British Columbia Ministry of Energy and Mines

Geoscience BC

British Columbia Geological Survey Geoscience Map 2014-01
Geoscience BC Map 2014-09-01

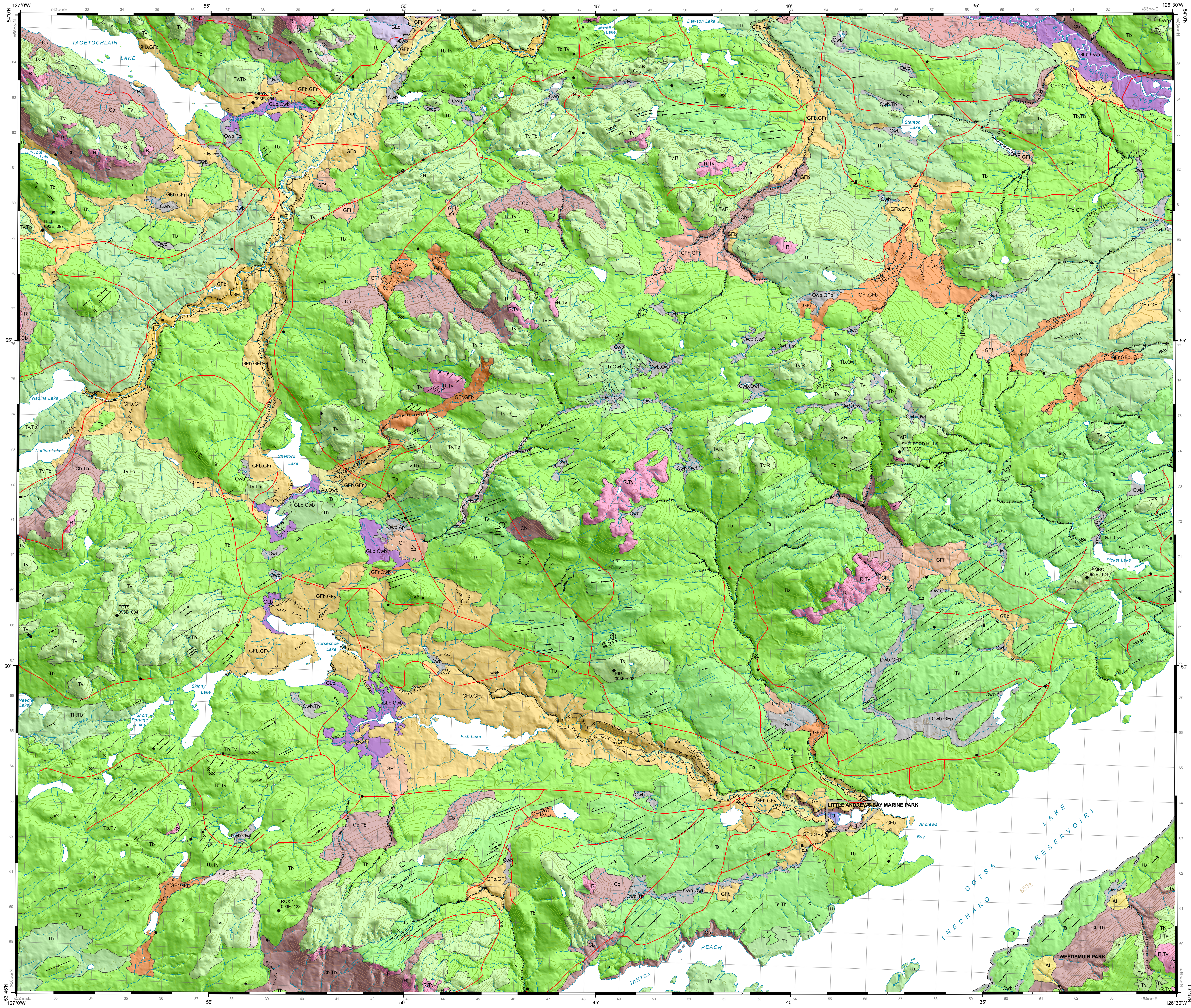
Surficial geology of the Nadina River map area (NTS 093E/15), British Columbia

T. Ferbey

0 1 2 4 6 8 10
Kilometres

Scale 1:50,000

Cartography by H. Arnold



North American Datum 1983
Universal Transverse Mercator Zone 9 North
Shuttle Radar Topography (SRTM) DEM, 3 arcsecond (90 m) resolution
Contour interval 20 metres

Note: Where map units are composed of multiple surficial materials, a compound map unit designator is used, separating more extensive materials from less extensive (e.g., for Tb.Th, Tb is more extensive than Th).

