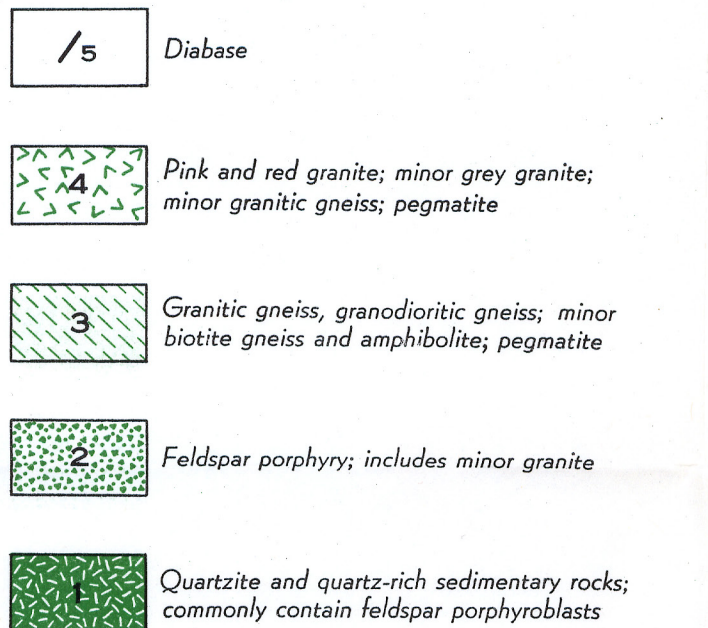


LEGEND



Drift and outwash covered areas

Gneissosity (inclined, vertical, dip unknown)

Fault (assumed)

