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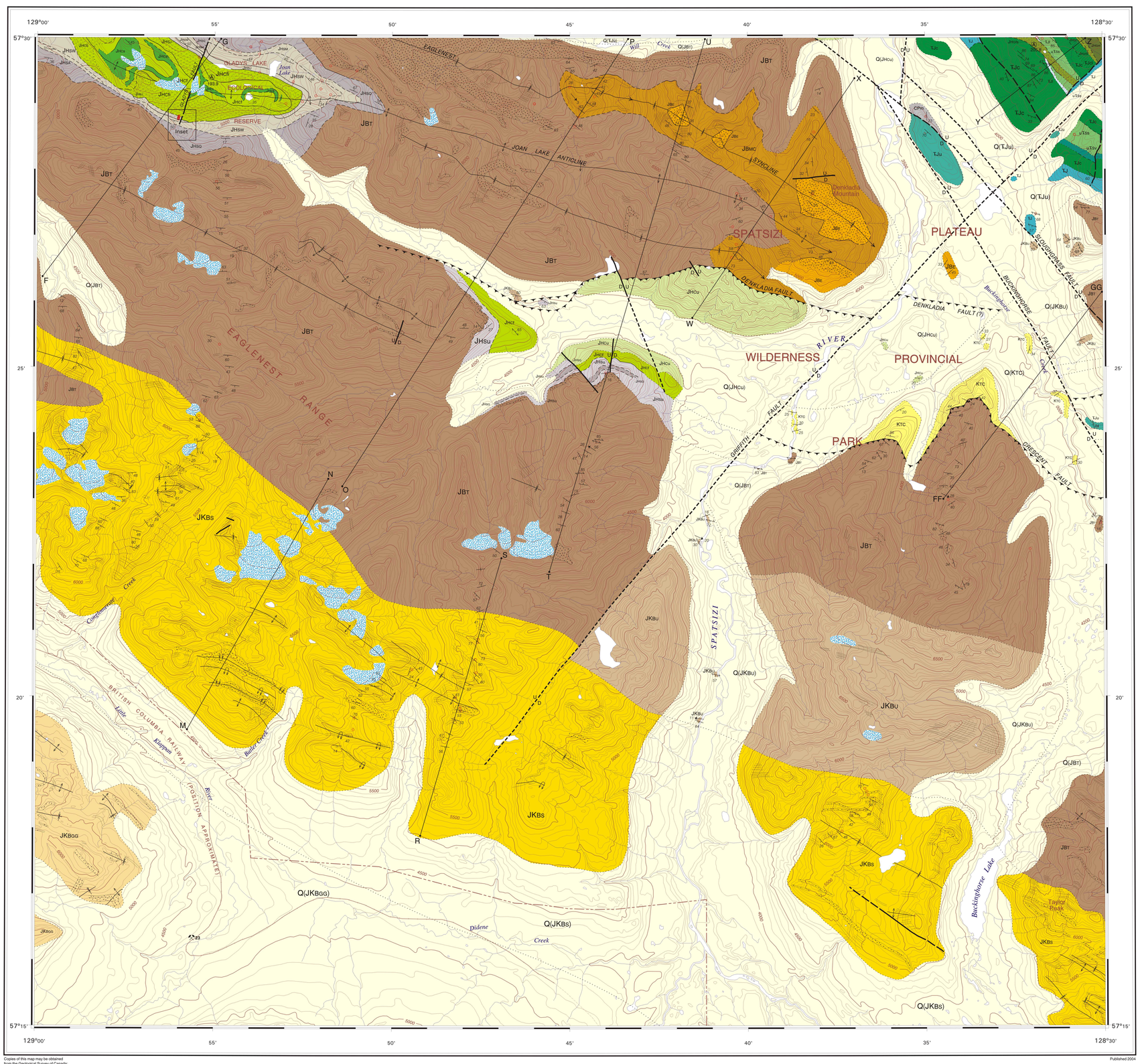
GEOLOGICAL SURVEY OF CANADA | COMMISSION GÉOLOGIQUE DU CANADA



Copies of this map may be obtained from the Geological Survey of Canada:
601 Booth Street, Ottawa, Ontario K1A 0E8
3303-33rd Street, N.W., Calgary, Alberta T2L 2A7
101-605 Robson Street, Vancouver, B.C. V6B 5J3

LOCATION MAP

Geology by C.A. Evenchick (1985-1989), D.J. Thorkelson (1986–1987), P.S. Mustard (1988), H. Gabrielse and H.W. Tipper (1981, 1983), and R.C. Thomson (1983)

Map compilation by C.A. Evenchick and D.J. Thorkelson

Digital geological cartography by C.L. Wagner, S. Churchill, and R. Cocking, Earth Sciences Sector Information Division (ESS Info), D. Dunn and C. Evenchick, Geological Survey of Canada

