

GENERAL DESCRIPTION OF THE KENORA MAP SHEET AREA, 52E

The area covered by the Kenora map sheet lies on the Manitoba-Ontario border between 49° and 50° north latitude and 94° and 96° west longitude. About 50 percent of the area is in Ontario, and 50 percent is in Manitoba.

The area lies partly in the Manitoba Lowlands physiographic region and partly in the Precambrian Shield. The topography is variable and elevations range from 950 feet above sea level in the northwest to 1250 feet above sea level in the southwest.

The area lies within the Winnipeg and Red river drainage systems. Streams such as the Whitemouth, Birch, Boggy, Rennie, and Whiteshell rivers flow northward to join the Winnipeg River. Other streams, including the Falcon and Reed rivers and Harrison and Powawassan creeks flow eastward to Shoal Lake or Lake of the Woods, where waters are ultimately collected by the Winnipeg River. Pine and Sprague creeks, which are tributaries of the Roseau River watershed, flow southward across the International Boundary to join the Roseau River, which joins the Red River system. Lake of the Woods is the largest lake in the area.

The surface sediments consist of mixtures of glacial till and deposits of glaciolacustrine, lacustrine, alluvial, and eolian origin. Prominent sites of Precambrian rock outcrops and peat deposits are also present. The underlying rock formations are chiefly Precambrian in age, containing bands of granite, gneiss, and volcanic intrusives. The surface deposits are mainly composed of limestone drift, but mixtures of Precambrian materials alter the composition in some parts of the area.

The area comprises at least three broad divisions of the physiographic regions. These divisions reflect variations in surface relief, elevation, topography, and surface materials.

The Precambrian Drift Plain is a rock knoll and basin landscape varying from undulating terrain on the west to steeply rolling and ridged topography in the northeast. A mantle of glacial drift and peat covers the western edges of the plain, and bedrock outcrops appear frequently in the northeast. The intervening sites between the rock ridges are composed of coarse textured till or lacustrine clay, often covered by a layer of fibric peat. Lakes of varying sizes and depths occupy the depressions and usually drain through peat bogs or by way of a chain of interconnecting lakes and streams.

The Bedford Hills - Whitemouth Lake Plateau is a prominent upland located above the 1050-foot contour within the Manitoba Lowlands. The plateau, isolated by low-lying tracts of land, is demarcated by wave-cut terraces and strand lines of glacial Lake Agassiz. A rolling wind and water-worked moraine, which is composed of coarse bouldery gravel and sand, forms the western part of the plateau. The eastern part of the plateau is an undulating plain of sandy ground moraine and outwash materials, with expanses of peat blanketing swales and depressions. Whitemouth and Moose lakes are the only large bodies of water located on the plateau.

The surrounding lowlands, situated below the 1100-foot contour, are divided into four units according to watershed divisions; they are the Whitemouth River, Shoal Lake, Reed River, and Roseau River sections. The lowlands are predominantly low-lying sand plains or large expanses of peat-covered terrain, often underlain by lacustrine clay, silt, and sand. Small variations in relief are provided by islands of water-sorted till and elongated strands of Lake Agassiz beaches. Surface drainage of the lowlands is often impeded by these numerous beach ridges and alluvial terraces.

Soil development reflects the soil conditions, drainage, and climate of the area. The chief soils developed on the coarse textured materials are Podzols and Luvisols on well-drained sites and Gleysols and Fibrisols in saturated depressions. On finer materials and in the poorly drained lowlands, the predominant soils are Mesisols and some Fibrisols. Regosols occur on rock ridges and on alluvial materials bordering streams.

CLIMATE

The area lies within the moist fringe of the continental subhumid zone. Annual average precipitation ranges from 21 to 22 inches in most of the area, except for the northwest, which receives slightly less rainfall. Annual precipitation varies greatly as shown by the annual precipitation range of 10 to 34 inches at Sprague. Average May to September precipitation is 13 to 14 inches. The average potential evaporation rate is 22 inches annually, which results in an average water deficiency of 2 to 4 inches. Mean temperatures range from 66°F in July to 0°F to 2°F in January.