Glacial striae

Geology by F.C. Taylor, 1954

Portage

Provincial boundary

Fall and rapid

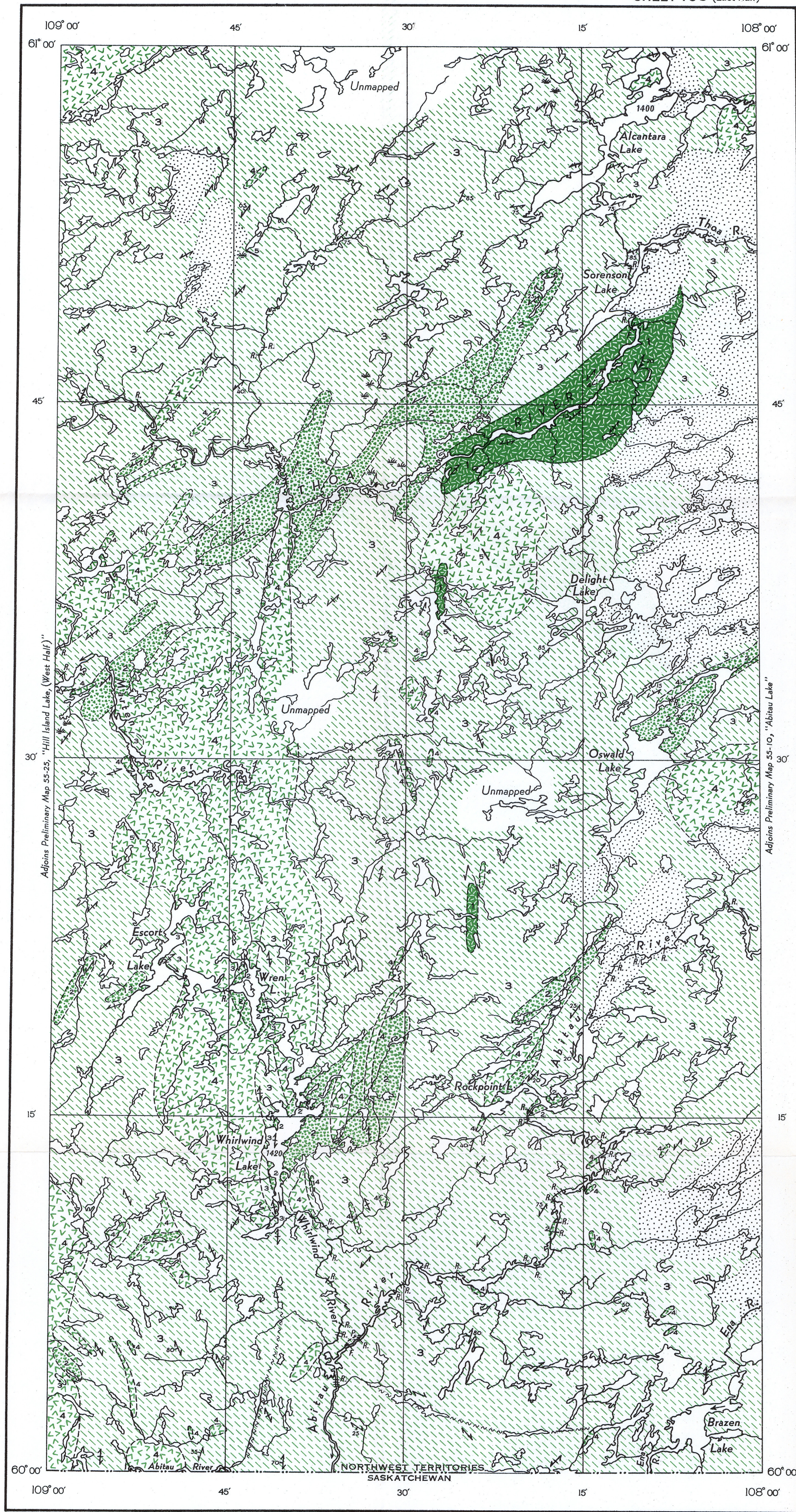
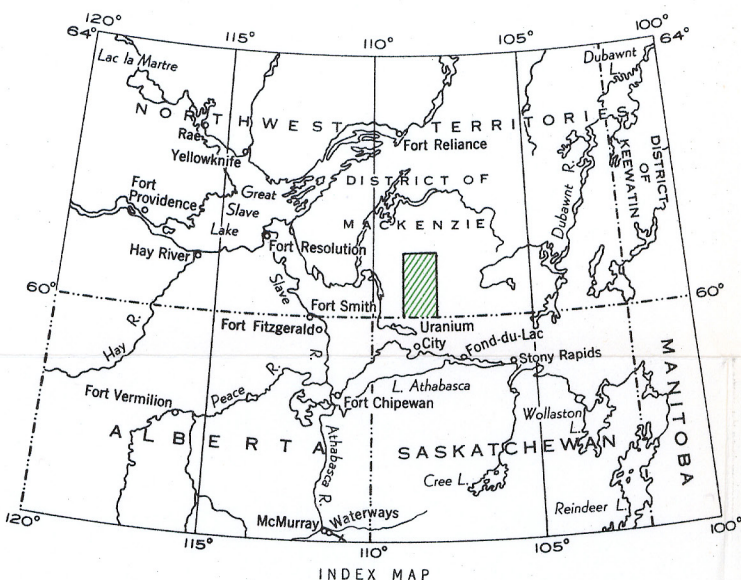
Marsh

Height in feet above mean sea-level 1420

Approximate magnetic declination, 27°26' East

Cartography by the Geological Cartography Unit, 1956

Air photographs covering this map-area may be obtained through the National Air Photographic Library, Topographical Survey, Ottawa, Ontario



PUBLISHED, 1956

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PRELIMINARY MAP 55-16

HILL ISLAND LAKE
(EAST HALF)
DISTRICT OF MACKENZIE
NORTHWEST TERRITORIES

Scale: One Inch to Four Miles = $\frac{1}{253,440}$

4 2 0 4 8 12

DESCRIPTIVE NOTES

All points within the area are accessible by air from Uranium City, Saskatchewan. The south-central and southeast parts can be reached via Abitau River from Tazin Lake, about 16 miles to the south. Travel within the southwest part of the area is facilitated by Whirlwind River and Whirlwind, Escort, and Wren Lakes. Thoa River, despite many rapids in its upper part, provides a route through the north-central parts of the area.

The surface of the map-area presents an even skyline. In detail, however, the surface is uneven and many hill tops are up to 300 feet above valley floors. Such hilly areas are characteristic of the western part of the map-area, where rock exposures are plentiful. In the eastern part, where much of the bedrock is covered by glacial outwash deposits, local relief is much less.

Evidences of glacial ice movement are common. They include glacial striae, friction cracks, and ice-polished surfaces that show that the ice moved from east to west at approximately south 70 degrees west. Eskers are common and form a series of nearly east-west ridges spaced at 3- or 4-mile intervals across the map-area. On the surface, the eskers are composed chiefly of sand with smaller amounts of gravel.

