

LEGEND
Coloured legend blocks indicate map units that appear on this map

QUATERNARY

SURFICIAL DEPOSITS

POST LAST GLACIATION

NONGLACIAL ENVIRONMENTS

ORGANIC DEPOSITS: peat, 1 to 2 m thick; formed by the accumulation of vegetation in poorly drained depressions (swamps and bogs); produces flat, wet terrain

Bog peat: Sphagnum or forest peat formed in an ombrotrophic environment; may be treed or treeless with a cover of ericaceous shrubs; hummocky, wet terrain, in places underlain by ground ice. O'h, undifferentiated bog and fen deposits. O

Fen peat: peat derived from sedges and partially decayed shrubs in a eutrophic environment; forms relatively open peatlands with a mineral rich water table that persists seasonally near the surface; often covered with low shrubs and sometimes a sparse layer of trees

COLLUVIAL DEPOSITS: mass wasting debris <100 m thick; nonsorted to poorly sorted, massive to stratified debris deposited by direct, gravity-induced movement

C Landslide and slump debris: active and inactive landslides, undivided, C; hummocky topography. Ch

Cv Colluvial veneer: thin cover of slumped material <1 m; overlying bedrock or till

ALLUVIAL DEPOSITS: sorted gravel, sand, and organic detritus deposited by flowing water

A Fluvial deposits: sorted gravel and sand >1 m thick; forming active flood plains with meander channels and scroll marks. Ap; alluvial fan deposits, poorly sorted gravel and sand >1 m thick. At; numerous subparallel alluvial channels covering gentle to moderate slopes. Ac; low terraces on flood plains with meander scars, active and inactive channels, primarily along the Liard and Pettit rivers. Al; undifferentiated. A

Av Alluvial veneer: thin discontinuous deposits, <1 m thick, usually overlying till

At Fluvial terraces: inactive; alluvial fan terraces, At

L' LACUSTRINE DEPOSITS: sand, silt and minor clay deposited in a former lake; generally overlain by organic deposits; exposed by recent fluctuations in lake levels

POSTGLACIAL OR LATE WISCONSINAN

PROGLACIAL AND GLACIAL ENVIRONMENTS

L GLACIOLACUSTRINE DEPOSITS: fine sand, silt, and clay, deposited in glacier-dammed lakes in valleys or along margins of the retreating Laurentide Ice Sheet; > 1 m thick; level topography; usually overlain by organic deposits in lowlands; hummocky topography. Lh

Gt GLACIOFLUVIAL DEPOSITS: proglacial outwash, gravel and sand with minor diamictites deposited in front of the ice margin, usually 1-10 m thick; forming distal outwash terraces Gt; proximal kettled outwash terraces, GtK

TILL: nonsorted debris deposited directly by glaciers; matrix is sandy to clayey and contains striated clasts of various lithologies, including many Canadian Shield erratics in the sands

Tb Till blanket: > 1 m thick; forming undulating topography; contains Canadian Shield erratics; extensively fluted and drumlinized till blanket. Td; drumlinized till blanket showing a distinctively different flow direction. Tt; moraines or crevasse fillings forming a ridged topography. Tr; hummocky moraine. Th; rolling topography. Tm; pitted topography. Tbk

Tr Ridged moraine: moraines or crevasse fillings forming a ridged topography

Tv Till veneer: < 1 m thick and discontinuous; underlying bedrock topography is discernible

PRE-QUATERNARY BEDROCK

R Sedimentary bedrock, R; Paleozoic to Mesozoic rocks exposed in the steep cliffs along the Pettit River and along the crest of the Bowie Lake structure, a north-trending ridge bordering the east side of the map area.

NOTE: In areas where the surficial cover forms a complex pattern, the area is coloured according to the dominant unit and labelled in descending order of cover; slash between two units indicates that the former unit overlies the latter

Geological boundary (defined, gradational)

Small swamp or bog

Landslide (arrow indicates the direction of movement)

Abandoned meltwater channel or channel occupied by an underfit stream (large, small and direction of flow inferred, small and direction of flow not inferred)

Esker (flow direction inferred)

Escarpment

Kettle

End moraine

Minor moraine or crevasse filling

Ice moulded form in till (direction of flow inferred, not inferred; broader forms have middle dots)

Furrows and troughs related to glacial flow, likely formed subglacially

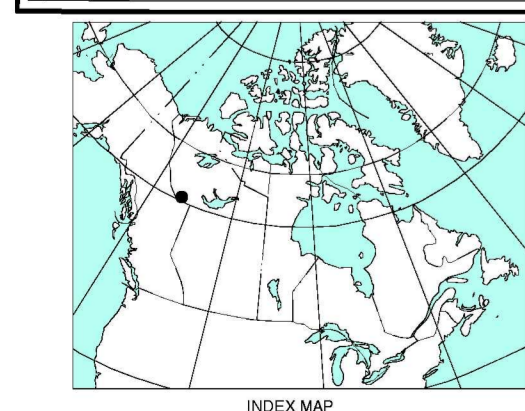
NOTES ON GLACIAL HISTORY:

Lake Bowie map area was glaciated during the Late Wisconsinan glaciation (ca. 25 000-10 000 years ago). Although the area may have been first glaciated by montane ice from the west, the last major ice cover was by the continental Laurentide Ice Sheet, which generally flowed from northeast to southwest in this region, as shown in this map area. West of here, the Laurentide Ice Sheet came in contact with Cordilleran ice and was forced to flow northward, against the regional topography. Extensive glacial flutes and subglacial furrows in the adjacent map area to the west show the gradual swing in ice flow direction caused by this deflection.

During deglaciation, the Liard River watershed was blocked by the eastward retreating Laurentide Ice Sheet and short-lived glacial lakes were created in many depressions. The Bowie structure, forming a prominent bedrock ridge just west of Lac Bowie, made an effective barrier to westward drainage, consequently the eastern part of the map area is covered by extensive glaciolacustrine sediment. These poorly-drained areas are usually overlain by thick muskeg.

Meltwater issuing from the retreating ice and from draining glacial lakes cut several northward-trending channels along the east side of the Bowie structure. An early Pettit River likely occupied these channels until the Bowie structure was breached.

A detailed record of the Laurentide ice margin retreating to the northeast is provided by fine and moraines and crevasse fillings that are found overlying glacial fillings in the southwest part of the map area. These features form sets of closely-spaced parallel ridges, which may mark annual pulses of ice retreat.



CONTOUR INTERVAL 50 FEET
Elevations in Feet above Mean Sea Level

Digital Topographic Data provided by Geomatics Canada, Natural Resources Canada and adjusted to conform to LandSat Geocover image by the author

Scale 1:50 000 Échelle

Universal Transverse Mercator Projection
North American Datum 1983
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OPEN FILE 1761
SURFICIAL GEOLOGY
LAKE BOVIE
NORTHWEST TERRITORIES - BRITISH COLUMBIA

Geology by J. Bednarski 2000, 2001, 2002
Geological compilation and digital cartography by J. Bednarski, 2002

This is a product of the Central Foreland NATMAP Project
Any revisions or additional geological information from the user would be welcomed by the Geological Survey of Canada

95 B/6 Rabbit Creek	95 B/7 Tourelle River	95 B/8 Muskeg River
95 B/3 Fort Liard	95 B/2 Lake Bowie	95 B/1 Colbeta Lake
94 O/14 Macharish Lake	94 O/15 Emile Creek	94 O/16 Stanislas Creek

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