ECOLOGY

Most of the area lies within the Great Lakes - St. Lawrence Forest Region, which merges with the Lower English River Section of the Boreal Forest in the northern part of the area.

Elements of the Great Lakes - St. Lawrence Forest Region include scattered red and white pine (*Pinus resinosa* and *Pinus strobus*), jack pine (*Pinus banksiana*), eastern white cedar (*Thuja occidentalis*), balsam fir (*Abies balsamea*), black spruce (*Picea mariana*), and hardwoods such as white elm (*Ulmus americana*), basswood (*Tilia americana*), box elder (*Acer negundo*), trembling aspen (*Populus tremuloides*), balsam poplar (*Populus balsamifera*), and bur oak (*Quercus macrocarpa*). Jack pine and trembling aspen cover the Bedford Hills - Whitemouth Lake Plateau, and dense stands of black spruce, tamarack (*Larix laricina*), and dwarf birch (*Betula glandulosa*) occupy the surrounding lowlands. Swamps of eastern white cedar and speckled alder (*Alnus rugosa*) occur along margins of lakes or peatlands in the south and west, whereas stands of hardwoods are found on alluvial terraces.

The Lower English River Section consists of mixed stands of trembling aspen, balsam poplar, and white spruce (*Picea glauca*) on well-drained sites. Other forest species include balsam fir, white birch (*Betula papyrifera*), and jack pine, which grow on a variety of soils. Stands of black spruce and tamarack are common on shallow peatlands, and green ash (*Fraxinus pennsylvanica*), bur oak, and white elm occur along rivers.

The subhumid climate, higher rainfall, and boreal affinities of the vegetation influence the development of natural wetlands in the area. Large peat deposits, which have developed on the swamped terrain of glacial Lake Agassiz, form the most extensive wetlands. The most prevalent peatlands include fens, flat bogs, swamps, and raised bogs.

Fens are characterized by a substrate of moderately decomposed and saturated peat, which supports a dense growth of sedges (*Carex* spp.), grasses, aquatic mosses (*Drepanocladus* spp.), dwarf birch, willows (*Salix* spp.), and scattered tamarack. Usually the surface is uniform, but patterned fens characterized by long, sinuous peat ridges separated by wet intervening tracts or pools are found west of St. Labre Creek and northeast of Whitemouth Lake.

Flat bogs are slightly hummocky peatlands covered by sedges and mosses (*Sphagnum* spp., *Hypnum* spp., and *Hylocomium* spp.). Characteristic vegetation usually includes Labrador-tea (*Ledum groenlandicum*), leatherleaf (*Chamaedaphne calyculata*), bog-laurel (*Kalmia polifolia*), dwarf birch, black spruce, and tamarack. The water table usually lies below the surface, and the peat is usually moderately decomposed.

Swamps in the area often occupy the peripheral margins of fens, flat bogs, or shallow lakes. Usually the peat materials are shallow and well decomposed, and considerable microrelief in the form of hummocks and wet hollows often occurs. Typical vegetation includes eastern white cedar, green ash, speckled alder, and scattered black spruce and tamarack.

Raised bogs are slightly elevated plateaus of poorly decomposed peat, which are raised above the water table and covered by sphagnum mosses and feathermosses. Shrubs such as Labrador-tea and cranberries (*Vaccinium* spp.) form an understory to stunted stands of black spruce and tamarack. Several raised bogs occupy drainage divides and the upper parts of the Reed River, Harrison Creek, and in some rock-bound depressions on the Precambrian Plain.

Other wetlands that provide suitable habitat for waterfowl include floating or shore fens and meadows bordering marshy streams, bog lakes, and beaver ponds.

Floating and shore fens consist of semifloating or anchored mats of moderately to well-decomposed peat bordering open water. The characteristic vegetation on these mats includes aquatic mosses and emergents such as cattail (*Typha latifolia*), sedges, common reed (*Phragmites communis*), bluejoint (*Calamagrostis canadensis*), manna grasses (*Glyceria* spp.), river bulrush (*Scirpus fluviatilis*), and sweetflag (*Acorus calamus*). At the edge of the mat, plants such as water arum (*Calla palustris*), sweet gale (*Myrica gale*), marsh cinquefoil (*Potentilla palustris*), and spike-rushes (*Eleocharis* spp.) are common.