QUATERNARY SURFICIAL DEPOSITS

HOLOCENE
NONGLACIAL ENVIRONMENTS

Organic deposits. *Formed by the accumulation of organic matter in topographic depressions or level areas that are poorly drained.*

Owb — ***Bog deposits:*** *fibric to humic organic matter; may be treeless or have sparse trees; elevated above water table.*

Owf — ***Fen deposits:*** *fibric to humic organic matter; mineral-rich water table persists seasonally at or near surface; generally covered with low shrubs; local sparse trees.*

Colluvial and mass-wasting deposits. *Poorly sorted angular gravels and sandy diamictons; commonly clast supported and can be massive to stratified; product of downslope transport of weathered bedrock and pre-existing Quaternary sediments by gravity; texture dependent on parent material.*

Cv — ***Colluvial veneer:*** *diamictons <2 m of variable thickness; overlies, and forms a discontinuous cover with bedrock or till; occurs mainly on topographic highs and steep valley sides.*

Cb — ***Colluvial blanket:*** *diamictons >2 m of roughly equal thickness; mainly occurs below bedrock highs but can also form on steep, till-covered slopes.*

Cz — ***Landslide debris:*** *diamictons >1 m thick forming hummocky accumulations on lower slopes and valley floors; may exceed 10 m thick near toes of landslides.*

Alluvial deposits. *Gravel, sand, and silt deposited by modern streams and creeks; usually stratified and with the exception of alluvial fans, moderately to well sorted.*

Af — ***Alluvial fan:*** *gravel, sand, silt, and clay >2 m thick deposited as fan-shaped features with a convex upper surface; poorly sorted, massive to stratified with texture dependent on source materials; may contain interbedded debris flow diamictons and buried organic material; occur at the toe of slopes and where streams issue from a narrow valley onto a valley floor; potential source of aggregate.*

Ap — ***Alluvial floodplain:*** *sands and gravels >2 m thick deposited as a level or very gently sloping, planar surface; occur at surface along active and recently active channels; includes point bars, scroll bars, and oxbow lakes; organic rich muds can occur at surface; treeless in active areas with partial shrub or tree cover elsewhere.*

Lacustrine deposits. *Sorted and stratified fine-grained sediments deposited in a modern, nonglacial lake; can be unvegetated or sparsely vegetated with grasses; exposed due to fluctuating lake levels.*

Ld — ***Lacustrine delta:*** *sand and gravel >2 m thick deposited at the mouth of a stream as it enters a standing body of water; fan-shaped feature with an upper surface that is planar and horizontal to slightly inclined.*

LATE WISCONSINAN
PROGLACIAL AND GLACIAL ENVIRONMENTS

Glaciolacustrine deposits. *Sorted and stratified sediments deposited in a glacial lake; may support trees or be sparsely vegetated with shrubs and grasses.*

GLd — ***Glaciolacustrine delta:*** *sand and gravel >2 m thick deposited at the mouth of a stream as it entered a former glacial lake; fan-shaped feature with an upper surface that is flat and horizontal to slightly inclined; situated well above modern lakes and streams; can be an aggregate source.*

GLb — ***Glaciolacustrine blanket:*** *sand, silt, and clay >2 m of roughly equal thickness; well sorted and locally incised.*

Glaciofluvial deposits. *Sands and gravels deposited by glacial meltwater; can be massive to stratified, sorted to poorly sorted; typically above pre-existing Quaternary sediments, but can also overlie bedrock; can be an aggregate source.*

GFp — ***Glaciofluvial plain:*** *sands and gravels, typically several metres thick, deposited as a level or very gently sloping, planar surface near valley bottoms and adjacent to meltwater channels.*

GFt — ***Glaciofluvial terrace:*** *sands and gravels of variable thickness that form a planar, horizontal to gently inclined step-like surface; generally unpaired and incised by, and located above, a modern stream or abandoned meltwater course.*

GFv — ***Glaciofluvial veneer:*** *sand and gravels <2 m of variable thickness.*

GFb — ***Glaciofluvial blanket:*** *sands and gravels >2 m of roughly equal thickness.*

