

Exploration and mining in the Northwest Region, British Columbia



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1. Introduction

The Northwest Region includes about 263,000 km² of British Columbia, approximately 25% of the province (Fig. 1). The region has two operating mines, one mine on temporary shutdown and seven proposed mine projects. More than 60 exploration projects were active in 2017, with activities predominantly focussed on precious metal and porphyry style copper-gold mineralization.

In 2017, exploration expenditures, drilling estimates and other metrics for British Columbia were captured in the British Columbia Mineral and Coal Exploration Survey. The survey is a joint initiative between the Province of British Columbia Ministry of Energy and Mines, the Association for Mineral Exploration, and Ernst & Young LLP. For the Northwest Region, exploration expenditures were estimated at \$99.1 million and exploration drilling was estimated at approximately 274,100 m (Clarke et al., 2018; Ernst & Young LLP, in press).

The Northwest Region saw several significant events in 2017. In July commercial production was declared at the new Brucejack mine. The new grassroots high-grade gold Saddle South discovery and the Saddle North copper-gold-silver porphyry discovery were made by GT Gold Corp. Highlight results for Saddle South included 51.53 g/t Au over 6.95 m and 5.10 g/t Au over 23.66 m. Highlight results for Saddle North included 210.3 m of 0.14 g/t Au, 0.28 g/t Ag and 0.16% Cu. At their E&L nickel project Garibaldi Resources Corp. reported high grade intersections including 8.3% Ni and 4.2% Cu over 16.75 m.

Seabridge Gold Inc. continued to report wide zones of significant grade for the Iron Cap deposit, which is part of their KSM project. Results included 858 m of 0.86 g/t Au and 0.51% Cu including 113 m of 2.98 g/t Au and 1.56% Cu. IDM Mining Ltd., continued to advance their Red Mountain project, with step-out drilling, a feasibility study, and a project application and an environmental impact statement, which were submitted to regulators and stakeholders. Ascot Resources Ltd. carried out a 379 hole, 118,800 m diamond drilling program at their Premier/Dilworth project. Numerous high-grade intersections were reported; including 36.31 g/t Au over 16.15 m. Plans for

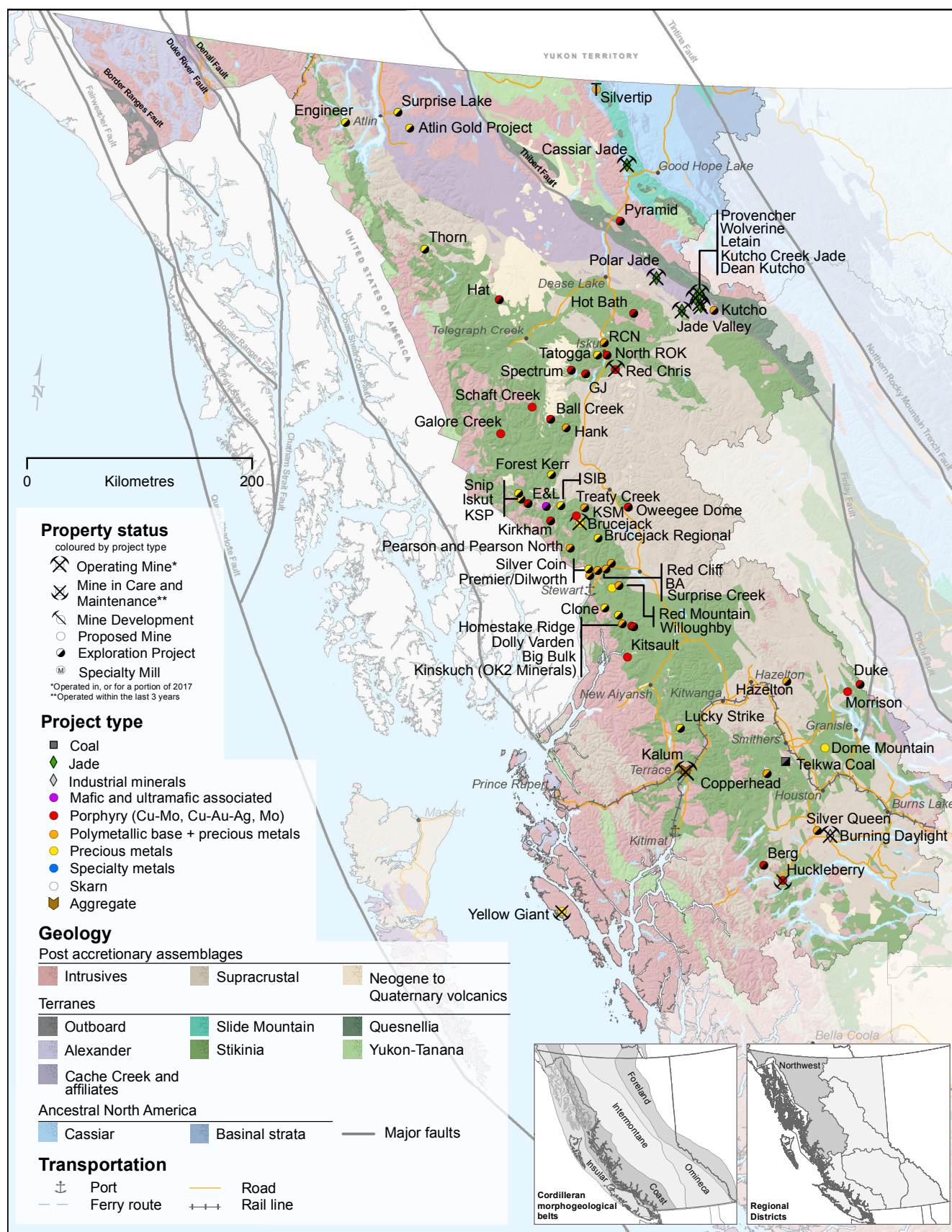
2018 include continued drilling and a new NI 43-101 resource calculation.

In October, the Silvertip mine was purchased from JDS Silver Inc. by Coeur Mining Inc. for about \$250 million. Coeur plans to invest US\$25-\$35 million in surface infrastructure, accelerated underground development and drilling, and mill optimization over a six-month period. It plans to resume production early in 2018.

2. Geological overview

Metallogeny in British Columbia is intimately linked to the tectonic evolution of the Canadian Cordillera, first as an accretionary orogen consisting of allochthonous terranes that were welded to, and deformed with, the western margin of ancestral North America primarily during the Jurassic and then as the site of post-accretionary tectonism and magmatism (e.g., Nelson et al., 2013). The region includes all of the physiographic belts of the Canadian Cordillera (Fig. 1), and transects the Cordilleran orogen (Fig. 1). From east to west it is underlain by: 1) autochthonous and parautochthonous carbonate and siliciclastic strata deposited on the flank of ancestral North America (Laurentia); 2) the Intermontane terranes, including the Slide Mountain terrane (back-arc basin); the Yukon-Tanana terrane (a rifted Devonian pericratonic arc); the Quesnel and Stikine volcanic arc terranes (formed outboard of ancestral North America starting in the Late Paleozoic and accreted in the Middle Jurassic); and the Cache Creek oceanic terrane, which intervenes between Quesnellia and Stikinia; 3) the Alexander terrane; 4) post-accretionary rocks; and 5) younger cover rocks (Fig. 1).

All of the allochthonous terranes initially accreted to each other and to western North America in the Jurassic. Since then, the mosaic has been intruded by post accretion plutonic suites and covered, in part, by Jurassic and younger syn- and post-accretionary siliciclastic deposits. For details about the geology, metallogeny, and tectonics of the Northwest Region see Nelson et al. (2013).



3. Mines and quarries

During 2017, three metal mines (**Red Chris, Brucejack and Silvertip**) operated in the region (Fig. 1; Table 1). Eight industrial mineral mines were tracked, including six jade operations (Fig. 1; Table 2). Placer mining has been active in the Northwest Region for well over a century. Operations are mainly in the Atlin area and to, a lesser degree in the Cassiar area. Numerous small aggregate operations supply mainly local needs throughout the region and are not discussed in this report.

3.1. Metal mines

Three metal mines produced in the Northwest Region during 2017 (Table 1). The **Red Chris** mine operated throughout the year, the **Brucejack** mine announced official production in July and the **Silvertip** mine operated until April.

3.1.1. Red Chris (Red Chris Development Company Ltd.)

The **Red Chris** copper-gold mine is accessed by a controlled mine road from highway 37. The project is owned by Red Chris Development Company Ltd., a subsidiary of Imperial Metals

Corporation. Production up to the end of the 3rd quarter of 2017 totalled 51.40 Mlbs Cu and 20,396 oz Au from 7.88 Mt of ore grading 0.38% Cu and 0.20 g/t Au. Metal recoveries averaged 78.13% for Cu and 39.47% for gold. Target production for the year was forecast between 76-80 Mlbs Cu and 33,000-37,000 oz Au.

The Red Chris copper-gold deposit is hosted in a 204 Ma diorite-monzonite that intrudes Late Triassic rocks of the Stuhini Group. The 6.5 x 1.5 km porphyry consists of four main intrusive phases. The second phase (P2) contains most of the copper and gold, and measures greater than 2 km x 650 m in plan and extends to a depth of more than 1.5 km. The syn-mineral P2 intrusive phase is high-potassic, calc-alkalic in composition and contains abundant 'A' type quartz-chalcopyrite-magnetite +/-bornite veins (Rees et al., 2015).

