

GENERAL DESCRIPTION OF THE

CORMORANT LAKE MAP SHEET AREA, 63K

The area covered by the Cormorant Lake map sheet is located between 54° and 55° north latitude and 100° and 102° east longitude. Most of the area, or about 5570 square miles, is in northwestern Manitoba and a small part, or about 8 percent, is in Saskatchewan. An estimated 27 percent of the area is occupied by numerous lakes, which range in size from a few acres to more than 100 square miles. The largest of these are Moose, Cormorant, Clearwater, Athapapuskow, Goose, and Reed lakes.

The east to west trending contact zone between the underlying bedrock divides the area into two almost equal physiographic regions: the southern half, which is underlain by flat beds of Paleozoic dolomite or dolomitic limestone, in the Manitoba Lowland section of the Interior Plains physiographic region, whereas the northern half, which is underlain by Precambrian volcanic, metamorphic, and granitic intrusive rocks, is part of the Canadian Shield region. In general, the relief features reflect the types of underlying bedrock. In the southern half, the topography is fairly flat, and relief increases gradually northward from 855 feet above sea level in the southeast to 1000 feet in the central part. The northern half of the area has a broken, bedrock-controlled topography, and numerous rounded hills and steep slopes rise up to 150 feet above the narrow valleys and lakes. The highest known elevation is 1200 feet in the northwest.

The area drains into the Saskatchewan, Nelson, and Churchill river systems. Most of the southern and northwestern parts of the area drain into the Saskatchewan River by way of the Goose, Sturgeon, Weir, and Cowan rivers and Frog Creek. The northeast drains into the Nelson River by way of the Grass, Fyle, and Metishto rivers. A small part of the northwest is drained into the Churchill River by the Kississing River.

The area is accessible by the paved Provincial Highway 10, which runs through the western part of the area to Flin Flon and extends westward as Saskatchewan Highway 106. Access to the central and northeastern parts of the area is provided by Highway 391 (Thompson Highway) and its branch to Snow Lake, Highway 392.

The Canadian National Railway line to Churchill runs through the southeastern part of the area, whereas a line to Lynn Lake, a branch line west to Flin Flon, and a branch line east to Snow Lake dissect the western half. Flin Flon is also linked by regular air routes with Winnipeg, Thompson, Lynn Lake, and Churchill.

The population of the area is estimated at about 18,000 and is concentrated mostly at Flin Flon, Cranberry Portage, Creighton, Bakers Narrows, Wanless, and Snow Lake. The economy is based mainly on development of rich mineral deposits and production of copper, zinc, gold, silver, cadmium, selenium, zinc oxide, and lead concentrates.

The land area is under forest cover and has potential for logging to supply the newly constructed, integrated forest products complex at The Pas. There is no significant agricultural development in the area, but trapping of fur-bearing animals and commercial fishing provides a livelihood for some 600 native people.

The recreational value of the area and tourist industry is growing rapidly. Many summer cottages and recreational sites along Highway 10, as well as the Clearwater and Grass River Provincial Parks and the Cormorant Provincial Forest provide excellent sport fishing, boating, and other recreational facilities.

CLIMATE

The climate of the area is characterized by relatively short, cool summers and very cold, long winters. Meteorological data for The Pas, Wanless, Cranberry Portage, Flin Flon, and Wabowden indicate that average annual precipitation ranges from 16.3

inches at Wanless to 18.2 inches at The Pas and about two-thirds of this falls as rain. June and July are the wettest months, followed by August, September, and May. Average annual maximum and minimum temperatures at Flin Flon based on data for 1928 to 1966 are 39.9°F and 22.4°F respectively. January, the coldest month, has an average maximum temperature of 0.0°F and minimum of -15.5°F, whereas July, the warmest month, has an average maximum of 73.6°F and minimum of 55.8°F. The area has about 100 frost-free days annually.

LANDFORMS

The entire area was glaciated during the Pleistocene Age by the continental ice advance from the north and northeast. Glacial Lake Agassiz at its highest stage occupied most of the area below about 1100 feet, except for several islands in the northern part. The present surficial deposits in the area are a result of the complex glacial history of ice advances and changing levels of glacial Lake Agassiz.

In general, the southern half of the area is characterized by a low-relief topography where flat beds of limestone bedrock are overlain by glacial sediments, mainly till, organic accumulations, lacustrine material, and postglacial alluvial deposits. Till overburden to bedrock is frequently very shallow and limestone outcrops are quite common on low plateaus. Lacustrine sediments occur as fine textured clay in low-lying regions or as coarse textured deposits in a series of well-developed beaches and strandlines marking the stages of receding glacial Lake Agassiz.

The northern half of the area has a broken, bedrock-controlled topography modified by glacial action and flooding by glacial Lake Agassiz. The relief is characterized by many bedrock hills, which are exposed or covered by a thin layer of glacial till, and narrow depressions following the bedrock structure. The main surficial materials here are till, bare bedrock, organic accumulations, glaciofluvial deposits, and pockets of lacustrine sediments.