GFf — ***Glaciofluvial fan:*** *sands and gravels >2 m thick deposited as fan-shaped features with a convex upper surface; stratified and can be locally interbedded with diamicton; situated well above modern lakes and streams, at the lower ends of meltwater channels and the toe of slopes.*

GFh — ***Hummocky glaciofluvial:*** *sands and gravels, typically several metres thick, occurring as steep sided hills (kames) and hollows (kettles) with varied slope aspect forming irregular topography with local relief >1 m; deposited in a deglacial, ice-contact environment; steeply dipping bedding and collapse structures common.*

GFr — ***Ridged glaciofluvial:*** *sands and gravels occurring as long sinuous ridges (eskers) >2 m in height; massive to stratified; may include silts; deposited by glacial meltwater in contact with glacial ice.*

Till deposits. *Unsorted to poorly sorted diamictons deposited by a glacier; matrix and clast texture dependent on parent material and mechanism of transported and deposition; stratification and degree of consolidation also dependent on transport and depositional processes.*

Tv — ***Till veneer:*** *silt- and clay-rich diamicton <2 m of variable thickness; overconsolidated, typically massive and matrix supported; subglacially eroded, transported and deposited by active glaciers; often forms a transitional zone between thicker tills in valleys and on valley sides and bedrock above; can include discontinuous areas of colluvial veneer and bedrock; ideal sample medium for till geochemistry and mineralogical surveys.*

Tb — ***Till blanket:*** *silt- and clay-rich diamicton >2 m of roughly equal thickness; overconsolidated, typically massive and matrix supported; subglacially eroded, transported and deposited by active glaciers; bedrock exposures are rare in areas of thick till; ideal sample medium for till geochemistry and mineralogical surveys.*

Th — ***Hummocky till:*** *sand-rich diamicton, typically several metres thick, occurring as steep sided hills and hollows with varied slope aspect forming irregular topography with local relief >1 m; composed of ablation (englacial and supraglacial) tills deposited passively by melt out of stagnant ice during deglaciation; less consolidated than basal tills and have a higher percentage of gravel-sized material; may interfinger with glaciofluvial sands and gravels; overlies older glacial sediments and windows through it can expose underlying basal till; not generally sampled in till geochemical or mineralogical surveys.*

Tr — ***Ridged till:*** *silt-rich diamictons deposited in elongate ridges one to several metres high, oriented perpendicular to ice-flow direction; intervening lows commonly filled with organic deposits; formed by ice thrusting during full glacial conditions; ideal sample medium for till geochemistry and mineralogical surveys.*

Ts — ***Streamlined till:*** *silt-rich diamictons that have been subglacially streamlined forming drumlins and flutes; streamlined landforms are typically <700 m long but can exceed 1.75 km; ideal sample medium for till geochemistry and mineralogical surveys.*

PRE-QUATERNARY

Bedrock. *Exposed in high ground of Shelford and Mosquito hills are Kasalka Group andesites (Cretaceous) and Endako Group basalts (Eocence to Lower Miocene), respectively; Bulkley Suite felsic to intermediate intrusives (Late Cretaceous) host porphyry mineralization in the region and can be exposed in areally small and isolated topographic highs; additional bedrock exposures can be found in road and stream cuts and in areas mapped as till veneer.*

R — ***Bedrock:*** *bedrock outcrop; may include discontinuous areas of till or colluvial veneer.*

Minor meltwater channel (paleocurrent known, unknown)
Major meltwater channel
Moraine ridge
Esker ridge (flow direction unknown)
Drumlin, Drumlinoid or fluting
Crag-and-tail
Fluted bedrock (flow direction known, unknown)
Striation (flow direction known, unknown)
Small bedrock outcrop
Pit (inactive or unspecified)
Station (Ground observation)
Sample
Locality ① , ②
Road
Provincial park and protected area; National park

MINERAL OCCURRENCES

Provincial MINFILE database (Labeled with name and MINFILE number)
Showing

MINFILE NUMBER	NAME	STATUS	COMMODITY	DEPOSIT TYPE*
093E 084	TETS	Showing	Copper, Zinc, Lead, Silver	I05:Polymetallic veins Ag-Pb-Zn+/-Au, L01:Subvolcanic Cu-Ag-Au (As-Sb)
093E 085	SHELFORD HILLS	Showing	Zinc, Lead, Gold	H04:Epithermal Au-Ag-Cu: high sulphidation
093E 092	RIP	Showing	Copper, Molybdenum	L04:Porphyry Cu +/- Mo +/- Au, L05:Porphyry Mo (Low F- type)
093E 094	DILYS, DUAL	Showing	Copper	
093E 097	HILL	Showing	Copper, Gold, Zinc	L03:Alkalic porphyry Cu-Au
093E 123	ROX 1	Showing	Gold, Silver	
093E 124	DAMBO	Showing	Gold, Silver	

*See Lefebure and Ray (1995) and Lefebure and Höy (1996) for mineral deposit profile codes and definitions.