Vegetation common to streams and associated lakes on the Whiteshell and Rennie river chains include marsh emergents such as hardstem bulrush (*Scirpus acutus*), wild rice (*Zizania aquatica*), and giant bur reed (*Sparganium eurycarpum*). The characteristic submergent aquatics are water smartweed (*Polygonum amphibium*), northern water-milfoil (*Myriophyllum exaltatum*), common coontail (*Ceratophyllum demersum*), common bladderwort (*Utricularia vulgaris*), Canada waterweed (*Eloetea canadensis*), variable-leaved pondweed (*Potamogeton gramineus*), floating-leaved pondweed (*Potamogeton natans*), ribbon-leaved pondweed (*Potamogeton pusillus*), flat-stemmed pondweed (*Potamogeton zosteriformis*), duckweeds (*Lemna* spp.), and larger duckweed (*Spirodela polyrhiza*).

Bog lakes usually exhibit a narrow peripheral floating sedge mat composed of semifluid, poorly decomposed peat. Pools of open water are isolated by a continually developing peat layer that blocks surface drainage. The mat supports vegetation similar to the species for floating fens; common reed and cattail are found at the edge of the open water, and shrubs such as dwarf birch, willows, and sweet gale grow on the sedge mat. Aquatic plant species are less diversified, but yellow pond-lily (*Nuphar variegatum*), variable-leaved pondweed, floating-leaved pondweed, common bladderwort, and aquatic mosses are common.

Beaver ponds, which are flooded parts of streams, provide good waterfowl habitat in sites where meadows are inundated and marsh species are established. However, flooded timber and woody debris along shorelines may limit waterfowl use of these ponds.

LAND CAPABILITY FOR WATERFOWL

The Precambrian Drift Plain usually provides moderate to very poor habitat for breeding waterfowl. The productive sites are found on shallow marshy lakes and streams. Waterfowl production is limited by adverse topography, rapid drainage, surface rock that prevents rooting, steep sloping shorelines, excessive water depths, and rapid flow rates in some streams.

On the Manitoba Lowlands, moderately productive habitat is also limited to shallow lakes, such as Whitemouth Lake, and some bog lakes and stream fens. Here, the limitations are poor interspersion of open water, low fertility of the peatlands, stagnation or slow rate of flow in streams, adverse topography restricting basin development, poor water retention in upland soils, and poor marsh edge development on streams. Also, low-lying shorelines adjacent to Lake of the Woods are subject to seasonal inundation. Moderately good habitat is scattered throughout the hundreds of islands in Lake of the Woods.

Moderate to moderately good habitat for waterfowl production, which is rated Class 3M or Class 3S is confined to lakes, bays, and mouths of streams. Whitemouth Lake is a large staging site frequented by large flocks of Mallard (*Anas platyrhynchos*), Lesser Scaup (*Aythya affinis*), and Canada Goose (*Branta canadensis*). Small flocks of Snow Goose (*Chen caerulescens*) and White Pelican (*Pelecanus erythrorhynchos*) also utilize the lake during spring and fall migration. Other staging sites include Moose Lake, the mouth of the Reed River, Northwest Angle Inlet, Sand Point, Indian Bay, and Brant, Mallard, Jean, War Eagle, and Birch lakes. Large flocks of waterfowl, including Lesser Scaup and Mallard, are attracted by the wild rice stands that grow in several of these lakes.

The larger streams and lakes are frequented by the Common Goldeneye (*Bucephala clangula*) and Common Merganser (*Mergus merganser*). The Mallard and Green-winged Teal (*Anas carolinensis*) breed in stream-fen complexes, whereas the Bufflehead (*Bucephala albeola*), American Wigeon (*Anas americana*), and Common Goldeneye breed in beaver ponds and in lakes with wooded edges. The Ring-necked Duck (*Aythya collaris*) and Lesser Scaup commonly breed in wooded ponds and on the floating mats of bog lakes. Pairs of Wood Duck (*Aix sponsa*) are generally found along wooded streams such as the Whitemouth River. The giant Canada Goose (*Branta canadensis maxima*) breeds on ponds in the vicinity of the St. Labre Creek, in Birch Lake, on the Rennie River chain, and on bog lakes south of Rennie.