Measured plus Indicated resources total 1034.7 Mt with an average grade of 0.35% Cu, 0.35 g/t Au and 1.14 g/t Ag. Additional Inferred resources total 787.1 Mt grading 0.29% Cu, 0.32 g/t Au and 1.04 g/t Ag. Resource figures are for combined open pit and planned underground operations and do not take into account any mining since start-up.

Table 1. Metal mines, Northwest Region.

Mine	Operator (partner)	Commodity; deposit type; MINFILE	Forecast 2017 Production (based on Q1-Q3)	Reserves	Resource	Comments
Huckleberry	Huckleberry Mines Ltd.	Cu, Au, Ag, Mo; Porphyry Cu-Mo-Au; 093E 037	na	Approx., 37 Mt at 0.3% Cu	na	Placed on care and maintenance in 2016.
Red Chris	Red Chris Development Company Ltd.	Cu, Au, Ag; Porphyry Cu-Au; 104H 005	68.5 Mlbs Cu and 27,000 oz Au	na	M+I: 1.035 Bt at 0.35% Cu, 0.35 g/t Au and 1.14 g/t Ag	First year of full production achieved in 2016. Resource figures are for combined open pit and planned underground operations and do not take into account any mining since start-up.
Brucejack	Pretium Resources Inc.	Au, Ag; Au-quartz veins, Quartz stockwork breccia; Epithermal; 104B 193	na	P+Pr: combined VOK zone and West zone 18.5 Mt at 14.6 g/t Au, 53.5 g/t Ag.	M+I: VOK zone 16.4 Mt at 17.2 g/t Au and 15.0 g/t Ag M+I: West zone 4.9 Mt at 5.85 g/t Au and 267 g/t Ag	Mine declared official production in July.
Silvertip	JDS Silver Inc./Coeur Mining Inc.	Ag, Pb, Zn, Au; Polymetallic manto; 104O 038	na	na	2.35 Mt at 352 g/t Ag, 6.73% Pb, 9.41% Zn	Operations suspended in April. Purchased by Coeur Mining Inc. in October for approximately \$250 million.

P = Proven; Pr = Probable; M = Measured; I = Indicated; Inf = Inferred

Table 2. Selected industrial mineral mines and quarries, Northwest Region.

Mine	Operator (partner)	Commodity; deposit type; MINFILE	Forecast 2017 Production (based on Q1-Q3)	Reserves	Resource	Comments
Burning Daylight	Stone Ridge Quarries Ltd.	Columnar Basalt; dimension stone	unknown	na	na	Basalt quarrying.
Cassiar Jade	Dynasty Jade Ltd.	Nephrite Jade; Gems and semi-precious stones; 104P 005	unknown	na	na	Trenching, quarrying, placer production.
Jade Valley	United Oriental Mining Ltd.	Nephrite Jade; Gems and semi-precious stones; 104I 048	unknown	na	na	Trenching, quarrying, placer production.
Kalum	Kalum Quarry Ltd. Partnership	Industrial rock; crushed rock	unknown	na	na	Drilling, blasting, crushing, production for CN railway bed.
Kutcho Creek Jade	Continental Jade Ltd.	Nephrite Jade; Gems and semi-precious stones; 104I 078	unknown	na	na	Mining, trenching.
Letain	Cassiar Jade Contracting Inc.	Nephrite Jade; Gems and semi-precious stones; 104I 079	unknown	na	na	Mining, trenching.
Provencher	Glenpark Enterprises Ltd.	Nephrite Jade; Gems and semi-precious stones; 104I 092	unknown	na	na	Mining, trenching.
Wolverine	Cassiar Jade Contracting Inc.	Nephrite Jade; Gems and semi-precious stones	unknown	na	na	Mining, trenching.

3.1.2. Brucejack (Pretium Resources Inc.)

The **Brucejack** underground gold-silver mine project is about 65 km north-northwest of Stewart. Access is via year-round, all-weather road. An all season airstrip is on the road access, approximately 20 km southeast of the planned mine site. Pretium completed a feasibility study in 2014 and started construction in September 2015.

In July of 2107, commercial production was announced. For the third quarter ended September 30th the process plant averaged 2840 tpd and mill feed averaged 10.5 g/t Au. The mill feed grade is expected to increase as processing switches from low-grade stockpiles and development muck to stope ore. In December, Pretium submitted an application to increase production to 3,800 tpd.

Free gold and electrum is recovered (Fig. 2) to produce gold-silver doré, which is flown off site from their all season airstrip. Sulphide concentrate will be trucked offsite to be refined at a receiving smelter.

Total mineral reserves and resources for the project are based on the Valley of the Kings (VOK) and West zones. In 2016,



Fig. 2. Gold pour, Brucejack mine. Photo courtesy of Pretium Resources Inc.

Pretium reported Measured plus Indicated resources for the VOK zone at 16.4 Mt grading 17.2 g/t Au and 15.0 g/t Ag. Additional Inferred resources total 4.6 Mt grading 21.0 g/t Au and 26.9 g/t Ag. For the West zone, Measured plus Indicated

were reported at 4.9 Mt grading 5.85 g/t Au and 267 g/t Ag. Additional Inferred resources total 4.0 Mt grading 6.44 g/t Au and 82 g/t Ag. Proven plus Probable reserves for the VOK zone was reported as 15.6 Mt grading 16.1 g/t Au and 11.7 g/t Ag. Proven plus Probable reserves for the West zone was reported as 2.9 Mt grading 6.9 g/t Au and 279 g/t Ag. Combined reserves are reported as 18.5 Mt grading 14.6 g/t Au and 53.5 g/t Ag.

Regional exploration efforts continue to follow up new targets outside of the mining lease in their surrounding 1200 km² of mineral claims and are discussed below.

3.1.3. Silvertip (JDS Silver Inc. and Coeur Mining Inc.)

The **Silvertip** silver-zinc-lead mine shut down in spring 2017 due to permitting issues, having started production in the fourth quarter of 2016. In October, the mine was purchased from JDS Silver Inc. by Coeur Mining Inc. for about \$250 million. Coeur plans to invest US\$25-\$35 million in surface infrastructure, accelerated underground development and drilling, and mill optimization over a six-month period. It plans to resume production early in 2018.

The Silvertip deposit is in the Cassiar terrane. The ore body consists of five zones; the Silver Creek, the 28, the 65, the Discovery and the Discovery North zones. The zones consist of massive sulphide bodies in limestones of the McDame Group and are unconformably overlain by Devonian-Mississippian rift-related, siliciclastic rocks of the Earn Group. Current resource estimates are 2.35 Mt at 352 g/t Ag, 6.73% Pb and 9.41% Zn.

3.2. Industrial mineral mines and quarries

Eight industrial mineral mines were tracked including six jade producers and two industrial rock quarries (Table 2).

3.2.1. Nephrite jade

Jade is the commercial term for jadeite and nephrite. In British Columbia jade occurs as nephrite. Nephrite is composed of interlocking fibrous amphibole minerals derived from an ultramafic protolith that has undergone dynamothermal metamorphism and metasomatism. The two significant areas of nephrite jade extraction in the Northwest Region are east of Dease Lake in the Turnagain River area and north of Dease Lake in the Cassiar area. Production varies between operations and ranges from 200 to 2000 tpy.

3.2.2. Industrial rock quarries

The **Burning Daylight** basalt stone quarry is owned by Stone Ridge Quarries Limited. Access to the project is via a forest service road. Stone Ridge mines basalt for landscape and building stone markets.

The **Kalum Quarry** is 3 km west of Terrace at the confluence of the Kitsumkalum and Skeena Rivers on the traditional territory of the Kitsumkalum First Nation. The quarry is owned and operated by the Kalum Quarry Ltd. Partnership, a subsidiary of the Kitsumkalum First Nation. The quarry has road access and a 3 km rail line connecting it to the CN mainline.

Rock is drilled, blasted, and crushed on site to meet specific contact requirements. Various aggregate size fraction products are produced for industrial and residential purposes. Typical products include large diameter rip-rap, railway ballast, asphalt crush, and finer materials for concrete. An estimated 22 million cubic meters of material remains available for development. Basalt and andesite of the Hazelton Group are quarried.

3.2.3. Placer operations

Placer mining operations have been active in the Northwest Region for well over a century. Because of the large number of mines and difficulty in obtaining information, these operations are not tracked.

4. Mine development

The mine development stage is achieved when a project acquires the required permits and has started mine construction. Essential permits include provincial and federal environmental assessment certificates, a Mines Act permit from the Ministry of Energy, Mines and Petroleum Resources, and an Environmental Management Act permit from the Ministry of Environment. Brucejack was the only mine development project in the region until it declared commercial production.

5. Proposed mines or quarries

Proposed mines are feasibility-stage projects for which proponents have begun or completed the environmental certification process (for large projects), or have submitted or received approvals for Mines Act permits (for projects below British Columbia Environmental Assessment Act thresholds).

5.1. Selected proposed metal mines

The Northwest Region has several proposed metal mines, seven of which have been active within the past three years and/or hold permits to allow construction if financing becomes available (Fig. 1; Table 3).

5.1.1. KSM (Seabridge Gold Inc.)

Owned by Seabridge Gold Inc., the **KSM** project occupies the adjoining mineral claims west of the Brucejack mine. Access to KSM is via helicopter. The project consists of four porphyry gold-copper deposits: Kerr, Sulphurets, Mitchell, and Iron Cap. The deposits represent what may be the largest undeveloped copper-gold camp in the world (by reserves). Proven plus Probable reserves are reported as 2.198 Bt grading 0.55 g/t Au, 0.21% Cu, 2.6 g/t Ag and 42.6 g/t Mo. An updated Measured plus Indicated resource estimate (inclusive of reserves) completed in May totals 2.903 Bt grading 0.55 g/t Au, 0.21% Cu, 2.6 g/t Ag and 46.6 ppm Mo. Seabridge received federal and provincial approval of the project environmental assessment in 2014 and is actively seeking partnership to advance into construction.