DESCRIPTIVE NOTES

The Nadina River map area is in the Nechako Plateau, a subdivision of the Interior Plateau with flat to gently rolling topography (Figure 1, Holland, 1976). This map is an ancillary product of a study devoted to till geochemistry (Ferbey, 2010a, b), and is based on air photo interpretation and widely spaced ground observations. Previous work in the area includes soils and terrain mapping by Young (1976) and Singh (1998). To the north and northwest (NTS 093L, M and 103I, P), Clague (1984), Tipper (1994), and Levson (2002) studied Quaternary geologic and geomorphologic features. To the northeast (west half of NTS 093K), Plouffe (1996a, b) mapped surficial deposits, and Ferbey (2011a, b, 2014b) integrated the Quaternary geology with till geochemistry (Colleymount area, NTS 093L/01). Mate and Levson (2000, 2001) investigated the Quaternary geology to the southeast (NTS 093F/12) and, to the southwest, Ferbey and Levson (2001a, b, 2003, 2007) studied the Quaternary geology and till geochemistry of the Huckleberry mine region.

The Nadina River map area is underlain mainly by glacial sediments. Large areas of continuous bedrock outcrop (**R**) are relatively uncommon, but exposures can be found at the stoss side (up ice end) of crag-and-tail forms, along lake shorelines, on high ground in Shelford and Mosquito hills, and as local small-scale erosional remnants that stand above the plateau surface (west and northwest of Shelford Hills). Bedrock is also exposed in the upper reaches of the Nadina River valley and in cuts adjacent to newly constructed forestry roads.

Basal tills containing material that was eroded, transported, and deposited by active ice, are the predominant glacial deposit in the map area. These grey to brown diamictons are matrix supported (silt-rich matrix), massive, and overconsolidated (Figure 2). Vertical joints and a subhorizontal fissility are locally well developed. In lower valley settings basal tills typically form blankets >2 m thick (**Tb**) that overlie glacially eroded and polished bedrock. On hill flanks and at higher elevations (e.g., along the south and southeast flanks of Shelford Hills and the northern shore of Ootsa Lake) they can occur as streamlined (fluted and drumlinized) tills >2 m thick (**Ts**). Also in high ground of Shelford Hills they can occur as ridged tills (**Tr**), with ridges oriented northwest or perpendicular to ice flow.

Basal tills also define discontinuous veneers <2 m thick (**Tv**) adjacent to bedrock and locally derived colluvium. Basal tills are the ideal sample medium for till geochemistry surveys as they are derived from local bedrock sources (Shilts 1993; Levson, 2001). Till samples were collected for geochemical and mineralogical analyses (Ferbey, 2010b) and sample locations are included here. The basal till potential map for the study area (Ferbey, 2014b) will assist in the design of follow-up exploration projects by identifying areas where basal till is most likely to occur.

Ablation (englacial or supraglacial) tills were deposited passively by melt out of stagnant ice during deglaciation. Relative to basal tills, ablation tills are less consolidated, have a higher percentage of gravel-sized material and a sandier matrix, and interfinger with glaciofluvial sands and gravels. They typically form hummocky topography (**Th**) and overlie previously deposited glacial sediments. Because of relatively complex transport histories and/or greater transport distances, ablation tills are not generally sampled in till geochemical or mineralogical surveys. Windows through them can exist enabling sampling of underlying basal tills.

Glaciofluvial sands and gravels are exposed throughout the study area. Along the flanks of Shelford Hills are fan-like features composed of sandy, pebble- to cobble-sized gravels. These occur at the mouths of gulleys that head in higher ground and are retreat-phase sediments related to meltwater draining from a stagnant ice source. Eskers (**GFr**) were deposited on these same slopes indicating that subglacial deposition also occurred here. In the Fish Lake area and south through the Andrews Creek area toward Ootsa Lake, glaciofluvial deposits also define deglacial drainage systems (some now abandoned) as outwash plain accumulations (>2 m thick; **GFb**) and eskers. Another drainage network was active in the northwest corner of the area, directing water and depositing sands and gravels into the northeast-flowing Nadina River system.