Capability classification for the Manitoba portion by G. D. Adams and R. C. Hutchison, Canadian Wildlife Service.

Capability classification for the Ontario portion by B. C. Johnson, Canadian Wildlife Service.

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DESCRIPTION DU TERRITOIRE DE LA FEUILLE DE KENORA - 52E

Le territoire représenté sur la feuille de Kenora est à cheval sur la frontière de l'Ontario et du Manitoba et se situe entre 49° et 50° de latitude nord et 94 et 96 de longitude ouest. Environ la moitié du territoire se trouve en Ontario et l'autre, au Manitoba.

Sur le plan structural, le territoire se partage entre les basses terres du Manitoba et le Bouclier précambrien. Les conditions topographiques varient et l'altitude va de 950 pi dans le nord-ouest à 1 250 dans le sud-ouest.

Le territoire appartient aux réseaux hydrographiques de la rivière Rouge et de la rivière Winnipeg. Des cours d'eau comme les rivières Whitemouth, Birch, Boggy, Rennie et Whiteshell coulent vers le nord où ils rejoignent la rivière Winnipeg. D'autres, dont les rivières Falcon et Reed et les ruisseaux Harrison et Powawassan, coulent vers l'est jusqu'au lac Shoal ou au lac des Woods dont les eaux alimentent la rivière Winnipeg. Les ruisseaux Pine et Sprague, tributaires du bassin de la rivière Roseau, coulent vers le sud et traversent la frontière internationale avant de rejoindre la rivière Roseau appartenant elle-même au réseau hydrographique de la rivière Rouge. Le lac des Woods est le plus grand lac du territoire.

Les formations meubles sont un mélange de till glaciaire et de dépôts fluvio-glaciers, lacustres, alluviaux et éoliens. Il y a aussi d'importants secteurs d'affleurements précambriens et de dépôts de tourbe. La plupart des formations rocheuses sous-jacentes sont précambraines et renferment des bandes de granite, de gneiss et de roches intrusives volcaniques. Les formations meubles sont surtout constituées de débris calcaires qui, dans certaines parties du territoire, se mêlent à des matériaux précambriens.

Sur le territoire sont représentées au moins trois subdivisions des régions structurales. Ces subdivisions correspondent à des changements de relief, d'altitude, de topographie et de composition des formations meubles.

La plaine de drift précambrienne est une région de bassins et de buttes rocheuses présentant une topographie ondulée dans l'ouest et une topographie fortement vallonnée et escarpée dans le nord-est. Une couche de tourbe et de drift glaciaire masque la bordure occidentale de la plaine et les affleurements rocheux sont nombreux dans le nord-est. Entre les bourrelets rocheux, on trouve des tills de texture grossière et des argiles lacustres souvent couverts d'une couche de tourbe fibrique. Des lacs de dimensions et de profondeurs variées occupent les dépressions; leurs eaux sont acheminées à travers des tourbières où alimentent une chaîne de lacs et de cours d'eau.

Le plateau des collines Bedford et du lac Whitemouth est un imposant plateau situé à l'intérieur des basses terres du Manitoba et d'une altitude supérieure à 1 050 pi. Le plateau est entouré de basses terres; des terrasses taillées par les vagues ainsi que des lignes de rivage du lac glaciaire Agassiz le délimitent. Une moraine vallonnée, remaniée par le vent et l'eau et, formée de sables et de graviers à blocs de texture grossière constitue la partie occidentale du plateau. La partie orientale du plateau est une plaine ondulée couverte de moraine de fond et d'épandages sableux et parsemée d'ilots de tourbe masquant les creux et les dépressions. Les lacs Whitemouth et Moose sont les deux seules grandes nappes d'eau du plateau.