Any revisions or additional geological information known to the user would be welcomed by the Geological Survey of Canada

MAP 2033A

GEOLOGY

BUCKINGHORSE CREEK

BRITISH COLUMBIA

Scale 1:50 000/Échelle 1/50 000

kilometres 1 0 1 2 3 4 kilomètres

Universal Transverse Mercator Projection
North American Datum 1927

Projection transverse universelle de Mercator
Système de référence géodésique nord-américain, 1927

Digital base map from data compiled by Geomatics Canada, modified by ESS Info

Mean magnetic declination 2004, 23°39'E, decreasing 15.3' annually

Elevations in feet above mean sea level

Contour interval 100 feet

104 H/11	104 H/10	104 H/9
2029A	2030A	2031A
104 H/6	104 H/7	104 H/8
2034A	2033A	2032A
104 H/3	104 H/2	104 H/1
2037A	2038A	2039A

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

Published 2004

LEGEND

CENOZOIC

QUATERNARY
PLEISTOCENE AND RECENT

Q — *Glacial till, alluvium, and colluvium; unit designators in parentheses are the inferred underlying bedrock units.*

MESOZOIC

CRETACEOUS
UPPER LOWER AND UPPER CRETACEOUS
SUSTUT GROUP (unit KTC)
APTIAN OR ALBIAN TO CAMPANIAN

KTC — *TANGO CREEK FORMATION: micaceous sandstone, siltstone, mudstone, and minor quartz grit and pebble conglomerate; sandstone is grey- and green-weathering, occurring as laterally continuous sheets and as lenses; siltstone and mudstone are grey-, black-, and maroon-weathering.*

JURASSIC AND CRETACEOUS
UPPER JURASSIC AND LOWER CRETACEOUS
BOWSER LAKE GROUP (units JKBS–JKBGG)

JKBGG — *GROUNDHOG-GUNANOOT ASSEMBLAGE (deltaic assemblage): sandstone, siltstone, and carbonaceous and calcareous mudstone, with minor conglomerate and coal, locally arranged in fining-upward cycles; sandstone is fine- to medium-grained with planar bedding and planar-tabular crossbedding; large proportion of sandstone is thin- and thick-bedded, medium-grained, recessive drab green- or brown-weathering wacke; resistant and light grey-weathering arenite is less common and forms discontinuous sheets and lenses; finer grained strata are thinly bedded and locally include densely packed plant fossils; conglomerate sheets and lenses, which constitute 10% of the unit, are light grey-weathering, with large-scale crossbedding; plant fossils common and include in situ trees; marine fossils rare.*

JKBS — *SKELHORNE ASSEMBLAGE (deltaic assemblage): thinly intermixed and varicoloured siltstone, sandstone, and conglomerate (with or without coal), commonly arranged in coarsening- and thickening-upward cycles; common features of sandstone are parallel bedding, crossbedding, ripples, burrows, bivalve coquina, and brown-, green-, and grey-weathering; conglomerate is rusty- and grey-weathering, but constitute a lower proportion (15–30%) of the unit than in the Eaglenest assemblage; conglomerate units, up to 50 m thick, cap cycles up to 70 m thick, and tops locally have megaripples; plant and marine fossils are ubiquitous, and trace fossils including Skolithus and Diplocraterion are present, as are tree fragments several metres long.*

JKBU — *Undivided Bowser Lake Group.*

JURASSIC
UPPER MIDDLE TO UPPER JURASSIC
BOWSER LAKE GROUP (units JBT–JBE)

JBE — *EAGLENEST ASSEMBLAGE (deltaic assemblage): conglomerate, sandstone, siltstone, mudstone, and rare coal; arranged in coarsening- and fining-upward cycles of mudstone to pebble or cobble conglomerate; prominently rusty-weathering and 30 to 80% conglomerate; sheets of conglomerate, up to 50 m thick, include planar beds, tabular-planar cross-stratification and trough cross-stratification, with sets locally up to tens of metres thick; sandstone is green-, brown-, and grey-weathering, and has planar cross-stratification and hummocky cross-stratification; sparse marine fossils, but abundant plant fossils, including silicified tree fragments.*

JBMC — *MUSKABOO CREEK ASSEMBLAGE (shelf assemblage): sandstone, siltstone, and conglomerate; primary lithofacies is sandstone, forming laterally continuous, thin- to thick-bedded sheets; less common are siltstone interbedded with sandstone, and lenses of conglomerate; sandstone is green-, brown-, and grey-weathering, thin- to thick-bedded, and locally arranged in coarsening-upward cycles; includes burrows, bivalve coquina, and other marine fossils, common ripple marks and crossbedding, and local hummocky cross-stratification; conglomerate increases in proportion and thickness upsection.*