Fine-grained glaciolacustrine sediments (**GLb**) along Tagetochlain River and in the northeastern corner of the map area may record ponding by an ice dam near Morice Lake and Francois Lake. Quiet-water sediments related to this ice-damming could be more areally extensive than shown here. The elevation of flat-topped, fan-like feature (interpreted as a glaciolacustrine delta; **GLd**) east of Tagetochlain Lake suggests that former lake levels approached 845 m asl. Other glaciolacustrine sediments mapped in the Horseshoe and Shelford lake areas are related to ponding of meltwater in small, isolated, elevated basins.

The idea of an ice dome inland of the Coast Mountains is not new (e.g., Dawson, 1891; Kerr, 1934; Fulton, 1967; Tipper, 1971a, b, 1994), although the timing has remained unclear. Building on work by Stumpf et al. (2000), Ferbey and Levson (2001a, b, 2007) found evidence of ice-flow reversal in the Huckleberry mine and Tahtsa Lake-Ootsa Lake areas during the Late Wisconsinan glacial maximum. Accordingly, during the onset of glaciation, ice flowed east toward central British Columbia from an ice divide spreading radially from accumulation centres in the Coast Mountains. Sometime during the glacial maximum however, this ice divide migrated into central British Columbia resulting in an ice-flow reversal. Glaciers then flowed west across parts of the western Nechako Plateau, over the Coast Mountains and toward the Pacific Ocean. Eastward ice flow resumed once the ice divide migrated back across the axis of the Coast Mountains, and continued until the end of the Late Wisconsinan glaciation.

Ice-flow data presented here (from Ferbey, 2010b and Ferbey et al., 2013) indicate the same sequence of ice-flow events in the Nadina River map area, supporting the idea of an ice dome moving into the interior of British Columbia during the Late Wisconsinan. Abundant east-northeast to northeast trending, glacially streamlined landforms (flutes, drumlins, crag-and-tail ridges) are consistent with ice flow from the Coast Mountains toward central British Columbia, but it is uncertain if they record the early or late phase of eastward flow. On the southern flank of Shelford Hills, outcrop-scale ice-flow indicators document near-opposing flow directions at the same outcrop (cf. Ferbey and Levson, 2000, 2001). Approximately 4 km northeast of Fish Lake (locality 1), an exposure of Skeena Group conglomerate (Early Cretaceous) displays outcrop-scale ice-flow features (Figure 3), including rat tails that indicate flow toward 256°, recording an ice-flow reversal. Immediately adjacent to these features smaller rat tails that indicate flow toward 088° (Figure 3). Streamlined landforms do not convincingly record this ice-flow reversal, but four poorly preserved flutes 4 km northwest of this exposure (locality 2), trend west-southwest (in contrast to neighbouring southwest-trending features), perhaps consistent with a reversal.

During deglaciation, elevated areas became ice free while stagnant ice remained in valley bottoms (see Fulton, 1967, 1991), as suggested by eskers and hummocky terrain, and a lack of recessional moraines in low-lying areas. Glaciofluvial fans and eskers along the flanks of Shelford Hills likely formed at the transition between valleys being occupied by ice and ice- free hills. Morainal ridges in the study area (e.g., west side of Shelford Hills) are interpreted to have formed by ice thrusting during full glacial conditions, rather than by ice-marginal deposition during frontal retreat.

ACKNOWLEDGEMENTS
H. Arnold, L.B. Aspler and A.S. Hickin are thanked for their review of this map. The British Columbia Ministry of Forests, Lands and Natural Resource Operations is thanked for access to stereo models and imagery.

REFERENCES

Clague, J.J., 1984. Quaternary geology and geomorphology, Smithers-Terrace-Prince Rupert area, British Columbia. Geological Survey of Canada, Memoir 413, 71 p.

Dawson, G.M., 1891. On the later physiographical geology of the Rocky Mountain region in Canada, with special reference to changes in elevation and to the history of the glacial period. Royal Society of Canada, Transactions, 8, pp. 3-74.

Ferbey, T., 2010a. Quaternary geology and till Geochemistry of the Nadina River map area (NTS 093E/15), west-central British Columbia. In: Geological Fieldwork 2009, British Columbia Ministry of Energy, Mines, and Petroleum Resources, British Columbia Geological Survey, Paper 2010-1, pp. 43-54.

