

LEGEND

INTRUSIVE ROCKS

Eocene

TING SUITE

Ety Syenite. Varies from green, grey, white, or brown nepheline syenite, quartz syenite and minor volume biotite, equigranular to porphyritic; medium crystalline to pegmatitic; mafic minerals include amphibole, augite, and biotite; rare to abundant sphene content

STRATIFIED ROCKS

Tertiary

Tqg Conglomerate and sandstone: Poorly to well-indurated conglomerate and sandstone, various shades of light brown and light reddish-brown; compositionally immature; sandstone typically crossbedded

CRETACEOUS

LOWER CRETACEOUS

FORT ST. JOHN GROUP

Kgr GARBURT FORMATION: Recessive-weathering, grey shale and siltstone with stictic concretions; minor thin-bedded, finely laminated sandstone. The semi-resistant weathering Chalken Fm (c.40 m of conglomerate and sandstone observed to the east of this map area) was not observed in this area but may be present at the base of the Garbur Fm

TRIASSIC

DABER GROUP

Tg+1 GRAYLING and TCAD formations undivided: Grey, red, and green shale interbedded with thin to thick-bedded tan to brownish-grey sandstone and minor siltstone; sandstone is typically laminated, crossbedded or crossbedded; soft-sediment deformation common; recessive- to semi-resistant-weathering; horizontal trace fossils locally common

LOWER CARBONIFEROUS

CM MATTON FORMATION undivided: Orange-, grey-, or buff-weathering, grey to buff, poorly to well-indurated, massive-weathering, locally crossbedded or ripple cross-laminated, fine-grained quartz arenite interbedded with subordinate silty limestone and dark shale; locally calcareous; may include overlying Permian strata: silty limestone of the Tikia map unit and siliceous or cherty siltstone and shale of the Fanshawe Formation

DEVONIAN AND CARBONIFEROUS

DCbr BESSA RIVER FORMATION: Pale bluish-grey-weathering, dark grey to black shale, lesser siltstone, bedded chert, and siliceous limestone; minor thin-bedded sandstone

DEVONIAN

DH HEADLESS FORMATION: Medium grey-weathering, dark grey to black, argillaceous limestone, local thin granitoid beds (< 10 cm) contain crinoids with both single and double axial canals; subordinate black shale

Dc Devonian calcareous: Buff to grey-weathering, medium grey, very fine-crystalline argillaceous limestone and dolomite; local thin granitoid beds (< 10 cm) contain crinoids with both single and double axial canals; see Note 5

SILURIAN AND DEVONIAN

SDRr ROAD RIVER GROUP undivided shale: Dark grey to black, locally calcareous or dolomitic shale and siltstone; subordinate very fine-grained sandstone, bedded chert (porcellanite) and limestone; recessive-weathering; locally argillitic, brachiopods and crinoids sporadically present

SDRr-u Upper Member: Dark grey to black, sparsely fossiliferous, siliceous shale and siltstone; subordinate very fine-grained, medium-bedded sandstone

SILURIAN

SRr Lower Member: Dark grey to black, locally calcareous or dolomitic, argillitic shale and siltstone; subordinate very fine-grained, medium-bedded sandstone, bedded chert (porcellanite), and limestone; recessive-weathering; brachiopods and crinoids sporadically present

ORDOVICIAN AND SILURIAN

OSs Sandstone and conglomerate: Buff to grey quartz arenite to quartz-pebble conglomerate and conglomerate sandstone, clasts abundant to round; subordinate beds up to 2 m thick of bioturbated, slightly dolomitic, very fine-grained sandstone and siltstone

ORDOVICIAN

OSu SUNBLOOD FORMATION: Light brownish-grey to buff-weathering, mottled, light to dark grey dolomite and limestone; fine to medium crystalline; commonly dolomitized; locally laminated

MAP SYMBOLS

Geological boundary (defined, approximate, assumed)

Outcrop stations: visited

Outcrop: remote observation

Bedding (vertical, horizontal, inclined, overturned, estimated)

Crossbedding (slip direction and dip; uncorrected)

Joint sets

Cleavage

Anticline (defined, approximate, assumed)

