



MINERAL OCCURRENCE INVESTIGATIONS AND EXPLORATION MONITORING IN THE NECHAKO PLATEAU (93F/2, 3, 7, 10, 11, 12, 14, 15 AND 93C/9 AND 16)

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INTRODUCTION

This report summarizes preliminary investigations of eleven different mineral occurrences that were visited during the 1994 field season (Figure 1). Ten are located in the Nechako River map area (93F) and one in the Anahim Lake map area (93C). Metallogenic studies are part of a multidisciplinary project being carried out by the British Columbia Geological Survey Branch in the Nechako Plateau region of central British Columbia. The integrated project also includes regional-scale bedrock mapping, lake sediment sampling, surficial deposits mapping and till sampling. Since its inception, this project has raised the mining industry's awareness of the Nechako Plateau as an area that is underexplored. The potential of the region to host different styles of mineral deposits derives from its favourable geology, characterized by Jurassic Hazelton Group, Cretaceous Kasaska Group and Eocene Ootsa Lake Group stratigraphy, their genetically related intrusions and locally complex structural history. However, much of the geological record lies hidden beneath the low rolling, forested topography that is typical of the area, and a veneer of, locally, deceptively thin, glacial till.

In 1993, during the first full year of the project, many exploration targets were generated. Presentation of data and ideas to industry took place during the Cordilleran Roundup held in Vancouver in January, 1994. Included were bedrock gold anomalies discovered during the course of mapping the Fawnie Creek map sheet (93F/03; Diakow and Webster, 1994). The release of this information prompted an immediate response; staking of the occurrences began the following day. In June, 1994, the release of data from two regional surveys, lake sediment geochemistry (Cook and Jackaman, 1994) and till geochemistry (Levson and Giles, 1994), generated a wave of staking in the area. During the two months that followed the geochemistry releases, 708

claim units were recorded by eleven separate companies or individuals. Most of the new claims covered geochemical anomalies documented in the releases.

These contributions to the geoscience database for the Interior Plateau are, in part, responsible for the more than 1300 claim units staked in NTS 93F in 1994 (to mid-October), more than ten times the 1993 level, albeit a quiet year for staking in the area, and an increase of 35% over 1992 (Figure 2). Eight major companies, two junior companies and eight (or more?) prospectors and geologists were active in the region during the 1994 field season. The number of exploration projects in the area also increased, as did the level of exploration expenditures. Approximately 6500 metres of diamond drilling was completed during the summer, in fifty holes by four companies on six properties. Fall and/or winter drilling programs are planned for at least three more properties. Diamond drilling was not part of any exploration project in 1993.

Our understanding of the region continues to evolve as new information comes to light and refinements are made to existing databases. For example, the age of two intrusive bodies previously mapped as upper Jurassic and/or Cretaceous, has been reinterpreted on the basis of new K-Ar data. One pluton, the Capoose batholith, has been confirmed as Jura-Cretaceous and the other, north of Tatelukuz Lake, has been assigned an Eocene age (L. J. Diakow, personal communication, 1994). These two periods of igneous activity are in addition to an event that occurred during the Late Cretaceous (Andrew, 1988) and may be related to alteration and mineralization at the Capoose prospect.

MINERAL OCCURRENCE DESCRIPTIONS

This year's work builds on information presented by the authors in 1992 and 1994 that described several different styles of mineralization (Schroeter and Lane, 1992; 1994). Several of those occurrences were re-visited in 1994. A brief description of each mineral occurrence investigated during the summer is presented below and summarized in Table 1. Included is a

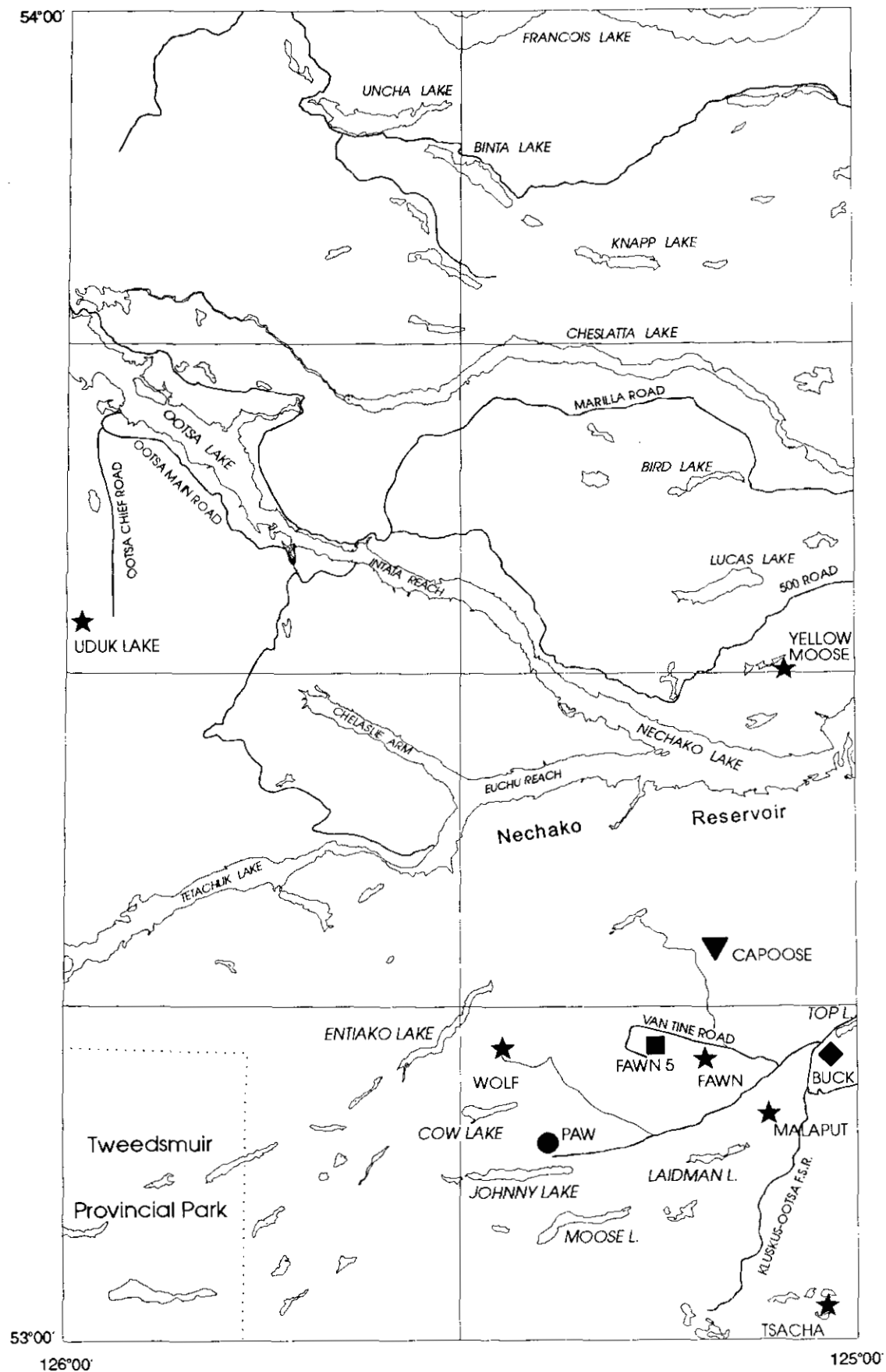


Figure 1. Location of metallic mineral occurrences on the Nechako Plateau visited in 1992, 1993 and 1994 (NTS 93F).