Ferbey, T., 2010b. Till Geochemistry of the Nadina River map area (093E/15), west-central British Columbia. British Columbia Ministry of Energy, Mines, and Petroleum Resources, British Columbia Geological Survey, Open File 2010-7, Geoscience BC, Report 2010-10, 56 p.

Ferbey, T., 2011a. Quaternary geology and till geochemistry of the Colleymount map area (NTS 093L/01), west-central British Columbia. In Geological Fieldwork 2010, British Columbia Ministry of Energy, Mines, and Petroleum Resources, British Columbia Geological Survey, Paper 2011-1, pp. 119-128.

Ferbey, T., 2011b. Till Geochemistry of the Colleymount map area (093L/01), west-central British Columbia. British Columbia Ministry of Energy, Mines, and Petroleum Resources, British Columbia Geological Survey, Open File 2011-6, Geoscience BC, Report 2011-9, 51 p.

Ferbey, T., 2014a. Surficial geology of the Colleymount map area (NTS 093L/01), British Columbia. British Columbia Ministry of Energy and Mines, British Columbia Geological Survey, Geoscience Map 2014-02, Geoscience BC, Map 2014-08-02, 1:50 000 scale.

Ferbey, T., 2014b. Basal till potential of the Nadina River map area (NTS 093E/15), British Columbia. British Columbia Ministry of Energy and Mines, British Columbia Geological Survey, Open File 2014-02, 1:50 000 scale.

Ferbey, T. and Levson, V.M., 2001a. Quaternary geology and till geochemistry of the Huckleberry mine area. In Geological Fieldwork 2000, British Columbia Ministry of Energy, Mines, and Petroleum Resources, British Columbia Geological Survey, Paper 2001-1, pp. 397-410.

Ferbey, T. and Levson, V.M., 2001b. Ice flow history of the Tahtsa Lake – Ootsa Lake region. British Columbia Ministry of Energy, Mines, and Petroleum Resources, British Columbia Geological Survey, Open File 2001-8, 1:110 000 scale.

Ferbey, T. and Levson, V.M., 2003. Surficial geology of the Huckleberry mine area. British Columbia Ministry of Energy, Mines, and Petroleum Resources, British Columbia Geological Survey, Open File 2003-2, 1:15 000 scale.

Ferbey, T. and Levson, V.M., 2007. The influence of ice-flow reversals on the vertical and horizontal distribution of trace elements in tills, Huckleberry mine area, west-central British Columbia. In: Paulen, R.C. and McMartin, I. (Eds.), Application of Till and Stream Sediment Heavy Mineral and Geochemical Methods to Mineral Exploration in Western and Northern Canada, Geological Association of Canada, Short Course Notes 18, pp. 145-151.

Ferbey, T., Arnold, H. and Hickin, A.S., 2013. Ice-flow indicator compilation, British Columbia. British Columbia Ministry of Energy and Mines, British Columbia Geological Survey, Open File 2013-06, 1:1 650 000 scale.

Fulton, R.J., 1967. Deglaciation studies in Kamloops region, an area of moderate relief, British Columbia. Geological Survey of Canada, Bulletin 154, 36 p.

Fulton, R.J., 1991. A conceptual model for growth and decay of the Cordilleran Ice Sheet. Géographie physique et Quaternaire, Volume 45, pp. 333-339.

Holland, S.S., 1976. Landforms of British Columbia: a physiographic outline. British Columbia Ministry of Energy and Mines, and Petroleum Resources, British Columbia Geological Survey, Bulletin 48, 138 p.

Kerr, F.A., 1934. Glaciation in northern British Columbia. Royal Society of Canada, Transactions, Volume 28, pp. 17-31.

Lefebure, D.V. and Ray, G.E., 1995. Selected British Columbia mineral deposit profiles volume 1 –metallic and coal. British Columbia Ministry of Energy and Mines, British Columbia Geological Survey, Open File 1995-20, 136 p.

Lefebure, D.V. and Höy, T., 1996. Selected British Columbia mineral deposit profiles volume 2 – more metallic deposits. British Columbia Ministry of Energy and Mines, British Columbia Geological Survey, Open File 1996-13, 172p.