Les basses terres environnantes, d'une altitude habituellement inférieure à 1 100 pi, comprennent quatre subdivisions correspondant aux différents bassins hydrographiques; ce sont les sections de la rivière Whitemouth, du lac Shoal, de la rivière Reed et de la rivière Roseau. La plupart des basses terres sont des plaines de sable basses ou de vastes terrains couverts de tourbe sous lesquels on trouve souvent du sable, du limon et de l'argile lacustre. Les petites dénivellations marquent l'emplacement d'ilots de till remanié par l'eau et de longues lignes de rivage du lac Agassiz. Ces nombreuses levées de plage et terrasses alluviales nuisent souvent au drainage superficiel des basses terres.

L'évolution des sols reflète les conditions pédologiques et climatiques ainsi que les conditions de drainage du territoire. Les principaux types de sols développés sur les matériaux de texture grossière sont des podzols et des luvisols dans les milieux bien drainés et des gleysoirs ou des fibrisols dans les dépressions saturées. En présence de matériaux plus fins et dans les basses terres mal drainées, les mésisols et certains fibrisols dominent. Il y a des régols sur les crêtes rocheuses et sur les alluvions en bordure des cours d'eau.

CLIMAT

Le territoire appartient à la bosphore humide de la zone continentale subhumide. La précipitation annuelle moyenne varie de 21 à 22 po à travers la majeure partie du territoire sauf dans le nord-ouest qui reçoit un peu moins de pluie. La précipitation annuelle varie de 10 à 34 po, comme l'indiquent les chiffres enregistrés à Sprague. La précipitation moyenne, de mai à septembre, va de 13 à 14 po. L'évaporation potentielle moyenne annuelle est de 22 po ce qui entraîne une insuffisance en eau variant en moyenne de 2 à 4 po. Les températures moyennes vont de 66°F en juillet à 0 à 2 en janvier.

ÉCOLOGIE

La majeure partie du territoire appartient à la région forestière des Grands Lacs/Saint-Laurent qui se confond avec la section du bas de la rivière English, une subdivision de la forêt boréale, dans le nord du territoire.

La forêt des Grands Lacs/Saint-Laurent se compose de pin rouge et pin blanc (*Pinus resinosa* et *Pinus strobus*), pin gris (*Pinus banksiana*), cèdre blanc (*Thuja occidentalis*), sapin baumier (*Abies balsamea*), épinette noire (*Picea mariana*), orme blanc (*Ulmus americana*), tilleul d'Amérique (*Tilia americana*), érable à Giguère (*Acer negundo*), peuplier faux-tremble (*Populus tremuloides*), peuplier baumier (*Populus balsamifera*) et chêne à gros glands (*Quercus macrocarpa*). Le pin gris et le peuplier faux-tremble couvrent le plateau des collines Bedford et du lac Whitemouth et d'épais peuplements d'épinette noire, de mélèze laricin (*Larix laricina*) et de bouleau glanduleux (*Betula glandulosa*) occupent les basses terres environnantes. Des marais ou croissent le cèdre blanc et l'aulne blanc (*Alnus rugosa*) apparaissent en bordure des lacs ou des tourbières dans le sud et dans l'ouest, des peuplements de feuilles occupent les terrasses alluviales.

La section du bas de la rivière English comprend des peuplements mélangés de peuplier faux-tremble, peuplier baumier et épinette blanche (*Picea glauca*) sur les terrains bien drainés. Les autres essences présentes comprennent le sapin baumier, le bouleau blanc (*Betula papyrifera*) et le pin gris croissant sur différents types de sols. Les peuplements d'épinette noire et de mélèze laricin sont communs dans les tourbières peu profondes et le frêne vert (*Fraxinus pennsylvanica*), le chêne à gros glands et l'orme blanc croissent en bordure des rivières.

Le climat subhumide, une chute de pluie plus considérable et la parenté qui existe entre la végétation du territoire et celle de la forêt boréale influencent l'évolution des zones humides naturelles. Les importants dépôts de tourbe qui ont envahi les terrains marécageux autrefois occupés par le lac Agassiz constituent la majeure partie de ces zones humides. Parmi les principaux types de terrains organiques présents, mentionnons les tourbières, les marécages plats, les marais et les marécages bombés.