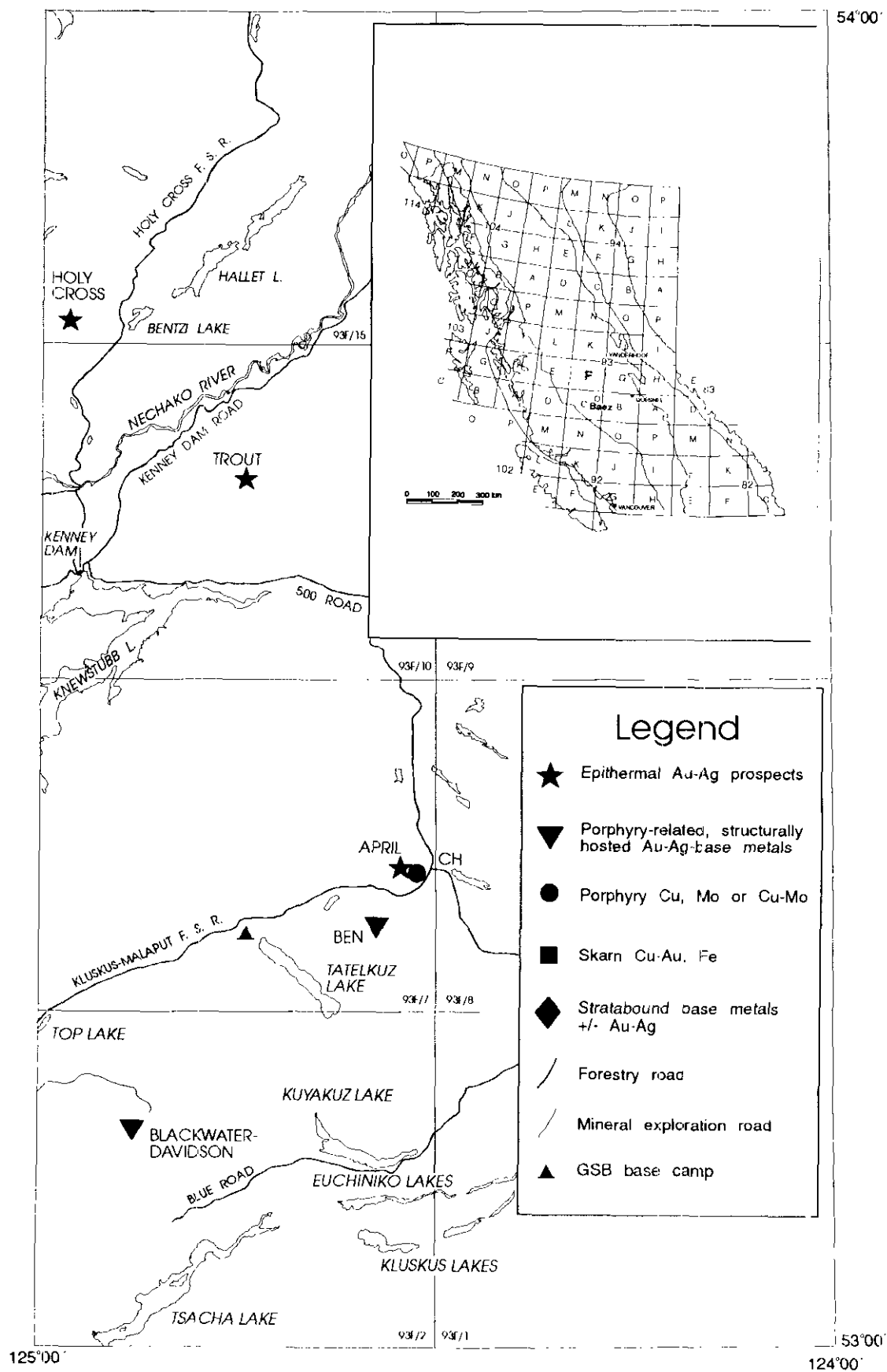


TABLE 1. MINERAL OCCURRENCES INVESTIGATED IN 1994.

Property	Style of mineralization	Hostrock Age - Group	Map sheet	Operator
Tsacha (Tommy)	epithermal precious metal	Jurassic - Hazelton	93F/02	Teck Corporation
Buck	stratabound(?) or replacement precious-base metal	Jurassic - Hazelton	93F/03	Western Keltic Mines Inc.
Fawn	epithermal precious metal	Jurassic - Hazelton	93F/03	Western Keltic Mines Inc.
Malaput	epithermal precious and base metal	Jurassic - Hazelton	93F/03	Western Keltic Mines Inc.
April	epithermal precious and base metal	Jurassic - Hazelton	93F/07	Granges Inc.
Ben	struct.-hosted precious and base metal	Jurassic - Hazelton	93F/07	BHP Minerals Canada Ltd.
Trout	epithermal precious metal	Cretaceous - Kasalka	93F/10	Cogema Resources Inc.
Yellow Moose	epithermal precious metal	Eocene - Ootsa Lake	93F/11	Cogema Resources Inc.
Uduk Lake	epithermal precious metal	Eocene - Ootsa Lake	93F/12	Pioneer Metals Corporation
Holy Cross	epithermal precious metal	Eocene - Ootsa Lake	93F/15	Noranda Exploration Company, Limited
Baez (Oboy)	epithermal precious metal	Eocene - Ootsa Lake	93C/16	Phelps Dodge Corporation of Canada Ltd.

summary of a two-week, 1:15 000-scale preliminary bedrock mapping project in the Holy Cross Mountain to Bentzi Lake area (93F/14 and 15; including the Holy Cross mineral occurrence).

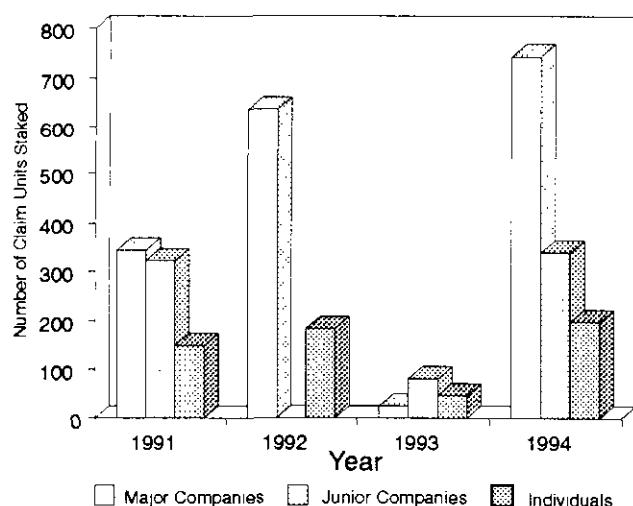


Figure 2. Histogram showing the number of mineral claims staked in the Nechako River map sheet (NTS 93F), by major companies, junior companies and individuals, from 1991 to 1994, inclusive.

More emphasis was placed on examining Tertiary Ootsa Lake Group acid volcanic hosted epithermal precious metal occurrences in 1994. Of the eleven occurrences visited, eight are epithermal in character and two more are possible epithermal settings. The remaining occurrence appears to be stratabound base metal target.

OOTSA LAKE GROUP EPITHERMAL PROSPECTS

HOLY CROSS (MINFILE: 093F 029) 93F/14E, 15W

The Holy Cross epithermal precious metal prospect was investigated as part of a property-scale (1:15 000)

mapping project, undertaken by the senior author, between Holy Cross Mountain and Bentzi Lake (Figure 3). The project area is located approximately 33 kilometres south of Fraser Lake. The Holy Cross forest service road, which extends southward from Highway 16, 5 kilometres east of Fraser Lake, passes within 2 kilometres of the project area. Three secondary logging roads (the Holy Cross North, 37 and 40 roads) extend westward into the area mapped. A 4-wheel-drive road extends farther west from the end of the 37 road to an abandoned exploration camp and several trenches.