JBT — *TODAGIN ASSEMBLAGE (slope assemblage): siltstone, fine-grained sandstone, and conglomerate; mainly laminated siltstone and/or fine-grained sandstone, which is dark grey- to black-weathering and includes thin, orange-weathering claystone beds and syndepositional faults and folds; chert-pebble conglomerate occurs as lenses; marine fossils.*

LOWER AND LOWER MIDDLE JURASSIC
HAZELTON GROUP (units JHCI–JHSO)
PLIENSBACHIAN TO BAJOCIAN
SPATSIZI FORMATION (units JHSU–JHSO)

JHSQ — *QUOCK MEMBER: siliceous, well bedded, (?)tuffaceous siltstone, siltstone, and limy siltstone; black-, cream-, rusty-, and pink-weathering.*

JHSA — *ABOU MEMBER: calcareous to siliceous organic shale, laminated, light-weathering.*

JHSM — *MELISSON MEMBER: siliceous and calcareous siltstone and fine-grained sandstone.*

JHSW — *WOLF DEN MEMBER: shale, dark grey- to black-weathering, with minor calcareous concretionary beds.*

JHSJ — *JOAN MEMBER: siltstone, with minor mudstone, limestone, and local basal conglomerate.*

JHSU — *Undivided Spatsizi Formation: siltstone, siliceous siltstone, calcareous siltstone, mudstone, fine-grained sandstone.*

LOWER JURASSIC
LOWER PLIENSBACHIAN
COLD FISH VOLCANICS (units JHCU–JHCS)

JHCS — *Subaerial mafic lava flows interbedded with felsic air-fall tuff and nonwelded ignimbrite, and minor felsic sills, welded ignimbrite, conglomerate, sandstone, shale, and subaqueous mafic lava.*

JHCF | JHCFI — *Felsic volcanic rocks, including sills, dykes, welded and nonwelded ignimbrite, air-fall tuff-breccia, and lava, with minor mafic lava and epiclastic rocks. JHCFI: welded ignimbrite, and minor nonwelded ignimbrite and felsic sills.*

JHCU — *Undivided Cold Fish Volcanics.*

HETTANGIAN
GRIFFITH CREEK VOLCANICS (units JHGF and JHGM)

JHGM — *Mafic lava flows, mainly with phenocrysts of plagioclase and augite or hornblende; minor welded ignimbrite and felsic sills, some hosting grains of feldspar, biotite, quartz, or hornblende.*

JHGF | JHGFS — *Felsic to intermediate sills, ignimbrite, and air-fall tuff, some of the units rich in plagioclase, biotite, hornblende, or quartz, minor epiclastic rocks and mafic lava. JHGFS: felsic to intermediate sills, biotite-phyric.*

UPPER TRIASSIC TO LOWER JURASSIC
(?)CARNIAN AND (?)NORIAN TO HETTANGIAN AND/OR LOWER SINEMURIAN

TJC | TJCI — *Conglomerate, sandstone, shale, mafic to intermediate volcanic breccia, and olistostrome; conglomerate clasts are mainly hornblende and plagioclase porphyry andesite, but include augite-phyric mafic lava and other volcanic rocks and felsic to intermediate granitoid rocks. TJCI: conglomerate containing abundant clasts of Norian limestone, and varicoloured chert; older than Griffith Creek volcanics.*

TJU — *Undivided Stuhini Group, unit TJC, and Griffith Creek volcanics.*

TJL — *Light grey micrite.*

TJU — *Undivided Stuhini Group, unit TJC, Griffith Creek volcanics, and Cold Fish Volcanics.*

TRIASSIC
UPPER TRIASSIC
(?)CARNIAN TO NORIAN
STUHINI GROUP (units uTSS and uTSV)

uTSV — *Mafic lava flows, mainly aphyric to augite-phyric; minor conglomerate, sandstone, mudstone, limestone, and olistostrome.*

uTSS — *Mudstone, shale, sandstone, and olistostrome; minor conglomerate and mafic lava.*

PALEOZOIC

CARBONIFEROUS TO PERMIAN

CPM — *White marble.*

Geological boundary (defined, approximate, assumed or inferred beneath unit Q)

Trace of individual beds from ground observation and airphoto interpretation

Fault, unknown displacement (defined, approximate, assumed or inferred beneath unit Q)

Thrust fault (defined, approximate, assumed or inferred beneath unit Q); symbol on hanging-wall side

Normal fault (defined, approximate, assumed or inferred beneath unit Q); symbol on downthrown side

Steeply dipping fault, dip unknown (defined, approximate, assumed or inferred beneath unit Q); U on upthrown side, D on downthrown side

Anticline, trace of axial surface (defined, approximate, overturned); arrow on line indicates direction of plunge

