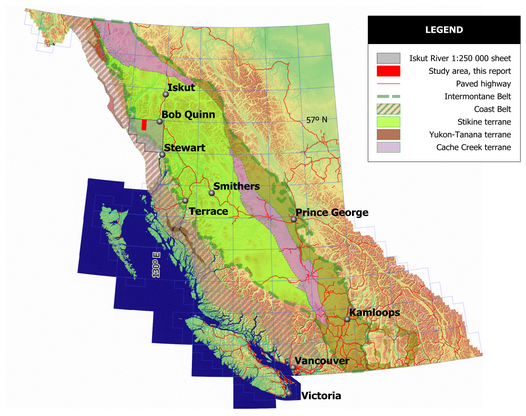

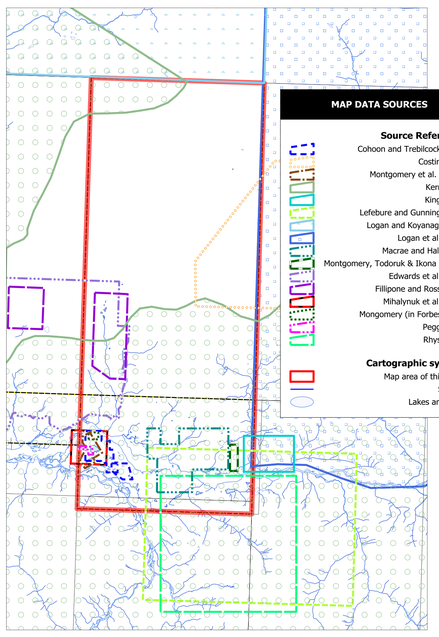

SYMBOLS

Geological contact: defined, approximate, inferred
Form lines
Unconformity: defined, approximate, inferred
Fault: defined, approximate, inferred
Thrust fault: defined, approximate, inferred
Axial trace of regional fold: antiform, anticline, synform, syncline
Bedding: tops indicated, overturned, inclined, vertical
Fabric: jointing; slaty cleavage or schistosity (inclined, vertical, second phase)
Fold axis, axial cleavage
Lineation: inclined, horizontal
Contact, Brittle shear, Slickenside, Reverse shear band
Glacial striae
Isotopic age date sample site: U-Pb zircon (see Mihalynuk et al., 2011) ~340Ma
Past producer, developed prospect, showing
Drill Hole, surface trace of mineralization
Limit of mapping
Airstrip
Topographic contour (20 metre intervals) and spot heights 1200
Firn (multi-year snown on ice); Moraine (where mapped)
Glaciers; Lakes; Wetlands (swamps and marshes)
Outcrop (darker shade)

Base map is National Topgraphic System (NTS)
Universal Transverse Mercator, zone 9
North American Datum 1983 (Canada)

Suggested Citation:

Mihalynuk, M.G., Logan, J.M. and Zagorevski, A. (2011): East Hoodoo Mountain - Iskut River Geology (NTS 104B/14E, 11NE); BC Ministry of of Energy and Mines, Open File 2011-4, 1:50 000 scale.