In 2017, Seabridge completed 10,383 m of drilling in 11 holes at the Iron Cap deposit. All 11 holes returned wide zones of significant grade. Highlights include 858 m of 0.86 g/t Au

Table 3. Selected proposed mines, Northwest Region.

Project	Operator (partner)	Commodity; deposit type; MINFILE	Reserves	Resource	Comments
Dome Mountain	Dome Mountain Resources of Canada Inc.	Au, Ag; Vein breccia and stockwork; 093L 022	na	M+I: 144,144 t grading 17.7 g/t Au	Announced plans to negotiate processing ore at Nicola Mining Inc.'s custom mill.
Galore Creek	Galore Creek Mining Corp.	Au, Cu; Alkalic porphyry; 104G 090	P+Pr: 528 Mt at 0.59% Cu, 0.32 g/t Au, 6.02 g/t Ag	M+I: 814.7 Mt at 0.50% Cu, 0.31 g/t Au, 5.2 g/t Ag	Baseline monitoring.
Kitsault	Alloycorp Mining Inc.	Mo, Ag, Pb; Porphyry Mo (low F type); 103P 120	P+Pr: 228.2 Mt at 0.083% Mo, 5.0 g/t Ag	M+I: 321.8 Mt at 0.071% Mo, 4.8 g/t Ag	Baseline monitoring.
KSM	Seabridge Gold Inc.	Au, Cu, Ag, Mo; Calc-alkalic porphyry; 104B 191	P+Pr: 2.198 Bt at 0.55 g/t Au, 0.21% Cu, 2.6 g/t Ag, 0.00426% Mo	M+I: 2.902 Bt at 0.54 g/t Au, 0.21% Cu, 2.7 g/t Ag, 0.0044% Mo	Updated resource estimate in May. 10,383 m of drilling in 11 holes at Iron Cap deposit. Highlights include 858 m of 0.86 g/t Au and 0.51% Cu including 113 m of 2.98 g/t Au and 1.56% Cu.
Morrison	Pacific Booker Minerals Inc.	Cu, Mo; Calc-alkalic porphyry; 093M 007	na	M+I: 208.3 Mt at 0.39% Cu, 0.19 g/t Au, 0.005% Mo (at a 0.30% CuEq cut-off)	Baseline monitoring, EA ongoing. Resource information from 2009 NI 43-101 technical report.
Red Mountain	IDM Mining Ltd.	Au, Ag; Porphyry related gold; 103P 086	na	M+I: 2.075 Mt at 8.75 g/t Au, 25.00 g/t Ag	Positive feasibility study completed. Resource updated. Drilling in 2017 expanded mineralization to north, south and down dip. EA application submitted. Construction start planned for 2018.
Schaft Creek	Teck Resources Limited	Cu, Au; Calc-alkalic porphyry; 104G 015	P+P: 940.8 Mt at 0.27% Cu, 0.018% Mo, 0.019 g/t Au, 1.72 g/t Ag	1.229 Bt at 0.26% Cu, 0.017% Mo, 0.19g/t Au, 1.69 g/t Ag	Resource re-modelling in progress. Environmental baseline data collection, permitting.

P = Proven; Pr = Probable; M = Measured; I = Indicated; Inf = Inferred

and 0.51% Cu including 113 m of 2.98 g/t Au and 1.56% Cu. Seabridge reported that Iron Cap is approaching parity in size with other deposits in the project, but with zones of considerably higher metal values. The early development of Iron Cap is considered as a high priority for further study due to its grade, location and size. Results may result in a revision

of the project's mine plan and enhance KSM's projected economics.

The KSM deposits are related to the Mitchell intrusions of the Texas Creek plutonic suite (Early Jurassic; ~194 Ma; Margolis, 1993). Diorite, monzonite and quartz-syenite stocks and dikes intrude along the Sulphurets fault (pre-Early Jurassic) into the

surrounding sedimentary and volcanic rocks of the Stuhini and Hazelton groups. Mineralization is disseminated and in stockwork veins and consists of fine-grained chalcopyrite, bornite, molybdenite, and pyrite.

5.1.2. Dome Mountain (Gavin Mines Inc.)

The **Dome Mountain** past-producing gold mine is accessed by forest service roads from highway 16. Gavin Mines Inc., a subsidiary of Metal Mountain Resources Inc. owns 54%. Grace Mining Inc. owns 30%, Dome Mountain Resources of Canada Inc. owns 14% and two private shareholders own 2%. The project has current Mines Act and Environmental Management Act permits in good standing and is allowed to excavate up to 75,000 tpy. In early 2013, the project submitted applications to amend their existing Mines Act and Environmental Management Act permits that would allow for onsite milling and tailings storage. Due to delays, including regulatory changes due to the 2014 Mount Polley tailings breach, the permit amendments remain outstanding. In 2016 stockpiled material was processed at Nicola Mining Inc.'s custom mill facility near the town of Merritt. In February of 2017 the company reported that a longer term profit share agreement with Nicola was being negotiated.

5.1.3. Red Mountain (IDM Mining Ltd.)

The **Red Mountain** gold project is 18 km east-northeast of Stewart; access to the site is by helicopter. IDM Mining Ltd. acquired 100% ownership of the 17,125 ha property from Seabridge Gold Inc. in May. Current Proven plus Probable reserves are 1.953 Mt at 7.53 g/t Au and 21.86 g/t Ag. IDM is targeting production for the first quarter of 2020.

IDM, continued to advance the project in 2017, with step-out drilling, a feasibility study, and a project application and an environmental impact statement, which were submitted to regulators and stakeholders. A total of 29,312 m of drilling was completed consisting of 104 underground, eight surface, and three geotechnical core holes. Drilling highlights include 25.0 m grading 13.7 g/t Au and 30.9 g/t Ag and their highest grade intersection to date: 1400 g/t Au and 437 g/t Ag over 0.5 m, in an interval of 149.24 g/t Au and 59.88 g/t Ag over 4.88 m.

The project contains five known underground gold zones; Marc, AV, JW, 141 and 132. Mineralized zones consist of crudely tabular, northwesterly trending and moderately to steeply southwesterly dipping gold and silver-bearing iron sulphide stockworks. Mineralized widths vary from less than 2 m to 40 m and average 16 m. The stockwork zones consist of pyrite microveins, coarse-grained pyrite veins, irregular coarse-grained pyrite masses and breccia matrix pyrite hosted predominately in a pale, strongly sericite-altered porphyry. Vein widths vary from 0.1 cm to 80 cm but widths of 1 to 3 cm are most common. The veins are variably spaced and average 2 to 10 per m. The veins are very commonly heavily fractured or brecciated with infillings of fibrous quartz and calcite. The pyrite veins typically carry gold grades ranging

from ~3 g/t to greater than 100 g/t. Gold occurs as grains of native gold, electrum, petzite, and a variety of gold tellurides and sulphosalts. Pyrite is the predominant sulphide although pyrrhotite is locally important. The stockwork zones also occur to a lesser extent in rafts of sedimentary and volcanoclastic rocks.

5.1.4. Galore Creek (Galore Creek Mining Corporation)

The **Galore Creek** gold-copper project is operated by the Galore Creek Mining Corporation (GCMC). Ownership of GCMC is equally split between NovaGold Resources Inc. and Teck Resources Limited. Development of the Galore Creek project is currently on hold.

The project consists of thirteen known zones of gold-copper mineralization with Proven plus Probable reserves reported as 528 Mt at 0.59% Cu, 0.32 g/t Au and 65.02 g/t Ag.

5.1.5. Schaft Creek (Teck Resources Limited (75%) and Copper Fox Metals Inc. (25%))

The **Schaft Creek** copper-gold-silver molybdenum project is owned by Teck Resources Limited (75%) and Copper Fox Metals Inc. (25%). Access to the project is via helicopter or fixed wing aircraft to a gravel airstrip. The project has been in the pre-application phase of environmental assessment since 2006. In 2017, work included updated resource modelling, collection of environmental baseline data and ongoing First Nations consultation.

The Schaft Creek project consists of three deposits: the Main (Liard) zone, The Paramount zone and the West Breccia zone. The deposit hosts a Measured and Indicated resource of 1228.6 Mt grading 0.26% Cu, 0.017% Mo, 0.19 g/t Au and 1.69 g/t Ag and a 597.2 Mt Inferred resource grading 0.22% Cu, 0.016% Mo, 0.17 g/t Au and 1.65 g/t Ag.

5.1.6. Kitsault (Alloycorp Mining Inc.)

The **Kitsault** project is owned by Alloycorp Mining Inc., a privately owned company. The road accessible project produced molybdenum between 1967 and 1972 and again between 1981 and 1982. The project is currently on hold but has environmental assessment approval from both the provincial and federal governments. Pre-production costs are estimated to be \$1.2 billion. The proposed operation would have a 45,500 tpd throughput which will recover both molybdenum and silver. Measured plus Indicated resources are 321.8 Mt at 0.071% Mo, 4.8 g/t Ag.

The Kitsault deposit is hosted in the Lime Creek intrusive complex (Eocene) which intrudes Jurassic argillite and greywackes of the Bowser Lake Group. Molybdenite is hosted in aplite dikes and quartz-molybdenite stockworks.