Syncline (defined, approximate, assumed)

Overturned syncline (approximate, assumed)

Antiformal link fold (approximate, assumed) (See diagram below)

Synclinal link fold (approximate, assumed) (See diagram below)

Fault, thrust (approximate, assumed)

Fault, normal (approximate)

Fault, oblique-slip (approximate; see Note 3)

Fault, unknown type (defined, approximate, assumed)

Fossil locality (details listed in table)

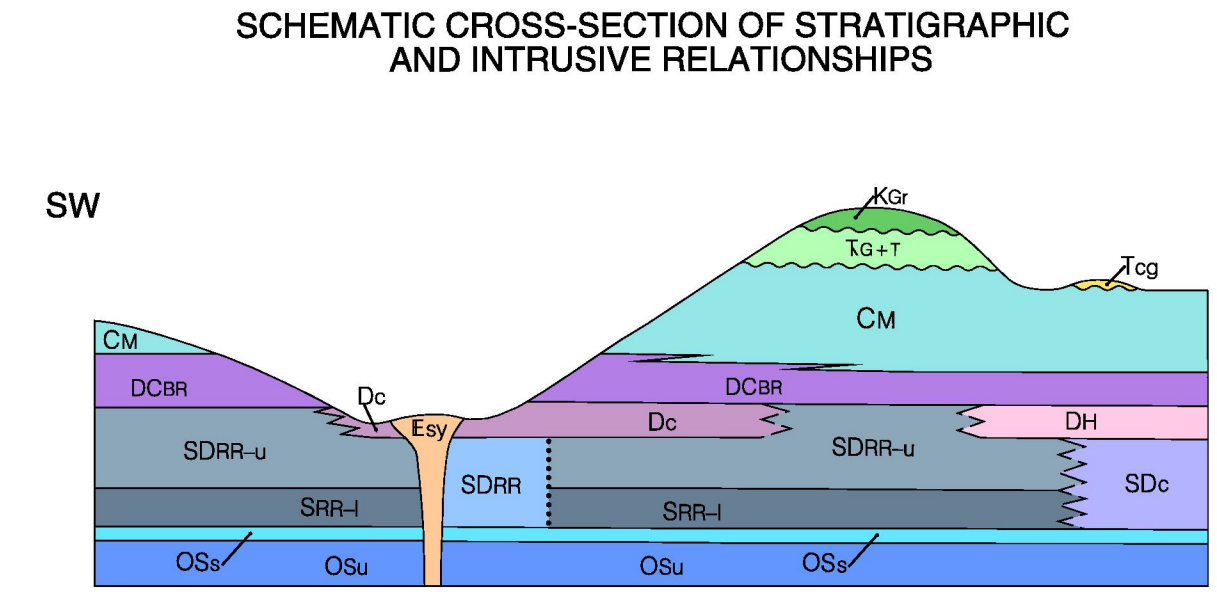
Mineral claim (details listed in table)

Mineral locality (ferrite, barite, exhalite)

Isotopic age locality (details listed in table)

FOLD SYMBOLOGY

Fold symbols as used on the map apply to folds having cross-sectional geometries depicted in this diagram (see Stockmal et al., 2002).



NOTE: The presence of Siluro-Devonian platform carbonates (SD) in the subsurface on the east side of the map area is inferred from relationships mapped immediately to the south by the project. Permian units (Fanisawe Fm. (map unit)) indicated on adjacent maps to the east were not recognized in this map area - if present, these units have been mapped as GRAYLING of the Matton Formation.

MINERAL LOCALITIES (Yukon MINFILE, 2004)

(positional accuracy - 0.5 - 1.0 km)

LOCALITY #	NAME	ELEMENTS	EASTING, NORTHING (NAD83)
063	GIWV, TING	Pb, Ag, Ba, Th, U, Zn	341766, 6714215
068	DEEK, MARS	Ba (Fe)	346857, 6745692
067	DEEK, RUSH	Ba	341480, 6748552

NOTE: The position of the symbols mark approximately the center of the claim property.