Glacial till is a dominant deposit in the area and occurs as ground moraine, occasionally modified by glacier ice or overlain by shallow lacustrine sediments. The glacial till may be separated into two general groups: noncalcareous till, which is usually sandy in texture and originates from Precambrian material, and calcareous till, which is loamy in texture and contains various proportions of Paleozoic carbonate rocks mixed with granitic or volcanic rocks.

FOREST ECOLOGY

The entire area is located in the Boreal Forest Region. The southern half is in the Manitoba Lowland Section, most of the northern part is in the Northern Coniferous Section, and a small region northeast of Reed Lake is in the Nelson River Section.

The forests are mainly coniferous, composed of white spruce, black spruce, jack pine, tamarack, and balsam fir along with trembling aspen, black poplar, and white birch. The distribution of forest stands and their species composition is closely related to physiographic features and surface deposits. White spruce occurs on better-drained alluvial and lacustrine deposits and on deep, moderately well drained till deposits with adequate soil moisture-holding capacity. It seldom occurs in pure stands but grows mixed with aspen, black spruce, balsam fir, black poplar, or jack pine. Black spruce is found on a variety of landforms and is a dominant tree species in the area, except in the southwest. It occupies wet depressional locations and also competes with jack pine on shallow to bedrock upland sites. In the southwest, black spruce prevails on poorly drained mineral soils or organic depressional sites, frequently mixed with tamarack. Jack pine grows in pure stands on shallow to bedrock till plains, till ridges, and gravelly beaches. As a result of fires, it may be found mixed with black spruce, white spruce, or aspen on well-drained tills, alluvial flats, or shallow organic deposits. Balsam fir, trembling aspen, and balsam poplar are found frequently with white spruce on alluvial deposits or on moist sites around the lakes.

LAND CAPABILITY FOR FORESTRY

Because of climatic limitations, the highest capability in the area is Class 3, which occurs only locally as part of a complex rating, mainly on alluvial deposits in the southwest. Most of the land area has a fairly low capability with a high proportion of Classes 6 and 7.

Soils developed on glacial till deposits are mainly calcareous loams and clay loams in the southern half of the area and noncalcareous loamy sands in the Shield region. Productive capacity of noncalcareous tills under favorable drainage conditions and adequate depth to underlying bedrock is Class 4. Classes 5 and 6 occur where limitations of dryness, wetness, depth to bedrock, or level of calcium carbonate lower the capability for forest growth.

Forest soils developed on glacial lake sediments range in texture from lacustrine clays, which occur in depressions, to coarse sand and gravel, found in beaches and strandlines. Their productive capacity is usually limited by drainage conditions. Class 4 is common on moist clay deposits, followed by Classes 5 and 6 where drainage is less favorable.

The coarse textured sandy or gravelly soils developed on glaciofluvial deposits occur locally in north-south trending valleys in the northern part of the area. They are rapidly drained and moisture deficiency is the most common limiting factor. These soils may have Class 4 capability if underlain by finer textured material with a high water-holding capacity, but usually they have been rated Class 5 and sometimes Class 6 on drier sites.

The medium to fine textured soils developed on alluvial deposits occur near the Saskatchewan River, along the streams, and on small deltas and fans. Restricted drainage and periodic inundation are the most common limiting factors to these otherwise fertile soils. Favorable situations on alluvial soils, particularly the natural levees in the delta region, have been rated Classes 3 and 4, followed by Class 5 where degree of wetness increases.

Organic soils are accumulations of partly decomposed vegetation and usually occur in association with extinct lakes, floodplains, and depressional topography. These deposits occupy about 20 percent of the land area, and frequently contain small exposed sites of bedrock or pockets of permafrost. Because of excessive moisture and a high water table, the productive capacity of organic regions is low, mainly Classes 7 and 6.

Exposed Precambrian bedrock is common in the northern half of the area. These bedrock outcrops have a Class 7 capability and because of the mapping scale have usually been mapped as part of complex units.

Capability classification by P. Gimbarzevsky and J. Thie, Forestry Sector, Canada Land Inventory Project for Manitoba, based on a biophysical land survey by S. C. Zoltai, Canadian Forestry Service, 1972. General description by P. Gimbarzevsky.

REFERENCES

Rowe, J. S. 1972. Forest regions of Canada. Pub. No. 1300, Canadian Forestry Service, Dep. Environment.

Zoltai, S. C. 1969. Preliminary Report on the Cormorant Lake Pilot Project, Manitoba.

ECOLOGICALLY-SIGNIFICANT REGIONS

For a description of Ecologically-Significant Regions refer to the Manitoba Regional Class Description in *Land Capability Classification for Forestry*, prepared for the Canada Land Inventory by R. J. McCormack, Department of Regional Economic Expansion. Report No. 4, 2nd Edition, 1970.

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