5.1.7. Morrison (Pacific Booker Minerals Inc.)

Access to the **Morrison** copper-gold-molybdenum-silver project is by road and barge. Measured and Indicated resources are reported as 265.9 Mt at 0.35% Cu, 0.17 g/t Au and 0.005%

Mo (at a 0.20% Eq copper cutoff). Proposed is an open pit operation with a 30,000 t per day mill, equating to a 21-year mine life.

Pacific Booker submitted an EA application in 2010, which was denied in 2012. In late 2013, a supreme court ruled procedural fairness was not adhered to in the 2012 rejection and required the EAO to accept a remitted application for reconsideration. After the Mount Polly tailings breach, the review was suspended, but then resumed in June 2015. In July 2015, a letter from the British Columbia Minister of Environment and Minister of Energy and Mines stated that concerns still remained regarding the project design. The project continues to undergo further review. In 2017, Pacific Booker carried out environmental studies.

6. Selected exploration activities and highlights

Exploration-stage projects are defined as the initial stages of evaluation for economic minerals. This includes grassroots activities such as prospecting, rock and soil sampling, regional mapping and airborne geophysical surveys.

Early-stage activities include more focussed sample grids, geophysical surveys, prospect-scale geological mapping, drill target generation and testing that set the stage for future mine evaluation. Collecting baseline environmental data is also common at this stage. Selected exploration projects active during 2017 are summarized in Table 4 and shown on Fig. 1.

6.1. Selected precious metal projects

Precious metal projects in the Northwest Region were generally concentrated in the Stewart area and in the Lower Iskut River area. Multiple drilling programs continued to test new targets and extend known mineralization.

6.1.1. Atlin Gold Project (Brixton Metals Corporation)

In 2017, Brixton collected 200 rock samples, 120 soil samples and flew 4571 line km of airborne magnetic survey at a line spacing of 200 m at the **Atlin Gold** project. All the rock samples were vuggy, quartz vein-iron oxide fragments from historic trenching. One sample returned Au values greater than 100 g/t (293 g/t), six greater than 10 g/t, and eight greater than 1 g/t.

6.1.2. Brucejack regional (Pretium Resources Inc.)

Outside of the **Brucejack** mine area, evaluation of the surrounding 1250 km² of mineral claims continued. Work in previous years included airborne geophysical surveys, regional sampling, mapping, prospecting, ground geophysics and diamond drilling. To date three distinct areas, the American Creek, Koopa and Boulder zones have been identified with potential to host epithermal mineralization. In 2017, new work included prospecting, mapping and ground geophysics. Data analysis will define targets for drilling in spring 2018.

6.1.3. Clone (Sunvest Minerals Corp.)

Sunvest collected grab and channel samples and resampled

historic drill core at the **Clone** gold property. Channel sample results included 101 g/t Au over 7.5 m including 1.5 m of 245 g/t Au. Grab samples taken near the edge of retreating glaciers assayed 101 g/t and 93.7 g/t Au.

6.1.4. Engineer (Blind Creek Resources Ltd.)

The **Engineer** project includes the historic Engineer mine. In April, Blind Creek acquired the project from Pan Andean Minerals Ltd. (formerly BCGold Corp.). In August, Blind Creek carried out geological mapping, sampling, and soil geochemical surveys to follow up on previous results immediately south of the mine site and on the Wann River claims, five km to the south. In October, the company received an amended Mines Act Permit from the Ministry of Energy, Mines and Petroleum Resources authorizing exploration, underground mining, and on-site milling activities. Future plans include resource and mine development at the Engineer mine.

6.1.5. Forest Kerr (Aben Resources Ltd.)

In 2017, Aben carried out a nine hole, 2445 m diamond drilling program at the **Forest Kerr** project (Fig. 3). Highlight results from the newly discovery Boundary North zone included 1.2 g/t Au, 1.8 g/t Ag and 0.21% Cu over 122 m that includes 10.9 g/t Au, 14.6 g/t Ag and 1.5% Cu over 12 m with a high grade core of 21.5 g/t Au, 28.5 g/t Ag and 3.1% Cu over 6 m.



Fig. 3. Drill setup, Forest Kerr project. Photo courtesy of Aben Resources Ltd.

6.1.6. Homestake Ridge (Auryn Resources Inc.)

At the **Homestake Ridge** project Auryn carried out a 37 hole, 14,850 m diamond drilling program in 2017. Drill result highlights include 30 m of 2.00 g/t Au (including 4 m of 6.03 g/t Au and 2 m of 11.80 g/t Au), 10 m of 4.12 g/t Au (including 2 m of 18.01 g/t Au), 18 m of 1.29 g/t Au (including 4 m of 4.18 g/t Au), 8 m of 2.67 g/t Au (including 2 m of 7.4 g/t), and 14 m of 1.23 g/t Au.

6.1.7. Iskut (Seabridge Gold Inc.)

In 2017, Seabridge carried out a ten hole, 4459 m diamond drilling program on the Quartz Rise target at the **Iskut** project. Drilling found evidence of a gold-bearing intermediate sulfidation epithermal system beneath the Quartz Rise lithocap. Results included 1.5 m grading 8.26 g/t Au and 1.5 m grading

Table 4. Selected Exploration projects, Northwest Region.

Project	Operator (partner)	Commodity; Deposit type MINFILE	Resource (NI 43-101 compliant unless indicated otherwise)	Comments
Atlin Gold Project	Brixton Metals Corporation	Au; precious metal veins	na	Rock and soil sampling. Gold values for rock samples returned up to 293 g/t Au. One sample returned Au values greater than 100 g/t, six greater than 10 g/t, and eight greater than 1 g/t.
BA	Mountain Boy Minerals Ltd.	Ag, base metals	na	Rock sampling, interpretation of VTEM and magnetic airborne survey data.
Ball Creek	Evrin Resources Corp.	Cu-Au- Ag±Mo; porphyry, Au- Ag epithermal veins	na	Definitive agreement with a wholly owned subsidiary of Antofagasta Plc by which Antofagasta can earn up to a 70% interest in the Ball Creek property by spending up to an aggregate of US\$31 million or delivering a prefeasibility study.
Berg	Centerra Gold Inc.	Cu, Mo, Ag; porphyry 093E 046	I+Inf: 557,000 t at 0.3% Cu, 0.037% Mo, 3.12 g/t Ag	Mapping, sampling, historic core re-logging.
Big Bulk	Dolly Varden Silver Corporation	Cu, Au; porphyry 103P 016	na	Carried out an airborne ZTEM geophysical survey over the property.
Brucejack Regional	Pretium Resources Inc.	Au, Ag; epithermal vein	na	Evaluation of approximately 800 km ² of mineral claims. To date three distinct areas, the American Creek, Koopa and Boulder zones have been identified with potential to host epithermal mineralization. In 2017, new work included prospecting, mapping and ground geophysics. Data analysis will define targets for drilling in spring 2018.
Clone	Sunvest Minerals Corp.	Au, Ag, Cu, Co; Au; precious metal veins; 103P 251	na	Rock grab and channel sampling.
Copperhead	Goliath Resources Limited	Cu, Ag, Au	na	Geophysics, prospecting, channel sampling, and mapping to define drill targets.
Dolly Varden	Dolly Varden Silver Corporation	Ag, Zn; Noranda/ Kuroko massive sulphide; 103P 188	I: 3.073 Mt at 321.6 g/t Ag Inf: 898,500 t at 373.3 g/t Ag	12,000 m diamond drilling program. New discoveries include the Central zone returning 16.10 m (13.19 m true thickness) grading 269.0 g/t Ag, 0.30% Pb, and 0.21% Zn and an eastern fault offset of the Torbit deposit (Torbit East), returning assays including 13.00 m (9.96 m true thickness) grading 244.8 g/t Ag, 0.14% Pb, and 0.09% Zn.
Duke	Amarc Resources Ltd.	Cu, Mo, Au; porphyry Cu- Au; 093M 009, 121, 163	Historic non NI 43-101 compliant I: 41 Mt at 0.25% Cu, 0.01% Mo	Property straddles the Northwest and North Central regions. Drilling was in the North Central Region. 2 holes, total 1045.5 m, with several intersections over 1.1 g/t Au.

Table 4. Continued.