The area of interest includes a large part of the now lapsed HC claim group, an area that was the focus for exploration by Noranda Exploration Company, Limited during 1988 and 1989. The claims covered gold anomalies defined by rock chip samples of silica-flooded rhyolite (Donaldson, 1988). Exploration by Noranda included geochemical surveys, magnetometer and I.P. surveys, geological mapping and the excavation of 26 trenches (Donaldson, 1988; Barber, 1989). There is no record of exploration prior to Noranda's activity.

Topography consists mostly of gentle rolling to moderately steep slopes. Elevations in the area range from 850 to 1410 metres. Outcrop is concentrated mostly on ridge crests and steep south-facing slopes and covers 5 to 7% of the map area. Extensive logging has made outcrops in low-lying areas more obvious and accessible. Road building has generated additional exposures.

The oldest rocks exposed in the area are Middle Jurassic Hazelton Group intermediate volcanics. They occur along the north-facing slopes and low-lying areas in the northern part of the map area. Lithologies include reworked andesitic crystal tuffs and plagioclase-phyric flows. These rocks have been thermally metamorphosed to a fine-grained mottled pale pink and green rock with relict plagioclase phenocrysts where they are intruded by a biotite quartz monzonite plug.

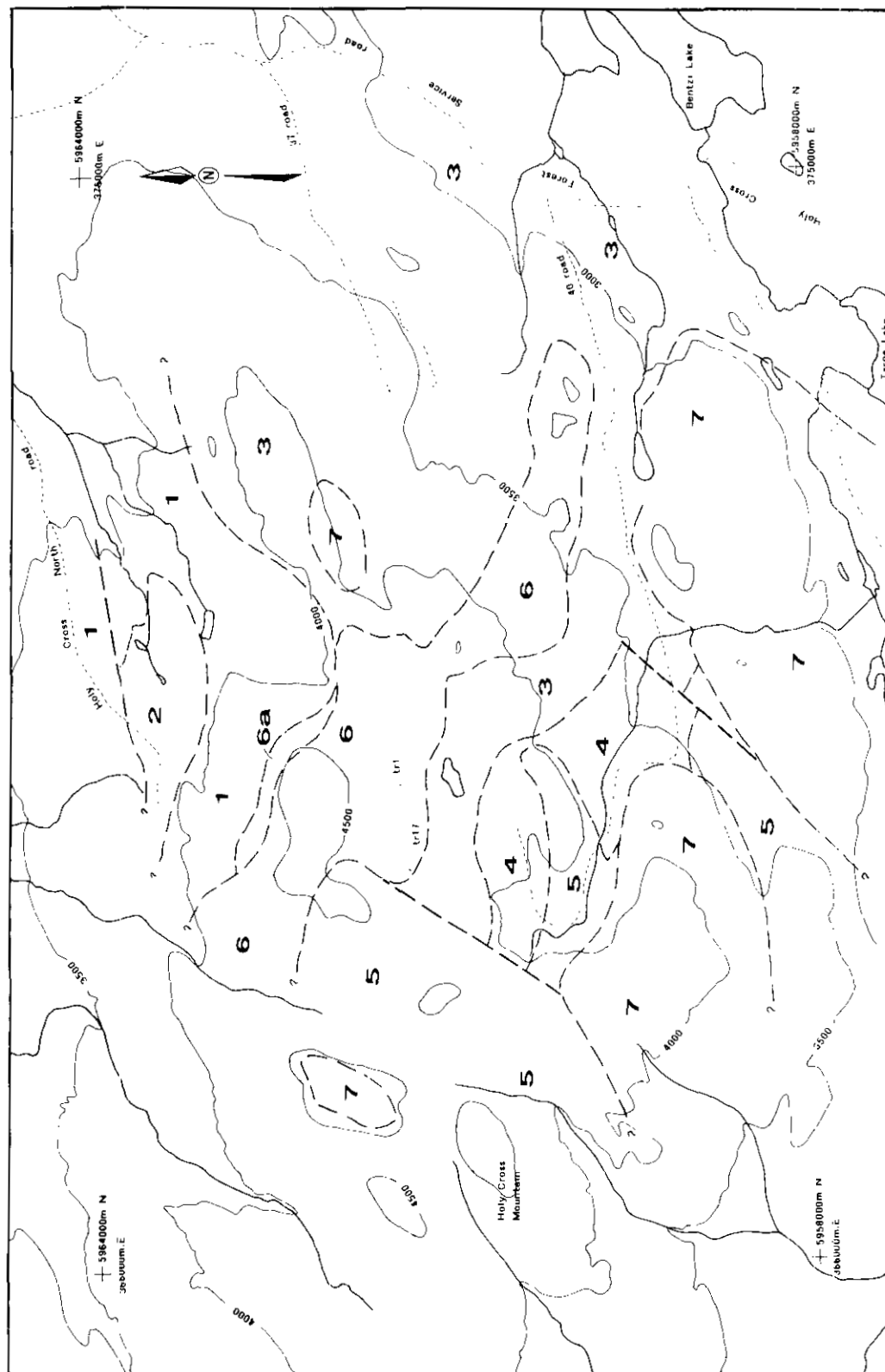


Figure 3. Preliminary bedrock geology map of the Holy Cross Mountain to Bentzi Lake area, southeast corner of NTS map sheet 93F/14F and southwest corner of 93F/15W. 1=Jurassic Hazelton Group; 2=Jura-Cretaceous biotite quartz monzonite; 3=Cretaceous Kasaska Group; 4=Cretaceous 'Skeena Group' equivalent; 5=unnamed Cretaceous(?) hornblende dacite; 6=Eocene Ootsa Lake Group; 7=Tertiary Endako Group. Heavy dashed lines=geologic contacts; fine stippled lines=roads; |...|=locations of trenches referred to in text.