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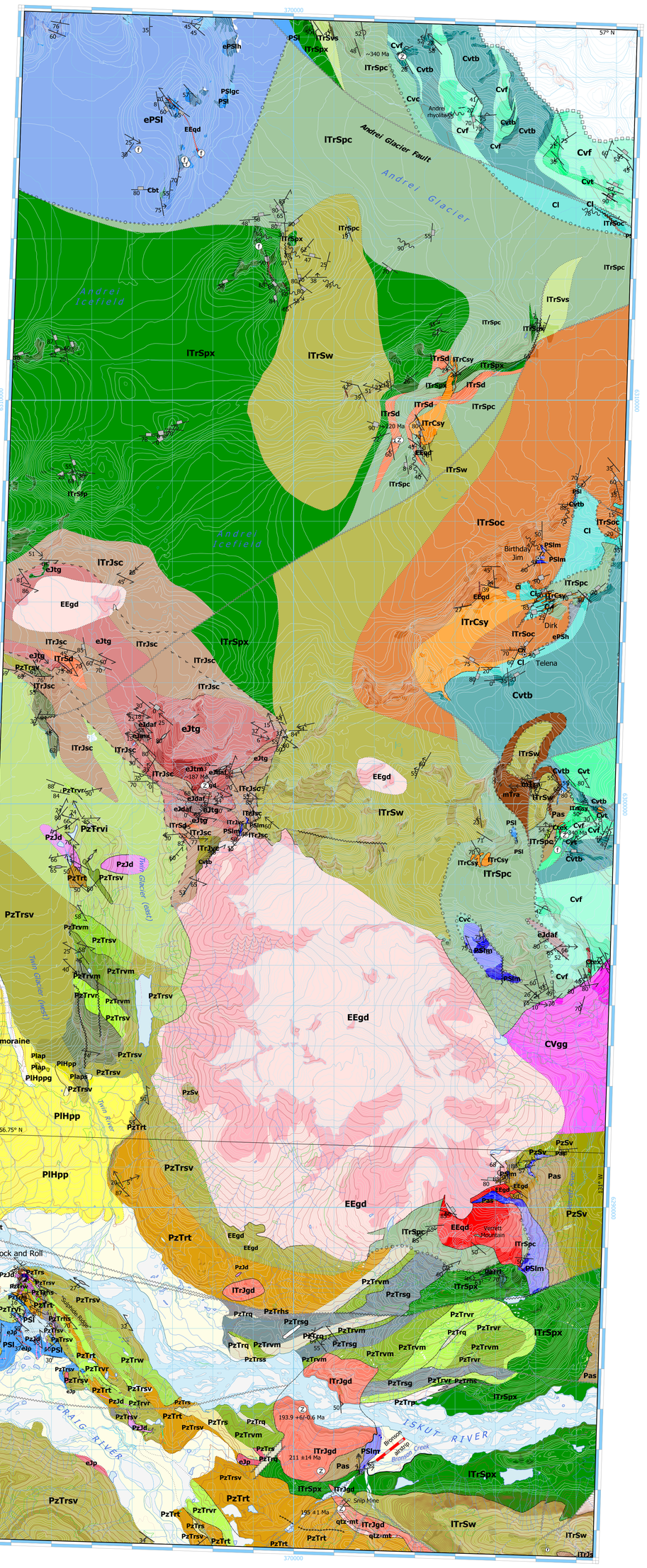

BC Geological Survey -
Geological Survey of Canada

BCGS Open File 2011-4
GSC Open File 6730

East Hoodoo Mountain - Iskut River Geology

NTS 104B/14E & 11NE

Mitchell G. Mihalynuk, James M. Logan and Alexandre Zagorevski

Scale 1:50 000

0 kilometres 5

LEGEND

LAYERED ROCKS

PLEISTOCENE AND HOLOCENE
Hoodoo Mountain Volcanic Complex (subdivision and descriptions after Edwards et al., 2000)

- **PlHpp** — Unglaciated porphyritic phonolite lava flows containing alkali feldspar phenocrysts.
- **PlHppg** — Porphyritic phonolite lava flows partly modified by glaciation (near margins of modern alpine glaciers). Unpublished preliminary isotopic age determinations of 7 Ka and 28 Ka are reported by Edwards et al. (2000).
- **Plap** — Pleistocene undivided aphanitic phonolite lava flows. Immediately southwest of the Twin Glacier terminus, three flow domes have been mapped by Edwards et al. (2000). These authors also report unpublished K-Ar age determinations ranging from 0.11 ±0.03 Ma to 0.02 ±0.01 Ma.
- **Plaps** — Aphanitic phonolite lava flows and spines displaying evidence of shallow subglacial eruption. Strongly-developed, closely-spaced jointing is common. Abundant irregular vesicles may contain analcite.
- **Plapm** — Aphanitic phonolite lava flows within the medial parts of the volcanic section. Strongly jointed producing thin, commonly radiating columns (~0.5m thick).

EARLY JURASSIC
Hazelton Group?