E&L	Garibaldi Resources Corp.	Ni, Cu, Pt, Ag; Tholeiitic intrusion; 104B 006	na	Diamond drilling program intersected a sequence of mafic and ultramafic rocks and highlight results included 8.3% Ni and 4.2% Cu over 16.75 m.
Engineer	Blind Creek Resources	Au, Ag; Epithermal Veins; 104M 014	Inf: 41,000 t at 19.0 g/t	Geological mapping, sampling and soil geochemical surveys.
Forest Kerr	Aben Resources Ltd.	Au, Ag, Cu; Precious metal veins	na	Diamond drilling, nine holes, 2445 m. Highlight results from the newly discovery Boundary North zone included 1.2 g/t Au, 1.8 g/t Ag and 0.21% Cu over 122 m that includes 10.9 g/t Au, 14.6 g/t Ag and 1.5% Cu over 12 m with a high grade core of 21.5 g/t Au, 28.5 g/t Ag and 3.1% Cu over 6 m.
GJ	Skeena Resources Limited	Cu, Au; calc-alkalic porphyry; 104G 034	M+I: 133.67 Mt at 0.32% Cu, 0.36 g/t Au; Inf: 53.69 Mt at 0.26% Cu, 0.330 g/t Au	One of two deposits that form the Spectrum-GJ project. Updated mineral resource estimate and a preliminary economic assessment.
Hank	Golden Ridge Resources Ltd.	Au, Ag; Epithermal veins, Cu, Au porphyry	na	Announced a 9000 m diamond drilling program. Final meterage not reported but results included 4.13 m of 19.74 g/t Au, 193.9 g/t Ag, 0.77% Pb, 1.97% Zn and 60.27 m of 2.14 g/t Au, 6.9 g/t Ag, 0.11% Pb, 0.45% Zn.
Hat	Doubleview Capital Corp.	Au, Cu; calc-alkalic porphyry; 104J 015	na	Soil and rock sampling. Results define anomalies that extend over an area of 550 x 850 m at the Hoey gold area and 1400 x 700 m at the West Gossan area. Also at the Hoey gold area, some rock samples reported results as high as 8.11 g/t Au, 7% Cu and 0.5% Co. The West Gossan soil anomaly returned one sample of 55.2 g/t Au with 0.2% Cu.
Hazelton	Jaxon Mining Inc.	Ag, Au, Zn; VMS with epithermal veins	na	A 12 hole, 2281 m diamond drilling program on the Max target. Drilling focused on induced polarization survey geophysical targets interpreted to be associated with sulphide mineralization. Assay results are pending.
Homestake Ridge	Auryn Resources Inc.	Au, Ag, Cu; epithermal veins	I: 0.624 Mt at 6.25 g/t Au, 47.9 g/t Ag, 0.18% Cu Inf: 7.245 Mt at 4.00 g/t Au, 90.9 g/t Ag, 0.11% Cu. (Resources at a 2.0 g/t AuEq cut-off)	Produced a new mineral resource estimate. A 37 hole, 14,850 m diamond drilling program. Drill result highlights include 30 m of 2.00 g/t Au (including 4 m of 6.03 g/t Au and 2 m of 11.80 g/t Au), 10 m of 4.12 g/t Au (including 2 m of 18.01 g/t Au), 18 m of 1.29 g/t Au (including 4 m of 4.18 g/t Au), 8 m of 2.67 g/t Au (including 2 m of 7.4 g/t), and 14 m of 1.23 g/t Au.

Table 4. Continued.

Hot Bath	Gray Rock Resources Ltd.	Cu, Au; porphyry	na	Four hole diamond drilling program. Drilling intersected porphyritic textured, hornblende-monzonite intrusive rocks with potassium feldspar, hematite, magnetite and kaolinite group alteration.
Iskut	Seabridge Gold Inc.	Au, Ag, Cu; intrusion related, calc-alkalic porphyry; 104B 107	na	Ten hole, 4459 m diamond drilling program on the Quartz Rise target. Drilling found evidence of a gold bearing intermediate sulphidation epithermal system beneath the Quartz Rise lithocap. Results included 1.5 m grading 8.26 g/t Au and 1.5 m grading 74.1 g/t Au. Sampling of a cliff face north of the Quartz Rise target returned high grades ranging from 1.49 to 125.3 g/t Au.
Kinskuch (OK2 Minerals)	OK2 Minerals Ltd.	Cu, Au; Alkalic porphyry; 103P 016	na	Airborne ZTEM survey over the property, rock grab samples collected. Sampling returned promising results over a 2.25 km trend with 42 rock samples returning an average of 0.57% Cu and 0.35 g/t Au. Sampling also defined a new zone of porphyry mineralization with assays grading from background values up to 7.2% Cu, 4.2 g/t Au and 21.6 g/t Ag.
Kirkham	Metallis Resources Inc.	Au, Cu; calc-alkalic porphyry and Au, Ag; intrusion related; 104B 079	na	A three hole, 1048 m diamond drilling program at the Cliff porphyry target intersected zones of potassic alteration featuring abundant chalcopyrite. Drill results identified a broad zone of Cu-Au mineralization and high grade Au mineralized zones. Assay highlights for Cu-Au mineralization included 146 m of 0.34 g/t Au and 0.22% Cu, including 68 m at 0.52 g/t Au and 0.3% Cu. Assay results for the high grade Au zone included 2 m of 15 g/t Au, 2 m of 2.66 g/t Au and 2 m of 3.36 g/t Au.
KSP	Colorado Resources Ltd.	Au, Cu; calc-alkalic porphyry and Au, Ag; intrusion related; 104B 111 and 104B 013	na	A 24 hole, 11,824 m diamond drilling tested multiple target areas within the Inel-Khyber zone and additionally tested the Tami zone with 11 drill holes. Highlight results for the Tami zone include 13.6 m of 2.37 g/t Au, 0.16% Cu, 58.7 m of 1.05 g/t Au, 0.19% Cu and 40 m of 1.74 g/t Au, 0.24% Cu. Highlight results for the Inel zone include 4470 g/t Au over 0.5 m and 0.43 g/t Au and 0.11% copper over 195.4 m.
Kutcho	Kutcho Copper Corp.	Cu, Pb, Zn; VMS; 104I 060	M+I: at 16.853 Mt of 1.89% Cu, 2.87% Zn, 0.36 g/t Au and 32.8 g/t Ag (at a 1.0% Cu cut-off)	Kutcho (formerly Desert Star Resources Ltd.) signed an agreement to acquire 100% interest in the project from Capstone Mining Corp. for \$28.8 million. Announced a positive prefeasibility study with updated resource figures.

Table 4. Continued.

Lucky Strike	Goliath Resources Ltd.	Au, Ag, Pb, Zn, Cu; polymetallic veins; 103I 030	na	69 channel samples, 336 rock grab samples and 734 soil samples collected. Detailed geological mapping and flew a 563 line high-resolution SKYTEM [™] airborne geophysical survey over the entire property. Assay results are pending.
North ROK	Colorado Resources Ltd.	Cu, Au; Porphyry; 104H 035	Inf: 142.3 Mt 0.22% Cu, 0.26 g/t Au (at a 0.20% CuEq % cut-off)	Rock and soil sampling and a six hole, 2529 m diamond drilling program. Rock and soil sampling results highlighted multiple Cu soil anomalies and Cu and Au in rock samples along a nine km favorable trend. Drill results are pending.
Oweegee Dome	Sojourn Exploration Inc.	Cu, Au, Mo, Zn; calc-alkalic porphyry; 104A 165	na	Multi element stream sampling (464 samples) and soil sampling (324 samples) program. A number of anomalies were defined in the vicinity of high potential geophysical targets. Follow up prospecting and sampling is planned for 2018 to establish drill targets.
Pearson and Pearson North	Teuton Resources Corp.	Cu, Ag, Au; polymetallic veins	na	Prospecting and sampling. Float below malachite stained cliff faces averaged 1.63% Cu and >15% Fe. Samples for other locations on the property ran trace to 7.06% Cu, 0.2 to 321 g/t Ag and 0.05 to 68.69 g/t Au. A high resolution airborne geophysical survey over the property is planned for 2018.
Premier/Dilworth	Ascot Resources Ltd.	Au, Ag; Au in quartz veins; 104B 044	na	A 379 hole, 118,800 m diamond drilling program. Drilling discovered a new high-grade subzone (Ben) of the Northern Lights zone in the Premier mine area. Numerous high-grade intersections were reported, including 36.31 g/t Au over 16.15 m.
Pyramid	OK2 Minerals Ltd.	Cu, Au; calc-alkalic porphyry	na	Eleven RC drill holes and three diamond drill holes totalling 1366 m carried out on the West zone and Central zone targets. No significant intercepts were reported for the Central zone but results for the West zone included 482 m of 0.16 g/t Au, 0.12 g/t Ag and 0.02% Cu. This interval included 19 m of 0.57 g/t Au, 0.34 g/t Ag, 0.02% Cu, 75 m of 0.32 g/t Au, 0.17 g/t Ag, 0.01% Cu and 24 m of 0.71 g/t Au, 0.21 g/t Ag, 0.02 % Cu.
RCN	Serengeti Resources Inc.	Cu, Au	na	Aeromagnetic survey over the property highlights several targets, including two linear magnetic anomalies, one of which is coincident with a quartz-sericite-pyrite zone and copper-gold mineralization identified by Serengeti in 2014.

Table 4. Continued.