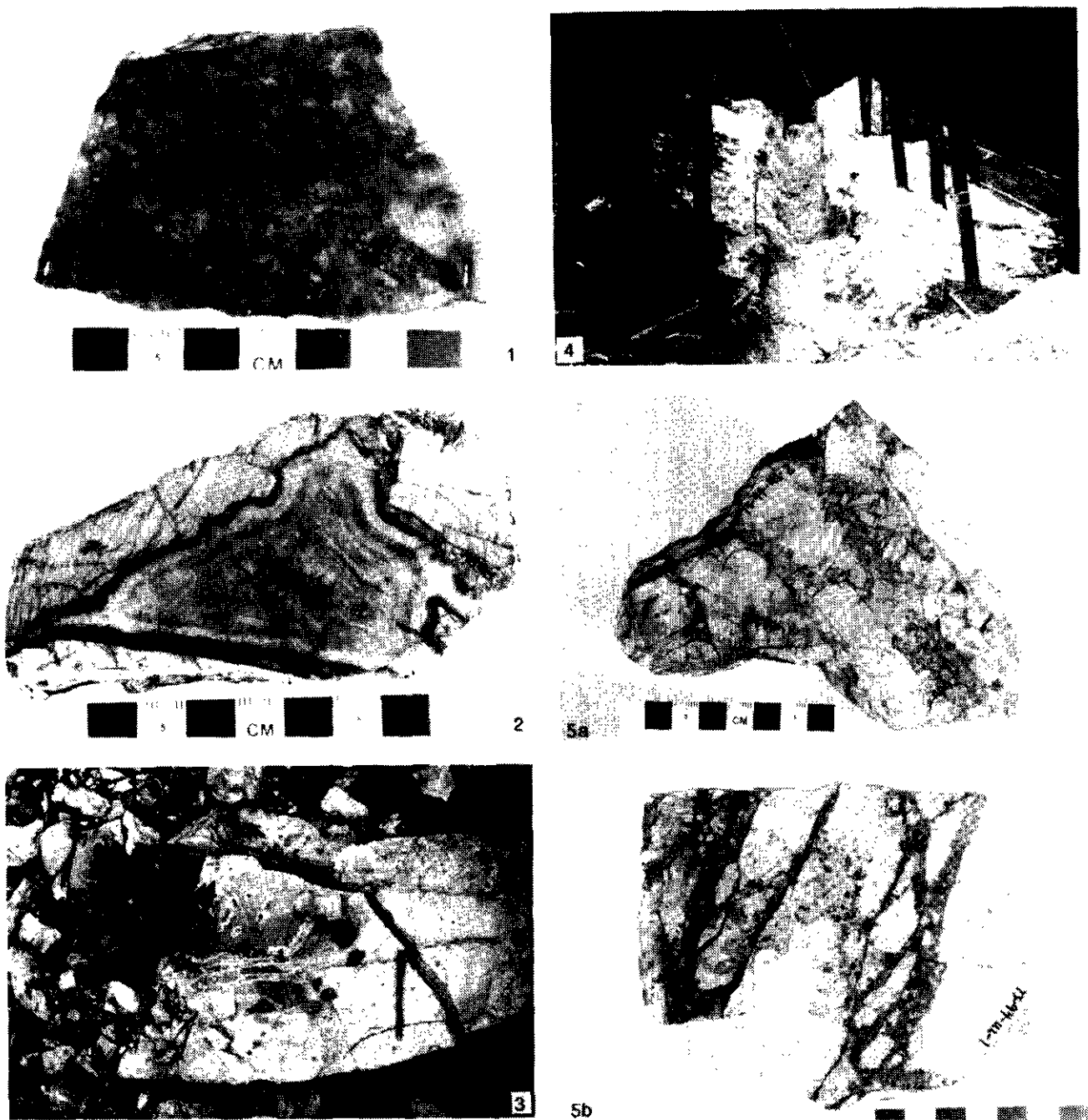


Photo 1. Brecciated and intensely silicified rhyolite with traces of pyrite (py) from trench 1, Holy Cross epithermal gold-silver prospect.

Photo 2. Banded hematitic quartz vein cutting flow-banded rhyolite from trench 17, Holy Cross epithermal gold-silver prospect.

Photo 3. Slab of flow-banded rhyolite that shows early pervasive hematite flooding (dark grey areas). The formation of pyrite as disseminated cubic euhedra is evidence of sulphidization. Pyrite and fractures are enveloped by bleached, clay-altered host rock.

Photo 4. Shallow trench exposing bleached, clay and silica-altered rhyolite at the Uduk Lake epithermal gold-silver prospect.

Photo 5. a) Brecciated rhyolite cemented by pyritic, chalcedonic and drusy quartz, and b) pyritic, dark grey chalcedonic quartz stockworks in brecciated rhyolite from trench 3, Uduk Lake epithermal gold-silver prospect.

The biotite quartz monzonite intrusion is salmon coloured, medium grained and contains from 3 to 4% weakly chloritized biotite. It may be correlative with the Jura-Cretaceous Francois Lake suite of intrusions that crops out predominantly to the north of the map area. Potassium-argon dating of a biotite separate from the intrusion is in progress.

Maroon to purple andesitic volcanic flows, probably part of the Late Cretaceous Kasaska Group, unconformably overlie the Hazelton Group. They are overlain by apparent Skeena Group equivalent chert-pebble conglomerates. A hornblende dacite to andesite flow overlies the conglomerate. The hornblende phenocrysts are very weakly altered and are suitable for K-Ar dating; a sample has been submitted to the University of British Columbia for this purpose.

Maroon to pale-coloured flow-banded rhyolites and rhyolite breccias of the Eocene Ootsa Lake Group form a ridge that trends northwesterly across the map area (Figure 3). Andesite to basalt flows of the Tertiary Endako Group and related diorite to gabbro plugs and necks form resistant knobs to the south.

The Holy Cross mineral occurrence is an epithermal gold-silver prospect. The best gold values on the property were obtained from trench 1 where an 8.5-metre section of brecciated and intensely silicified rhyolite with 1 to 2% very fine grained, disseminated pyrite (Photo 1) averaged 0.51 g/t Au and 4.3 g/t Ag, including a 2-metre interval that graded 2.64 g/t Au and 9.7 g/t Ag (Donaldson, 1988). Manganese, limonite and hematite typically coat fracture surfaces in the massive grey crystalline silica. Other anomalous areas such as trench 17, contain banded hematitic quartz veins and stockwork zones hosted by flow-banded rhyolite (Photo 2). Barren or weakly anomalous quartz-stockwork zones are commonly associated with weakly to moderately argillically altered wallrock, reflecting a less intense, possibly more protracted event. Sulphide mineralization in these areas is very weak or absent. Pervasive hematitic alteration has stained andesites and rhyolites dark maroon or purple. Sulphidization appears to be a post-hematite event and has resulted in the development of up to 4% disseminated cubic pyrite euhedra (Photo 3). Pyrite cubes are commonly enveloped by bleached zones one to three times the size of the pyrite grain.

Sparse copper mineralization, consisting of trace to 1% chalcopyrite in quartz-carbonate veinlets, in Hazelton Group volcanic rocks may be genetically related to the biotite quartz monzonite intrusion. However, chalcopyrite also occurs in quartz-carbonate veins in younger rocks spatially unrelated to the quartz monzonite.

UDUK LAKE (MINFILE: 093F 057) NT'S 93F/12W

The Uduk Lake epithermal gold-silver prospect, under exploration by Pioneer Metals Corporation, is located approximately 70 kilometres south-southwest of Burns Lake. Access to the property is along all-weather forestry roads that lead south from Burns Lake and Fraser Lake to Ootsa Lake. A ferry, run by West Fraser Sawmills Ltd., crosses the west end of Intita Reach and connects with the Ootsa Main and newly constructed Ootsa Chief logging roads that pass within 2 kilometres of the showings. A trail extends eastward to the occurrence from about the 34.5-kilometre point on the Ootsa Chief logging road (Figure 1).

The property was originally staked in 1981 by Amax Exploration Ltd. which carried out reconnaissance mapping and sampling but allowed the claims to lapse. Several junior companies explored the ground during the mid and late 1980s. Several modest diamond drilling programs tested silica stockwork zones with gold values in the range of 0.02 to 1.45 grams per tonne (Allen and MacQuarrie, 1985).

Pioneer Metals optioned the property from Pacific Comox Resources Ltd. in 1993 and carried out soil and rock geochemical surveys. Results outlined six gold-silver-arsenic anomalies that were trenchered in 1994. Five of the six trenches sampled were anomalous in gold. Results included a 6-metre section grading 1.4 grams per tonne and an entire 42-metre trench averaging 0.41 gram per tonne (D. S. Dunn, personal communication, 1994).