Much of the area is wooded. Jack pine is dominant in the sandy areas and black spruce elsewhere. In some places, particularly near the junction of Abitau and Whirlwind Rivers, bedrock is well exposed due to the destruction of vegetation by fire.

Sedimentary rocks (1) underlie three separate localities in the map-area and also form a minor component of the gneisses (3). The sedimentary rocks are grey to dark grey, rarely red, quartzites that contain large, irregularly distributed feldspar porphyroblasts. The fine- to medium-grained, massive matrix consists chiefly of quartz with minor amounts of feldspar and mica. The feldspar porphyroblasts, commonly pink, range from $\frac{1}{4}$ to 1 inch long. Primary structures with the possible exception of bedding planes, are absent. Contacts of these sedimentary rocks with the surrounding rocks are gradational and, hence, contact locations are arbitrarily drawn. These sedimentary rocks may be a part of the Tazin group.

Feldspar porphyry (2) underlies several scattered areas. It consists of pink or white feldspar crystals, up to 1 inch long, in a light to dark green chloritic groundmass. The texture ranges from massive to schistose. The contact between the feldspar porphyry and the sedimentary rocks (1) is not exposed and, therefore, their relative ages are not known. The contact between the porphyry and the younger gneisses (3) ranges from gradational to sharp.

Granitic and granodioritic gneisses (3), with local basic facies, are the most abundant rocks in the area. They are pink to grey, medium- to coarse-grained, foliated rocks that are commonly characterized by augen structures. The gneisses consist chiefly of quartz, pink potash feldspar, grey plagioclase, and 10 to 30 per cent biotite and hornblende. The biotite and hornblende occur as streaks and bands that surround large feldspar augen. In some places these rocks are in sharp contact with granite (4) and elsewhere they grade into the granite both along the strike and across the dip of foliation. Because of these differing contact relationships, the contacts as mapped are arbitrarily drawn. Small, elongate masses of amphibolite and biotite gneiss occur within the granitic gneisses (3). These sill-like bodies, which are commonly contorted, are rarely more than 50 feet thick and 150 feet long. The amphibolite is a dark green to black, foliated rock composed of hornblende and plagioclase. At Escort Lake amphibolite is intruded by granite (4) to form an intrusive breccia. The biotite gneiss is a well-foliated, dark grey to black rock consisting of biotite and plagioclase. These rocks are probably metamorphosed sedimentary or volcanic rocks.

Granite (4) underlies one large and several small areas in the western part of the map-area. Small outcrops of this granite are scattered throughout the eastern part. The granite, which is similar in appearance to the gneisses (3) except for texture, is pink to red and, rarely, grey. Both the pink and the grey varieties are medium- to coarse-grained, locally porphyritic, massive rocks. In some places they are slightly foliated. They consist chiefly of pink potash feldspar, plagioclase, and quartz, and minor amounts of biotite and hornblende. Locally grey granite is cut by red granite and, therefore, is at least in part older than the red granite. Where the granite shows intrusive relationships with the surrounding rocks it occurs as dykes and sills. These are rarely more than 50 feet thick.

The youngest rock in the area is diabase. This fine- to medium-grained, dark green rock occurs in northwesterly trending dykes. These dykes, up to 25 feet thick, are common west of Delight Lake and in the north-central part of the map-area about 10 miles north of Thoa River. Individual map symbols represent one or more dykes.

The strike of foliation and schistosity is chiefly to the north-east and the dip is steep to vertical. Local variations in strike are common, especially in the southeast part of the map-area. The diverging attitudes of schistosity and foliation suggest tight folding and other contortion. North and east striking faults are mapped in the south part of the area. Evidence for these faults consists of crushed and sheared rocks at the bases of linear hills. Elsewhere, there is no direct evidence of faulting. However, aerial photographs show there are two directions of pronounced topographic lineaments: one north, the other east. These lineaments follow valleys, lakes, and streams and may be along fault lines.

No mineral deposits of economic importance are known in the map-area. A few small pegmatite dykes are present in the gneisses (3) in the northeast part of the area. These dykes rarely exceed a foot in width and, with the exception of small quantities of mica, are not mineralized. Quartz veins in the gneisses (3) and a large body of quartz, $2\frac{1}{2}$ miles south of Thoa River near the west boundary of the area, are unmineralized. Those parts of the area close to fault zones warrant examination for radioactive minerals.

PRELIMINARY MAP 55-16
HILL ISLAND LAKE
NORTHWEST TERRITORIES
SHEET 75C (East Half)