Red Cliff	Decade Resources Ltd. (65%), (Mountain Boy Minerals Ltd. (35%))	Cu, Au, Ag, Zn; polymetallic veins; 104A 037	na	Chip sampling results of 19.9 g/t over 4 m for the Waterpump zone and 390 g/t Au over 5 m for the Lower Montrose zone. Reported drilling results for the Montrose zone include 14.93 g/t Au over 8.38 m and 9.5 g/t Au over 10.98 m.
SIB	SSR Mining Inc.	Au, Ag	na	A 12 hole, 9336 m diamond drilling program. Results have not been announced.
Silver Coin	Jayden Resources (Canada Inc.) (80%), (Mountain Boy Minerals Ltd. (20%))	Ag, Zn, Pb, Cu; Intrusion related Au pyrrhotite veins, Subaqueous hot spring Ag, Au, Polymetallic veins; 104B 095	na	A 14 hole, 2225 m diamond drilling program. Assay results included 8.63 g/t Au over 7.7 m, 6.5 g/t Au over 1.5 m and 8.25 g/t Au over 1.0 m.
Silver Queen	New Nadina Explorations Ltd.	Ag, Cu, Au, Zn, Pb; Polymetallic veins; 093L 002	na	A 3 hole, 2158 m diamond drill program. Results included 0.4 m of 120 g/t Ag, 1.29 g/t Au, 1.4 % Cu and 3 m of 120 g/t Ag, 0.24 g/t Au and 0.5% Cu.
Snip	Skeena Resources Limited	Au, Ag; Mineralized quartz veins; 104B 250	na	A 72 hole, 9000 m underground diamond drill program. Highlight results included 341.00 g/t Au over 1.50 m, 67.68 g/t Au over 2.03 m and 10.76 g/t Au over 4.30 m including 14.80 g/t Au over 1.49 m and 9.47 g/t Au over 1.50 m.
Spectrum	Skeena Resources Limited	Au, Cu; mineralized quartz veins, high k calc-alkalic porphyry 104G 036	I: 8.59 Mt at 1.04 g/t Au, 6.58 g/t Ag, 0.11% Cu Inf: 22.63 Mt at 1.03 g/t Au, 3.85 g/t Ag, 0.11% Cu (0.50 g/t eAu cut-off)	One of two deposits that form the Spectrum-GJ project. Updated mineral resource estimate and a preliminary economic assessment.
Surprise Creek	Mountain Boy Minerals Ltd.	Au, Ag; polymetallic veins	na	Rock sampling and interpretation of airborne VTEM and magnetic data. Samples results of up to 3 g/t Au with associated Ag up to 324 g/t reported.
Surprise Lake	Gray Rock Resources Ltd.	Au; mineralized quartz veins; 104N 032	na	Program including geochemical surveys, ground geophysical surveys, channel sampling and detailed geological mapping was announced. Results have not been published.

Table 4. Continued.

Tatogga	GT Gold Corp.	Au, Ag, Cu; polymetallic veins, porphyry	na	Two new grassroots exploration discoveries; the high grade Saddle South gold discovery and the Saddle North copper-gold-silver porphyry discovery. Saddle South results include 51.53 g/t Au over 6.95 m and 5.10 g/t Au over 23.66 m. Saddle North results include 210.3 m of 0.14 g/t Au, 0.28 g/t Ag and 0.16% Cu including 0.22 g/t Au, 0.36 g/t Ag and 0.24% Cu over the last 33.73 m of the hole. The Saddle North discovery also included epithermal veins that assayed 13.55 g/t Au over 2.58 m including 61.10 g/t Au and 30.90 g/t Ag over 0.61 m. In 2018, drilling programs will continue on all the current target discoveries.
Telkwa Coal	Telkwa Coal Limited	bituminous coal; 093L 156	M: 89.113 Mt I: 42.037 Mt Inf: 33.412 Mt	In 2017, a favourable pre-feasibility study was released and plans for a feasibility study and permit applications were announced. Telkwa Coal Limited is a wholly owned subsidiary of Allegiance Coal Limited.
Thorn	Brixton Metals Corporation	Ag, Au; Subvolcanic; 104K 031	Inf: 7.4 Mt at 35.54 g/t Ag, 0.51 g/t Au, 0.13% Cu, 0.032% Pb, 0.59% Zn	A 10 hole, 2455 m diamond drill program at the Chivas zone. Highlight results included 21.00 m of 0.46 g/t Au, 39.74 g/t Ag and 18.00 m of 0.99 g/t Au, 19.46 g/t Ag, 0.66% Zn, 0.19% Pb including 6.45 m of 2.63 g/t Au, 45.15 g/t Ag, 1.5% Zn, 0.18% Cu, 0.42% Pb.
Treaty Creek	Tudor Gold Corp. (80%), (Teuton Resources Corp. (20%), American Creek Resources Ltd. (20%))	Au, Ag; Epithermal high sulphidation; 104B 078	na	A 27 hole, 13,722 m diamond drill program. The target was the Copper Belle zone and highlight results from five holes included 115.1 m of 1.31 g/t Au, 4.4 g/t Ag, 0.022% Cu including 39 m of 2.38 g/t Au, 8.3 g/t Ag, 0.026% Cu. Assays for the remaining 22 holes are pending.
Willoughby	Sojourn Exploration Inc. (Millrock Resources Inc.)	Au, Ag, Zn, Pb; polymetallic veins; 103P 006	na	Sojourn has an option to earn 100% of the property from Millrock. Prospecting locates new zones of bedrock mineralization. One m chip samples returned values of: 3.88 g/t Au and 2.42 g/t Ag, 1.93 g/t Au and 4.81 g/t Ag, 2.76 g/t Au and 92.1 g/t Ag; 1.87 g/t Au and 2.13 g/t Ag, and 0.56 g/t Au and 1.24 g/t Ag.

M = Measured; I = Indicated; Inf = Inferred

74.1 g/t Au. Sampling of a cliff face north of the Quartz Rise target returned high grades ranging from 1.49 to 125.3 g/t Au.

6.1.8. Lucky Strike (Goliath Resources Ltd.)

At the **Lucky Strike** in 2017, Goliath staked additional ground, took 69 channel samples, collected 336 rock grab samples and 734 soil samples, carried out detailed geological mapping, and flew a 563 line high-resolution SKYTEM™ airborne geophysical survey over the entire property.

6.1.9. SIB (SSR Mining Inc.)

At the **SIB** property, SSR carried out a 12 hole, 9336 m diamond drilling program. The property is under option from Eskay Mining Corp. SSR has the option to earn a 51% undivided interest in the property by spending an aggregate of \$11.7-million in exploration expenditures over three years, with an option to earn a further 9% undivided interest by either delivering a preliminary economic assessment or completing an aggregate of 23,000 m of diamond drilling.

6.1.10. Silver Coin (Jayden Resources (Canada Inc.) 80%, Mountain Boy Minerals Ltd. 20%)

The **Silver Coin** project is operated by Sprott Mining Inc., a private company. In 2017, a 14 hole, 2225 m diamond drilling program was carried out. Drilling intersected altered andesite with a quartz-sericite-chlorite altered breccia zone exhibiting quartz stringers with visible gold grains, 5-6% sphalerite, up to 1% galena and 7-8% pyrite mineralization. Assay results for this altered andesite included 8.63 g/t Au over 7.7 m including several higher-grade intervals up to 37.1 g/t Au. Additional zones of siliceous breccia returned 6.5 g/t Au over 1.5 m and 8.25 g/t Au over 1.0 m. Assays are still pending for four holes. These results are from a new zone 550 m to the northeast of the main Silver Coin deposit. At a 0.3 g/t Au cut-off grade, the estimated Measured and Indicated resource at Silver Coin already consists of 24.13 Mt grading 1.08 g/t Au.

6.1.11. Snip (Skeena Resources Limited)

In July 2017, Skeena acquired 100% interest in the **Snip** past-producing gold mine from Barrick Gold Corporation. The Snip mine operated from 1991 to 1999 and produced over 1.1 million ounces of Au. Exploration in 2017 included a 72 hole, 9000 m underground diamond drill program. Highlight results included 341.00 g/t Au over 1.50 m, 67.68 g/t Au over 2.03 m and 10.76 g/t Au over 4.30 m including 14.80 g/t Au over 1.49 m and 9.47 g/t Au over 1.50 m. Skeena reported that drilling verified historical data. For 2018, they plan to expand upon the known mineralized zones and to prioritize previously overlooked areas.

6.1.12. Surprise Lake (Gray Rock Resources Ltd.)

In June, a program the **Surprise Lake** project, including geochemical surveys, ground geophysical surveys, channel sampling and detailed geological mapping was announced. The program was designed to follow-up on coarse gold found in 2016 on the Otter Creek property.

6.1.13. Tatogga (GT Gold Corp.)

The **Tatogga** project is approximately 14 km west of the Red Chris copper-gold mine, less than 1 km west of Iskut, and close to a paved road (Highway 37). The project has two new grassroots discoveries: the high-grade Saddle South gold discovery (Fig. 4) and the Saddle North porphyry copper-gold-silver discovery. The initial discovery was Saddle South, which was drilled to follow up on anomalous soil sample results. The 2017 work program included 28 reverse circulation drill holes (1527 m) on Saddle South, 32 line km of IP surveying, 165 line km of helicopter-borne magnetic surveying, 86 diamond drill holes (15,998 m) on Saddle South and six diamond drill holes (1713 m) on Saddle North. The Saddle South discovery won the prestigious Mines and Money "Exploration Discovery Award".

Drilling on Saddle South returned a high density of high-grade intersections. Highlight results include 51.53 g/t Au over 6.95 m and 5.10 g/t Au over 23.66 m. Drilling on Saddle North

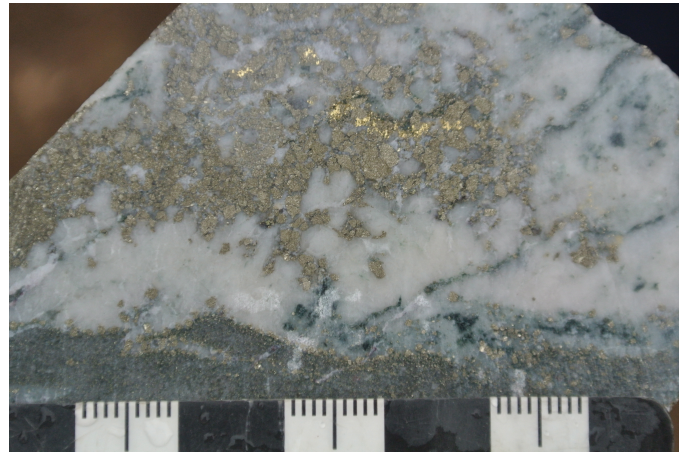


Fig. 4. Visible gold in Tatogga project Saddle South drill core. Photo courtesy of GT Gold Corp.

was designed to test a large-scale, high-intensity, coincident IP-magnetic anomaly. Drilling results included a new porphyry discovery and the intersection of high-grade epithermal veins (on the western end of the Saddle North trend). The porphyry mineralization discovery hole returned 210.3 m of 0.14 g/t Au, 0.28 g/t Ag and 0.16% Cu. Grades improved downhole and the hole ended in mineralization. The last sample interval of 33.73 m returned 0.22 g/t Au, 0.36 g/t Ag and 0.24% Cu. Highlight intersections for the epithermal vein discovery included 13.55 g/t Au over 2.58 m including 61.10 g/t Au and 30.90 g/t Ag over 0.61 m. In 2018, drilling programs will continue on all the current target discoveries.