The Duk claims cover a large (>2 km wide) area of hydrothermally altered rhyolitic to dacitic flows, tuffs and breccias of the Eocene Ootsa Lake Group (Dunn, 1993). Outcrop on the property is sparse, however, bedrock is commonly within 1 or 2 metres of the surface (Photo 4). A zone of clay and silica-altered rhyolite in angular float and outcrop, measuring about 600 by 200 metres, occurs in the southwestern part of the property. The 1994 trenches expose moderately to intensely clay-altered (kaolinite?) rhyolite flows, tuffs and lapilli tuffs. Weak silicification is accompanied by a quartz-chalcedony± sulphide stockwork that locally grades into a more sulphide-rich, black-matrix breccia with angular rhyolite clasts that are rimmed with a thin layer of chalcedony (Photo 5). Pyrite is the only sulphide mineral observed and occurs mainly in vein, stockwork and breccia zones and less commonly as weak disseminations in altered rhyolite. It is present in trace amounts ranging up to 5% locally. Grab samples typically grade over 1 g/t Au and have assayed as high as 5.7 g/t Au (D. S. Dunn, personal communication, 1994).

Exploration will continue in 1995 and plans include additional trenching and a follow-up diamond drilling

program.

YELLOW MOOSE (MINFILE: 093F 058) NTS 93F/06, 11)

Cogema Resources Inc.'s Yellow Moose epithermal gold prospect was briefly investigated. The property is located south of Arrow Lake, about 20 kilometres west of the junction of the 500 road and Holy Cross road, approximately 110 kilometres southwest of Vanderhoof (Figure 1). The showings are accessible from the Knewstubb access road.

The Gus zone consists of diffuse silicification and minor quartz-chalcedony veining in brecciated rhyolite and crystal tuff to crystal lapilli tuff. Northeast-trending mineralized zones, consisting of narrow veins, stockworks and breccias carry 1 to 2% fine-grained disseminated arsenopyrite, stibnite and pyrite in intensely fractured rhyolite. Gold assays up to 0.8 g/t Au have been reported (Bohme, 1988). Clay alteration of hostrocks is pervasive. Fractures are coated with iron and manganese oxide.

The Arrow showing is on the southeast shore of the lake and was not examined. It is reported to consist of drusy quartz veins and chalcedonic quartz flooding in siliceous rhyolite and arkosic sandstone that contain coarse-grained stibnite, pyrite, marcasite and traces of cinnabar (Bohme, 1988). The showing carries negligible gold or silver values.

A third zone, an I.P. anomaly called the IPA zone, and the Gus showing, were evaluated by a six-hole, 626-metre diamond drilling program in 1994. Drilling outlined a northeasterly trending, weakly mineralized zone that dips moderately to the east (K. Schimann, personal communication, 1994).

BAEZ (OBOY - MINFILE: 093C 015) NTS 93C/9E, 16E

The Baez property (including the Oboy occurrence) is owned by Phelps Dodge Corporation of Canada Ltd. The claim group is located 125 kilometres west of Quesnel and covers more than 10 500 hectares (Figure 1). It adjoins the western boundary of the Clisbako property (Schroeter and Lane, 1992) owned by Eighty-Eight Resources Ltd.

The Baez claims were staked in 1992 and 1993 as a result of a reconnaissance stream sediment sampling program initiated in 1992 (Goodall, 1994). In 1993, reconnaissance soil sampling on four grids (A, B, C and D) produced several multi-element (Ag-As-Sb-Au-Hg) anomalies. In 1994 approximately 50 line-kilometres of soil sampling and about 50 line-kilometres of induced polarization survey were carried out on grid D. Prospecting, mapping and diamond drilling followed.

The exploration target is a large, low-grade, heap leachable, epithermal gold deposit.

The property is underlain by a sequence of rhyolites, dacites, andesites and basalts of the Eocene Ootsa Lake Group. Outcrop on the property is sparse. Rhyolitic tuffs, flows and breccias that form the base of the Eocene succession on the property are the main hostrocks for mineralization (G. N. Goodall, personal communication, 1994). One of the targets is a north-trending multi-element soil geochemistry anomaly 800s metre wide by 1800s metre long. This anomaly is coincident with airborne EM and resistivity anomalies and a pronounced magnetic lineament.

Mineralized sections of core from the 1994 drilling program consist of bleached and clay-altered, fractured dacite to andesite. Fractures are filled with fine-grained silica and cored by fine-grained subhedral pyrite and/or marcasite. Pyrite also occurs disseminated throughout the wallrock as 2-millimetre and smaller euhedral cubes. Total pyrite content is estimated at 1 to 2%. Pervasive chlorite-calcite alteration, typical of the Baezeko River area, is widespread.

The Oboy epithermal gold prospect is about 8 kilometres west of the main target area on the Baez property. Outcrop is sparse in this area, but we examined core stored on the property from a 1987 drilling program by Lornex Mining Corporation Ltd., in joint venture with Canadian Nickel Company Ltd., on the Camp zone (Cann, 1987). Hostrock lithologies are pale green (bleached) flow-banded andesite and green and purple mottled felsic to intermediate pyroclastic breccia of the Eocene Ootsa Lake Group. Argillic alteration is moderate to intense and imparts a 'chalky' texture to the rocks. Mineralization consists of 2 to 5% fracture-controlled, fine-grained pyrite that occurs in a gangue of drusy quartz, calcite and chlorite. Disseminated, epigenetic pyrite cubes up to 2 millimetres across occur throughout the length of the holes. Several core samples were selected to compare mineralization and alteration styles with other prospects in the Interior Plateau region.

**KASALKA GROUP EPITHERMAL PROSPECTS
TROUT (MINFILE: 093F 044) NTS 93F/10W**

The Trout epithermal precious metal occurrence is located 90 kilometres southwest of Vanderhoof, on the Cutoff property, owned by Cogema Resources Inc. The property is accessible from the Kenney Dam road which extends to the southwest from Vanderhoof (Figure 1). Approximately 2 kilometres north of Cutoff Creek, at the River Ranch, an 8-kilometre, 4-wheel-drive road leads southward to the camp and main showing area.

The property is underlain by felsic to intermediate volcanic and sedimentary rocks of the Jurassic Hazelton

Group, Cretaceous Kasalka Group, Eocene Ootsa Lake Group and Tertiary Endako Group. Two prominent lineaments, a northeast-trending structure and a southeast-trending feature, intersect in the Swanson Creek valley near the main showing (Potter, 1985).

Epithermal quartz-adularia veins and gold-silver mineralization were discovered in 1984 during regional exploration for precious metals (Potter, 1985). Subsequent exploration of the property including drilling in 1985, 1987 and 1990, targeted mainly on the 'discovery' zone, failed to trace the mineralization. In 1992 Cogema Resources Inc. staked the ground and a multiparameter (VLF-EM, magnetics and resistivity) geophysical survey was flown in March, 1993. Eleven diamond-drill holes totalling 1221 metres were completed in 1994 (K. Schimann, personal communication, 1994).

The 'discovery' or 'main' zone crops out southwest of Swanson Creek, and south of the camp, in a swampy valley bottom. The exposure is a northeast-trending ridge of rock, 50 metres long, 12 metres across and about 4 metres high. It consists mainly of pyroclastic breccia and overlying polymictic conglomerate of the Kasalka Group. The shallow southwest-dipping contact between the breccia and conglomerate acted as a conduit channelling mineralizing hydrothermal fluids. The hangingwall is flooded with silica and the footwall is pervasively silicified for about a metre below the contact.

Pyroclastic breccia is mottled green and maroon, and consists mainly of locally derived Kasalka Group maroon volcanic material. Clasts tend to be subangular, feldspar phyrlic and range in size from 3 to 10 centimetres. The breccia contains quartz veins up to several centimetres wide that have an average orientation of 050/80°SE. Veins are banded and consist of several phases of pale brown to cream and clear chalcedonic quartz. Many veins also contain drusy cavities and bladed textures (quartz after calcite or possibly barite). Sulphide minerals were not identified in the veins, but there is 1 to 2% disseminated pyrite in the hostrock.