Syncline, trace of axial surface (defined, approximate, overturned); arrow on line indicates direction of plunge

Open, inclined fold, trace of axial surface (anticline, syncline); long arrow points in direction of dip of axial surface

Cross-section location. The cross-sections for this map area are shown in Figures 171 and 172 of GSC Bulletin 577 (Evenchick and Thorkelson, in press) A B

Bedding (inclined, vertical) 30

Cleavage (inclined) 20

Fold axis 10

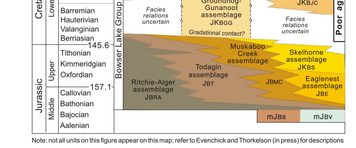
Fossil location

Mineral occurrence (from British Columbia MINFILE; see Table 1 below) 25

Radiometric age (in Ma) 200 A

Conglomerate

Icefield



Note: not all units on this figure appear on this map; refer to Evenchick and Thorkelson (in press) for descriptions

Figure 1. Approximate ages and relationships of units in the Bowser Lake Group

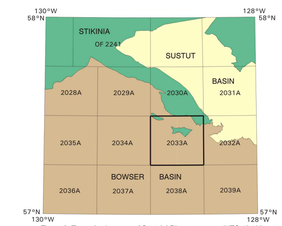


Figure 3. Tectonic elements of Spatsizi River map area (NTS 104 H) and location of NTS 104 H/7 (Map 2033A)

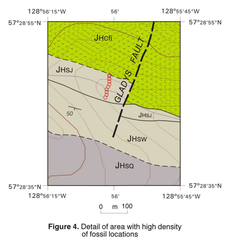


Figure 4. Detail of area with high density of fossil locations

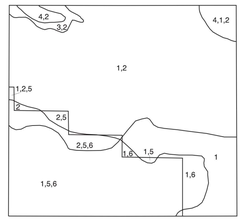


Figure 2. Reference map for NTS 104 H/7

ID	MINFILE	NAMES	EASTING	NORTHING	COMMODITY	STATUS
23	104H 022	MOUNT KLAPPAN (SUMMIT); GROUNDHOG	504420	6347480	Coal	Developed prospect

Table 1. Mineral occurrence data for Buckinghorse Creek area.

Sources of information for this compilation are geological mapping by 1) C.A. Evenchick, 1985, 1986, 1987, 1988 (with P.S. Mustard and C.F. Roots); 2) H. Gabrielse and H.W. Tipper, 1981, 1983, (1984); 3) R.C. Thomson et al. (1986); 4) D.J. Thorkelson, 1986, 1987; alternate interpretations are by 5) Koo (1986); and 6) Moffat (1985). Dates in parentheses are years of publications. Other dates are years of fieldwork from which fieldnotes are the source of information.

Previous geological maps of the region are by Geological Survey of Canada (1957), Gabrielse and Tipper (1984), Thompson et al. (1986), and Thorkelson (1992).

Geology of the surrounding region (NTS 104 H) and descriptive notes are given by Evenchick and Thorkelson (in press).

REFERENCES

Evenchick, C.A. and Thorkelson, D.J.
In press: Geology of the Spatsizi River map area, north-central British Columbia; Geological Survey of Canada, Bulletin 577.

Gabrielse, H. and Tipper, H.W.
1984: Bedrock geology of Spatsizi map area (104 H); Geological Survey of Canada, Open File 1005, scale 1:125 000.

Geological Survey of Canada
1957: Stikine River area, Cassiar District, British Columbia; Geological Survey of Canada, Map 9-1957, scale 1:253 440.

Koo, J.
1986: Geology of the Klappan coalfield in northwest British Columbia; British Columbia Ministry of Energy, Mines, and Petroleum Resources, Open File Map 1986-3, scale 1:50 000.

Moffat, I.W.
1985: Nature and timing of deformational events and organic-inorganic metamorphism in the Northern Groundhog coalfield: implications for the tectonic history of the Bowser Basin; Ph.D. thesis, University of British Columbia, Vancouver, British Columbia, 204 p.

Thomson, R.C., Smith, P.L., and Tipper, H.W.
1986: Lower to Middle Jurassic (Pliensbachian to Bajocian) stratigraphy of the northern Spatsizi area, north-central British Columbia; Canadian Journal of Earth Sciences, v. 23, p. 1963–1973.

Thorkelson, D.J.
1992: Volcanic and tectonic evolution of the Hazelton Group in Spatsizi River (104 H) map area, north-central British Columbia; Ph.D. thesis, Carleton University, Ottawa, Ontario, 299 p.

Recommended citation:
Evenchick, C.A. and Thorkelson, D.J.
2004: Geology, Buckinghorse Creek, British Columbia; Geological Survey of Canada, Map 2033A, scale 1:50 000.

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