6.1.14. Thorn (Brixton Metals Corporation)

At the **Thorn** project in 2017, Brixton carried out a 10 hole, 2455 m diamond drill program, which was the first drilling on the Chivas zone. The holes tested a gold-in-soil geochemical anomaly and an IP geophysical anomaly. Highlight results included 21.00 m of 0.46 g/t Au, 39.74 g/t Ag and 18.00 m of 0.99 g/t Au, 19.46 g/t Ag, 0.66% Zn, 0.19% Pb including 6.45 m of 2.63 g/t Au, 45.15 g/t Ag, 1.5% Zn, 0.18% Cu, 0.42% Pb.

6.2. Selected porphyry (Cu-Au, Cu-Mo, Mo) projects

The Northwest Region is highly prospective for porphyry deposits related to island arc assemblages accreted to North America and with post accretionary intrusive suites.

6.2.1. Ball Creek (Evrin Resources Corp.)

The **Ball Creek** project is approximately 80 km southwest of Iskut and 60 km southwest of the Red Chris mine. In 2017, Evrim signed a definitive agreement with a wholly owned subsidiary of Antofagasta Plc by which Antofagasta can earn up to a 70% interest in the Ball Creek property by spending up to an aggregate of US\$31 million or delivering a prefeasibility study. Exploration plans were to include work on four known porphyry systems and regional exploration elsewhere on the project.

6.2.2. Berg (Centerra Gold Inc.)

The **Berg** project is approximately 90 km southwest of Houston and 20 km northwest of the Huckleberry mine. In 2017, Centerra carried out mapping, sampling, and logging of historic drill core.

6.2.3. Big Bulk (Dolly Varden Silver Corporation)

In 2017, Dolly Varden carried out an airborne ZTEM geophysical survey at the **Big Bulk** project.

6.2.4. Duke (Amarc Resources Ltd.)

The **Duke** property straddles the Northwest and North Central regions. The property includes a copper+/-molybdenum porphyry deposit that was the subject of an historic (NI 43-101 non-compliant) inferred resource estimated at 40.8 million tons at 0.25% Cu and 0.01% Mo. The property was explored intermittently by IP and magnetic surveys, and by shallow drilling, between 1965 and 2010, and was acquired by Amarc in 2016. The early IP work had suggested that the mineralized system might be offset by faults, leaving significant prospective areas unexamined. In late autumn 2017, the company diamond drilled two holes (1045.5 m) and reported several intersections with more than 1.1 g/t Au.

6.2.5. Spectrum-GJ (Skeena Resources Limited)

The **Spectrum-GJ** gold-copper project is approximately 30 km west of the **Red Chris** mine. In 2017, Skeena Limited filed a mineral resource update and a preliminary economic assessment for the project. The project consists of two deposits, separated by about 14 km, one porphyry copper-gold deposit (Donnelly, at GJ), the other porphyry gold-copper deposit (Spectrum).

6.2.6. Hat (Doubleview Capital Corp.)

The **Hat** gold-copper project contains the Lisle gold-copper alkali porphyry zone. In 2017, Doubleview collected soil and rock samples. Results defined anomalies that extend over an area of 550 by 850 m at the Hoey gold area and 1400 by 700 m at the West Gossan area. Also at the Hoey gold area, some rock samples reported results as high as 8.11 g/t Au, 7% Cu and 0.5% Co. The West Gossan soil anomaly returned one sample of 55.2 g/t Au with 0.2% Cu.

6.2.7. Hot Bath (Gray Rock Resources Ltd.)

In 2017, Gray Rock diamond drilled four holes (totalling 1000 m) at the **Hot Bath** project. The holes tested induced polarization geophysical targets and/or gold geochemical anomalies. Drilling intersected porphyritic, hornblende-monzonite intrusive rocks with potassium feldspar, hematite, magnetite and kaolinite group alteration.

6.2.8. Kinskuch (OK2 Minerals Ltd.)

In 2017, OK2 flew an airborne ZTEM survey and collected rock grab samples at the **Kinskuch** property. New sampling of 42 rock specimens along a 2.25 km trend in an area considered

to represent a relatively deep structural level returned an average of 0.57% Cu and 0.35 g/t Au. These rock samples come from areas with limited or no historic sampling and some are from areas of recent glacial retreat. Sampling also defined a new zone of porphyry mineralization with assays grading from background values up to 7.2% Cu, 4.2 g/t Au and 21.6 g/t Ag. The new area is approximately 750 m south of the main trend of mineralization.

6.2.9. Kirkham (Metallis Resources Inc.)

In 2017, Metallis announced that a three hole, 1048 m diamond drilling program at the Cliff porphyry target on the **Kirkham** property intersected zones of potassic alteration featuring abundant chalcopyrite. Drill results identified a broad zone of Cu-Au mineralization and high-grade Au mineralized zones. Assay highlights for Cu-Au mineralization included 146 m of 0.34 g/t Au and 0.22% Cu, including 68 m at 0.52 g/t Au and 0.3% Cu. Assay results for the high grade Au zone included 2 m of 15 g/t Au, 2 m of 2.66 g/t Au and 2 m of 3.36 g/t Au.

Mapping and sampling also identified several gabbroic units considered contiguous with the rocks that host nickel-copper sulphides at Garibaldi Resources Corp.'s **E&L** project.

6.2.10. KSP (Colorado Resources Ltd.)

In 2017, Colorado diamond drilled a total of 11,824 m in 24 holes at the **KSP** property. Drilling tested the Inel-Khyber and Tami zones. Highlight results for the Tami zone include 13.6 m of 2.37 g/t Au, 0.16% Cu, 58.7 m of 1.05 g/t Au, 0.19% Cu and 40 m of 1.74 g/t Au, 0.24% Cu. Highlight results for the Inel zone include 4470 g/t gold over 0.5 m and 0.43 g/t gold and 0.11% copper over 195.4 m.

6.2.11. North ROK (Colorado Resources Ltd.)

The **North ROK** property is 15 km northwest of the Red Chris mine. The property contains the North ROK deposit with a mineral resource of 142.3 Mt of 0.22% Cu and 0.26 g/t Au (at a 0.20% CuEq% cut-off). In 2017, Colorado carried out rock and soil sampling and diamond drilled a total of 2529 m in six holes. The rock and soil sampling results highlighted multiple Cu soil anomalies and Cu and Au in rock samples along a 9 km trend.

6.2.12. Oweegee Dome (Sojourn Exploration Inc.)

The **Oweegee Dome** project is under option by Sojourn from Millrock Resources Inc. In 2017, Sojourn carried out multi element stream sampling (464 samples) and soil sampling (324 samples) to follow up on airborne geophysical surveying carried out by Millrock in 2016.

A number of anomalies were defined near geophysical targets. Follow up prospecting and sampling is planned for 2018 to establish drill targets.

6.2.13. Pyramid (OK2 Minerals Ltd.)

The 2017 exploration program at the **Pyramid** gold-copper

project consisted of 11 RC drill holes and three diamond drill holes totalling 1366 m at the West zone and Central zone. No significant intercepts were reported for the Central zone but results for the West zone included 482 m of 0.16 g/t Au, 0.12 g/t Ag and 0.02% Cu. This interval included 19 m of 0.57 g/t Au, 0.34 g/t Ag, 0.02% Cu, 75 m of 0.32 g/t Au, 0.17 g/t Ag, 0.01% Cu and 24 m of 0.71 g/t Au, 0.21 g/t Ag, 0.02% Cu.

6.3. Selected polymetallic base and precious metal projects

The Northwest Region hosts many significant base and precious metal deposits. A number of precious metal enriched polymetallic prospects were explored in 2017.

6.3.1. BA (Mountain Boy Minerals Ltd.)

In 2017, Mountain Boy acquired 100% of the **BA** project, carried out rock sampling and started an interpretation of an airborne survey VTEM and magnetic data.

6.3.2. Copperhead (Goliath Resources Limited)

In 2017, Goliath staked additional ground at the **Copperhead** property, collected 42 rock grab samples and completed a 47 line-km high-resolution SKYTEM[™] airborne geophysical survey. Planned work in 2018 includes geophysics, prospecting, channel sampling, and mapping to define drill targets.

6.3.3. Dolly Varden (Dolly Varden Silver Corporation)

In 2017 Dolly Varden Silver Corporation announced plans for 12,000 m of diamond drilling at the **Dolly Varden** silver project. The project consists of the Torbrit, Dolly Varden, Wolf, and North Star deposits. Drilling between the Torbrit and Wolf deposits resulted in a new discovery (Central zone), with results that included 16.10 m (13.19 m true thickness) grading 269.0 g/t Ag, 0.30% Pb, and 0.21% Zn. Follow-up drilling confirmed this discovery, returning results of 7.15 m (6.72 m true thickness) grading 1180.7 g/t Ag, 1.83% Pb and 0.26% Zn. Drilling also discovered an eastern fault offset of the Torbrit deposit (Torbrit East), with assays including 13.00 m (9.96 m true thickness) grading 244.8 g/t Ag, 0.14% Pb, 0.09% Zn. Within this interval was 5.00 m (3.83 m true thickness) grading 481.9 g/t Ag, 0.21% Pb, 0.12% Zn.