Polymictic conglomerate overlies the pyroclastic breccia with apparent conformity. Clasts in the conglomerate are pebble to cobble sized and well rounded, possibly milled, and consist of locally derived sedimentary, volcanic and intrusive lithologies. Clasts are rimmed and cemented by banded chalcedonic quartz-adularia veins up to 8 centimetres wide (Photo 6). Samples from a 5-metre trench across the outcrop averaged 19.5 g/t Au (Schmidt, 1987).

Visible mineralization consists of traces of very fine grained pyrite and a tarnished steel-grey mineral (possibly argentite) that comprise dark grey bands 0.5 to

2 millimetres wide, and rare disseminated pyrite grains, within the quartz-adularia veins. Dark grey features, 0.5 millimetres wide by 2 to 3 millimetres long and comprised of very fine grained pyrite and possibly other metallic minerals, are oriented oblique to the clast margin in bands of white translucent fine-grained quartz closest to the clasts. Micron-size native gold and argentite have been identified in thin section (Potter, 1985).

The textures and style of mineralization are similar to the Tertiary Cinola gold deposit, Queen Charlotte Islands that contains a resource of 40.7 million tonnes grading 1.65 g/t Au (Tolbert and Froc, 1988).

HAZELTON GROUP EPITHERMAL PROSPECTS

FAWN (MINFILE: 093F 043) NTS 93F/03E

The Fawn property is located approximately 120 kilometres southwest of Vanderhoof. It consists of seven claims totaling 140 units covering the east end of the Entiako Spur of the Fawnie Range. The claims are underlain mainly by Lower to Middle Jurassic Hazelton Group felsic to andesitic plagioclase-phyric flows, lapilli tuffs and minor argillaceous sedimentary rocks. The stratified rocks are weakly to moderately metasomatized and locally hornfelsed. Skarn mineral assemblages (diffusion skarn), consisting of garnet, pyroxene, biotite, quartz, epidote and chlorite, are locally developed in the thermal aureole of the Jura-Cretaceous Capoose batholith. Hazelton rocks may be a relatively thin cover overlying these intrusions that are exposed both north and south of Entiako Spur. A granodiorite to diorite stock, probably related to the batholith, and Eocene(?) felsic dikes, locally cut the stratified rocks.

In 1994, Western Keltic Mines Inc. conducted a six-hole, 617-metre drilling program to test Giver zone mineralization, and VLF-EM and arsenic-zinc-lead-silver soil anomalies that were outlined during exploration programs carried out in 1991 and 1993. Of particular interest was the Giver zone, where samples of clay and sericite-altered volcanic rocks, cut by quartz-sulphide breccia and stockwork zones (Photo 7), graded 0.6 g/t Au, 7.1 g/t Ag and 914 ppm As across 8.2 metres (Awmack, 1991). Two holes, drilled to intersect the Giver zone at depth, cored about 20 metres of pervasively clay and sericite-altered andesite. Significant widths of siliceous breccia and stockwork mineralization occur within the alteration; an 8.1-metre intercept in one hole assayed 2.02 g/t Au and 25.2 g/t Ag (Baknes and Awmack, 1994b). A third drill hole intersected similar alteration and mineralization 160 metres farther to the

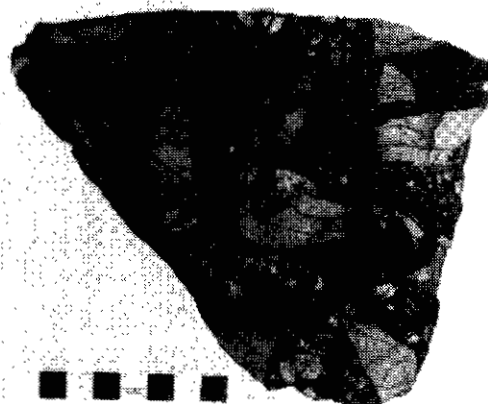
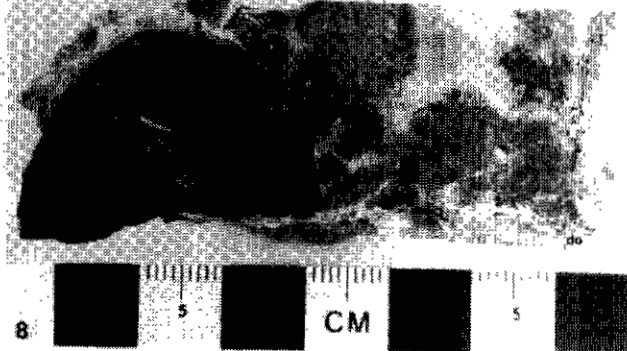
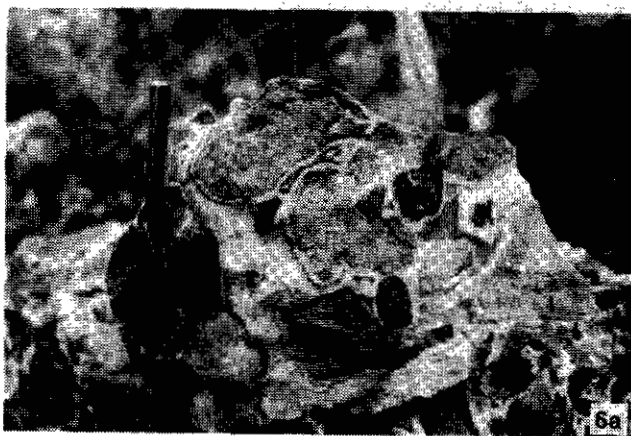


Photo 6. Two samples of epithermal-style mineralization from the 'discovery' outcrop, Trout property: a) Polymictic conglomerate showing well rounded pebbles and cobbles cemented by numerous phases of chalcedonic quartz and adularia; b) 8 centimetre wide banded quartz-adularia vein from the contact between polymictic conglomerate and pyroclastic breccia.

Photo 7. Cut and polished grab sample from the Giver zone surface exposure, Fawn epithermal gold-silver prospect. Bands of fine-grained sulphide, that rim silicified andesite clasts, are composed pyrite and arsenopyrite.

Photo 8. Diamond-drill core specimen from the Giver zone, Fawn epithermal gold-silver prospect. Chalcedonic and comb quartz, barite blades (ba) cement intensely silicified volcanic clasts. Dolomite rhombs (do) locally line drusy cavities.

Photo 9. Exposure of massive, fractured vein quartz on the Tsacha epithermal gold-silver property.

Photo 10. Rhyolite breccia from the Christmas Cake base metal silver showing, Buck property. Angular clasts of rhyolite are cemented by semimassive to massive sulphide intergrowths consisting of sphalerite, pyrrhotite, pyrite and galena.

west and helped outline the steeply north-dipping, east-trending zone of siliceous breccia.

Breccia zones consist of grey, intensely silicified and brecciated lapilli tuff. Sulphide content is about 1%, and consists mostly very fine grained pyrite that occurs as wispy coatings on angular clasts and as 2-millimetre and smaller irregular patches distributed throughout matrix and clasts. Traces of fine-grained acicular arsenopyrite partly replace clasts. Sphalerite and an unidentified steel-grey mineral occur in trace amounts. Chalcedonic quartz is the dominant gangue mineral and is cut by comb quartz and late calcite veinlets. Quartz-lined drusy cavities commonly contain rhombs of white dolomite, clusters of subhedral to euhedral barite and rare grains of sphalerite and possibly ruby silver (Photo 8).