ISOTOPIC AGE DATES

LOCALITY	DATE	SYSTEM	MATERIAL	EASTING, NORTHING (NAD83)	REFERENCE
1	Ting Creek plug (april 11)	K-Ar	biotite	341076, 6715341	Stevens et al. (1982)
2	Ting Creek plug (april 11)	K-Ar	zircon	341076, 6715341	Stevens et al. (1982)
3	Ting Creek plug (april 11)	K-Ar	zircon	341266, 6715507	Stevens et al. (1982)

FOSSIL LOCALITIES

LOCALITY	CATALOGUE NUMBER	FOSSIL	AGE	THERMAL ALTERATION (NAD83)	EASTING, NORTHING (NAD83)	REFERENCE
①	C-417942	conodonts	early Middle Ordovician	CAI = 5	360163, 6665682	McCracken, 2003
②	C-426106	conodonts	Middle Ordovician	CAI = 5	335180, 6663257	McCracken, 2003
③	C-432107	polymorphs	indeterminate	TAI = 4	349456, 6765072	Utting, 2005
④	C-417824	polymorphs	indeterminate	TAI = 4	357775, 6750017	Utting, 2005
⑤	C-417833	polymorphs	Early Carboniferous (Viséan)	TAI = 4	367126, 6752591	Utting, 2005
⑥	C-432109	conodonts	late Early to Middle Devonian	CAI = 4.5	352880, 6657204	McCracken, 2003
⑦	C-430089	polymorphs	indeterminate	TAI = 4	375684, 6738277	Utting, 2005
⑧	C-430265	polymorphs	indeterminate	TAI = 4	372598, 6748485	Utting, 2005
⑨	C-430071	polymorphs	Early Carboniferous (Viséan)	TAI = 3+	376651, 6749217	Utting, 2005
⑩	C-430074	polymorphs	Early Carboniferous (Viséan)	TAI = 4	375682, 6751171	Utting, 2005
⑪	C-432082	polymorphs	Early Carboniferous (Viséan)	TAI = 4+	367627, 6752819	Utting, 2005
⑫	C-417943	crustacean or cephalopod	indeterminate	n/a	344391, 6749004	Norford, 2005
⑬	C-417941	crustacean or cephalopod	Middle Dev. to Early Carb.	n/a	368401, 6764787	Norford, 2005
⑭	C-417940	crustacean or cephalopod	Silurian	n/a	368402, 6761659	Norford, 2005
⑮	C-430093	graptolites	Silurian	n/a	365586, 6759459	Norford, 2005
⑯	C-430094	graptolites	Silurian	n/a	365586, 6759459	Norford, 2005
⑰	Loc. 13, stn 1	graptolites	Late Silurian	n/a	365518, 6752545	Lenz and Jackson, 1964
⑱	Loc. 13, stn 6	graptolites	Middle or Late Ordovician	n/a	365518, 6752545	Lenz and Jackson, 1964
⑲	Loc. 14, stn 2	graptolites	Early Silurian	n/a	352824, 6752822	Lenz and Jackson, 1964
⑳	Loc. 14, stn 4	graptolites	Early Silurian	n/a	352824, 6752822	Lenz and Jackson, 1964
㉑	Loc. 14, stn 6	graptolites	Late Silurian	n/a	352824, 6752822	Lenz and Jackson, 1964
㉒	Loc. 15, stn 1	graptolites	Late Silurian	n/a	351109, 6750674	Lenz and Jackson, 1964
㉓	Loc. 15, stn 4	graptolites	Early Devonian	n/a	351109, 6750674	Lenz and Jackson, 1964
㉔	Loc. 16	graptolites	Late to Late Silurian	n/a	339113, 6711254	Lenz and Jackson, 1964

NOTE: Map symbols may be slightly displaced for clarity. CAI = colour alteration index; TAI = thermal alteration index. * Fossil locality symbols for localities 16, 17, and 18 represent mid-points to regions where the collections were made. Based on the locality information available in Lenz and Jackson (1964), the regions are as follows: 16 - Locality 13: stations 1 and 6 lie within an area defined by SW corner 364581, 676181 and NE corner 364455, 6763439; 17 - Locality 14: stations 2, 4, and 6 lie along the line 353472, 6752840 to 353376, 6752803; 18 - Locality 15: stations 1 and 4 lie within an area defined by SW corner 354129, 6749255 and NE corner 355089, 6753939. Fossil localities 16 through 19 are included for scientific interest but should be noted that the location information was provided by a third party and the accuracy of the locations could not be confirmed (A. Lenz pers. comm., 2005).