6.3.4. Hank (Golden Ridge Resources Ltd.)

In 2017, Golden Ridge announced plans for 9000 m of diamond drilling at the **Hank** project. Results reported to date include 4.13 m of 19.74 g/t Au, 193.9 g/t Ag, 0.77% Pb, 1.97% Zn and 60.27 m of 2.14 g/t Au, 6.9 g/t Ag, 0.11% Pb, 0.45% Zn.

6.3.5. Hazelton (Jaxon Mining Inc.)

In 2017, Jaxon diamond drilled a total of 2281 m in 12 holes on the Max target of the **Hazelton** project. Drilling focused on induced polarization survey geophysical targets interpreted to be associated with sulphide mineralization.

6.3.6. Kutcho (Kutcho Copper Corp.)

In June of 2017, Kutcho (formerly Desert Star Resources

Ltd.) announced signing an agreement to acquire 100% interest in the **Kutcho** project from Capstone Mining Corp. for \$28.8 million. In July, they announced a prefeasibility study with updated resource figures. At a 1.0% copper cut off, combined Measured and Indicated resources are estimated at 16.853 Mt of 1.89% copper, 2.87% zinc, 0.36 g/t gold and 32.8 g/t silver. Kutcho plans to advance the project to a completed feasibility study and permitted for construction within 2.5 years.

6.3.7. Pearson and Pearson North (Teuton Resources Corp.)

The **Pearson** and **Pearson North** properties are about 20 km southwest of Seabridge Gold's KSM project. In 2017 Teuton carried out prospecting and sampling. Samples collected from float at the base of malachite stained cliff faces averaged 1.63% Cu and >15% Fe. Additional samples, mostly from either quartz veins or diorite, ranged from trace to 8.57% Cu, trace to 0.07% Co, trace to 16.7% Zn, trace to 29.2% Pb, trace to 451 g/t Ag, and trace to 12.7 g/t Au.

A zone with multiple occurrences of malachite and azurite was sampled on the Pearson North property. Many vein samples were taken from carbonate-altered areas mostly, in the malachite-rich zone, and ran trace to 7.06% Cu, 0.2 to 321 g/t Ag and 0.05 to 68.69 g/t Au.

A high-resolution airborne geophysical survey is planned for 2018.

6.3.8. Premier/Dilworth (Ascot Resources Ltd.)

In 2017, Ascot carried out a 379 hole, 118,800 m diamond drilling program at the **Premier/Dilworth** project, which includes the past-producing Premier gold mine. Until operations were suspended in 1996, the Premier mine produced 2 million ounces of Au and 42.8 million ounces of silver. Target areas include Big Missouri, Northern Lights, and Premier. The drilling discovered a new high-grade subzone (Ben) of the Northern Lights zone in the Premier mine area. Numerous high-grade intersections were reported; including 36.31 g/t Au over 16.15 m. Plans for 2018 include continued drilling and a new NI 43-101 resource calculation.

6.3.9. RCN (Serengeti Resources Inc.)

In 2017, Serengeti completed an aeromagnetic survey at the **RCN** project. The survey highlighted several targets, including two linear magnetic anomalies, one of which is coincident with a quartz-sericite-pyrite zone and copper-gold mineralization identified by Serengeti in 2014.

6.3.10. Red Cliff (Decade Resources Ltd., (65%), Mountain Boy Minerals Ltd., (35%))

Decade Resources reported rock sampling results of 19.9 g/t over 4 m for the Waterpump zone at the **Red Cliff** gold-copper project. Drill core from the Waterpump zone is described as having sphalerite-galena-chalcopryrite veining in the wall of a strong breccia that contains quartz, pyrite and minor chalcopryrite over 15-20 m true width. Visible gold has been observed in sphalerite-galena-chalcopryrite veinlets and in

quartz-pyrite veinlets. Drill result highlights for the Montrose zone include 14.93 g/t Au over 8.38 m and 9.5 g/t Au over 10.98 m.

6.3.11. Silver Queen (New Nadina Explorations Ltd.)

In 2017, New Nadina diamond drilled a total of 2158.5 m in three holes at their **Silver Queen** project. Results included 0.4 m of 120 g/t Ag, 1.29 g/t Au, 1.41% Cu and 3 m of 120 g/t Ag, 0.24 g/t Au and 0.5% Cu.

6.3.12. Surprise Creek (Mountain Boy Minerals Ltd.)

In 2017, Mountain Boy acquired 100% of the **Surprise Creek** project, carried out rock sampling, and started interpreting airborne VTEM and magnetic data. Rock sampling discovered a new zone of gold-silver mineralization associated with a quartz stockwork containing tetrahedrite, pyrite, arsenopyrite and chalcopyrite. Assays of up to 3 g/t Au with associated Ag up to 324 g/t were reported.

6.3.13. Treaty Creek (Tudor Gold Corp. 80%, Teuton Resources Corp. 20%, American Creek Resources Ltd. 20%)

The **Treaty Creek** project is adjacent to Seabridge's KSM project and Pretium's Brucejack mine. In 2017, Tudor carried out a 27 hole, 13,722 m diamond drill program. The target was the Copper Belle zone and highlight results from five holes included 115.1 m of 1.31 g/t Au, 4.4 g/t Ag, 0.022% Cu including 39 m of 2.38 g/t Au, 8.3 g/t Ag, 0.026% Cu.

6.4. Mafic and ultramafic hosted projects

Although not numerous, the Northwest Region has several advanced ultramafic-hosted metallic prospects, including intrusion-hosted and serpentinite-hosted nickel occurrences.

6.4.1. E&L (Garibaldi Resources Corp.)

Diamond drilling at the **E&L** property in 2017 intersected a sequence of mafic and ultramafic rocks. Highlight results included 8.3% Ni and 4.2% Cu over 16.75 m.

6.5. Coal projects

The Northwest Region contains the Tuya, Telkwa coalfields and a portion of the Groundhog-Klappan coalfield which are prospective for anthracite coal deposits.

6.5.1. Telkwa (Telkwa Coal Limited)

Telkwa Coal Limited is a wholly owned subsidiary of Allegiance Coal Limited. A technical report for the **Telkwa** coal project filed in February of 2015 confirmed a global estimate of 165 Mt of semi-soft coking coal including 131 Mt of Measured plus Indicated resources and 33.4 Mt of Inferred resources. In 2017 a favourable pre-feasibility study was released and plans for a feasibility study and permit applications were announced.

7. Geological research

In 2017, geological research in the Northwest Region was

carried out by the British Columbia Geological Survey (BCGS) and by the BCGS in partnership with the Geological Survey of Canada (GSC), Mineral Deposit Research Unit (MDRU) and Geoscience BC (GBC). Partnership projects between the BCGS and the GSC included the Cordilleran Project (Porphyry Transitions) (GEM 2) and Gold Systems Llewellyn (TGI-5). The SeArch mapping project is a partnership between the GSBC, MDRU and GBC. Nelson et al. (2018) reviewed key aspects of Hazelton Group in the Iskut River region, host to many significant porphyry, precious-metal vein and volcanogenic massive sulphide deposits, and introduced a new regionally consistent stratigraphic framework. Continued mapping and geochronologic studies on the northeastern margin of Stikinia east of Dease Lake by van Straaten, and Bichlmaier (2018) focussed on the Horn Mountain Formation (late Early to Middle Jurassic), a predominantly volcanic unit in the upper part of the Hazelton Group that regionally hosts advanced argillic alteration zones with potential for porphyry-style systems at depth. As part of the Gold Systems Llewellyn (TGI-5) project, Ootes et al. (2018) demonstrated that different styles of gold mineralization along the Llewellyn fault (British Columbia) and Tally-Ho shear zone (Yukon) developed during temporally distinct tectonic events. Although early ductile and late brittle deformations along the regional structure share the same space, they developed at least ca. 20 Ma apart and are not part of a structural continuum. A series of aeromagnetic maps for the Llewellyn area were released by Boulanger and Kiss (2017a, b). As part of the GEM2 porphyry transitions project, Mihalynuk et al. (2018) summarized new mapping, geochronologic, and geochemical data from the Turtle Lake area, which includes the boundary between the Cache Creek and Stikine terranes. Rowins et al. (2018) used digital datasets provided by Gold Reach Resources Ltd. to build a 3D GOCAD model for the Ootsa Lake porphyry Cu-Mo-Au property, southeast of the past-producing Huckleberry mine, and estimate the thickness of drift covering bedrock.

Geoscience BC continued with the SeArch Project, releasing the Phase II airborne magnetic and radiometric survey, collected near the communities of Smithers, Houston, Burns Lake, Fraser Lake and Vanderhoof. The survey was flown at a line spacing of 250 m, and the total survey coverage is 117,000 line-km.

8. Summary

The Northwest Region is highly prospective for mineral deposit discovery. The region has a number of advanced and proposed mine projects. The region also has numerous active exploration projects, primarily for precious and base metals. In 2017, exploration activity increased for the first time since 2012. Exciting new results were announced for established projects and a number of new discoveries were also made.

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