MALAPUT (MINFILE 093F 056) NTS 93F/03E

The Malaput epithermal showing was discovered by a Geological Survey Branch regional mapping crew in 1993 (Diakow and Webster, 1994). Western Keltic Mines Inc. staked the ground shortly after information was released at the 1994 Cordilleran Roundup. The new claims adjoin the company's Fawn claims to the north (Figure 1).

The occurrence is a weakly mineralized, east-trending zone of quartz and sericite-altered felsic volcanic rock that crops out along an abandoned drainage channel that dissects the property. The rock is pale greenish white with locally well developed, delicate silica stockwork. Rare primary textures include lapilli-size lithic fragments, quartz eyes and an eastward-trending weakly developed fabric that may be relict flow banding. Fractures are coated with earthy hematite and/or pyrolusite.

The altered zone is weakly anomalous in gold, silver and base metals. Sulphide mineralization consists of traces of pyrite, sphalerite and galena associated with crosscutting calcite veinlets. The zone has been traced for over 300 metres along strike and a width of 25 to 30 metres.

TSACHA (TOMMY - MINFILE: 093F 055) NTS 93F/03E

A Geological Survey Branch regional mapping party discovered several epithermal quartz vein and stockwork zones in the Tommy Lakes area in 1993 (Figure 1). The veins crop out on hummocky, moss-covered knobs. The Tsacha 16-unit claim block was staked by Teck Corporation immediately following the release of information at the 1994 Cordilleran Roundup. The ground surrounding the discovery is now covered by claims owned by several different companies.

The Tommy Lakes area is underlain by Middle Jurassic Hazelton Group quartz and feldspar-phyric rhyolitic flows and minor ash-flow tuffs (Diakow and Webster, 1994).

In 1994 a program consisting of soil geochemistry, prospecting, trenching and rock chip sampling was conducted over the 'discovery' outcrops. The first of at least two massive white, crystalline quartz veins, crops out approximately 600 metres southwest of the easternmost Tommy Lake. This vein is 0.15 metre wide, sub-vertical and strikes approximately 0.0° (Photo 9). The second vein, at least 5 metres across including stringer zones, crops out farther to the southwest and has a similar orientation and a minimum strike length of 700 metres. Sulphide content of the veins is less than 1%. Traces of pyrite, chalcopyrite and tetrahedrite have been identified. Vague bands of earthy hematite and sparse malachite are minor vein constituents. Grab samples of typical vein material ranged in grade from 2.5 to 3.7 g/t Au and 1.4 to 41.8 g/t Ag (L. J. Diakow, personal communication, 1994).

In general the veins trend northerly and the system appears to plunge to the north. Evidence for this is a southward increase in brecciation, banding and drusy cavities, the presence of multistage brecciation, and an increase in the amount of quartz stringers outside the main vein and in the intensity of clay alteration in the wallrock.

Vein structures are open along strike to the north and south. Similar veins have been discovered on the Cogema Resources' Tam claims that cover ground along strike to the northeast. Teck plans to continue its trenching program into the fall of 1994. Potential for discovery of additional veins is considered to be excellent.

BEN (MINFILE: 093F 059) NTS 93F/07E

The Ben precious metal occurrence (Figure 4) is located approximately 5 kilometres north of Tatalkuz Mountain and is accessible from the Kluskis-Ootsa forest service road and Yellow secondary logging road. The property, owned by BHP Minerals Canada Ltd., comprises 50 claim units that were explored during 1991 and 1992.

Mineralized outcrops were discovered during reconnaissance exploration for volcanogenic massive sulphide deposits in 1991 (Wesa and St. Pierre, 1992). Exploration focused on quartz-sulphide zones that are hosted by intermediate flows, related pyroclastics and siltstones of the Hazelton Group. These rocks are intruded by plutons of at least two ages: an Eocene biotite hornblende granodiorite, and an older (Jura-Cretaceous?) monzonite. The east-trending body of Eocene

granodiorite underlies the northern half of the property and truncates the older rocks. A northwesterly trending, steeply southwest dipping foliation cuts the older rocks. Hazelton Group rocks are commonly hornfelsed near contacts with the intrusions and contain up to several percent biotite, which gives the rock a brown to purplish cast.

Precious and base metal mineralization occurs along a north-facing slope within foliated rocks 200 to 300 metres south of the contact with Eocene granodiorite. Three showings, the Hooter, Shawn and Creek showings, crop out along a trend of approximately 150°, over a strike length of 80 metres within a zone of quartz-biotite-altered felsic tuff. Mineralization appears to parallel the foliation at 140°-150°. Disseminated to locally semimassive quartz-sulphide veins or seams contain arsenopyrite, pyrite and pyrrhotite, and traces of chalcopyrite, galena and sphalerite. A 3.0-metre chip sample across the Hooter showing assayed 0.7 g/t Au, 95 g/t Ag and 0.2% Pb; a 10-centimetre arsenopyrite-pyrite-quartz vein in biotite monzonite assayed 3.7 g/t Au and 5.2 g/t Ag (Wesa and St. Pierre, 1992). These zones are also anomalous in arsenic, zinc, antimony and bismuth. The highest gold value recorded on the property was from a polymetallic float boulder that assayed 12.4 g/t Au, more than 200 g/t Ag, over 1% arsenic and lead, and anomalous levels of zinc, antimony and copper (Wesa and St. Pierre, 1992).

Molybdenum occurs in trace amounts throughout the altered monzonite, as disseminations and coatings on fractures. It is commonly accompanied by traces of pyrite, pyrrhotite and arsenopyrite. The porphyry potential of the property has not been explored by the company, although occurrences several kilometres to the north (CH and Chu) have been investigated for porphyry molybdenum and copper deposits (Figure 4).

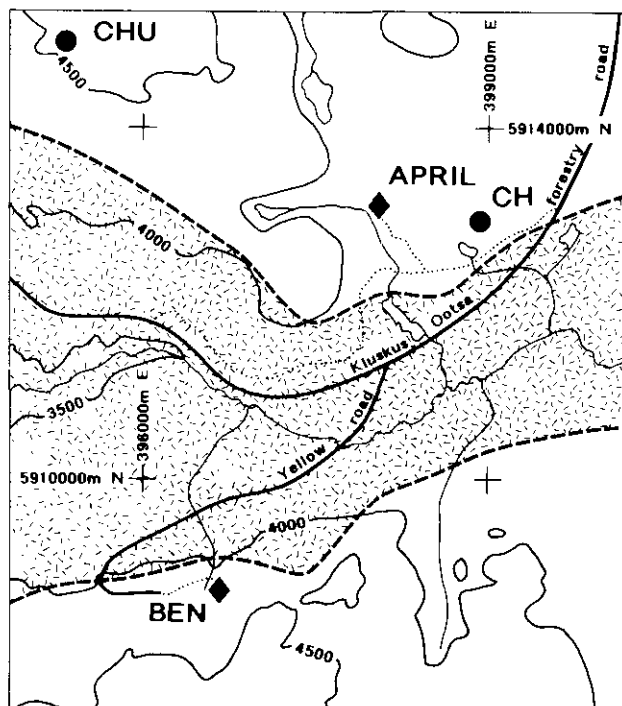
APRIL (MINFILE: 093F 060) NTS 93F/07E

The April precious and base metal showing is located 101 kilometres southwest of Vanderhoof. Access to the property is by the Kluskus-Ootsa forest service road that passes within 3 kilometres of the occurrence (Figure 1). A partly overgrown exploration road extends north-northwest the remaining few kilometres to the showing. Outcrop is sparse due to extensive glacial drift and forest cover.