- **eJmx** — Coarse basalt breccia; fine-grained, locally scoriaceous, ± wacke interlayers. May grade into unit eJtg and lTrJsc.
- **eJtg** — Well-bedded, bright green lapilli ash tuff and tuffite; extensively chlorite - epidote altered; beautiful relict layering locally overprinted by intense foliation and sericite-quartz alteration; mafic to intermediate compositions.
- **eJtm** — Massive to bedded, maroon ash to lapilli tuff ±tuffite, commonly with a platy cleavage. Similar units occur in Late Triassic and Carboniferous sectons.
- **eJdaf** — Hornblende ± biotite and feldspar crystal-rich dacite ash flow / air fall tuff; commonly light maroon-weathering; preliminary U-Pb zircon age of 187 Ma (N. Joyce, pers. comm.); correlative with Betty Creek Fm. to south.
- **lTrJsc** — Dominantly quartz-bearing, turbiditic volcanic sandstone and argillite, lesser calcareous, rusty conglomerate dominated by sedimentary, volcanic and granitoid clasts.
- **lTrJvc** — Volcanic conglomerate with carbonate matrix dominated by wacke and feldspar porphyry clasts; a subunit of lTrJsc where mappable.

LATE TRIASSIC (PROBABLY TO EARLIEST JURASSIC)
Stuhini Group

- **lTrSw** — Orange and black turbiditic sandstone and conglomerate with coaly fragments common in 104B/14. Clasts are dominated by brown, altered, tabular feldspar porphyry.
- **lTrSoc** — Conglomerate and tuffite: orange, coarse biotite crystal-rich matrix, clasts include tabular feldspar porphyry, syenite and coarse K-feldspar crystals. Cut by breccia dikes and diatremes with similar clasts.
- **lTrSd** — Maroon dacite tuff. Feldspar, quartz and minor biotite crystal tuff to lapilli crystal ash tuff. Welding is poorly developed; pummice blocks are compacted. Also white rhyolite as coarse breccia, tuff and flow within unit lTrJsc; preliminary U-Pb zircon age of ~220 Ma (N. Joyce, pers. comm.).
- **lTrSpc** — Polymictic conglomerate. Carbonate, feldspar porphyry, pyroxene porphyry and granitoid clasts are common. Ash-rich matrix supported, typically maroon and massive to well-bedded.
- **lTrSvs** — Well-bedded maroon and green ash and lesser lapilli tuff and tuffite, commonly feldspar crystal-rich.
- **lTrSfp** — Feldspar porphyry tuff: mainly breccia, grades into maroon lapilli-ash tuff and may be interbedded with unit lTrSpx.
- **lTrSpx** — Augite ±feldspar porphyry: orange-tan to green-weathering, coarse, commonly crowded phenocrysts; breccia, ash tuff and lesser pillowed flows.

MIDDLE TO LATE TRIASSIC

- **mTra** — Dark brown to black, commonly rusty graphitic, calcareous, turbiditic argillite-wacke. Sparce decimeter thick, light grey interbeds of micritic Halobia or Daonella packstone.

PALEOZOIC TO TRIASSIC UNDIVIDED
Metamorphosed Stikine Assemblage and Stuhini Group, deformed and cut by Late Triassic - Early Jurassic intrusions

- **PzTrsv** — Undivided sedimentary and volcanic rocks.
- **PzTrl** — Brown-weathering, slabby recrystallized corraline limestone located south of Mt. Varrett.
- **PzTrvm** — Mafic volcanic: tuff and minor flows; may display relict pyroxene phenocrysts. Locally magnetite pophyroblastic. Also as dikes.
- **PzTrvi** — Breccia and ash of intermediate composition; includes amygdaloidal flows near Twin Glaciers.
- **PzTrvr** — Rhyolite and dacite tuff and rare flows (interpreted from drill core near Rock and Roll). Interlayered rhyolite and basalt flows at Twin Glaciers. "Sanidine porphyry" flows south of Mount Verrett. Interbedded with quartzite above lower Craig River.
- **PzTrw** — Argillite-siltstone: recessive, grey, brown and rust-weathering argillite and laminated siltstone couplets interpreted as A-E turbidites; rare quartz-eye tuff layers near Rock and Roll; may correlate with Cvt.
- **PzTrt** — Tuffaceous phyllite and volcanic siltstone/wacke: light to dark green and platy-weathering.
- **PzTrs** — Siltstone-sandstone: locally well laminated with volcanic association and/ or volcanic lithic grains; may contain lenses of conglomerate.
- **PzTrss** — Sericite schist (Macrae and Hall, 1983).
- **PzTrp** — Porcellanite (Macrae and Hall, 1983).
- **PzTrq** — Quartz-rich sandstone southwest of Mount Verrett
- **PzTrsg** — Graphitic siltstone and argillite: black and rusty, commonly pyritic and recessive. Mainly siltstone southwest of Mount Verrett. At "Sulphide Ridge" it is mainly sooty argillite, and hosts mineralization at the Black Dog zone.
- **PzTrhs** — Chert; may include silicified siltstone and volcanic dust tuff.