ABSTRACT:

The northwest La Biche River map area was mapped as part of the Central Foreland NATMAP project between 2000 and 2002. The map area occupies part of the Liard Plateau at the southern end of the Mackenzie Mountains. The geology straddles the edges of the Macdonald Platform, the Mackenzie Platform and the Selwyn Basin. Facies changes within the Paleozoic stratigraphy differentiate the platform and basin strata. Paleozoic and Mesozoic strata in this region are deformed into folds and thrust faults with distinct orientation domains. North and northeast trends dominate the eastern and southwestern portions of the map area, and north to northwest trends dominate the central portion. This interfering pattern of structural trends is similar to those found on adjoining maps, and is part of the regional structural style. Eocene syenite of the Ting suite has a post-deformational relationship to folded and faulted Paleozoic strata. Rare occurrences along the modern Whitefish River valley of Tertiary conglomerate and sandstone lie unconformably on deformed Paleozoic strata. Mineral localities are associated with the Ting intrusion, and with exhalite deposits within the Road River Group. Numerous ferrite deposits are scattered across the map area within the Bessa River and Matton formations.

- ### NOTES:
- At outcrop stations where more than one data type was collected, bedding measurements are plotted at the station, whereas cleavage, joint, and crossbedding, orientations are plotted nearby for legend.
 - This compilation was constrained in part by data from previously published maps and reports in the area by Douglas (1976), Douglas and Norris (1976), Gabriëls and Blusson (1969), Cathro (1983a), Cathro (1983b), Burt (1983), and Harrison (1981).
 - Sense of motion on the oblique-slip fault near the center of the map area is inferred from the stratigraphic separation at the Bessa River - Matton contact.
 - Ferrite locality at 343408E, 6763572N has elevated zinc (3850 ppm), nickel (506 ppm), and arsenic (286 ppm) levels based on geochemical analysis for the Geological Survey of Canada by Activation Laboratories Ltd. in 2003.
 - The Devonian carbonate map unit is mapped in from the Macdonald Platform in the south and is suspected to be broadly equivalent to the Headless Formation in the north. The discontinuous nature of the exposures inhibits an understanding of the exact relationship between the two units and the intervening Meilleur Embayment of the Selwyn Basin.

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THIS MAP IS A PRODUCT OF THE CENTRAL FORELAND NATMAP PROJECT
 Geology from feedback by L.C. Pigeau, A.K. Khudoley, K.M. Falls, L.S. Lane, and J.R. Smith 1999-2002.
 Geological cartography by K.M. Falls, and M. Potts
 Any revisions or additional geological information from the user would be welcomed by the Geological Survey of Canada
 Base map at the same scale published by Surveys and Mapping Branch in 1971
 CONTOUR INTERVAL 100 FEET
 Elevations in Feet above Mean Sea Level

95E	95F
Flat River	Virginia Falls
GSC MAP 1313A	GSC MAP 1378A
95D	95C/NW
Coal River	La Biche River NW
	GSC OF 5018
	95C/SW
	La Biche River
GSC MAP 11-1968	GSC OF 4664

NATIONAL TOPOGRAPHIC SYSTEM REFERENCE AND INDEX TO ADJOINING GEOLOGICAL SURVEY OF CANADA MAPS

NATMAP
CARTNAT
Canada's National Geoscientific Mapping Program
Le Programme national de cartographie géoscientifique du Canada

GEOLOGY

LA BICHE RIVER NORTHWEST (95C/NW)

YUKON AND NORTHWEST TERRITORIES

Scale 1:100 000 Echelle 1/100 000

Kilometres 2 0 2 4 6 Kilomètres

Universal Transverse Mercator Projection
North American Datum 1983
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Projection transversale universelle de Mercator
Système de Référence Géodésique nord-américain, 1983
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