Levson, V.M., 2001. Regional till geochemical surveys in the Canadian Cordillera: sample media, methods and anomaly evaluation. In: McClenaghan, M.B, Bobrowsky, P.T., Hall, G.E.M. and Cook, S.J. (Eds.), Drift Exploration in Glaciated Terrain, The Geological Society, Special Publication No. 185, pp. 45-68.

Levson, V.M., 2002. Quaternary geology and till geochemistry of the Babine Porphyry Copper Belt, British Columbia (NTS 93 L/9,16, M/1, 2, 7, 8). British Columbia Ministry of Energy and Mines, British Columbia Geological Survey, Bulletin 110, 278 p.

Mate, D.J. and Levson, V.M., 2000. Quaternary Geology of the Marilla map sheet (NTS 3F/12). In Geological Fieldwork 1998, British Columbia Ministry of Energy and Mines, British Columbia Geological Survey, Paper 1999-1, 1:50 000 scale map.

Mate, D.J. and Levson, V.M., 2001. Quaternary stratigraphy and history of the Ootsa Lake – Cheslatta River area, Nechako Plateau, central British Columbia. Canadian Journal of Earth Sciences, 38, pp. 751-765.

Plouffe, A., 1996a. Surficial geology, Cunningham Lake, British Columbia (NTS 93K/NW). Geological Survey of Canada, Open File 3183, 1:100 000 scale.

Plouffe, A., 1996b. Surficial geology, Burns Lake, British Columbia (NTS 93K/SW). Geological Survey of Canada, Open File 3184, 1:100 000 scale.

Shilts, W., 1993. Geological Survey of Canada's contributions to understanding the composition of glacial sediments. Canadian Journal of Earth Sciences, 30, pp.333-353.

Singh, N., 1998. Terrain classification map phase 3, 93E.076, 077, 086, 087, 088, 096, 097, 098. British Columbia Ministry of Forests, scale 1:20 000.

Stumpf, A.J., Broster, B.E. and Levson, V.M., 2000. Multiphase flow of the Late Wisconsinan Cordilleran Ice Sheet in western Canada. Geological Society of America Bulletin, 112, pp. 1850-1863.

Tipper, H.W., 1971a. Glacial Geomorphology and Pleistocene History of Central British Columbia. Geological Survey of Canada, Bulletin 196, 89 p.

Tipper, H.W., 1971b. Multiple glaciation in central British Columbia. Canadian Journal of Earth Sciences, 8, pp. 743-752.

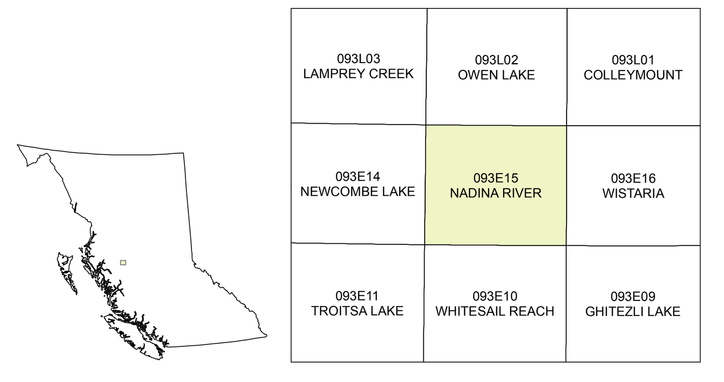
Tipper, H.W., 1994. Preliminary interpretations of glacial and geomorphic features of Smithers map area (93L), British Columbia. Geological Survey of Canada, Open File 2837, 7 p.

Young, G., 1976. 93E/15 Soils and Landforms, Nadina River. Department of Lands and Forests, 1:50 000 scale.

Figure 1. Subdued topography southwest corner of study area. View is towards the east with Mosquito Hills in the background.

Figure 2. Silt and clay-rich, overconsolidated diamicton, interpreted as a basal till. Moderately well-developed vertical jointing and subhorizontal fissility give this till a blocky appearance. Pick for scale (65 cm).

Figure 3. Photograph of rat tails on outcrop of Skeena Group conglomerate (Early Cretaceous). In centre of photograph is a large rat tail indicating ice-flow toward the west-southwest (256°), whereas rat tails above and below it indicate ice-flow toward the east (088°).



Recommended Citation:
Ferbey, T., 2014. Surficial geology of the Nadina River map area (NTS 093E/15), British Columbia. British Columbia Ministry of Energy and Mines, British Columbia Geological Survey Geoscience Map 2014-01, Geoscience BC Map 2014-09-01, scale 1:50 000.