Resources, Winnipeg. xxxix 164 pp.

Pratt, L. E., et al. 1961. Report of detailed reconnaissance soils survey of Fisher and Teulon map sheet area. Rep. No. 12, Manitoba Dep. Agr. and Conserv., Winnipeg. 80 pp.

Weir, T. R. (ed.) 1960. Economic atlas of Manitoba. Manitoba Dep. Industry and Commerce, Winnipeg. 81 pp.

DESCRIPTION DU TERRITOIRE DE LA FEUILLE DE HECLA - 62P

Le territoire représenté sur la feuille de Hecla occupe une superficie approximative de 5 900 milles carrés dans le centre-est du Manitoba, entre 51° et 52° de latitude nord et 96° et 98° de longitude ouest. Le classement ne concerne toutefois que 4 078 milles carrés de terre à l'ouest du lac Winnipeg et les îles du large, sur le lac Winnipeg. Les sols organiques occupent environ 29% du territoire cartographié, les sols minéraux, 50%, la roche à nu, 1% et les nappes d'eau, 20% dont 9% sont situées à l'intérieur des terres.

Tout le territoire appartient à la région des basses terres du Manitoba et se partage entre deux subdivisions structurales. La plaine de till d'Interlake apparaît sur la bordure occidentale du territoire et la terrasse du lac Winnipeg englobe le reste du territoire. L'assise rocheuse se compose de calcaires paléozoïques et de roches dolomiques siluriennes et ordoviennes. Quelques sites isolés renferment des roches granitiques et volcaniques précambriniennes. L'altitude varie de 713 pi près du lac Winnipeg à 900 sur la bordure occidentale. Ce relief peu accidenté explique le mauvais état du drainage.

La plaine de till d'Interlake occupe environ 10% du territoire et l'altitude y varie de 800 à 900 pi. C'est une plaine de till moulurée, aux formes entrecroisées; des rides d'ondulation et des moraines de fond d'épaisseur variable, très pierreuses, remaniées par l'eau et de texture loameuse caractérisent cette plaine. Les dépôts de plage sont communs. La roche en place calcaire affleure ou disparaît sous une mince couche de matériaux glaciaires dans une petite partie du territoire. La rivière Mantagao draine cette sous-région.

La terrasse du lac Winnipeg se situe en-dessous de 800 pi d'altitude et comprend quatre unités structurales: la plaine de la rivière Fisher, les basses terres du lac Winnipeg et de la baie de l'Esturgeon, les basses terres de la Washow et les basses terres de la rivière Icelandic. La plaine de la rivière Fisher se trouve au centre de cette sous-région, dans sa partie la plus basse; elle présente une topographie unie ou légèrement ondulée et elle se compose de till recouvert d'une mince couche de dépôts lacustres. Le long de la rivière Fisher, on trouve des dépôts lacustres de texture moyenne et fortement calcaires. Cette unité renferme des drumlins étroits, de direction nord-sud. Les bourrelets sont surtout constitués de moraine de fond épaisse dont les éléments varient du loam à l'argile. Dans les dépressions, des dépôts lacustres de texture fine ou modérément fine recouvrent un till glaciaire fortement calcaire. Le drainage se fait rapidement sur les drumlins et imprimeusement ou mal dans les dépressions voisines. Le long de la bordure orientale de l'unité, les sols sont très pierreux et calcaires. On trouve des affleurements calcaires et des dépôts de plage dans le sud de cette sous-région. Cette unité que draine la rivière Fisher occupe environ 25% du territoire.

Les basses terres du lac Winnipeg et de la baie de l'Esturgeon sont situées au sud de cette baie et s'étendent jusqu'à la pointe de la baie Fisher. Cette unité présente une topographie unie ou légèrement ondulée et renferme des drumlins. Des matériaux lacustres recouvrent le till dans les régions basses tandis qu'un till très calcaire recouvre les drumlins. Une grande partie des terres qui entourent la baie de l'Esturgeon renferme des sols organiques qui reposent sur des argiles lacustres. Le drainage est mauvais sauf sur les drumlins et les plages de gravier. Cette unité, occupe environ 35% du territoire et les rivières Mantagao et Jackhead en assurent le drainage.