DEVONIAN TO PERMIAN
Stikine Assemblage - undivided late Paleozoic (Devonian to Permian)

- **PSl** — Undivided limestone: typically massive, crinoidal grainstone. Probably mainly Early Permian.
- **PSlm** — White to tan or grey marble. Variable protoliths as young as Permian.
- **PzSv** — Metamorphosed intermediate to mafic volcanic tuff
- **Pas** — Calcareous turbiditic wacke: argillite and siltstone couplets.

mainly Early Permian

- **ePSl** — Cream to dark grey limestone, locally with giant fusulinids, silicidied bryozoa, bivalves and crinoids common. Possibly ranges in age to Middle Permian.
- **ePSlh** — Dark grey, thickly bedded (dm to m) limestone with irregular black chert interbeds.
- **PSlgc** — Well-bedded grey/black and cream/tan-coloured limestone.
- **ePSh** — Well-bedded, radiolarian chert; black, grey ±rust-weathering. Near the Dirk prospect are cm to dm interbeds with thinner, light grey to yellow-weathering, poorly indurated claystone. Probably ranging in age to Late Carboniferous.

mainly Middle Carboniferous

- **Cvt** — Volcanic wacke, argillite: thin lenses or beds of volcanic conglomerate; white rhyolite and dark green mafic clasts are common; bioturbated locally; rare cm-thick lenses of pyrite and pyrite clasts.
- **Cbt** — Well-bedded green to maroon ash to lapilli tuffite and tuff, with sparce, irregular red chert (exhalite?) which may include stratiform pyrite and chalcopyrite lenses.
- **Cvc** — Volcanic conglomerate dominated by wacke and feldspar porphyry clasts. A subunit of Cvt where mappable.
- **Cl** — Crinoidal limestone: typically light grey with large crinoids, well-bedded to massive. Basal parts may be interlayered with basalt.
- **Cvf** — Felsic volcanic rocks, mainly light yellow to green-weathering rhyolite and dacite; locally displays welding; preliminary U-Pb zircon age of 340 Ma (N. Joyce, pers. comm.).
- **Cvtb** — Mainly green tuff and pillows with jasper at margins, grades into unit Cl; lesser fine-grained rusty wacke and argillite may grade into Cvt. Includes one outcrop area (of probable Early Permian age) in NW corner of map area.

INTRUSIVE ROCKS

Early Eocene

- **EEgd** — Hornblende-biotite granodiorite. White to grey-weathering, locally with xenolith-rich zones and amphibolitic schleiren.
- **EEqd** — Dark grey, blocky, varitextured biotite hornblende quartz diorite and granodiorite.

Early Jurassic and Late Triassic

- **eJp** — Red Bluff stock: K-feldspar porphyry; reported U-Pb zircon age is 195 ±1Ma (Macdonald et al., 1992).
- **qtz-mt** — Quartz-magnetite alteration zone south of Red Bluff stock (Lefebure and Gunning, 1989).
- **lTrJgd** — K-feldspar megacrystic granodiorite: coarse holocrystalline to porphyritic; secondary fine biotite is pervasive where potassic-altered. Includes Bronson stock with reported U-Pb zircon ages of 193.9 +6/-0.6 Ma (Lewis et al., 2001) and 211 ±14 Ma (Macdonald et al., 1992). Includes non-porphyritic dikes and granodiorite along the Craig River.

Late Triassic Copper Mountain Suite

- **lTrCsy** — K-spar porphyritic syenite, generally with abundant primary biotite > hornblende. Breccia, tuff and subvolcanic intrusions. Includes carbonate-biotite-K-feldspar diatremes with multiple generations of biotite and?chrome diopside xenocrysts.

Paleozoic to Jurassic

- **PzJd** — Diorite stocks and dikes: variably foliated and/or cataclastically deformed; medium-grained, dark green, includes minor quartz diorite.

Carboniferous?

- **CVgg** — Verrett pluton: graphic granite, tan to orange, rubbly to blocky weathering, pyritic, cataclastically deformed northern contact.

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