The April showing is hosted by Jurassic Hazelton Group rocks about 1 kilometre north of an east-trending body of Eocene granodiorite (Figure 4). The host rock is a grey-weathering, thinly bedded tuffaceous limestone that strikes 305° and dips steeply to the northeast.

The prospect is a lens or vein of massive to semi-massive sulphide that dips vertically and strikes at 320°.

The vein is exposed discontinuously over a 15-metre strike length and varies in width up to a maximum of 1.8 metres. It pinches out abruptly to the north and is covered by overburden to the south. Subcrop of narrow quartz-pyrite-chalcopyrite veins occurs along strike to the south. Sulphide minerals present, in order of abundance, are: sphalerite, pyrrhotite, pyrite, galena, arsenopyrite and chalcopyrite.



service road south of the junction of the Kluskus-Malaput and Kluskus-Ootsa forest service roads about 120 kilometres southwest of Vanderhoof (Figure 1). In early 1994, Western Keltic Mines Inc. completed a program that included soil sampling, mapping, prospecting, and magnetic and VLF surveys. This program followed exploration in 1992 that resulted in the discovery of stratabound pyrrhotite, pyrite and sphalerite mineralization called the Rutt zone (Caulfield, 1992).

The Buck claims are underlain by Lower to Middle Jurassic Hazelton Group felsic to intermediate flows and lapilli tuffs and fine to coarse-grained, locally fossiliferous volcanoclastics (Diakow and Webster, 1994). Regionally, these units are broadly folded. On the property, bedding typically strikes north-northeast and dips gently to the east. Post-Early Jurassic intrusions crop out in the south and northeast parts of the property.

The Rutt zone (Figure 5) crops out discontinuously and is exposed in several hand-excavated trenches along a northerly trend for about 450 metres (Caulfield, 1992). The true width of the zone has not been determined. Mineralization occurs in clay, sericite, chlorite and silica-altered lapilli tuffs, tuffaceous siltstones and argillites that overlie flow-banded rhyolite. One trench exposes rusty weathering, weakly mineralized argillaceous siltstones that contain 2% fine-grained disseminated pyrrhotite and pyrite, and 1% disseminated dark sphalerite. Float boulders, containing conformable bands of disseminated pyrrhotite and sphalerite, are exposed in a roadcut along the Kluskus-Ootsa forest service road (Baknes and Awmack, 1994a). They are presumably derived from the west-facing hill side west of the Rutt showing (West Slope) and expand the size of the exploration target.

The Christmas Cake showing, discovered during the 1994 exploration program, is approximately 300 metres southeast of the Rutt zone. It consists of stockwork and semimassive to massive sulphide mineralization in brecciated felsic tuffs that are exposed in two shallow trenches. Mineralization consists of intergrowths of sphalerite, pyrite, chalcopyrite, pyrrhotite and galena that are the matrix for angular clasts of rhyolite tuff (Photo 10). The same sulphides are disseminated throughout vuggy fine-grained milky white quartz-flooded zones. A grab sample from one of the trenches assayed 541 g/t Ag, 7.38% Zn and 2.25% Pb (Baknes and Awmack, 1994a). Outcrop exposure is poor in the area of the showing and the trend of the mineralization is not known. The Christmas Cake showing is less than 100 metres west of a quartz feldspar porphyry intrusion. Its genetic relationship to the intrusion and to the Rutt zone is unknown.

Galena lead isotope data from the Christmas Cake showing will be compared with data from the Blackwater-Davidson and Capoose prospects.

Western Keltic Mines Inc. has recently granted Brazos Pacific Corporation an option to acquire a 50% interest in the Buck property (McInnes, 1994). Plans are being finalized for a backhoe trenching program, for the fall of 1994 or winter of 1995, that will test the extent of the Christmas Cake and Rutt showings. A three-hole, 550-metre diamond drilling follow-up program is also planned.

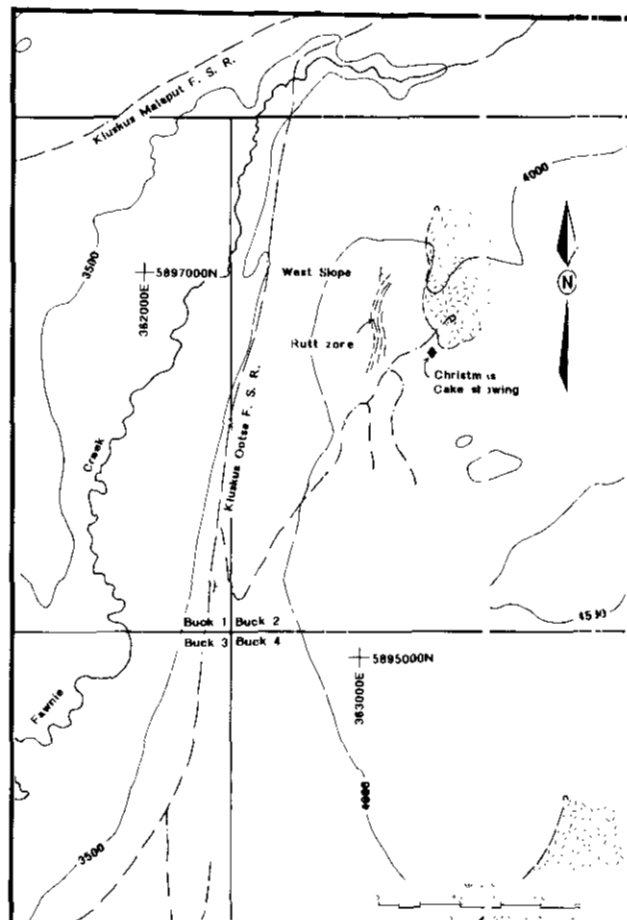


Figure 5. Location of the Rutt and Christmas Cake showings, Buck claim group, map sheet 93F/2E. Note the spatial relationship to the quartz porphyry intrusion (stippled) in the northeast corner of the map area (modified after Baknes and Awmack, 1994a).

CONCLUSIONS

Epithermal precious metal occurrences in the Nechako Plateau region occur in three ages of hostrock: Eocene Ootsa Lake Group, Cretaceous Kasalka Group and Jurassic Hazelton Group. Ootsa Lake Group acid volcanic and associated sedimentary rocks host numerous low-grade gold-silver occurrences and may be the most prospective geology for heap leachable deposits. Discovery of bonanza vein systems is also a possibility. Cretaceous and Jurassic andesitic volcanic rocks host several epithermal precious metal prospects that are generally higher grade than the Eocene occurrences.

Precious metal bearing quartz-chalcedony(± adularia) veins, stockworks and breccia zones are typically low-sulphide and display classic epithermal textures such as banding and drusy cavities. Base metal content is generally low, suggesting that the systems are near surface (< 1 km deep). Hostrocks are typically intensely fractured and brecciated. Barren or weakly anomalous clay and sericite-altered wallrocks surround mineralized silica-rich and/or silicified zones.

The Ben and April precious and base metal vein prospects are high-sulphide systems and contain significant base metals. They may represent deeper level epithermal systems.

Stratabound base metal and silver mineralization is present in the Jurassic Hazelton Group interlayered sedimentary and volcanic rocks.

The porphyry copper and molybdenum potential of the region remains largely untested.

New information from regional mapping, regional and case study geochemical surveys and mineral deposit studies continue to spark exploration in the region. As a result the Nechako Plateau area is being evaluated more fully.

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