Les basses terres de la baie Washow, dans l'est, comprennent également les îles situées au large des rives du lac Winnipeg. Cette unité présente une topographie déprimée ou en pente légère et renferme des dépôts organiques épais qui reposent sur des argiles lacustres. Sur les sites de hautes terres, on trouve une moraine de fond très calcaire et remaniée par l'eau. La roche en place calcaire affleure dans la baie Biscuit et dans le sud-est de l'unité. Sur les îles Black et Deer, les plages sont constituées de sable siliceux provenant de la désagrégation de grès quartz. Cette unité occupe environ 30% du territoire; les ruisseaux Moose et Beaver l'égouttent.

Les basses terres de la rivière Icelandic, dans l'extrême sud-est du territoire, présentent une topographie unie ou déprimée. Les formations meubles sont des matériaux lacustres de texture fine ou moyenne. Les régions basses sont mal drainées et une mince couche de tourbe y recouvre habituellement les dépôts d'argile. Cette unité occupe environ 5% du territoire et s'égoutte dans la rivière Icelandic.

Le territoire appartient à la partie méridionale de la forêt boréale. On trouve des peuplements purs de conifères le long de la rive occidentale du lac Winnipeg jusqu'à la baie Fisher, au sud, à l'ouest de la rivière Mantagao et au sud de la baie de l'Esturgeon ainsi que sur les presqu'îles, dans le voisinage de la baie Washow. La végétation est plus vigoureuse dans le nord du territoire où les sols contiennent moins de chaux.

Sur les sols minéraux bien drainés domine la forêt d'épinette blanche (*Picea glauca*). Le peuplier faux-tremble (*Populus tremuloides*), le sapin baumier (*Abies balsamea*), l'épinette noire (*Picea mariana*) et le bouleau blanc (*Betula papyrifera*) sont associés à l'épinette blanche. Les arbisseaux présents sont le noisetier (*Corylus cornuta*) et la symphorine (*Symphoricarpos albus*). Le tapis végétal se compose habituellement d'hypnacées (*Hylocomium spp.*).

L'épinette noire est l'essence dominante sur les sols minéraux très humides et sur des terrains plus secs, dans le nord du territoire. Les principaux arbisseaux sont le thé de Labrador (*Ledum groenlandicum*), l'andromède glauque (*Andromeda glaucophylla*), la kalmia à feuilles d'Andromède (*Kalmia polifolia*) et le bouleau nain (*Betula glandulosa*). Le tapis végétal se compose surtout d'hypnacées (*Hylocomium*, *Pleurozium* et *Hypnum spp.*) et de sphagnes (*Sphagnum spp.*). Le mélèze laricin (*Larix laricina*) et l'aule (*Alnus rugosa*) sont les espèces dominantes le long des cours d'eau.

Après un incendie, la forêt de feuillu s'installe sur les sols minéraux légèrement humides du sud du territoire. Le peuplier faux-tremble est l'essence dominante sur les brûlis; il est associé au peuplier baumier (*Populus balsamifera*), au bouleau blanc et au sapin baumier. Le sous-bois se compose de cornouiller stolonifère (*Cornus stolonifera*) et de noisetier. Le gaillet (*Galium spp.*) est la principale herbe présente.

Le pin gris (*Pinus banksiana*) est l'essence dominante sur les levées de plage bien drainées. Le peuplier faux-tremble est associé au pin gris à travers tout le territoire; le chêne à gros fruits (*Quercus macrocarpa*) et le pin gris croissent sur les crêtes morainiques des régions méridionales. Le sous-bois se compose de genévrier horizontal (*Juniperus horizontalis*), d'arctostaphylos raisin-d'ours (*Arctostaphylos uva-ursi*) et de rosiers (*Rosa spp.*).

Sur les sols bien drainés qui longent les rivières, le couvert forestier se compose d'orme d'Amérique (*Ulmus americana*), de frêne de Pennsylvanie (*Fraxinus pennsylvanica* var. *subintegerrima*), d'érable négundo (*Acer negundo*) et de peuplier baumier.

Dans le nord du territoire, on trouve des tourbières ('fens') déboisées où croissent des carex (*Carex spp.*), des joncs (*Juncus spp.*) et des hypnacées.

CLIMAT

Le territoire jouit d'un climat continental subhumide que caractérisent des étés courts et